PROGRAMMES:

B.A. -

1. **B.A. H**istory**, E**conomics and **P**olitical Science **(Kannada Medium)**
2. **B.A. H**istory**, E**conomics and **P**olitical Science **(English Medium)**
3. **B.A. E**nglish**, P**sychology and **S**ociology
4. **B.A. H**istory**, P**olitical Science and **S**ociology
5. **B.A. K**annada**, P**olitical Science and **S**ociology

B.Sc. -

1. **B.Sc. P**hysics**, C**hemistry and **M**athematics
2. **B.Sc. C**hemistry**, B**otany and **Z**oology

B.Com. - Compulsory Subjects Prescribed by the **Davangere University**

B.B.M. - Compulsory Subjects Prescribed by the **Davangere University**

COURSES:

- KANNADA
- HINDI
- URDU
- SANSKRIT
- ENGLISH
- HISTORY
- ECONOMICS
- OPTIONAL ENGLISH
- OPTIONAL KANNADA
- POLITICAL SCIENCE
- SOCIOLOGY
- PHYSICS
- CHEMISTRY
- MATHEMATICS
- BOTANY
- ZOOLOGY
- B.Com. - Compulsory Subjects
- B.B.M. – Compulsory Subjects

SYLLABUS

- **PHYSICS**
- **CHEMISTRY**
- **MATHEMATICS**
- **BOTANY**
- **ZOOLOGY**

- **COMMERCE SUBJECTS**
- **HISTORY**
- **POLITICAL SCIENCE**
- **PSYCHOLOGY**
- **SOCIOLOGY**
- **ECONOMICS**
- **ENGLISH (OPTIONAL)**
- **KANNADA(OPTIONAL)**

DAVANGERE UNIVERSITY GRADUATE PROGRAMME

Bachelor of Science (B.Sc.)

Semester Scheme Syllabus (From 2016-17)

Subject: PHYSICS SEMESTER – I

Paper 1: Mechanics and Properties of Matter

52 hours (4 Hours of Teaching per Week)

MODULE -1

Dynamics of System of Particles: Newton's Laws – Statement &brief explanation. Centre of mass, motion of centre of mass – expression for coordinates of position, velocity &acceleration of centre of mass (for two body system and extended to n-body system). Linear momentum of a system of particles - conservation of linear momentum. Newton's II Law extended to a system of particles ($M\ddot{R} = F^{ext}$), Angular Momentum - conservation of angular momentum, relation between angular momentum and angular momentum about the centre of mass ($L=L_{cm}+RxP$).

System of variable mass - motion of single stage rocket - expression for instantaneous and final velocities (derivation- neglecting the effect of gravity). Problems.

Work & Energy: Work done by a variable force, conservative and non-conservative forces – examples. Kinetic energy, work-energy theorem (statement and proof), Potential energy, Law of conservation of energy (statement with examples), conservation of energy in case of SHM and spiral spring (Proof), expression for period of vertical oscillations of a loaded spiral spring. Problems.

Collisions: Elastic and inelastic collisions - examples. Elastic head-on collision - expression for final velocities of colliding bodies, Oblique collision of identical masses in a plane (derivation). Problems. (13 hours)

MODULE -2

Friction: static and dynamical friction, motion along an inclined plane – acceleration of a body with and without friction (derivation). Problems.

Motion in a Plane: expression for radial and transverse components of velocity and acceleration - application to circular motion - centripetal and centrifugal forces. Problems.

Frames of Reference: inertial and non-inertial frames, Galilean principle of relativity (Statement &explanation). Galilean transformation Equations, Expression for fictitious force for a non-inertial frame Ex: Plumb line in an accelerated frame (derivation). Problems.

Gravitation: Newton's Law of Gravitation, Kepler's laws of planetary motion (derivation). Principle of launching of satellites, expressions for orbital velocity, period &altitude of satellites(derivation). Escape velocity (derivation), Geostationary satellites (brief). Remote Sensing Satellites (brief explanation and applications)-Problems. (13 hours)

MODULE -3

Rotation of a Rigid Body: Review of rotational motion of a rigid body, moment of inertia of a rigid body, kinetic energy of rotating body, Relation between angular momentum & moment of inertia ($L=I\omega$). Conservation of angular momentum [$\tau = (dL/dt) = 0$] and illustrations. Theorems of perpendicular & parallel axes with proof, derivation of moment of inertia in case of annular ring, disc, solid sphere and rectangular bar. Kinetic energy of body rolling down a smooth inclined plane (derivation). Theory of fly wheel. Problems.

Viscosity: Review of stream line flow and Turbulent flow, Reynolds Number, coefficient of viscosity, Poiseulle's formula (derivation), Terminal velocity, Stoke's law with derivation by dimensional analysis, Viscosity of gases (qualitative). Problems. (13 hours)

MODULE -4

Elasticity: Stress and Strain, Elastic Limit - Hooke's Law. Elastic constants and relation between them (q, n & k). Poisson's ratio – limiting values. Elastic potential energy, derivation in case of elongated wire – $U = (1/2) \times \text{stress} \times \text{strain}$. Bending of beams-expression for bending moment (derivation), Theory of cantilever, couple per unit twist of a cylinder (derivation), torsional pendulum (theory). Problems.

Surface Tension: adhesive and cohesive forces – angle of contact. Surface energy- relation between surface tension & surface energy (derivation). Excess pressure across curved liquid surface (derivation). Capillary ascent with theory. Factors affecting surface tension (qualitative). Problems. (13 hours)

REFERENCES –

1. D S Mathur & P S Hemne: Mechanics, S Chand and Co., New Delhi.

2. C L Arora& P S Hemne: Physics for Degree Students (First Year),S Chand and Co., New Delhi.

3. B Basavaraj & P Sadashiva: B. Sc. Physics (Vol. 1),Omkar Publications, Bangalore

4. Sundararajan N, George Thomas & Syed Azeez: College Physics, United Publishers,

Mangalore.

5. B S Agarwal: Mechanics & Relativity, Kedarnath Ramnath, Meerut.

6. D S Mathur: Properties of Matter, S Chand and Co., New Delhi.

7. R Murugesan: Properties of Matter, S Chand and Co., New Delhi.

8. Brijlal & Subramanyam: Properties of Matter, S Chand and Co., New Delhi.

9. A B Gupta: Classical Mechanics & Properties of Matter, Book & Allied Publishers, Kolkata.

10. Verma H C: Concept of Physics (Vol. 1), Bharathi Bhavan Publishers, Kanpur.

11. Satyaprakash & Agarwal: Elements of Mechanics, Pragathi Prakashan, Meerut

12. Sen Gupta & Chattarjee: A treatise on General Properties of Matter, New Central Book

Agency, Kolkata.

13. F W Sears, M W Zemansky & H D Young: University Physics, Narosa Publications, New Delhi.

14. D. Kleppnar and R J Kolenkow: Introduction to Mechanics, Tata McGraw-Hill, New Delhi

15. Charles Kittel, etal.: Mechanics (Berkeley Physics Course, Vol. 1), Tata McGraw-Hill, New Delhi

16. David Halliday, Robert Resnick, and Jearl Walker: Fundamentals of Physics, Sixth Edition, John Wiley & Sons, Inc.

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I SEMESTER PHYSICS PRACTICALS-I (3hours of Teaching per week)

List of Experiments:

1. Fly wheel – Determination of mass and Moment of Inertia.

2. Single Cantilever - Determination of Young's modulus.

3. Uniform Bending - Determination of Young's modulus.

4. q- by Stretching

5. Verification of perpendicular axis theorem

6. Torsional pendulum – to determine C and Rigidity modulus

7. Poiseulle's Method – Determination of coefficient of viscosity.

8. Static Torsion - Determination of rigidity modulus.

9. Verification of Newton's law of cooling.

10. Searle's double bar – Determination of elastic constants.

11. Bar pendulum – Determination of g from h-T and h^2– hT^2graphs.

12. q- by Koenig's Method.

13. Verification of law of conservation of energy.

NOTE: 1) Minimum of EIGHT experiments are to be performed

2) Any Relevant experiment can also be performed

REFERENCES –

1. Arora C.L.: B.Sc., Practical Physics, S. Chand and Company., New Delhi.

2. Chattopadhyaya D., Rakshit P.C & B. Saha: An Advanced Course in Practical Physics, ϒNew Central Book Agency (P) Limited.Kolkata.

3. Khandelwal D.P.: A Laboratory Manual of Physics for Undergraduate Classes. Vani Publications.

4. Saraf B., Etc.: Physics through Experiments, Vikas Publications.

5. Harnaam Singh.: B.Sc., Practical Physics, S. Chand and Company., New Delhi.

6. D C Tayal: University Practical Physics, Himalaya Publishing House.

7. Gupta & Kumar: Practical Physics, Pragati prakashan, Meerut

8. Worsnop and Flint: Advanced Practical Physics for Students, Methuen and Company, London.

9. N N Ghosh, B.Sc.: Practical Physics.

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DAVANGERE UNIVERSITY
GRADUATE PROGRAMME
Bachelor of Science (B.Sc.) Semester Scheme Syllabus (From 2016-17)
Subject: PHYSICSSEMESTER – II
Paper 2: Thermal Physics and Waves

52 hours (4 Hours of Teaching per Week)

Module – 1

Thermodynamics: Zeroth Law, First Law and Internal energy, Isothermal& adiabatic changes – indicator diagram. Derivation of PV^{γ}=constant. Applications of first law for work done during (i) Cyclic process (ii) adiabatic process (iii) isothermal process (iv) isobaric process (v) isochoric process.

Carnot's engine – Working – its efficiency (Derivation). Carnot's theorem, Clasius – Clapeyron equation (derivation) – application to melting point and boiling point of a Second substance.

Entropy: Second law of Thermodynamics, Entropy Concept – Physical analogies. Change of entropy during reversible and irreversible process with examples. Change of entropy in Carnot's cycle (T-S diagram). Third law of Thermodynamics (Statement).

Module-2

Kinetic Theory: Maxwell's law of velocity distribution (No derivation) – Calculation of rms velocity & most probable velocity – Derivation of expression for mean free path. Degrees of freedom. Gas laws. Arrival of Van der Waal's equation – critical constants (Derivation).

Thermal Conductivity: Thermal conductivity, Thermal conductivity of good conductor by Searle's method, Thermal conductivity of good conductor by Lee's and Charlton's method, Wiedemann-Franz law.

Module – 3

Radiation: black body, Energy distribution in black body spectrum. Wein's law, Rayleigh-Jean's Law & Stefan's law of radiation. Derivation of Planck's law of radiation (from concept of oscillators) – Deduction of Wein's displacement law, Rayleigh-Jean's Law & Stefan's law from Planck's law. Solar constant – estimation of surface temperature of sun.

Low temperature Physics: Joule-Thomson effect, Porous plug experiment with theory (for real gases) – derivation of expression for temperature of inversion. Relation between Boyle temperature, inversion temperature and critical temperature of a gas. Liquefaction of Oxygen by cascade process, regenerative cooling. Principle of Adiabatic demagnetization.

Module-4

Oscillations: Setting up of differential equation describing SHM. Composition of two rectangular SHM's having same period (Lissajou's figures). Free, forced & damped vibrations, resonance with examples. Analytical treatment of damped & forced vibration. Condition for amplitude of resonance, phase of forced vibration. Theory of Helmholtz resonator.

Sound: Longitudinal vibrations in a rod - expression for velocity of sound (derivation). Theory of beats.

Acoustics: Reverberation time, absorption coefficient. Requisites of good acoustics (Qualitative). Derivation of Sabine's formula.

REFERENCES –

1. Brijlal & Subramanian: Heat, Thermodynamics & Statistical Mechanics S Chand and Co., New

Delhi.

2. D S Mathur: Heat & Thermodynamics, Sultan Chand and Co., New Delhi.

3. B Basavaraj & P Sadashiva: B. Sc. Physics (Vol. 2),Omkar Publications, Bangalore

4. Sundararajan N, George Thomas & Syed Azeez: College Physics, United Publishers, Mangalore.

5. Basavaraju G and Dipen K Ghosh: Mechanics and Thermodynamics, Tata McGraw-Hill, New Delhi.

6. A B Gupta: Thermal Physics, Book & Allied Publishers, Kolkata.

7. C L Arora & P S Hemne: Physics for Degree Students (First Year),S Chand and Co., New Delhi.

8. F W Sears, M W Zemansky & H D Young: University Physics, Narosa Publications, New Delhi.

9. M W Zemansky & R H Dittaman: Heat & Thermodynamics, McGraw Hill Book company.

10. S C Garg, R M Bansal & C K Ghosh: Thermal Physics, TMH Publishing Company, New Delhi

11. Verma H C: Concept of Physics (Vol. 1), Bharathi Bhavan Publishers, Kanpur.

12. David Halliday, Robert Resnick, and Jearl Walker: Fundamentals of Physics, Sixth Edition, John Wiley & Sons, Inc.

13. Reif F.: Fundamentals of Statistical and Thermal Physics, Levant Books (2011)

14. Sharma & Sarkar: Thermodynamics & Statistical Physics, Himalaya Publishing House.

15. FW Sears & G L Salinger: Thermodynamics, Kinetic theory & Statistical Thermodynamics, Narosa Publishing House.

16. D R Khanna & R S Bedi: A Textbook of Sound, Atma Ram & Sons, 1971

17. Brijlal & Subramanian: A Textbook of Sound, Vikas Publications.

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II SEMESTER PHYSICS PRACTICALS-II (3hours of Teaching per week)

List of Experiments:

1. Surface Tension & Interfacial Tension – Drop weight method.

2. Stoke’s Method - Determination of coefficient of viscosity.

3. Spiral Spring – Determination of g and K by static and dynamic methods.

4. Thermal conductivity of a bad conductor by Lee’s and Charlton’s method.

5. Verification of Stefan’s Fourth Power Law.

6. Angle of contact of mercury – Quincke’s method.

7. Determination of Solar Constant.

8. Specific heat of water using Thermistor.

9. Frequency of ac using sonometer.

10. Mode constant using Melde's Arrangement.

11. Helmholtz Resonator.

12. q- by Cantilever – Oscillations Method.

13. Surface Tension of Water – Capillary rise method.

NOTE :1) Minimum of EIGHT experiments are to be performed

2) Any Relevant experiment can also be performed

REFERENCES –

1. Arora C.L., B.Sc.: Practical Physics, S. Chand and Company., New Delhi.

2. Chattopadhyaya D., Rakshit P.C & B. Saha: An Advanced Course in Practical Physics, New Central Book Agency (P) Limited. Kolkata.

3. Khandelwal D.P.: A Laboratory Manual of Physics for Undergraduate Classes. Vani Publications.

4. Saraf B., Etc.: Physics through Experiments, Vikas Publications.

5. Harnaam Singh.: B.Sc., Practical Physics, S. Chand and Company., New Delhi.

6. D C Tayal: University Practical Physics, Himalaya Publishing House.

7. Gupta & Kumar: Practical Physics, Pragati prakashan, Meerut

8. Worsnop and Flint: Advanced Practical Physics for Students, Methuen and Company, London.

9. N N Ghosh, B.Sc.: Practical Physics.

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DAVANGERE UNIVERSITY

GRADUATE PROGRAMME

Bachelor of Science (B.Sc.)

Semester Scheme Syllabus (From 2016-17)

Subject: PHYSICS SEMESTER – III

Paper 3: Geometrical Optics and Electricity

52 hours (4 Hours of Teaching per Week)

Module I

Geometrical Optics: Mention of basic nature & general properties of light, brief explanation of Snell's law, total internal reflection, critical angle, Problems.

Lens aberration: Types of aberration - spherical and Chromatic aberrations, methods of minimizing spherical aberrations (qualitative), longitudinal and lateral chromatic aberration (derivation), achromatisation of lenses a) in contact b) separated by a distance.

Eye pieces: Huygen's and Ramdson's eye-piece- construction and working –comparison.

Thermoelectricity: Seebak effect, thermoelectric series, neutral temperature, laws of thermo-electricity, Peltier effect, Demonstration of Peltier effect, Peltier co-efficient. (13 hour)

Module 2

Scalar and vector fields: scalar and vector point function, concept of scalar and vector fields, spatial derivatives, variation with respect to space co-ordinates- Del and Laplacian operators – Cartesian expression. Gradient of scalar, and its significance, divergence and curl of a vector and their significance. Mention of Vector Identities, Proof of curl grad φ =0 and div curl A=0. Gauss divergence theorem and Stokes theorem (statement and explanation).

Electric filed and potential: Review of concept of charge. (Qualitative) Coulomb's inverse square law, concept of potential in a conservative field and potential difference. E=- grad V (proof), Gauss law in electrostatics, field near the surface of a charged conductor (derivation), Coulomb's law from Gauss law. Mention of Poisson's and Laplace's equation and uniqueness theorem. Energy density in an electrostatic field (derivation). Electrostatic Pressure on the surface of a charged conductor (derivation). (13 hour)

Module 3

Network Theorems: Review of ohm's law and Kirchhoff's laws, Thevenin's and Norton's theorem (AC and DC statement and illustration), statement and explanation of superposition theorem, maximum power transform theorem (proof). Concepts of inductance and capacitance, Parallel plate capacitor- energy stored in capacitor (derivation), Energy stored in a inductor (derivation), loss of energy due to sharing of charges between two conductors (theory).

Transient Currents: Review of cell, emf. Growth and decay of current in LR circuit, charging and discharging of capacitor (RC-circuit), discussion of LCR series circuit (qualitative). Ballistic galvanometer (Theory) - damping correction, application of BG to find high resistance by leakage method. (13 hour)

Module 4

AC circuit –Review of ac (production of ac by wind, hydro thermal, nuclear etc), average value of AC, rms value and their relation, mention response of L, C and R to AC. LCR series circuit – expression for current and impedance using J operator, Series resonant circuit, Parallel resonance circuit. Comparison of series and parallel circuits. Comparison of AC and

DC, Discussion of resonance, Q-factor Bandwidth (significance), Power in LCR series circuit (derivation). De-sauty's bridge theory using J-operator. CR-Tube construction and working, block diagram of CRO, uses of CRO to measurement of AC, DC and frequencies.

Filters: High pass and Low pass filters (RC filters), derivation of cut-off frequency, significance. (13 hour)

REFERENCES:

1. Brijlal, Subramanyam & M N Avadhanulu: A Text book of Optics, S Chand and Co., New Delhi.

2. Satyaprakash: Optics, Ratan PrakashanMandir, Meerut.

3. S L Kakani & M C Bhandari: Optics, Sultan Chand & Sons, New Delhi.

4. A B Gupta: Modern Optics, Books and Allied Publishers, Kolkata.

5. Ajoy Ghatak:Optics, Tata McGraw Hill, New Delhi.

6. C L Arora & P S Hemne: Physics for Degree Students (Second Year), S Chand and Co., New Delhi.

7. N Sundararajan, George Thomas & Syed Azez: College Physics (Vol. II), United Publishers.

8. D P Khandelwal: Optics and Atomic Physics, Himalaya Publishing House.

9. B Basavaraj & P Sadashiva: B. Sc. Physics (Vol. 3), Omkar Publications, Bangalore

10. K KTewari: Electricity & Magnetism, S. Chand & Co., New Delhi.

11. Mahajan &Rangawala: Electricity & Magnetism, Tata McGraw Hill, New Delhi.

12. R Murugesan: Electricity & Magnetism, S. Chand & Co., New Delhi.

13. D C Tayal: Electricity & Magnetism, Himalaya Publishers, Mumbai.

14. D Chattopadhyay & PC Rakshit: Electricity & Magnetism, New Central Book Agency (P) Limited, Kolkata.

15. Verma H C: Concept of Physics (Vol. 2), Bharathi Bhavan Publishers, Kanpur.

16. David Halliday, Robert Resnick, and Jearl Walker: Fundamentals of Physics, Sixth Edition, John Wiley & Sons, Inc.

17. F W Sears, M W Zemansky & H D Young: University Physics, Narosa Publications, New Delhi.

III SEMESTER PHYSICS PRACTICALS-III (3hours of Teaching per week)

List of Experiments:

1. Charging & discharging of a capacitor – Determination of energy stored.

2. Helmholtz Tangent Galvanometer – Determination of K & BH.

3. Magnetic field along the axis of a circular coil – Determination of BH.

4. Low & high pass filters

5. CRO – Measurement of AC(V), DC(V) & frequency

6. Cauchy's Constants

7. Maximum power transfer & Thevenin's theorem

8. Impedance of series RC Circuit and Frequency of AC

9. Interference at an air wedge

10. Diffraction grating – Minimum deviation

11. Thermo emf using BG

12. Bi-prism

NOTE: 1) Minimum of EIGHT experiments are to be performed

2) Any Relevant experiment can also be performed

REFERENCES –

1. Arora C.L., B.Sc.: Practical Physics, S. Chand and Company., New Delhi.

2. Chattopadhyaya D. Rakshit P.C & B. Saha: An Advanced Course in Practical Physics, New Central Book Agency (P) Limited. Kolkata.

3. Khandelwal D.P.: A Laboratory Manual of Physics for Undergraduate Classes. Vani Publications.

4. Saraf B., Etc., Physics through Experiments, Vikas Publications.

5. Harnaam Singh.: B.Sc., Practical Physics, S. Chand and Company., New Delhi.

6. D C Tayal: University Practical Physics, Himalaya Publishing House.

7. Gupta & Kumar: Practical Physics, Pragati prakashan, Meerut

8. Worsnop and Flint: Advanced Practical Physics for Students, Methuen and Company, London.

9. N N Ghosh, B.Sc.: Practical Physics.

DAVANGERE UNIVERSITY

GRADUATE PROGRAMME

Bachelor of Science (B.Sc.)

Semester Scheme Syllabus (From 2016-17)

Subject: PHYSICS SEMESTER – IV

Paper 4: Wave Optics and Electromagnetism

52 hours (4 Hours of Teaching per Week)

Module I

Wave Theory of Light: Wave front – different types - Huygen's principle, laws of Reflection and refraction (derivation). Derivation of lens maker's formula.

Interference: Review of superposition principle, coherent sources, conditions for sustained interference, division of wave front-Biprism-determination of wavelength. Division of amplitude, interference in thin films- condition for maxima and minima in case of reflected light, air wedge, determination of thickness of wire, Newton's rings in air and liquid (theory). Michelson's interferometer- construction and working, Determination of λ, $d\lambda$ and thickness of thin glass plate. (13hours)

Module 2

Diffraction: Review of diffraction, half period zones - rectilinear propagation of light, zone plate (construction, working and theory) comparison of zone plate and convex lens, Fresnel's diffraction at a straight edge, intensity distribution curve. Fraunhoffer diffraction at single slit, diffraction grating- normal incidence and oblique incidence (theory). Dispersive power and resolving power of grating. Comparison of prism spectra and grating spectra.(13hours)

Module 3

Polarization: Review of fundamentals of polarization, Double refraction, uniaxial and biaxial crystals, +ve and –ve crystals, optic axis. Huygen's wave theory of double refraction, O-ray and E-ray. Huygens's construction of O and E wave front, retarding plates, thickness of QWP (theory), mention expression for thickness of HWP. Theory of plane, elliptically and circularly polarized light. Production and analysis of plane, elliptical and circularly polarized light.

Optical activity –specific rotation- Fresnel's theory of optical rotation, Kerr effect and Faraday Effect. (13hours)

Module 4

Electromagnetism: Magnetic field of a moving point charge. Biot-Savart's law, application of Biot-Savart's law to magnetic field along the axis of a circular coil. Helmholtz galvanometer (HTG) theory. Ampere's circuital law, comparison of gauss law and ampere's law. Application of ampere's law to A) a straight conductor B) long solenoid.

Maxwell's Equations: Displacement current, Equation of continuity, derivation of Maxwell's equation. Physical significance of Maxwell's equation, Maxwell equation for free space (mention). Electromagnetic wave equation in free space (derivation), transverse nature of electromagnetic waves, electromagnetic waves in conducting medium (mention), Poynting's theorem (No derivation) and its significance. (13hours)

REFERENCES:

1. Brijlal, Subramanyam & M N Avadhanulu: A Text book of Optics, S Chand and Co., New Delhi.

2. Satyaprakash: Optics, Ratan PrakashanMandir, Meerut.

3. S L Kakani & M C Bhandari: Optics, Sultan Chand & Sons, New Delhi.

4. A B Gupta: Modern Optics, Books and Allied Publishers, Kolkata.

5. Ajoy Ghatak: Optics, Tata McGraw Hill, New Delhi.

6. C L Arora & P S Hemne: Physics for Degree Students (Second Year), S Chand and Co., New Delhi.

7. N Sundararajan, George Thomas & Syed Azez: College Physics (Vol. II), United Publishers.

8. D P Khandelwal: Optics and Atomic Physics, Himalaya Publishing House.

9. B Basavaraj & P Sadashiva: B. Sc. Physics (Vol. 3), Omkar Publications, Bangalore

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11. Mahajan &Rangawala: Electricity & Magnetism, Tata McGraw Hill, New Delhi.

12. R Murugesan: Electricity & Magnetism, S. Chand & Co., New Delhi.

13. D C Tayal: Electricity & Magnetism, Himalaya Publishers, Mumbai.

14. D Chattopadhyay & PC Rakshit: Electricity & Magnetism, New Central Book Agency (P) Limited, Kolkata.

15. Verma H C: Concept of Physics (Vol. 2), Bharathi Bhavan Publishers, Kanpur.

16. David Halliday, Robert Resnick, and Jearl Walker: Fundamentals of Physics, Sixth Edition, John Wiley & Sons, Inc.

17. F W Sears, M W Zemansky & H D Young: University Physics, Narosa Publications, New Delhi.

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IV SEMESTER PHYSICS PRACTICALS-IV (3hours of Teaching per week)

List of Experiments:

1) Verification of Brewster’s law

2) Verification of laws of series and parallel combination of capacitors BG

3) RP of Telescope

4) Diffraction at a straight wire

5) Newton's rings

6) RI of O & E rays – Quartz or Calcite prism

7) LCR – series & parallel resonance circuits

8) Dispersive power of prism

9) Polarimeter

10) Self inductance – Anderson's bridge

11) Diffraction grating – Normal incidence

12) To study variation of potential with frequency across L&C of LCR series circuit resonant frequency.

NOTE: 1) Minimum of EIGHT experiments are to be performed

2) Any Relevant experiment can also be performed

REFERENCES –

1. Arora C.L., B.Sc.: Practical Physics, S. Chand and Company., New Delhi.

2. Chattopadhyaya D., Rakshit P.C & B. Saha: An Advanced Course in Practical Physics, New Central Book Agency (P) Limited.Kolkata.

3. Khandelwal D.P.: A Laboratory Manual of Physics for Undergraduate Classes. Vani Publications.

4. Saraf B., Etc.: Physics through Experiments, Vikas Publications.

5. Harnaam Singh.: B.Sc., Practical Physics, S. Chand and Company., New Delhi.

6. D C Tayal: University Practical Physics, Himalaya Publishing House.

7. Gupta & Kumar: Practical Physics, Pragati prakashan, Meerut

8. Worsnop and Flint: Advanced Practical Physics for Students, Methuen and Company, London.

9. N N Ghosh, B.Sc.: Practical Physics.

DAVANGERE UNIVERSI1Y

GRADUATE PROGRAMME

Bachelor of Science (B.Sc.)CBCSScheme Syllabus(From2016-17)

Subject: PHYSICS SEMESTER-V

Paper 5: Atomic Physics and Lasers

Total hours: 39(3Hours of Teachingper Week)

Module: 1

Atomic Structure Electron:charge of electron by Millikan'soil drop method (Theory), Specific charge of electron by J.J. Thomson's method(Theory). (3 hours)

Vector Atom Model: Effect of finite nuclear mass on atomic spectra, A qualitative account of Sommerfeld relativistic atom model. Excitation and Ionization potentials - Franck-Hertz experiment. Vector model of atom. Electron spin. Space quantization. Magnetic moment of an electron due to its orbital motion. Stern-Gerlach experiment. Spin-orbit interaction and the fine structure of spectral lines. Quantum number and selection rules. Pauli's exclusion principle, Maximum number of Electrons in a Shell (Derivation),Electronic configuration of atoms. Brief mention of LS and JJ coupling for multi-electron atoms. (10 hours)

Module:2

Optical Spectra: Spectral terms, spectral notations selection rules, intensity rules fine structure of spectral lines, Sodium D-lines. Zeeman effect-experimental observations, Normal Zeeman effect from quantum theory and anomalous Zeeman effects from quantum theory(Qualitative),Expression for Zeeman shift, Paschen-Back effect and stark effect(qualitative) (9 hours)

X-ray Spectra: Continuous x-rays, production {principle)-Daune-Hunt rule. Characteristics x-rays -Moseley's law -Derivation from Bohr's Theory, X-ray energy level diagram. Theory of Compton scattering. (4 hours)

Module:3

LASER: Introduction, Characteristics of Laser (Directionality, Line width, intensity, spatial and temporal coherence), Spontaneous and Stimulated Emission, Einstein's A and B co-efficient(derivation),Conditions for laser action – (population inversion, active medium, metastable state, pumping), different methods of pumping (brief) Ruby Laser. He-Ne laser energy level diagram. Glass Laser (Nd-YAG Laser), CO2 Laser and Semiconductor Laser construction and working. Laser application in Research, Industries, Medicine, Communication, Defence and Entertainment(Brief). Holography- principle of recording and reproduction. (13 hours)

REFERENCES:

1. Arthur Beiser: Concepts of Modem Physics (Sixth Edition), Tata McGraw Hill (2003)

2. Kenneth S Krane: Modern Physics (ThirdEdition), John Wiley & Sons (2012)

3. Sundararajan N, George Thomas & Syed Azeez: College Physics, United Publishers (2006).

4. B Basavaraj and P Sadashiva: B. Sc., Physics, Omkar Publications (2016)

5. S L Gupta and Sanjeev Gupta: Unified Physics (Volume IV),Jaiprakash Nath Publications.

6. Murugeshan R,KiruthigaSivaprasath: Modern Physics, S Chand & Company (2016)

7. R B Singh: Introduction to Modem Physics (Second Edition), New Age International (2009)

8. S L Kakani&ShubhraKakani: Modern Physics, Viva Books (2011)

9. Rajagopal P and Aruldhas G: Modern Physics, Prentice Hall of India (2009)

10. C L Arora & P S Hemne: Physics for Degree Students, S Chand & Company. (2016)

11. S N Ghoshal: Atomic Physics, S Chand & Company (2016)

12. H E White: Atomic Physics, McGraw Hill

13. Richtmyer F K, Kennard E H & Cooper J N: lntroductlon to Modem Physics (6e), McGraw Hill

14. Paul A Tipler& Ralph A UeweUyn: Modem Physics (Sixth Edition), W H Freeman (2012)

15. Sehgal, Chopra and Sehgal: Modern Physics, Sultan Chand and Co.

16. M N Avadhanulu: A Text book of Lasers, S Chand & Company (2016)

17. B B Laud: Lasers and Non-Linear Optics, New Age International

18. D P Khandelwal: Optics and Atomic Physics, Himalaya Publications

19. SatyaPrakash: Optics and Atomic Physics, Ratan Prakashan Mandir

Practical Paper 5 List of Experiments:

1) Study of dielectric constant -Charging of Capacitor

2) LDR - Absorption Co-efficient of material of glass

3) Bridge rectifier Ripple factor for different filters

4) LASER- Wavelength using metal ruler

5) LASER- particle size

6) GM Counter-Verification of inverse square law for Gamma rays

7) LCR Series Circuit-Phase measurement using CRO

8) Transistor Characteristics-Load Line Analysis

9) Amplitude Modulation and Demodulation - BC547

10) BG-Determination of capacitance of Capacitance of Capacitor by absolute method

11) Fine Structure Constant -Sodium D lines using diffraction grating.

12) Basic Logic Gates -using diodes/Transistors

NOTE: 1) Minimum of EIGHT experiments are to be performed

2) Any Relevant experiment can also be performed

REFERENCES -

1. Chattopadhyaya D., Rakshit P.C & B. Saha: An Advanced Course in Practical Physics, New CentralBookAgency (P)Limited.Kolkata,

2. D C Tayal:University Practical Physics, Himalaya Publishing House.

3. S P Singh:Advanced Practical Physics, Pragati Prakashan. Meerut, 1985,

4. AroraC.L,: B.Sc., Practical Physics, S. Chand and Company., New Delhi.

5. Khandelwal D.P.: A Laboratory Manual of Physics for Undergraduate Classes. Vani Publications.

6. Saraf B.: Physics through Experiments, Vikas Publishing House, New Delhi.

7. Hamam Singh& P S Hemne: B.Sc., Practical Physics, S. Chand and Company. NewDelhi.

8. S L Gupta & V Kumar:Practical Physics, Pragatiprakashan, Meerut

9, Indu Prakash& Ramakrishna: A Text Book of Practical Physics (11)Kitab Mahal, NewDelhi.

10. RKShukla& AnchalSrivastava: Practical Physics,New AgePublishers,New Delhi

11. P B Zbar, A P Malvino& M A Miller:Basic Electronics: A Text Lab Manual,TataMcGrawHill, 2009.

12.S Panigrahi& BMallick,Engineering: Practical Physics,CengageLearning,2015.

13. Worsnopand Flint:Advanced Practical Physics for Students, Methuen and Company, London.

DAVANGERE UNIVERSITY

GRADUATE PROGRAMME

Bachelor of Science (B.Sc.)

CBCS Scheme Syllabus (From 2016-17)

Subject: PHYSICS Semester V

Paper 6: Molecular Physics, Nuclear Physics and Statistical Physics

(3Hours of Teaching per Week)

Module 1

Molecular Physics: Molecular Band- Band head and tail, molecular spectra-pure rotational spectrum and selection rules, Vibrational spectrum and selection rules. Rotational - Vibrational spectrum, Raman Scattering. Experimental study of Raman effect. Quantum theory of Raman effect. Applications of Raman effect. (6 hours)

Statistical Mechanics: Micro and macro systems, statistical nature of macro systems, statistics of distinguishable objects, Most probable distribution, Thermo-dynamical probability, Maxwell-Boltzmann distribution law. Indistinguishable particles. Bose-Einstein distribution law. Bose-Einstein Condensation, Fermi- Dirac Distribution, A qualitative comparison of three distribution laws. (7 hours)

Module 2

Nuclear Physics I

Radioactivity: Theory of successive disintegration, radioactive equilibrium (secular and transient). Radioactive dating- Carbon dating. α-decay- Characteristics of alpha spectrum, Range and disintegration energy of a-particle, Geiger- Nuttal law, Gamow's theory of a-decay. β-decay, Types of β-decay (electron decay, positron decay and electron capture). Characteristics of γ-spectrum and Pauli's neutrino hypothesis.

Nuclear Forces: Characteristics of Nuclear Forces, Yukawa's Meson Theory.

Nuclear Models: Liquid drop model, Shell model & Fermi Gas model of nucleus (Qualititive) (13 hours)

Module 3

Nuclear Physics II

Detectors: GM Counter, Scintillation counter,

Accelerators: Construction, working and theory of Linear Accelerator, Cyclotron and Betatron,

Nuclear reactions: Types of reactions, Q value of a reaction, threshold energy (mention of expression). Conservation laws.

Cosmic Rays: Discovery, Primary & Secondary Cosmic rays, Altitude and latitude effects, East-west symmetry, cosmic ray showers, Baba's theory of origin of cosmic rays (13 hours)

REFERENCES:

1. Arthur Beiser: Concepts of Modern Physics (Sixth Edition), Tata McGraw Hill (2003)

2. Kenneth S Krane: Modern Physics (Third Edition), John Wiley & Sons (2012)

3. Sundararajan N, George Thomas & Syed Azeez: College Physics, United Publishers (2006).

4. B Basavaraj and P Sadashiva: B. Sc. Physics, Omkar Publications (2016)

5. S L Gupta and Sanjeev Gupta: Unified Physics (Volume IV),Jaiprakash Nath Publications.

6. Murugeshan R,Kiruthiga Sivaprasath: Modern Physics, S Chand & Company (2016)

7. R B Singh: Introduction to Modern Physics (Second Edition), New Age International (2009)

8. S L Kakani & Shubhra Kakani: Modem Physics, Viva Books (2011)

9. Rajagopal P and Aruldhas G: Modern Physics, Prentice Hall of India (2009)

10. C LArora& P S Hemne: Physics for Degree Students, S Chand & Company. (2016)

11. S N Ghoshal: Nuclear Physics, S Chand & Company (2016)

12. Richtmyer F K, Kennard E H & Cooper J N: lntroductlon to Modem Physics (6e), McGraw Hill

13. Paul A Tipler& Ralph A Uewellyn: Modern Physics (Sixth Edition), W H Freeman (2012)

14. S B Patel: Nuclear Physics- An Introduction, New Age International

15. Sehgal, Chopra and Sehgal: Modern Physics, Sultan Chand and Co.

20. C N Banwell: Molecular Spectroscopy, McGraw Hill

21. G Aruldas: Molecular Spectroscopy, Prentice Hall of India.

22. Kenneth S Krane: Introductory Nuclear Physics, John Wiley & Sons

23. S P Kuila: Concepts of Nuclear Physics, New Central Book Agency (2010)

Subject: PHYSICS PRACTICALS Semester V Paper 6

List of Experiments :

1) Solar cell characteristics- I-V & Power -Load Characteristics

2) Resolving power of prism

3) CE amplifier -Frequency Response Curves and Gain Band Band width.

4) The excitation energy & force constant of iodine molecule

5) elm of Electron by Thomson's method

6) GM counter characteristics

7) Rydberg constant - hydrogen spectrum! solar spectrum

8) 'h' by photo cell

9) Determination of Fermi energy of copper using meter bridge

10) Refractive Index of Glass TIR -using Laser

11) FET Characteristics

12) BG- High resistance by leakage.

NOTE: 1) Minimum of EIGHT experiments are to be performed

2)Any Relevant experiment can also be performed

REFERENCES -

1. Chattopadhyaya D., Rakshit P.C & B. Saha: An Advanced Course in Practical Physics, New Central Book Agency(P) Limited. Kolkata.

2. D C Tayal:University Practical Physics, Himalaya Publishing House.

3. S P Singh:Advanced Practical Physics, Pragati Prakashan. Meerut, 1985.

4. AroraC.L.: B.Sc. Practical Physics, S. Chand and Company., New Delhi.

5. Khandelwal D.P.: A Laboratory Manual of Physics for Undergraduate Classes. Vani Publications.

6. Saraf B.: Physics through Experiments,Vikas Publishing House, New Delhi.

7. Hamam Singh& P S Hemne: B.Sc., Practical Physics, S. Chand and Company. New Delhi.

8. S LGupta & V Kumar:Practical Physics, Pragatiprakashan, Meerut

9. Indu Prakash& Ramakrishna:A Text Book of Practical Physics (11 e), Kitab Mahal, New Delhi.

10. RKShukla& AnchalSrivastava: Practical Physics, New Age Publishers, New Delhi

11. P B Zbar, A P Malvino& M A Miller:Basic Electronics: A Text Lab Manual, Tata Mc GrawHill,2009.

12. S Panigrahi& B Mallick: Engineering Practical Physics,CengageLearning,2015.

13. Worsnopand Flint: Advanced Practical Physics for Students, Methuen and Company, London.

DAVANGERE UNIVERSIlY

GRADUATE PROGRAMME

Bachelor of Science (B.Sc.)

CBCS Scheme Syllabus(From2016-17)

Subject: PHYSICS SEMESTER – VI

Paper 7: Electronics, Solid State Physics & Nano materials

Total hours: 39(3Hours of Teaching per Week)

Module I

Electronics: Transistors- DC and AC current gains DC and AC load Lines-operating point, Self- biasing of Transistor (Voltage divider method). Single Stage CE amplifier, h-parameters, Expressions for Voltage, current and power gain using h-parameters.

Operational Amplifiers: Symbol, characteristics of ideal op-amp, concept of virtual ground, inverting and non-inverting amplifiers(Theory),Mention of Applications of op-amp.

Oscillators: Concept of feedback-Positive and negative feedback, Bark Hausen criteria, Wein Bridge and Phase shift oscillators(construction and working using lC741, Multivibrators- Types (brief), Astable multivibrator-Circuit Operation(usingIC555).

Digital Electronics: Analog and Digital signals, Construction of OR, AND gate using diodes, NOT Logic gate using Transistor, Symbols and Truth Tables of NOR, NAND and XOR Logic gates. Boolean Algebra(brief),De-Morgan's Theorems, Boolean expressions(Simple) –Implementation by Basic Logic gates.
(13 hours)

Module II

Solid state Physics

Crystal Structure: Concept of Lattice, unit cell, Bravias Lattice, crystal plane, crystal systems and Miller indices. X-ray diffraction-Bragg's Law, Bragg's Spectrometer, Crystal structure of NaCl.

Specific heat of solids: Dulong and Petit's law. Einstein's Theory of specific heat of solids, Lattice Vibration-Phonons(Brief),Debye's Theory of Specific Heat of Solids.

Free electron theory of Metals: The classical free electron theory of metals- expression of electrical conductivity and thermal conductivity(derivation)- Wiedemann-Franz Law, Limitations of classical theory, Quantum free electron theory-Energy states of free electrons in Metals- Statement of density of states. Expression for Fermi energy and average energy.

(13 hours)

Module III

Band theory of solids: Origin of bands in solids, intrinsic and extrinsic semiconductors, Electrical conductivity of Intrinsic Semiconductor-expression for carrier concentration in intrinsic semiconductors-Band Gap(derivation), Fermi level in case of intrinsic and extrinsic semiconductors (qualitative), Hall effect - expression for Hall coefficient, experimental determination and applications.

Superconductivity: Experimental facts (Transition temperature, persistent current, Isotope effect, Meissner effect), Critical magnetic field, BCS theory, Josephson's effect(AC & DC), Type I & Type II superconductors - Applications of Superconductors- Maglev & Squids (Brief).

Magnetic materials: Langevin's theory of Diamagnetism and Paramagnetism, Curie Law, Domain theory of Ferromagnetism (Qualitative).

Nanomaterials: Introduction, Properties of Nano particles (Mechanical, Optical, Magnetic and Electronic), Preparation of nanomaterials (Bottom up and Top-down approaches), Quantum nanostructures: quantum wells, wires and dots. Graphene and Fullerene (Brief), Carbon Nanotubes - properties and uses, Synthesis for CNT (high pressure carbon monoxide deposition and chemical vapour deposition), Applications of Nanotechnology. (13 hours)

REFERENCES:

1. V KMehta& RohitMehta: Principles of Electronics, S Chand & Company (2016)

2. S LGupta and Sanjeev Gupta: Unified Physics (Volume IV), Jaiprakash Nath Publications.

3. RS Sedha: Elements of Electronics,S Chand & Company

4. D Roy Choudary & Sheel B Jain: Linear Integrated Circuits (4e), New Age International

5. Thomas L Floyd: Digital Fundamentals (ge), Pearson

6. Albert Malvino & David J Bates: Electronic Principles (7e),Tata McGrawHill

7. SO Pillai: Solid State Physics, New Age International

8. MAliOrner: Solid State Physics, Pearson Education

9. CharlesKittel: Introduction to Solid State Physics, John Wiley&Sons.

10. J P Srivatsava: Solid State Physics, Prentice Hall of India

11. Sundararajan N, George Thomas &Syed Azeez: College Physics, United Publishers(2006).

12. B Basavarajand P Sadashiva: B. Sc., Physics, Omkar Publications(2016)

13. Rajagopal P and Aruldhas G: Modern Physics, Prentice Hall of India (2009)

14. MurugeshanR, Kiruthiga Sivaprasath: Modern Physics, S Chand & Company (2016)

15. RB Singh: Introduction to Modern Physics (Second Edition), New Age International(2009)

16. S L Kakani&ShubhraKakani:Modern Physics, Viva Books(2011)

17. C L Arora &P S Hemne: Physics for Degree Students, S Chand & Company (2016)

18. Paul A Tipler &Ralph A Uewellyn : Modern Physics (Sixth Edition), W H Freeman (2012)

19. Sehgal, Chopra and Sehgal: Modern Physics, Sultan Chand and Co.

16. Arthur Beiser,: Concepts of Modern Physics(Sixth Edition), Tata McGrawHill(2003)

17. Kenneth.S. Krane,: Modern Physics (Third Edition), John Wiley &Sons (2012)

Subject: PHYSICS PRACTICALS Semester VI Paper 7

List of Experiments:

1) Photodiode-characteristics

2) Study of Hysteresis Curve for a Ferromagnetic Substance

3) RI of a Liquid using Hollow Prism.

4) Astable Multivibrator- IC 555

S) Zener diode - characteristics - voltage regulation

6) Phase shift oscillator using transistor

7) Operational amplifier - IC 741-Differenceamplifier

8) Energy gap of Thermistor using meter bridge.

9) Verification of De Morgan's Laws using ICs

10) Triode Valve Characteristics

11) NAND Gate as Universal Gate.

12) Transistor Characteristics-CE Configuration

NOTE: 1) Minimum of EIGHT experiments are to be performed

2) Any Relevant experiment can also be performed

REFERENCES-

1. Chattopadhyaya D., Rakshit P.C & B. Saha: An Advanced Course in Practical Physics, New Central Book Agency (P) Limited. Kolkata.

2. DC Tayal: University Practical Physics, Himalaya Publishing House.

3. S P Singh: Advanced Practical Physics, Pragati Prakashan. Meerut, 1985·

4. Arora C.L: B.Sc., Practical Physics, S. Chand and Company., New Delhi.

5. Khandelwal D.P.: A Laboratory Manual of Physics for Undergraduate Classes. Vani Publications.

6. Saraf B.: Physics through Experiments, Vikas Publishing House, New Delhi.

7. Harnam Singh & P S Hemne: B.Sc., Practical Physics, S. Chand and Company. New Delhi.

8. S L Gupta & V Kumar: Practical Physics, Pragati prakashan, Meerut

9. lndu Prakash & Ramakrishna: A Text Book of Practical Physics (He), Kitab Mahal, New Delhi.

10. R K Shukla & Anehal Srivastava: Practical Physics, New Age Publishers, New Delhi

11. P B Zbar, A P Malvino & M A Miller: Basic Electronics: A Text Lab Manual, Tata McGraw Hill, 2009.

12. S Panigrahi & B Mallick: Engineering Practical Physics, Cengage Learning, 2015·

13. Worsnop and Flint: Advanced Practical Physics for Students, Methuen and Company, London.

DAVANGERE UNIVERSITY

GRADUATE PROGRAMME

Bachelor of Science (B.Sc.)

CBCS Scheme Syllabus (From 2016-17)

PHYSICS SEMESTER- VI

Paper 8: Relativity, Astrophysics, Quantum Mechanics and Space Physics

Total hours: 39(3 Hours of Teaching per Week)

Module I:

RELATIVITY: The Special Theory of Relativity: Limitations of classical (Galilean) Relativity, The Michelson-Morley Experiment (Theory), Postulates of the Special Theory of Relativity, Lorentz Transformation (No derivation), Relativity of Simultaneity, Length Contraction, Time dilation. (6 hours)

Relativistic Mechanics: Relativistic transformation of velocity (derivation), relativistic variation of mass (derivation), Einstein's mass energy equivalence ($E= mC^2$ - derivation) with illustrations, Energy-momentum relation, Relativistic Doppler Effect (Derivation).

(7 hours)

Module II:

QUANTUM MECHANICS

Matter Waves: Concept of Matter Waves- de Broglie hypothesis, Characteristics of matter waves, Group and phase velocity of matter Waves, relation between group and phase velocity (derivation), experimental evidence for existence of matter waves. Davison-Germer Experiment with Theory. (3 hours)

Heisenberg's Uncertainty Principle: Statement, explanation and illustration (gamma ray microscope experiment-(quantitative), Applications of the Uncertainty Principle – The size of an atom, non-existence of electrons inside the nucleus. (3 hours)

Principles of Quantum Mechanics: concept of wave function, Properties of wave function, Physicalsignificance (Born's interpretation of the wave function), Normalisation of wave function. Basic postulates of quantum mechanics, Operators in quantum mechanics (Mention - position, momentum, Kinetic and Total energy). (3 hours)

Schrodinger Wave Equation: Schrodinger's Wave Equation in time independent and time dependent forms (derivation), Application of Schrodinger's equation to particle in one dimensional box - wave function & energy values (derivation). Qualitative discussion of Simple Harmonic Oscillator (expression for energy, energy level diagram and Zero-point energy). (4 hours)

Module III:

ASTROPHYSICS & SPACE PHYSICS

Stars-Stellar Parallax-Parallax method of determining the stellar distance, units of stellar distance (Light year and parsec),Stellar Magnitude (Hipparchus magnitude Scale –apparent and absolute magnitudes & their relations), Stellar Spectra - Colour index, U-B-V system, Harvard Classification Scheme for Stars, Stellar Mass and size, HR Diagram and its importance. (4hours)

Stellar Structure: Hydrostatic equilibrium, Basic Equations of stellar structure (Mention of equations for mass conservation & momentum conservation), Virial Theorem, Linear density model of a star - Expression for internal pressure and temperature of a star, Mass- Luminosity Relation, Photon diffusion Time (Qualitative). (4hours)

Stellar Evolution: Block diagram of Stellar Evolution - Qualitative discussion of different stages of Stellar Evolution (Formation, main sequence stage, red giant stage and death stage), super dense remnants - White dwarf- Chandrasekhar limit, neutron star and black hole (qualitative- mass limits and expression for radius). (3hours)

Space Physics: Solar atmosphere (Photosphere, Chromosphere & Corona), electromagnetic radiations from the sun, Solar wind, solar cycles. (2 hours)

REFERENCES:

1. Arthur Beiser: Concepts of Modern Physics (Sixth Edition), Tata McGraw Hill (2003)

2. Kenneth S Krane: Modern Physics (Third Edition), John Wiley &Sons (2012)

3. Sundararajan N, GeorgeThomas & SyedAzeez: College Physics, United Publishers (2006).

4. Rajagopal P and Aruldhas G: Modern Physics, Prentice Hall of India (2009)

5. Murugeshan. R,Kiruthiga Sivaprasath: Modern Physics, S Chand &Company (2016)

6. R B Singh: Introduction to Modern Physics (Second Edition), New Age International

(2009)

7. S L Kakani & Shubhra Kakani: Modern Physics, Viva Books(2011)

8. C LArora &P S Hemnc: Physicsfor Degree Students, S Chand &Company (:1016)

9. Paul A Tipler &Ralph A Llewellyn: Modern Physics (Sixth Edition), W H Freeman (2012)

RELATIVITY

1. P L. Sardesai: A Primer of Special Relativity, New Age International (2004)

2. Satyaprakash: Relativistic Mechanics, Pragati Prakashan.

3. Robert Resnick: Introduction to Special Theory of Relativity, John Wiley &Sons (1968)

4. A P French: Special Relativity, W W Norton &Company (1968)

QUANTUMMECHANICS

1. Kamal Singh & SP Singh: Elements of Quantum Mechanics, S Chand &Company (2013)

2. S P Kuila: Perspective of Quantum Mechanics, New Central Book Agency (2010)

3. DavidJ Griffiths: Introduction to Quantum Mechanics(3e), Pearson Educational zoog

4. Bransden B H and Joachain C.J: Quantum Mechanics(2e), Pearson Education (2000)

5. Nouredine Zettili: Quantum Mechanics(Second Edition), John Wiley &Sons (2009)

ASTROPHYSICS & SPACE PHYSICS

1. Baidarinath Basu: An Introduction to Astrophysics (Second Edition), Prentice Hall of India

2. K.S.Krishnaswamy: Astrophysics :A Modern Perspective, New Age International (2006)

3. Stein R F & AG W Cameron: Stellar Evolution, Plenum (1966)

4. Abhyankar K D: Astrophysics of Stars and Galaxies, Universities Press.

Subject: PHYSICS PRACTICALS

Semester VI Paper 8

List of Experiments:

1. Realisation of Boolean expression - using Logic ICs

2. Determination of Work function using diode valve.

3. Logic gates - IC7400

4. Flip Flops (RS) - IC 7400

5. Phase Shift Oscillator

6. Operational Amplifier as summing amplifier

7. Astable Multivibrator -Transistor Circuit

8. Wein bridge oscillator

9. Determination of Boltzmann's Constant using diode

10. B.G . Determination of mutual inductance by absolute method

11. Transistor characteristics- calculation of h parameters.

12)Operational Amplifier -Inverting & non Inverting

NOTE: 1) Minimum of EIGHT experiments are to be performed

2) Any Relevant experiment can also be performed

REFERENCES -

1. Chattopadhyaya D., Rakshit P.C & B. Saha: An Advanced Course in Practical Physics, New Central Book Agency (P)Limited. Kolkata.

2. D C Tayal:University Practical Physics, Himalaya Publishing House.

3. S P Singh: Advanced Practical Physics, Pragati Prakashan. Meerut, 1985.

4. AroraC.L. B.Sc.: Practical Physics, S. Chand and Company., New Delhi.

5. Khandelwal D.P.: A Laboratory Manual of Physics for Undergraduate Classes. Vani Publications.

6. Saraf B.: Physics through Experiments, Vikas Publishing House, New Delhi.

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10.R KShukla& Anchal Srivastava: Practical Physics,New Age Publishers, New Delhi

11. P B Zbar,A P Malvino & M A Miller: Basic Electronics: A Text Lab Manual, Tata McGrawHill, 2009.

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DAVANAGERE UNIVERSITY

B. Sc., CHEMISTRY SYLLABUS

5th SEMESTERPAPER-V: MODERN CONCEPTS OF CHEMISTRY-I

Total number of lecture hours: 45 hrs3hrs/week

Inorganic chemistry: **15hrs**

Module-I d-block elements: 7hrs

Recaptulation: Oxidation state-minimum and maximum oxidation states, reason, anomalies, relative stabilities of various oxidation states, formation of ionic and covalent compounds on the basis of oxidation states, interpretation of acidic, basic and neutral nature of metal oxides. Formation of interstitial and non-stoichiometric compounds, formation of alloys.

Magnetic properties: Para, Dia, Ferri, Ferro and anti –ferromagnetism, origin of paramagnetism, application of magnetic properties in recording tapes, magnetic susceptibility and its experimental determination using Gouy's apparatus, calculation of magnetic moments of metal ion in complexes.

Colour of metal complexes on the basis of CFT, Standard Oxidation and Reduction. potentials-explanation, differences between 3d,4d and 5dseries.

Module-2 Industrial Chemistry: II 8 hrs

Electroplating: Purpose of electroplating, nature of deposit, principles of good electroplating, methods of cleaning articles, electroplating of NI, Cr, and Au.

Electroless plating - Definition, preparation of active surface, plating bath, electroless plating of Copper.

Refractories: Definition, classification, pyro metric cone equitant and its values, RUL test, properties of refractories, composition and uses of silica, fire clay and zirconia bricks, Silicon carbide-manufacture, structure and uses.

Abrasives: Properties, Moh's scale of hardness, classification-examples, preparation and uses of Alundum.

Fuels: HCV and Lev. Dulong's formula, problems, characterizes of a good fuel, advantages of gaseous fuels. Manufacture of synthetic petrol by Fischer-Tropsch method.

Organic Chemistry15 Hrs

Module-3 Stereochemistry of organic compounds:10hrs

Concept of Isomerism: Recapitulation optical isomerism, geometrical isomerism. Elementsof symmetry-Plane of symmetry, Axisof symmetry, Centre of symmetry.

Molecular chirality- enantiomers, diasteromers and their properties. Optical isomerism in Lactic acid and Tartaric acid.Mesocompounds. Homotopic, enantiotopic and diastereotopic hydrogens. Optical activity without assymetric carbons- Allene derivatives, Biphenyl derivatives.R & 5 notations for molecules having one and two asymmetric carbons (Cahn-Ingold- prelog system).

Threo and erythro enantiomers. Recemisation, resolution of racemic mixture (mechanical, chemical biochemical& adsorption methods). Walden inversion, asymmetric synthesis. Optical purity (Problems to be solved).

Geometric isomerism: Determination of configuration of geometrical isomers Physical methods, method of cyclisation and method of conversion into compound of known configuration. E and Z notations. Geometrical isomerism of oximes- Syn- and anti-aldoximes and ketoximes. Determination of configuration of oximes, Beckmann rearrangement.

Conformational isomers: Factors affecting stability of conformations. Conformational analysis of ethane, 1,2 -dichloroethane, propane, ethylene glycol and cyclohexane. Differences between conformation and configuration.

Module-4 Active methylene compounds:5 hrs

Acidity of active methylene compounds. Preparation and synthetic applications of diethylmalonate (mono carboxylic acids, dicarboxylic acids, Keto acids, amino acids, barbituric acid). Preparation of ethyl acetoacetate by Claisen condensation with mechanism.synthetic applications (mono carboxylic acid, a, ~-unsaturated acids, ketones and 4-methyl uracil, antipyrine). Keto-enoltautomerism.5pectroscopic evidence for the existence of keto and enol forms of ethylacetoacetate.

Physical chemistry 15hrs

Module -5 Thermodynamics I 15hrs

Recapitulation: System, Surroundings, Process, Extensive and intensive properties. I law of thermodynamics. Thermodynamic-definition of C_p-and Cv - Derivation of relationship between Cp and Cv

Kirchoff's equation a) Derivation of effect of temperature on the enthalpy of reaction b) Derivation of effect of pressure on the enthalpy of reaction. [Problems to be solved]. Statement of Second law of thermodynamics [Clausius & Kelvin]. Spontaneous process, Cyclic process. Heat engine.

Carnot's Cycle: - Derivation of efficiency of heat engine. Statement of Camot's theorem - Problem to be solved. Entropy - Physical Significance of entropy. Second law of thermodynamics in terms of entropy. Entropy - Change during reversible and irreversible process - Entropy Change in phase transition [Problems to be solved] _ Derivation of entropy change in reversible and isothermal- expansion of an ideal gas a) T and V are variables b) P and T are variables - problems to be solved.

Helmoltz free energy or Work function - Significance. Derivation of variation of Work function with temp and volume.

Gibb's free energy - Physical Significance - Derivation of Gibb's Helmholtz equation and its applications. Derivation of Clausius - Clayperon equation and its applications - problems based on integrated form of Clausius - Clayperon equation.

Maxwell's thermodynamic relations - Derivation.

DAVANAGERE UNIVERSITY

B.Sc., CHEMISTRY SYLLABUS

5th SEMESTER PAPER-VI - APPLIED CHEMISTRY-I

Total number of lecture hours: 45 hrs **3 hrs/week**

Inorganic chemistry 15hrs

Module-l f-block elements: 6 hrs

Lanthanides: Electronic configuration, ionic size, magnetic properties, complex formation, lanthanides contraction, cause and its consequences, separation of lanthanides by lon-Exchange method. uses of lanthanides and their compounds.

Actinides: Electronic configuration, colour, absorption spectra of actinide ions, comparison between lanthanides and actinides. Extraction/ production and uses of Thorium(monazite} and Plutonium(Uranium-238}.

Module-2 Metallic nitrosyl complexes:5 hrs

Introduction, Bonding in metallic nitrosyl complexes containing NO+ion, NO- ion,

and NO+ and NO- together, their formation from NO molecule, calculation of EAN of CMA in metallic nitrosyls. IUPAC names, preparation, properties, uses and structures of nitroso ferrous sulphate and sodium nitroprosside,

Module-3 Principles of Gravimetric analysis:2 hrs

Steps involved in gravimetric analysis, gravimetric factor and its calculation, conditions of precipitation, co-precipitation and post precipitation, industrial applications.

Module-4 Powder metallurgy:2 hrs

Introduction, advantages, disadvantages and limitations, manufacturing process, applications of powder metallurgy.

Organic Chemistry 15 Hrs

Module-5 Spectroscopy of organic compounds:4hrs

Principles of spectroscopy, ultraviolet (UV) absorption spectroscopy -absorption laws-Beer-Lambert Law. Types of electronic transitions, concept of chromophores andauxochromes. Hypsochromic and Bathochromic shifts, effect of conjugation on uv absorption. Ex: acetone & methyl vinyl ketone, acetone & acetophenone, Cyclohexanal & Benzaldehyde. Woodward-fieser rules for calculating absorption maximum in dienes (Problems to be solved).

Applications of UV spectroscopy- determination of configuration of geometrical isomers (cis- stilbene & tran-stilbene), determination of strength of hydrogen bonding (acetone in water & acetone in hexane).The UV spectra of acetone and 2-methyl-I,3butadiene.

Infrared absorption spectroscopy:4hrs

Principle of IR Spectroscopy. Molecular vibrations-stretching and bending modes of vibration. Intensity and position of IR bands. Finger print region. Functional group region (O-H in alcohols & phenols, C=O in aldehydes & ketones, C-N in amines & amides, C-H in aliphatic & aromatic compounds, N-H in amines and C-O ill alcohols. The IR spectra of sec-butyl alcohol, phenol,3-pentanone and benzamide.

Applications of IR Spectroscopy- Study of keto-enoltautomerism, geometrical isomerism (Cis-& trans- 1,2-dichlroethene), distinction between intramolecular hydrogen bonding &intermolecular hydrogen bonding.

NMR Spectroscopy:4hrs

Basic principles of nuclear magnetic resonance, position of signals, Internal standards. chemical shift. Factors influencing chemical shift- Inductive effect (CH_3F, CH_3Cl&$CH_3Br$to be considered), hydrogen bonding effect, anisotropic effects (Deshielding of aldehyde proton & ethylene protons, Shielding of acetylene protons). Number of signals. Splitting of the

signals. Application in structural identification of simple organic molecules- 1,1,2-trichloroethane,1,1-dichloroethanc. pxylene, ethanol, acetaldehyde and Benzoicacid. The NMRspectra of propionaldehyde, isopropyl bromide 1,3-dichloropropane, ethyl bromide and toluene.

Mass Spectrometry:3hrs

Basic principles, instrumentation, base peaks, molecular ion, Mclafferty rearrangement (butanal to considered). The nitrogen rule. Application mass spectrometry- the mass spectra of t-bromopropane, toluene. l-butanol & benzaldehyde .

Physical Chemistry15hrs

Note: Numerical problems should be worked out in SI units only.

Module-6 - Photochemistry: 8 hrs

Photochemical and thermochemical reactions: Definition, examples and differences. Laws governing absorption of light, Lambat's law, Beer'slaw, Lambart Beer's law, absorption coefficient and their significance. Molar absorption coefficient, molar extinction coefficient and their significance. Construction" working and applications (to be mentioned) of spectrophotometer.

Laws of photo-chemistry: Grotthus-Draper's law of photochemical' equivalence (problems on Einstein law). Quantum yield, high and low quantum yield, reasons for the deviation (problems on quantum efficiency). Primary and Secondary process. Mechanism of photolysis of hydrogen iodide, photosynthesis of hydrogen bromide and hydrogen chloride. Fluorescence, phosphorescence, Chemiluminescence. Bioluminescence, Photosensitization and photo-inhibitors with examples.

Module-7 Elementary Quantum Mechanics: 7hrs

Classical mechanics-limitation, black body radiation, Plank's radiation law derivation. Postulates of quantum mechanics, derivation of Schrodinger wave equation based on the postulates of quantum mechanics. Eigenvalues and Eigen functions and their Significance, Hamiltonian, Linear and Laplacian' operators. Schrodinger wave equation for a particle in a one-dimensional box. Quantization energy and zero-point energy.

DAVANAGERE UNIVERSITY

B.Sc., CHEMISTRY SYLLABUS

6thSEMESTER PAPER-VII- MODERN CONCEPTS OF CHEMISTRY-II

Total number of lecture hours: 45 hrs 3 hrs/week

Inorganic Chemistry 15hrs

Module-l Coordination Chemistry 10 hrs

Recapitulation: Nomenclature of dinuclear bridged complexes, cheletange agents, detection of formation of complexes (colour, conductivity and PH),18 electron rule. Bonding in complexes recapitulation. Crystal field theory, features of CFT, crystal field splitting of deorbitals in octahedral. tetrahedral and square planar complexes, factors affecting crystal field splitting, spectro chemical series, difference between low and high spin complexes on the basis of CFT, colour of the complexes, magnetic properties in octahedral. tetrahedral and square planar complexes. Calculation of number of unpaired electrons in complex, pairing energy and CFSE. Applications of CFT and its limitations.

Stability of complexes. Kinetic Vs thermodynamic stability (properties of CMI, legands and chelats), experimental determination of stability constant (anyone method). Applications of complexes. In metallurgy, qualitative and quantative analysis, sisplatin in cancer therapy, Na2EDTAin the treatment of heavy metal poising (Hg and Pb) and in photography.

Module-2 Nanomaterial: 5hrs

Introduction, definition, preparation of nanoparticles from chemical vapour condensation and gas condensation process, carbon nanotubes - electrical. vibrational. thermal and mechanica1 properties. Applications of carbon nanotubes. General applications of nanomaterial. In medicine, electronics and communications and catalysis.

Organic Chemistry 15 Hrs

Module-3 Carbohydrates 8hrs

Classificationand nomenclature of monosaccharides (aldotrioses, aldotetroses, aldopentoses & aldohexoses).Mechanism of osazone formation from D(+)-glucose. Conversion of glucose into fructose. Conversion of aldopentose into aldohexose. Determination of configuration of D(+)-glucose and D(-)-fructose. Epimerisation (conversion of glucose into mannose), difference between epimers and anomers. Formation of glycosides. Determination of ring size of D(+)-glucose& D(-)-fructose (sixmembered ring structures). Conformational structures of glucose, sucrose and maltose. Anomeric effect(glucose as an example). Concept of mutarotation with mechanism.

Disaccharides: Elucidation of structure of maltose and sucrose. Fischer and Haworth structures of cellubiose and lactose.

Polysaccharides: Partial Structure of starch(amylose and amylopectin) and cellulose.

Module-4Oils and fats 3hrs

Occurrence, extraction of oils and fats. Common fatty acids, glycerides- simple & mixed. Hydrogenation of unsaturated oils. Hydrogenolysis of oils and fats. Definition, determination and significance of saponification value, iodine value and acid value. Calculation of saponification value of triolein and tripalmitin, Manufacture of soap by hot process. Mechanism of cleansing action of soap. Synthetic detergents, superiority of detergents over soaps. Types of detergents (cationic, anionic and non-ionic). Animal and plant waxes.

Module-5 Amino acids and proteins:4hrs

Recapitulation: Definitionand classification of amino acids. Methods of synthesis of amino acids-Strecker's synthesis, phthalimide synthesis and malonic ester synthesis. Configuration

of amino acids, acid-base properties of amino acids, the isoelectric point of amino acids. Separation of amino acids by electrophoresis. N-terminal and C-terminal amino acids.

Peptides: Peptide bond. Carbobenzoxy method of synthesis of peptides. Use of di-tertbutyldicarbonate(t-BOC) and dicyclohexylcarbodiimide (DCC)in peptide synthesis.

PhysicalChemistry 15Hrs

(Note-Problems are to solved in SI Units)

Module - 6 Molecular Spectroscopy: 12Hrs

Introduction, spectrum of electromagnetic radiations, interaction of EMR with molecules, absoption and emission-spectrum, quantisation of different forms of energies (rotation, vibration and electronic)in molecules.

Types of molecular spectra: Diatomic molecule as a rigid rotator, expression for moment of inertia - problem to solved. Rotational energy and wave - number of spectral lines (problems), rotational energy - level diagram. Selection rule and its applications - intensitives of spectral lines - determination of moment of inertia and bond length of diatomic molecules.

Infrared Spectroscopy: Vibrational spectra of diatomic molecules, diatomic molecule as a simple harmonic oscillator (one - dimensional), Anharmonicity, Morse potential, dissociation energies, Hook's law and force constant - problems to be solved. Vibrational-energy level diagram. Zero - point energy.

Vibration - Rotation Spectra: Energy expression (no derivation), PQR bands and vibration - rotation spectrum ofa diatomic molecule.

Module - 7 Radiation Chemistry: 3 hrs

Ion pair yield, G-Value, Primary and Secondary process, radiolysis of water. Dosimeter-Fricke dosimeter, Cericsulphate dosimeter biological effects of radiation.

DAVANAGERE UNIVERSITY

B.Sc., CHEMISTRY SYLLABUS

6thSEMESTER PAPER-VIII- APPLIED CHEMISTRY-II

Total number of lecture hours: 45hrs 3hrs/week

Inorganic Chemistry l5 hrs

Module-l Inorganic Polymers:3hrs

Silicons- definition, types manufacture, physical properties and applications.

Flourcarbons - definition, properties and users, manufacture of Teflon and its uses.

Module-2 Instrumental Methods of Analysis: 5 hrs

Thermogravimetry analysis, instrumentation, TG curves, factors affecting TGA.Applications - drying temperature, Curie point, analysis of alloys and absorbed gases. Atomic absorption spectroscopy (AAS) - principle, instrumentation, hallow cathode lamp, and total consumption burner. Applications determination of Lead in Petrol and Mg in tap water.

Module-3 Water Pollution

Definition, sources and toxicity of Pb-Cd, Hg and As, oils and pesticides. Treatment of biological and non-biological wastes, recycling and utilization of waste water.

Module-4: Acids and Bases

Lux-Flood theory, Cady-Esley theory and Usanovich concept of acids and bases, Hard and soft acids and bases: definition, classification, characteristic, Peterson's HSAB principle, limitations and applications.

Organic Chemistry 15 Hrs

Module-5: Alkoloids:4hrs

Definition, occurrence & extraction of alkaloids. Elucidation of structure of nicotine. synthesis of nicotine by Spath process. Elucidation' of structure of ephedrine. Nagai synthesis of ephedrine.5tructure and uses of atropine, cocaine, quinine and piperine.

Module-6:Terpenes:4hrs

Definition, classification and isolation of terpens. fsoprene rule. Structure of geraniol, limonene and zingiberene..5tructural elucidation of citral Synthesis of citral from methyl heptenone. Elucidation of structure- of menthol. Kotz and Hessel synthesis of menthol. Synthesis of camphor (Haller process).

Module-7: Vitamins: 3hrs

Classification and biological importance of vitamins. synthesis of vitamin C from D(+) Glucose, synthesis of vitamin A. Synthesis of vitamin B_1(Williams etal.). Structures of vitamin fh and vitamin D.

Module-8 Hormones:2hrs

Biological importance of hormones. Synthesis of adrenaline and thyroxin.

Module-9 Nucleic acids: 2hrs

Recapitulation: Definition of nucleosides and nucleotides. Purine and pyrimidine bases. Structures of Purine and pyrimidine bases. Synthesis of nucleosides (synthesis of adenosine) and nucleotides (Synthesis of adenosine-5^1-phosphate),

PHYSICAL CHEMISTRY

Note: Problems to worked out in SI units15 hrs

Module-10: Thermodynamics –II 6 hrs

Nernst heat theorem- standard entropy- absolute entropy- third law of thermodynamics statement and its limitation- partial molar quantities- partial molar free energy (chemical. potential)- variation of chemical potential with temperature and pressure- Gibb's Duhem equation (derivation)- Duhem Margules equation- definition of fugacity, activity and activity coefficient (Problems).

Module -11: Quantum mechanics 6 hrs

Definition of system, assembly and ensemble- types of ensemble, occupation number, macro and micro state, statistical weight factor, configuration probability.

Distinguish between classical and quantum statistical mechanics. Postulates of statistical mechanics. Derivation of Maxwell Boltzmann distribution law. Relationship between entropy and thermodynamic probability. Partition function: definition, derivation for rotational and vibrational partition function.

Expression for thermodynamic functions in terms of partition funtion (no derivation)- internal energy, enthalpy, entropy, Helholtz free energy, Gibb's free energy (problems).

Module -12: Molecular structure: 3 hrs

Additive, constitutive and additive- constitutive properties- definition with example. 3hrs

DAVANGERE UNIVERSITY

Bachelor of Science (B.Sc.)

CBCS SYLLABUS - 2016-17

Subject: MATHEMATICS I Semester

Paper I - BSM 1.1T (ALGEBRA -I and CALCULUS-I)

Total Hrs: 56 4 Lecture Hours/ Week + 3 Hrs Practical's/Week,

ALGEBRA - I

Unit 1: Matrices: Symmetric, Skew Symmetric Matrices – Elementary Operations on Matrices – Rank of a Matrix (Row and Column) Inverse of a Non-singular Matrix by Elementary Operations, System of m-linear Equations in n-unknowns Matrices Associated with Linear System – Criterion for Existence of Non- trivial Solutions of Homogeneous systems.

Unit 2: Eigen values and Eigen Vectors of a square Matrix: Eigen values and Eigen Vectors of a Real Symmetric Matrix and Properties there on Reduction of Such Matrices to Diagonal Form. (14 Hours)

Unit 3: Groups: Definition of a Group with Examples and Properties, problems on finding identity and inverse. Definitions of semi group and group, Abelian group – problems on finite and infinite groups. Properties of group with proof – standard problems on groups – A finite semi group with both the cancellation laws is a group – Any group of order less than five is abelian – permutation groups. Subgroups- theorems on subgroups (with proof)- problems.

(14Hours)

CALCULUS - I

Unit 4: Differential Calculus: Limit of Real Functions of a Real Variable Bounds of a Function (Definition and Examples) Algebra of Limits Continuity of Functions – Continuity of Sum and Product of Conformal Functions- Differentiability-Differentiability of Sum and Product Quotient Functions. A function continuous on a closed interval is (1) bounded (2) attains its bounds (3) takes every value between the bounds Differentiability, Differentiability implies continuity. Converse is not true (by example) (14 Hours)

Unit 5 : Successive differentiation: n^{th} Derivative of $(ax+b)^m$, $\log(ax+b)$, e^{ax}, $\sin(ax+b)$, $\cos(ax+b)$ Leibnitz Theorem and applications.

Unit 6 : Integral Calculus: Standard Reduction Formulas $\int \sin^n x\,dx$,$\int \cos^n x\,dx$,$\int \tan^n x\,dx$, $\int \cot^n x\,dx$,$\int \sec^n x\,dx$, $\int \operatorname{cosec}^n x\,dx$, $\int \sin^m x \cos^n x\,dx$, with Applications.

(14 Hours)

Mathematics practical with Free and open Source Software (FOSS) tools for computer programs (3 hours/ week per batch of not more than 15 students)

LIST OF PROBLEMS

1. Introduction to Scilab and commands connected with matrices.

2. Computations with matrices.

3. Row reduced echelon form and normal form.

4. Establishing consistency or otherwise and solving system of linear equations.

5. To find identity element of a group and inverse element of a group.

6. Finding all possible subgroups of a finite group

7. Scilab/Maxima programs to illustrate left hand and right hand limits for discontinuous functions.

8. Scilab/Maxima programs to illustrate continuity of a function.

9. Scilab/Maxima programs to illustrate differentiability of a function.

10. Introduction to Maxima and commands for derivatives and nth derivatives and nth derivative with Leibnitz rule.

Text Books:

1. Shanti Narayan and P K Mittal : Text book of Matrices, 5th edition, New Delhi, S Chand and Co. Pvt. lt

2. . Shanthi Narayan and P K Mittal: Differential Calculus, Reprint. New Delhi:SChand and Co. Pvt. Ltd.,

3. Shanthi Narayan and P K Mittal: Integral Calculus, Reprint. New Delhi: S. Chand and Co. Pvt. Ltd.,

4. www.scilab.org

5. wxmaxima.sourceforge.net

6. www.geogebra.org

Reference Books:

1. I. N. Herstien – Topics in Algebra.

2. Joseph Gallian – Contemporary Abstract Algebra, Narosa Publishing House, New Delhi, Fourth Edition.

3. G. D. Birkhoff and S Maclane – A brief Survey of Modern Algebra.

4. J B Fraleigh – A first course in Abstract Algebra.

5. Michael Artin – Algebra, 2nd ed. New Delhi, India: PHI Learning Pvt. Ltd., 2011.

6. Vashista, A First Course in Modern Algebra, 11th ed.: Krishna Prakasan Mandir, 1980.

7. R Balakrishan and N.Ramabadran, A Textbook of Modern Algebra, 1st ed. New Delhi, India

DAVANGERE UNIVERSITY

Bachelor of Science (B. Sc.)

Mathematics II Semester

Paper 2 - BSM 2.1T (ALGEBRA -II and CALCULUS-II)

Total Hours : 56 4 Lecture Hours/ Week + 3 Hrs Practical's/Week,

ALGEBRA - II

Unit 1 :Order of an element of a group – properties related to order of an element- subgroupgenerated by an element of a group coset decomposition of a group, Cyclic groups properties- modulorelation- index of a group –Lagrange's theorem- consequences.
(14 hrs)

Unit 2 : Normal Subgroups, definitions and examples and standard theorems on normal subgroups. Quotient groups, Homomorphism, isomorphism and fundamental theorem of homomorphism. (14 hrs)

CALCULUS – II

Unit 3 : Differential Calculus: Polar Co-ordinates, Angle between the Radius Vector and Tangent. Angle of Intersection of Curves (Polar Forms) Pedal Equations. Derivative of and Arc in Cartesian, Parametric and Polar Forms. Curvature of a plane curve – formula in Cartesian, parametric, polar and pedal forms – centre of curvature Evolutes.(18Hrs)

Unit 4 : Theory of Plane Curves: Asymptotes, Envelopes, Singular points, Cusp, Node and Conjugate points(4Hrs)

Unit 5 : Partial Derivatives: Functions of two or more variables – Explicit and implicit functions, Partial derivatives –Homogeneous functions – Euler's theorem. (6 hrs)

PRACTICALS – II B.S.M 2.1P (ALGEBRA -II and CALCULUS-II)

Total: 42 Hrs Mathematics practical with Free and open Source Software (FOSS) tools for computer programs (3 hours/ week per batch of not more than 15 students)

LIST OF PROBLEMS

1. Examples to verify Lagrange's theorem.

2. Illustrating homomorphism and isomorphism of groups.

3. Examples on Homomorphism's and Isomorphism

4. Verification of Normality of a given subgroup.

5. Creating a Scilab program (simple examples).

6. Plotting of standard Cartesian curves using Scilab/Maxima.

7. Plotting of standard Cartesian curves using Scilab/Maxima.

8. Plotting of standard Polar curves using Scilab/Maxima.

9. Plotting of standard parametric curves using Scilab/Maxima

10. Verification of Euler's theorem, its extension and Jacobian.

Text Books:

1.Shanti Narayan. : Differential Calculus (S.Chand & Co).

2. Murray.R. Spiegel: Advance Calculus (Schaum Publicity Co).

3. L.Bers : Calculus Vol-I and II (IBM).

4. Rudraiah et al : College Mathematics Vol-I (Sapna, Bangalore).

5 Text Book of B.Sc Mathematics- G.K.Ranganath

Reference Books:

1. I. N. Herstien – Topics in Algebra.

2. Joseph Gallian – Contemporary Abstract Algebra, Narosa Publishing House, New Delhi, Fourth Edition.

3. G. D. Birkhoff and S Maclane – A brief Survey of Modern Algebra.

4. J B Fraleigh – A first course in Abstract Algebra.

5. Michael Artin – Algebra, 2nd ed. New Delhi, India: PHI Learning Pvt. Ltd., 2011.

6. Vashista, A First Course in Modern Algebra, 11th ed.: Krishna Prakasan Mandir, 1980.

DAVANGERE UNIVERSITY

Bachelor of Science (B. Sc.)

Mathematics III Semester

Paper 3 - BSM 3.1T (CALCULUS-III and GEOMETRY - I)

4 Lecture Hours/ Week + 3 Hrs Practical's/Week, Total: 56Hrs

CALUCULUS - III

Unit 1 : **Mean Value Theorems:** Rolle's theorem, Lagrange's mean value theorem, Cauchy's mean value theorem, Taylor's theorem with Lagrange's form of the remainder. Taylor's and Maclaurin's series. L'Hospital's rule and problems.(10 Hours)

Unit 2 : Differential Calculus Of Scalar And Vector Fields Scalar field – gradient of a scalar field, geometrical meaning – directional derivative – Maximum directional derivative – Angle between two surfaces - vector field – divergence and curl of a vector field – solenoidal and Irrotational fields – scalar and vector potentials – Laplacian of a scalar field – vector identities. Standard properties, Harmonic functions, Problems. (10 Hours)

Unit 3 : Integral Calculus : Applications of Integral Calculus: computation of length of arc, plane area and surface area and volume of solids of revolutions for standard curves in Cartesian and Polar forms (8 Hours)

GEOMETRY – I Analytical Geometry of Three Dimensions

Unit 4 : Recapitulation of elements of three dimensional geometry - Different forms of equations of straight line and plane. Angle between two planes - Line of intersection of two planes - Plane coaxial with given planes - Planes bisecting the angle between two planes - Angle between a line and a plane -

Unit 5 : Coplanarity of two lines - Shortest distance between two lines. Equation of the sphere in general and standard forms - equation of a sphere with given ends of a diameter. Tangent plane to a sphere, orthogonality of spheres. Standard equations of right circular cone and right circular cylinder. (28 Hrs)

PRACTICALS – III BSM 3.1P (CALCULUS-III and GEOMETRY - I)

Total: 42 Hrs Mathematics practical with Free and open Source Software (FOSS) tools for computer programs (3 hours/ week per batch of not more than 15 students)

LIST OF PROBLEMS

1. Scilab/Maxima programs to verify Rolle's Theorem and Lagrange's theorem.

2. Scilab/Maxima programs to verify Cauchy's mean value theorem

3.Scilab/Maxima programs to finding Taylor's theorem for a given function

4. Evaluation of limits by L'Hospital's rule using Scilab/Maxima.

5.To demonstrate the physical interpretation of gradient, divergence and curl.

6. Writing gradient, divergence, curl and Laplacian in cylindrical coordinates and spherical coordinates.

7. Using cyclic notations to derive different vector identities.

8. Scilab /Maxima programs for area and volume.

9. Implementing vector form of line and Implementing vector form of plane.

10. Implementing vector form of Angle between two planes and Implementing vector form of Angle between line and plane

Text Books:

1. Shanti Narayan: Differential Calculus (S Chand & Co.)

2. Murray R Spiegel: Advanced Calculus (Schaum's Series)

3. B.Sc Mathematcs - G.K.Ranganath

Reference Books:

1.G B Thomasand R L Finney, Calculus and analytical geometry, Addison Wesley,1995.

2. J Edwards, An elementary treatise on the differential calculus: with applications and numerous example, Reprint. Charleston, USA: Biblio Bazaar, 2010.

3. N P Bali, Differential Calculus, India: Laxmi Publications (P) Ltd.., 2010.

4. S Narayanan & T. K. Manicavachogam Pillay, Calculus.: S. Viswanathan Pvt. Ltd., vol. I & II1996.

5. Frank Ayres and Elliott Mendelson, Schaum's Outline of Calculus, 5th ed. USA: Mc. Graw Hill.,

6. S. P. Mahajan & Ajay Aggarwal, Comprehensive Solid Geometry , 1st ed.: Anmol Publications ,

Bachelor of Science (B. Sc.)

Mathematics IV Semester

Paper 4 - BSM 4.1T (DIFFERENTIAL EQUATIONS -I AND ANALYSIS - I)

4 Lecture Hours/ Week + 3 Hrs Practical's/Week Total: 56Hrs

DIFFERENTIAL EQUATIONS - I

Unit 1: Definition of differential equation, Classification, its order and degree. Linear and Bernoulli's form (4) exact equations (excluding reducible to exact form) Equations of first order and higher degree. Solvable for p, Solvable for x, solvable for y and Clairaut's equation (singular solutions). Orthogonal trajectories. (14Hrs)

Unit 2: Second and higher order linear differential equations with constant co-efficient- complementary functions, Particular integral, standard types, Cauchy-Euler differential equations. Simultaneous differential equations with constant co-efficient. (14Hrs)

ANALYSIS – I

Unit 3: Sequence of Numbers: Definition of a sequence, limits of a sequence, algebra of limits of a sequence – Convergent, Divergent and oscillatory sequence problems there on. Bounded sequence; Every convergent Sequence is bounded – converse is not true – monotonic sequence and their properties, Cauchy's Sequence. (14Hrs)

Unit 4: Infinite Series: Definition of convergent, divergent and oscillatory of series – standard properties and results, Tests of convergence of series – comparison tests – D'Alemberts Ratio test –Raabe's test – Cauchy's root test, Absolute Convergence and Leibnitz's test for alternating series. (14Hrs)

PRACTICALS-IV BSM 4.1P (DIFFERENTIAL EQUATIONS -I AND ANALYSIS-I)

Total: 42 Hrs Mathematics practical with Free and open Source Software (FOSS) tools for computer programs (3 hours/ week per batch of not more than 15 students)

LIST OF PROBLEMS

1. Solution of Differential equation using Scilab/Maxima and plotting the solution-I.

2. Solution of Differential equation using Scilab/Maxima and plotting the solution-II.

3. Solution of Differential equation using Scilab/Maxima and plotting the solution-III.

4. Solution of Differential equations using Scilab/Maxima and Plotting the solution-IV.

5. Illustration of convergent, divergent and oscillatory sequences using Scilab/Maxima.

6. Illustration of convergent, divergent and oscillatory series using Scilab/Maxima.

7. Scilab/Maxima programs to find the sum of the series and its radius of convergence.

8. Using Cauchy's criterion to determine convergence of a sequence (simple examples).

9. Using Cauchy's criterion on the sequence of partial sums of the series to determine convergence of a series.

10. Testing the convergence of binomial, exponential and logarithmic series and finding the sum

Text Books:

1. Mathematical analysis - S.C.Malik

2. Real Analysis - N.P.Bali

3. B.Sc Mathematics - G.K.Ranganath

References Books:

1. M D Raisinghania, Advanced Differential Equations, S Chand and Co. Pvt. Ltd., 2013.

2. F Ayres, Schaum's outline of theory and problems of Differential Equations, 1st ed. USA:

McGraw-Hill, 2010.

3. S Narayanan and T K Manicavachogam Pillay, Differential Equations.: S V Publishers Private Ltd., 1981.

4. G F Simmons, Differential equation with Applications and historical notes, 2nd ed.: McGraw- Hill Publishing Company, Oct 1991.

DAVANGERE UNIVERSITY

GRADUATE PROGRAMME

Bachelor of Science (B.Sc.)

NEW (CBCS) SYLLABUS - 2016-17

Subject: MATHEMATICS-V Semester

Paper V - BSM 5.1T (DIFFERENTIAL EQUATIONS -III, ALGEBRA- III)

4 Lecture Hours/ Week + 3 Hrs Practical's/ Week, Total: 56 Hrs

DIFFERENTIAL EQUATIONS - III

Unit 1 : Ordinary Linear Differential Equations: Solution of ordinary second order linear differential equation with variable coefficients by the methods: (1) When a partof complementary function is given (2) changing the independent variable (3) changing the dependent variable (4) when a first integral is given (exact equation) (5) variation of parameters.

Unit 2 : Total and Simultaneous Differential Equations: Necessary condition for the equation P.dx+Q.dy+R.dz=0 to be integrable -problems there on. Solutions of equation of the type dx/P=dy/Q=dz/R.

Unit 3 : Partial Differential Equations: Formation of partial differential equation – Lagarange's linear equation: Pp+Qq=R, Four standard types of first order partial differential equations. (42 hours)

ALGEBRA-III

Unit 4 : Rings, Integral domains and Fields: Rings- Types of rings- Properties of rings- Rings of integer modulo 'n'- Integral domains- Fields-Examples and properties following the definition- Subrings- Ideals- Principal, prime and maximal ideals in a commutative ring- Examples and standard properties following the definition. (14 Hours)

PRACTICALS-V BSM 5.1P (DIFFERENTIAL EQUATIONS-III & ALGEBRA - III)

Mathematics practical with Free and open Source Software (FOSS) tools for computer programs (3 hours/ week per batch of not more than 15 students)

List of Problems Total: 30 Hrs

1. Solving second order ordinary differential equation with variable coefficients

a). When apart of the complementary function is given.

b). By changing the independent variable.

2. Solving second order ordinary differential equation with variable coefficients

a). Method of variation of parameters.

b). When the equation is exact.

3. Solutions to the problems on total differential equations.

4. Solutions to the problems on different types of partial differential equations (Type-I and Type-II)

5. Solutions to the problems on different types of partial differential equations(Type-III and Type-IV)

6. Illustration to show that given algebraic structure is a Ring.

7. Examples on different types of Rings (commutative Ring, Ring with unity and Ring with zero divisors)

8. Examples on Integral domains.

9. Examples on Fields.

10. Examples on subrings, ideals and subrings which are not ideals

Books for References:

1. G. Stephonson – An introduction to Partial Differential Equations.

2. B. S. Grewal – Higher Engineering Mathematics

3. E. Kreyszig – Advanced Engineering Mathematics

4. E. D. Rainville and P E Bedient – A Short Course in Differential Equations

5. D. A Murray – Introductory Course in Differential Equations.

6. G. P. Simmons – Differential Equations

7. F. Ayres – Differential Equations (Schaum Series)

8. Martin Brown – Application of Differential Equations.

9. I. N. Herstien – Topics in Algebra.

10. G. D. Birkhoff and S Maclane – A brief Survey of Modern Algebra.

11. T. K. Manicavasagam Pillai and K S Narayanan – Modern Algebra Volume 2

12. J B Fraleigh – A first course in Abstract Algebra.

Davangere University Shivagangotri, Davangere – 577002

GRADUATE PROGRAMME Bachelor of Science (B.Sc.)

NEW (CBCS) SYLLABUS - 2016-17

Subject: MATHEMATICS V Semester

Paper VI - (ELECTIVE) BSM 5.2T (NUMERICAL METHODS-I, CALCULUS-IV)

4 Lecture Hrs/ Week + 3 Hrs Practical's/ Week, Total: 56 Hrs

NUMERICAL METHODS - I

Unit 1 : Finite differences – Definition and properties of Δ, ∇, D and E, the relation between them –The nth differences of a polynomial - Newton–Gregory forward and backward interpolation formulae – Lagrange's interpolation formula for unequal intervals - Inverse interpolation.

Unit 2 : Numerical Integration: General Quadrature formula – Trapezoidal rule - Simpson's 1/3rd rule and Simpson's 3/8th rule (without proofs) and problems. Numerical solutions of algebraic equations – By method of successive bisection – Newton-Raphson iterative method.

Unit 3 : Solution of initial value problems : Solution of initial value problems for ordinary linear first order differential equations by Taylor's series, Euler's andEuler's modified method and Runge-Kutta 4th ordered method. (42 Hours)

CALCULUS-IV

Unit 4 : Line And Multiple Integrals: Definition of line integral and basic properties, examples evaluation of line integrals. Definition of double integral – its conversion to iterated integrals. Evaluation of double integrals by change of order of integration and by change of variables -Definition of triple integral and evaluation – change of variables. (14 Hours)

PRACTICALS – VI BSM 5.2P (NUMERICAL METHODS-I, CALCULUS-IV)

Mathematics practical with Free and open Source Software (FOSS) tools for computer programs (3 hours/ week per batch of not more than 15 students)

LIST OF PROBLEMS Total: 30 hours

1. Solution of algebraic equation by bisection method.

2. Solution of algebraic equation by Newton-Raphson method.

3. Newton's forward and backward interpolation.

4. Lagrange's interpolation formula for unequal intervals.

5. Numerical integration by Trapezoidal rule.

6. Numerical integration by Simpson's 1/3rd and 3/8th rules.

7. Solving ordinary differential equation by Modified Euler's method .

8. Solving ordinary differential equation by Runge-kutta fourth order method.

9. Evaluation of line, double and triple integrals with constant limits.

10. Evaluation of line, double and triple integrals with variable limits.

Books for References:

1. B. D Gupta – Numerical Analysis

2. H. C Saxena – Finite Difference and Numerical Analysis

3. S. S. Shastry- Introductory Methods of Numerical Analysis

4. B. S. Grewal – Numerical Methods for Scientists and Engineers

5. E. Ksreyszig – Advanced Engineering Mathematics.

6. S.S.Shastry-Introductory methods of Numerical Analysis.

7. F.Scheild- Numerical Analysis

Davangere University Shivagangotri, Davangere – 577002

GRADUATE PROGRAMME Bachelor of Science (B.Sc.)

NEW (CBCS) SYLLABUS - 2016-17

Subject: MATHEMATICS V Semester,

Paper VII - (ELECTIVE): BSM 5.3T (MATHEMATICAL METHODS-I & REAL ANALYSIS-II)

4 Lecture Hrs/ Week + 3 Hrs Practical's/Week,Total: 56 Hrs

MATHEMATICAL METHODS-I

Unit-1: Fourier Transforms: The Fourier integral, complex Fourier Transform,Inverse Transforms-Basic properties, Transforms of derivatives and Derivative ofTransforms-problems there on. Fourier sine and cosine transforms and inversetransforms for first and second order derivative and problems there on. (24 hours)

Unit -2: Linear Programming: Linear inequalities and their graphs, Statement of the Linear Programming Problem in standard form -Classification of solutions-Solution of Linear Programming Problems by Graphical method. Illustrative examples on the solution of Linear Programming Problems in two and three variables by the Simplex method. (24 hours)

REAL ANALYSIS-II

Unit-3:Summation of Series: Summation of Binomial , Exponential and Logarithmic series.

(8 hours)

PRACTICALS -VII: BSM 5.3P (MATHEMATICAL METHODS-I &REAL ANALYSIS)

Mathematics practical with Free and open Source Software (FOSS) tools for computer programs (3 hours/ week per batch of not more than 15 students)

List of problems: Total :30 Hours

1. Fourier transform of some simple functions.

2. Inverse Fourier transform of some simple functions.

3. Examples to find the Fourier sine transforms of given functions.

4. Examples to find the Fourier cosine transforms of given functions.

5. Solution of linear inequalities.

6. Solving the LPP in two variables by simplex method.

7. Solving the LPP in three variables by simplex method.

8. Summation of binomial series.

9. Summation of exponential series.

10. Summation of logarithmic series.

Books for Reference:

1. Raisinghania M.D.-Laplace and Fourier Transforms, S. Chand publications.

2. Prof.G.B.Gururajachar-A Text Book of Mathematics.

3. S.C.Malik- Real Analysis.

4. Shantinarayan- Real Analysis.

5. Richard .R. Goldberg-Methods of Real Analysis.

6. Asha Rani Singhal and M.K. Singhal- A First course in Real Analysis.

7. S.C.Malik and Savitha Arora- Mathematical Analysis.

8. I.N.Sneddon- Fourier Transforms(McGraw Hill)

Davangere University Shivagangotri, Davangere – 577002

GRADUATE PROGRAMME Bachelor of Science (B.Sc.)

NEW (CBCS) SYLLABUS - 2016-17

Subject: MATHEMATICS- VI Semester

Paper VIII (COMPULSORY)- BSM 6.1T (ANALYSIS - II, ALGEBRA-IV)

4 Lecture Hours/ Week + 3 Hrs Practical's/Week Total: 56 Hrs

ANALYSIS - II

Unit 1: Complex Analysis: Complex numbers-Cartesian and polar form-geometrical representation-complex Plane-Euler's formula- $e^{i\theta} = \cos\theta + i \sin\theta$. Functions of a complex variable-limit, continuity and differentiability of a complex function. Analytic functions, Cauchy- Riemann equations in Cartesian and Polar forms-Sufficiency conditions for analyticity (Cartesian form only) Harmonic functions-standard properties of analytic functions-construction of analytic function when real or imaginary part is given-Milne Thomson method.

Unit 2:Complex Integration: the complex integration –properties-problems. Cauchy's Integral theorem-(proof using Green's theorem)- direct consequences. Cauchy's Integral formula with proof-Cauchy's generalized formula for the derivatives with proof and applications for evaluation of simple line integrals -Cauchy's inequality with proof – Liouville's theorem with proof. Fundamental theorem of algebra with proof. (28 Hours)

ALGEBRA-IV

Unit-3: Linear Algebra: Vector Spaces- Definition and Examples - properties ofvector spaces- Subspaces- Definition, Examples, properties and Theorems onsubspaces- Criterion for a subset to be a subspace- Linear span- Linear combinationof vectors- Linearly independent and linearly dependent subsets- Theorems there on-Basis and dimensions-Standard properties- Examples illustrating concepts andresults.

Unit-4 : Linear transformations:- Linear Transformations-Definition, Properties andExamples- Matrix of a linear transformation- Definition, Properties and Examples-Change of basis- Range space, Nullspace(Kernel), rank and nullity of a lineartransformation-Rank – nullity theorem - Verification of Rank - Nullity Theorem -Examples and Properties.

(28 Hours)

PRACTICALS – VIII BSM 6.1P (ANALYSIS - II, ALGEBRA-IV)

Mathematics practical with Free and open Source Software (FOSS) tools for computer programs (3 hrs/ week per batch of not more than 15 students)

List of Problems Total: 30 Hrs

1. Some problems on Cauchy-Riemann equations (polar form).

2. Implementation of Milne-Thomson method of constructing analytic functions(simple examples).

3. Illustrating orthogonality of the surfaces obtained from the real and imaginary parts

of an analytic function.

4. Verifying real and imaginary parts of an analytic function being harmonic (in polar

coordinates).

5.Verifying Cauchy Integral formula

6. Examples connected with Cauchy's integral theorem.

7. i) Vector space , subspace- illustrative examples.

ii) Expressing a vector as a linear combination of given set of vectors.

iii) Examples on linear dependence and independence of vectors.

8. i) Basis and Dimension-illustrative examples.

ii)Verifying whether a given Transformation is linear.

9. Finding matrix of a linear transformation.

10. Problems on rank and nullity.

Books for References:

1. L. V. Ahlfors – Complex Analysis

2. Bruce P. Palica – Introduction to the Theory of Function of a Complex Variable

3. Serge Lang – Complex Analysis

4. Shanthinarayan – Theory of Functions of a Complex Variable

5. S. Ponnuswamy – An introduction to Complex Analysis

6. R. P. Boas – Invitation to Complex Analysis.

7. R. V .Churchil & J. W. Brown- Complex Variables and Applications,

5th ed.:McGraw Hill Companies., 1989.

8. A. R. Vashista, Complex Analysis, Krishna Prakashana Mandir, 2012.

9. I.N.Herstien-Topics in Algebra.

10. Stewart-Introduction to Linear Algebra.

11. S.Kumaresan-Linear Algebra.

12. G.D.Birkoff and S.Maclane-A brief surey of Modern Algebra.

13.Gopalakrishna- University Algebra.

Davangere University Shivagangotri, Davangere – 577002

GRADUATE PROGRAMME Bachelor of Science (B.Sc.)

NEW (CBCS) SYLLABUS - 2016-17

Subject: MATHEMATICS VI Semester

Paper-IX (ELECTIVE)- BSM 6.2T (CALCULUS-V, MATHEMATICAL METHODS -II)

4 Lecture Hours/ Week + 3 Hrs Practical's/Week, Total: 56Hrs

CALCULUS-V

Unit 1:Integral Theorems: Green's theorem (with proof) - Direct consequences of the theorem. The Divergence theorem (with proof) - Direct consequences of the theorem. The Stokes' theorem (with proof) - Direct consequences of the theorem. (14Hrs)

MATHEMATICAL METHODS-II

Unit 2:Improper Integrals: Improper Integrals (definition only) – Gamma and Beta functions and results following the definitions – Connection between Beta and gamma functions – applications of evaluation of integrals – Duplication formula. (14Hrs)

Unit 3:Laplace Transforms: Definition and basic properties – Laplace transforms of cos kt, sin kt, , tn, cosh kt and sinh kt – Laplace transforms of eat F(t), tn F(t), F(t)/t – problems – Laplace transforms of derivatives of functions – Laplace transforms of integrals of functions – Laplace transforms of α- functions – Inverse Laplace transforms – problems- Convolution theorem. (14Hrs)

Unit 4:Fourier Series: Introduction- Periodic functions- Fourier series and EulerFormulae(statement only)-Even and Odd Functions-Trigonometric Fourier series of functions with period 2π and period 2L – Half range Cosine and sine series. Problemsthere on. (14Hrs)

PRACTICALS-IX: BSM 6.2P (CALCULUS-V & MATHEMATICAL METHODS-II)

Mathematics practical with Free and open Source Software (FOSS) tools for computer programs (3 hours/ week per batch of not more than 15 students)

List of Problems Total: 30 Hrs

1. Verifying Green's theorem.

2. Verifying Gauss divergence theorem.

3. Verifying Stokes' theorem

4.To plot periodic functions with period 2π and 2L

5. To find full range trigonometric Fourier series of some simple functions with period 2π and 2L.

6. Plotting of functions in half-range and including their even and odd extensions.

7. To find the half-range sine and cosine series of simple functions.

8. To find the half-range sine and cosine series of simple functions.

9. Finding the Laplace transforms of some standard functions.

10. Finding the inverse Laplace transform of simple functions.

Books for References:

1. F B Hildebrand, Methods in Applied Mathematics,

2. B Spain,Vector Analysis , ELBS, 1994.

3. D E Bournesand, P C Kendall, Vector Analysis, ELBS, 1996.

4.B. S. Grewal – Higher Engineering Mathematics

5. E. Kreyszig – Advanced Engineering Mathematics.

6. Murray R Speigel – Laplace Transforms

7. S.C.Malik and Savita Arora, Mathematical Analysis, 2nd ed. New Delhi, India: New Age international (P) Ltd.,

8. Richard R Goldberg, Methods of Real Analysis, Indian ed.

9. Asha Rani Singhal and M .K Singhal, A first course in Real Analysis

10. E.Kreyszig- Advanced Engineering Mathematics, Wiely India Pvt. Ltd.

11. Leadership project – Bombay university- Text book of mathematical analysis.

12. S. S. Bali – Real analysis.

Davangere University Shivagangotri, Davangere – 577002

GRADUATE PROGRAMME Bachelor of Science (B.Sc.)

NEW (CBCS) SYLLABUS - 2016-17

Subject: MATHEMATICS VI Semester

Paper-X (ELECTIVE)- BSM 6.3T (DIFFERENTIAL GEOMETRY, ANALYSIS-III & MATHEMATICAL METHODS-III)

4 Lecture Hours/ Week + 3 Hrs Practical's/WeekTotal: 56Hrs

DIFFERENTIAL GEOMETRY

Unit 1 :Geometry of Space Curves:Vector function of a single variable- Its interpretation as a space curve- derivative-tangent, normal and Binormal vectors to a space curve, Serret - Frenet formulae - simple Applications. Vector function of two scalar variables- Its interpretation as a surface- Tangent plane and normal to a surface- Parametric curves on a surface-Parametric curves on the surface of a right circular cylinder and sphere- Polar, Cylindrical and Spherical Co-ordinates. (24Hours)

ANALYSIS-III

Unit-2:Riemann Integration: The Riemann Integral, Upper and lower sums- Refinement of partitions-Upper and lower integrals-Integrability-Criterion for integrability-Integrability of Continuous functions and monotonic functions-Integral as the limit of a sum-Integrability of the sum and product of integrable functions- Integrability of the modulus of an integrable function-The fundamental theorem of calculus-Change of variables-Integration by parts-First and second mean value theorems of integral calculus. (24hours)

MATHEMATICAL METHODS-III

Unit-3: **Laplace Transforms:** Simple initial value problems – Solution of first and second order differential equations with constant coefficients by Laplace transform method. (8Hrs)

PRACTICALS – X (ELECTIVE)- BSM 6.3T (DIFFERENTIAL GEOMETRY, ANALYSIS-III & MATHEMATICAL METHODS-III)

Mathematics practical with Free and open Source Software (FOSS) tools for computer programs (3 hours/ week per batch of not more than 15 students)

List of Problems Total: 30 Hrs

1. Finding the tangent, normal and binomial vectors to a space curve.

2. Finding the curvature and torsion of a given space curve.

3. Finding the tangent plane and normal line to a surface.

4. Expressing the given space curve in cylindrical and spherical coordinates.

5. Upper and lower sums of a Riemann integral.

6. Integral as the limit of a sum.

7. Fundamental theorem of integral calculus.

8. First and second mean value theorems of integral calculus.

9. Solution of first order differential equations by Laplace transform method.

10. Solution of second order differential equations by Laplace transform method.

Books for Reference:

1. S.C.Malik- Mathematical Analysys.

2. Shantinarayan- Mathematical Analysis.

3. Leadership Project- Bombay University-Text book of Mathematical Analysis.

4. S.S.Bali -Real Analysis.

5. M.G.Smith- Laplace Transforms.

B.Sc., BOTANY SEMESTER-WISE SYLLABUS

AS PER CBCS SYSTEM (REVISED IN APRIL, 2016)

DAVANGERE UNIVERSITY

CBCS Syllabus- BOTANY

I Semister: Paper-Viruses, Bacteria, Cyanobacteria and Thallophyta

50 Hours

Unit 1: Mycoplasma-A Brief account

Viruses-Introduction, General characters and properties. Ultra structure of TMV and Bacteriophage-T4 Multiplication of viruses, plant diseases-BMV, TMV. 06 hrs

Unit-2: Bacteria-Introduction, types based on morphology, Flagellation, Ultra structure, Nutrition. Reproduction and Economic importance. Bacterial diseases-Citrus canker and Leaf blight of Paddy, Cyanobacteria-General characters, Type study- Scytonema, Nostac and Economic importance. 14 hrs

Unit 3: Thallophyta: Algae-General characters, Classificationbased on Fritsch. Economic importance.

Type of Study; Chlorophyceae- Oedogonium, Chara: Bacillariophyceae- Diatoms; Phaeophyceae-Sargassum Rhodophyceae- Batrachospermum. 10 hrs

Unit 4: Fungi-General characters, economic importance, classification based on Alexopoulos.

Type study; Oomycetes- Albugo, Zygomycetes- Rhizopus, Ascomycetes- Penicillium, Basidomycetes- Puccinia, Deuteromycetes- Cercospora 10 hrs

Unit 5: Plant Pathology- Symptoms and controlling measures of the following diseases.

- White rust of mustard
- Smut disease of Sorghum
- Powdaery mildew of cucurbits
- Tikka disease of groundnut
- Stem of rust of wheat

Lichens- Occurance and classification, Crustose, Foliose and Fruticose. Internal structure of Thallus and Apothecium, economic importance. 10 hrs

Practical; I Semister: Paper-Viruses, Bacteria, Cyanobacteria and Thallophyta

1. Study of Bacterial types
2. Study of Algae included in theory
3. Study of Fungi included in theory
4. Study of plant disease infected by Viruses, Bacteria and Fungi
5. Study of Lichens
6. Collection of photograph of any 5 specimens and their submission

DAVANGERE UNIVERSITY

CBCS Syllabus- BOTANY

II Semister: Paper; Bryophyto, Pterdophyta, Gymnosperms and Palaeobotony

50 Hours

Unit 1: Bryophyta- Introduction, General characters, Classification, Structure and Reproduction of the following examples.

Type study-Hepaticopsida- Marchantia, Anthocerotopsida- Anthoceros, Bryopsida- Funaria. A brief account of evolution of Sporophytes in Bryophytes. 12 hrs

Unit 2: Pterodophyta- Introduction, General characters, Classification, Structure and Reproduction of the following examples.

Type study- Psilopsida- Psilotum, Lycopsida- Lycopodium and Selaginella, Sphenopsida- Equisetum, Pterospida- Marsilea. A brief account of Stellar evolution on Pterodophytes18 hrs

Unit 3: Gymnosperms- Introduction, General characters, Classification, Structure and Reproduction of the following examples with economic importance.

Type study- Cycadopsida-Cycas, Coniferopsida- Pinus, Gnetopsida- Gnetum 15 hrs

Unit 4: Palaebotany- Introduction, Process of Fossilation, Fossil types, Geological time scale. A brief account of Rhynia and Calamites. 05 hrs

DAVANGERE UNIVERSITY

CBCS Syllabus- BOTANY

III Semister Histology, Anatomy, Embryology and Palynology 50 Hours

Unit 1: Histology, Study of meristematic tissues. Classification based on Origin, Position and function Permanent tissues, Simple tissues- Structure and function of Parenchyma, Collenchyma and Sclerenchyma.

Complex Tissue; Xylem and Phloem and its functions.

Tissue Systems; Dermal/ Epidermal tissue system. Structure and function of epidermis(Stomata, Trichomes, stinging and glandular hairs).

Ground Tissue system- Types of vascular bundles, conjoint, Bicollateral and Concentric types. 10 hrs

Unit 2: Anatomy- general structures of

- Dicot Root-e.g. Cicer
- Monocot Root- e.g. Grass
- Dicot Stem-e.g. Tridax and Cucurbita
- Monocot Stem-e.g. Grass
- Dicot leaf- e.g. Tridax
- Monocot leaf- e.g. Grass
- Normal secondary growth in dicot stem: e.g. Morus alba 10 hrs
- Anomalous growth in monocot stem: e.g. Dracaena
- Anomalous growth in dicot stem: e.f. Achyranthes 05 hrs

Unit 3: Embryology- Historical account- contributions of P. Maheshwari and B.G.L. Swamy

Microsporogenesis; Development of Anther, Male gametophyte and pollen embryo sac

Megasporogenesis; Types of ovules, Structure of orthotropous Ovule, Differentiationof archesporial initials, Formation of megaspores, Types of tetrads, Types of embryo sacs(Monosporic, Bisporic and Tetrasporic), Development of Monosporic type of embryosac(Polygonium type only).

Pollination- Self and cross Pollination- Types of cross pollinations including advantages and disadvantages. Controversies of cross pollinations. 10 hrs

Unit 4: Fertilization- Double Fertilization and triple fusion and its significance.

Endosperms- Types, cellular, Helobial and Free nuclear. Development of free nuclear endosperm.

Embryo- Types, monocots and dicots, development of dicot embryo- Cruciferae type. Apomixis and Polyembryony- a brief account. 10 hrs

Unit 5: Palynology- Scope, pollen morphology, structure of Pollen wall layers NPC system, Pollen Kit. 05 hrs

III Semister Practical (Based on Theory syllabus)

Histology- Parenchyma, Collenchyma, Sclerenchyma, Fibres and Sclerides, Xylem and Phloem.

Anatomy-

- Dicot Root- e.g. Cicer
- Monocot Root- e.g. Grass
- Dicot Stem- e.g. Tridax and Cucurbita
- Monocot Stem- e.g. Grass
- Dicot leaf- e.g. Tridax
- Monocot leaf- e.g. Grass
- Anomalous secondary growth in dicot stem; e.g. Achyranthes
- Anomalous secondary growth in dicot stem; e.g. Dracaena
- Embryology- T.S of Anther e.g. Datura, Cassia
- Mounting of Pollen- e.g. Hibiscus, Ipomea
- Pollen fertility- By Hanging drop method e.g. Vinca

- Mounting of Endosperm: e.g. Cucumis
- Types of Ovules
- Types of Placentation.

DAVANGERE UNIVERSITY

CBCS Syllabus- BOTANY

IV Semister Ecology and Environmental Biology 50 Hours

Unit 1: Ecology- Introduction, Ecological factors affecting plant growth and their distribution- Climatic and Edaphic factors.

Plant adaptations- Introduction, Ecological classification of plants based on water, morphological and anatomical adaptations of Hydrophytes, Xerophytes, Epiphytes, Halophytes. 10 hrs

Unit 2: Ecosystem- Defination, Structure and components of ecosystem, Study of Pond ecosystem, energy flow in ecosystem, food chain, food web and Ecological pyramids.

Ecological Succession- Introduction, Hydrosere and xerosere. 10 hrs

Unit 3; Conservation Biodiversity- Introduction, Significance, types of biodiversity. A brief account on endangered, threatened, endemic and extinct plants. Environmental Biology- Introduction, a brief account of renewable energy resources- Water and Land. Environmental pollution- A general account on air, water, land and noise pollution effects and their control 10 hrs

Unit 4: Forest and Forest management- present status of forests. Importance of forests. Deforestation- Causes, A brief account on afforestation, reforestation, social forestry. 10 hrs

Consevation ecology- Soil erosion, A brief account on conservation of soil, wildlife, national parks and wild life sanctuaries. 05 hrs

Unit 5: Phytogeography- Phytogeographical regions of Karnataka 05 hrs

IV Semister Practical: Ecology and Environmental Biology (Based on Theory Syllabus)

Study of Ecological groups-

1. Hydrophytes-E.g. Hydrilla, Pistia, Vallisnaria, Eicchornia, Lemna, Jussiaea(Any three)
2. Xerophytes-E.g. Casuarina, Euphorbia tirucali, Opuntia, Asparagus, Aloe, Acacia,Nerium-Leaf(Anatomy-Any two)
3. Epiphytes- Vanda
4. Halophytes-Rhizophora, Avecennia, Vivipary, Pneumatophore.
5. Ecological instruments- Wet and Dry bulb thermometer, Anemometer, Rain guage
6. Water holding capacity of any three different soils, pH.

7. Vegitation of Karnataka- Mapping.

DAVANGERE UNIVERSITY

CBCS Syllabus- BOTANY

III B. Sc., V Semester; Paper V Morphology and Taxonomy of Angiosperms 50 Hours

No.of teaching Hours /Week 03 hours

Unit 1. Morphology: Vegetative morphology 02 hr

Root: introduction, Classification, underground root modifications (Fusiform. conical, napiform) aerial root modification(Support, epiphytic, respiratory, Parasitic. floating, climbing root)

Unit 2. Stem: introduction, characteristics 03hr

Modification of stem: underground- Rhizome, stem tuber, corm and bulb Sub aerial modifications: runner, offset, stolon, & sucker Aerial stern modification: Stem tendrils, phylloclade. cladode. thorns, bulbils

Unit 3. Leaf: General introduction, structure (brief) Stipules (Kinds) 05 hr

Leaf modification: leaf tendrils, spines, hools phyllode- insectivorous plants- Nepenthes, utricularia. & Drosera Phyllotaxy: types- alternate, opposite and whorled Floral morphology

Unit 4. Inflorescence- types- Racemose. Cymose -types, Special types 10 hr

Flower: A complete account on Floral morphology

Fruit: general account -classification, types of fruits Taxonomy of Angiosperms

Unit 5. Principles of Classification, Systems of Classification 30 hrs

Ex: Bentham and Hooker, Binomial Nomenclature, Species Concept Herbarium, Techniques. Study of the Following Families with plants of economic importance Dicuts; Annonaceae, Brassicaceae, Capparidaceae. Malvaceae, Rutaceae. Fabaceae (including 3 subfamilies caesalpiniaceae, papilonaceae, legurninoceae) Myrtaccae, Cucurbitaceae. Apiaceae, Rubiaceae. Astcraceae, Apocynaceae, Asciepidaceae, Solanaceae. Acanthaceae, Lamiaceae. Verbenaccac. Amaranthaceae and Euphorbiaceae

Monocots: Liliaceae. Arecaceae, Poaceae

STUDY TOUR IS COMPULSORY.

III B. Sc, V Semester; Paper V Practical BASED ON THEORY

Practical Question Paper Morphology and Taxonomy of Angiosperms

Duration of practical examination- 3 hr Max.Marks.40

Q. 1. Identify the families of ‘A’, 'B' and ‘C’ with their distinguishing characters 12 Marks

Q. 2. Describe 'D' in technical terms and Draw floral diagram, and write floral formula of' E' 08 Marks

Q. 3. Write the morphological and biological importance of E, F, G and H20 Marks

IA for Practical Submission of Herbarium. photographs -05 Marks

Record including tour report}-05 Marks Study Tour Compulsory

SCHEME OF VALUATION:

I. Identity the families 'A', 'B' and 'C' with their salient characters – 12Marks Identification - 01 Marks Distinguishing characters (5/6 characters) (04 Marks each) (One from -Polypetalae, one from -Garnopetalae, one from monochlamydae /monocot)

II. Describe 'D' in technical terms and Floral formula and floral diagram of 'E' 03 Marks . D - Vegetative characters 02 Marks

DAVANGERE UNIVERSITY

CBCS Syllabus- BOTANY

III B. Sc., V Semester;

Paper VI-A Plant Breeding and Biotechnology 50 Hours

No. of teaching Hours /Week ;03 Hours

UNIT-I: Plant Breeding: Introduction. Principles. and Objectives of Plant Breeding. Methods of Plant Breeding; Mass Selection. Pure Line Selection, Clonal Selection, Significance. Plant breeding in producing new and improved varieties of medicinal plants. 10hr

UNIT-2: Hybridization: Introduction. Definition, Types, Objectives. Techniques. Selection of Parents. Emasculation. Artificial Cross Pollination. Harvest. 10 hr

UNIT -3: Mutation Breeding- Breeding for disease resistance- New Varieties, Vegetative Propagation: Introduction. Cutting. Gooty, Grafting (Types) Approach. Bud, Wedge Grafting. 10 hr

UNIT-4: Biotechnology-Introduction. Scope of Biotechnology, A Brief Account on tools used in genetic engineering, recombinant DNA Technology (RDT). DNA finger printing and its applications. Production of human insulin through recombinant DNA technology. Production of monoclonal antibodies through hybridoma technology and their applications. 10 hrs

UNIT-5: Gene Therapy: Kinds. Somatic and Gene Therapy. Production of GM plants Ex: Golden rice, Bt- Cotton, Applications of biotechnology- In Agriculture, Pharmaceutical and Industries, Sustainable Agriculture-Bio-fertilizers, Advantages. 10 hr

Subject-Botany: V Semester

Paper- VI A. Plant Breeding and Biotechnology Practical syllabus

Duration of examination- 03 hr

Max. marks: 40 (Based on theory syllabus)

l. Training of vegetative propagation methods

2. Hybridization techniques

3. Qualitative analysis of samples- Starch, Sucrose, Glucose, Proteins, Fats

4. DNA Extraction

5. Photographs of recombinant DNA Technology, GM plants, DNA Finger printing Technology, Hybridoma Technology.

Subject-Botany: V Semester Practical Question paper (Practical- VI A)

Duration of examination- 03 hr Max. marks: 40

Q. l. Write the critical notes on -A-and -S- 5X2=10

Q. 2 Identify the technique involved in -C' and write the comments 5X1=5

Q 3. Conduct the qualitative analysis of the samples 'D', 'E' & 'F' 5X3= 15

Q 4. Extract the DNA from the given sample 'G/Any two spotters l0X1=10

Practical Skill Visit to Horticulture/ Agricultural departmental laboratories to have the knowledge of plant propagation and other techniques with report 5 Marks Record 5 Marks

DAVANGERE UNIVERSITY

CBCS Syllabus- BOTANY

Subject-Botany V Semester 50 hr

Paper VI- B: Plant Tissue Culture, Medicinal Plants, Economic Botany and Evolution,

UNIT-1. Plant tissue culture:

Aim and scope, totipotency, types of tissue culture and its importance. Organogenesis, anther culture and its importance. culture, callus 10 hr

UNIT-2. Medicinal plants,

Rauwolfia serpentiana, Vinca rosea, Tylophora asthamaticca, Cinchona officinalis. Withania somnifera, Tinospora cordifolia, Adathoda vasica, Atropa belladonna (Bellodona), Melia azadirachta (Neem), Eucalyptus globules. Holorrhina antidysentrica, Metha viridis (Miat), Alove vera. Asparagus racemosus, Acorus calamus (Baje). 15 hr

UNIT-3. Economic Botany-I:

Introduction, Food plants- Cereals and Millets, Rice, Wheat, Maize, Jowar, Ragi, Bajra, Pulses- Begal gram, Green gram, Black gram, Pigeon pea. Oil and Fats- Sunflower,

Groundnut, Coconut, Safflower. Spices and Condiments- Asafoetida, Coriander, Cardomum, Clove, Cinnomom, Red pepper (Chilly) 10 hr

UNIT-4. Economic Botany-II.

Beverages- Coffee, Tea and Cocoa. Timber plants- Teak, Rosewood and Neern. Textile fibres- Cotton, Coil', Sunhemp. Narcotic drugs- Tobacco and Opium. Vegetables- Carrot, Cabbage, Brinjal, Okra, Cucurbits, Tomato. Fruits- Muskmelon, Watermelon, Strawberry, Blackberry, Rasberry, Gooseberry, Grapes, Mango. Citrus fruits, Banana, Custard apple, Papaya. Pomegranate. 10 hr

UNIT -5. Evolution- Origin of life (in brief);

A brief account of theories of evolution of Lamark, Darwin, Hugo de Vries, Modern synthetic theory. 5 hr.

Subject-Botany V Semester Paper VI- B.: Plant Tissue Culture, Medicinal Plants, Economic Botany and Evolution. Duration of examination- 03 hr 40(Based on theory syllabus)

1. Medicinal plants- Extraction (uses) from various parts

2. Economic importance of plants studied in theory

V Semester Paper VI- 8.: Practical Question Paper Duration of examination- 03 hr Max. marks: 40 (Plant Tissue Culture, Medicinal Plants, Economic Botany and Evolution)

Q.1. Identify the specimens 'A', & 'B'. Sketch, label and write the medicinal importance. 2X5=10

Q.2. Write the economic importance ofC" 'D', " and E' 3X5= 15

Q.3 Comment on F & G 2x5=10

Q.5 Identify & write the contribution of 'H' 1x5=5

DAVANGERE UNIVERSITY

CBCS Syllabus- BOTANY

III B. Sc., VI Semester;

Paper VII Cytology and Genetics 50 Hours No. of teaching Hours /Week

Unit 1. The Cell:

Ultra Structure of Plant Cell, Organization, Function and its Components- Cell Wall. Plasma Membrane [Fluid Mosaic Model) Golgi Complex, Endoplasmic Reticulum, Mitochondria, Ribosome, Plastids, Peroxisomes, Lysosornes), Cytoplasm: Vacuole-Non Living Inclusions- Nucleus Ultrastructure 10 hr

Unit 2. Chromosomes:

Number Size, Classification (Based on Centromere) Structure (Metaphase) Nucleosome Model, Karyotype, Idiogram, Heterochromatin and Euchromatin, Chromosomal Aberrations.

Deletions. Duplications, Translocations & Inversions, Mitosis and Meiosis In Plants. Significance - Differences, Variation in Chromosome Number: Polyploidy - Types Significance. 10 hr

Unit 3. DNA:

Structure (Watson and Crick Model) DNA Replication, RNA: Types. Structure Function (t-RNA, m-RNA, r-RNA), Concept of Gene: Characteristics. Gene Expression. Genetic Code: Characteristics. Codon Dictionary. Protein Synthesis: Mechanism, Regulation of Gene Expression: In prokaryotes- Lac Operon Concept. Gene Mutations 10 hr

Unit 4. Genetics:

Biography of Mendel- Contrasting Characters of Pea Plant- [Terms - Homo and Heterozygous, Phenotype, Genotype 1 Monohybrid Cross- Explanation of Law of Dominance- Law of Segregation- Dihybrid Cross, Explanation - Law of Independent Assortment Test Cross 10 hr

Unit 5. Deviation from Mendelian Laws:

Incomplete Dominance (Mirabilis/ jalapa), Modification of Mendelian Ratios: (with Reference to Plant Examples) Interaction of Genes- Epistasis Complementary Factor- Supplementary Factors. Multiple Alleles (Self Sterility in Nicotiana) Linkage and Crossing over in Maize: Chromosome Mapping. 10 hrs

III B.Sc. VI Semester Paper VII: Cytology and genetics Practical Syllabus Time: 3Hrs Max Marks :40

I Preparation of Mitotic slides. Ex: Onion (root tip)

II Preparation of Meiosis Ex : Onion /Rheo (Flower buds)

III Study of different stages of mitosis and meiosis (from permanent slides)

IV Gentic 5 problems -From the given list

V Technique of making permanent slides of mitosis and meiosis.

List of Genetic Problems -Botany

I. ln garden peas the effect of the tall allele (T) is dominant over that of dwarf (t) and the effect of the smooth seeds allele (s) is dominant over that of wrinkled (s) these two gene pairs also are known to assort independently of each other

a) What proportion of phenotypes would be expected among the progeny of tall smooth seeded Fj Plants crossed to each other if each such Flplant was deiced from a cross bin pure breeding tall smooth seeded variety (TTSS) and a dwarf wrinkled seeded variety (ttss)?

b) Would proportions of phenotypes in the F, generation be changed if the FI plants of (a) were crossed between a tall wrinkled seeded variety and a dwarf smooth variety.

c) What phenotype results would be expected if the FI plants of (a) were crossed to a dwarf wrinkled seeded plant.

2. Around seeded, dwarf pea plant was crossed with a wrinkled seeded, tall one. In the F2 328 were round, tall. 115 round, dwarf, 120 wrinkled tall and 36 wrinkled dwarf, 1230 wrinkled tall dwarf were produced. Decide whether these- characters are showing independent assortment.

3. In tomatoes, yellow fruit and dwarf characters are due to recessive alleles of genes which produce the more common red fruited, tall plant. If pollen from a pure dwarf plant bearing red fruit is placed on the pistil of a pure tall plant bearing yellow fruit. what type of off springs be expected in the FI" If these are crossed among themselves, what off spring would be expected in the F2')

4. A tall red when crossed with dwarf red plant produces a dwarf white plant. Give the genotypes of the parents.

5. What type of gametes will he formed by the pea plants involved in the following crosses" Determine the Phenotype ratio of the off spring i) YyRr X vyn YyRR X yyrr

YyRrXYyRR..... . Y YyRr X Yyrr yrr X yyRR YyFtr X YyFlr Note: Select any 2 pairs for setting.

6.In pea, tallness (T) is dominant over dwarfness (t) produces off spring of which about 50% are tall 50% are Dwarf. What are the genotypes of progeny

7.In tomatoes, red fruit color® is dominant over yellow®. A pure red fruited plant is crossed to a yellow fruited one What will be the appearance of F_1 ?The F_1 are interbred and produce 320 spring In the F_2. How many of them will be red and how many yellow. What Will be the genotypes of $F_2$and in what number?

8. 9.7ratio: The two non -allelic dominant genes C and 0 alone produce white flowers in pea plants. When both the dominant genes at least in single dose are present together in a genotype they produce purple flowers In the pea plants. What are the genotypes of the parents in the following crosses? i) Purple flowered parent X white flowered parent

ii) While flowered plant X white flowered plant

9.12:3:1 (Epistasis): The white fruit color in summer squash is controlled by a dominant gene (W) and color control in fruit by its recessive allele (w). Yellow fruit is governed by an independently assorting hypostatic gene (G) and green by its recessive allele (g). When dihybrid plants are crossed, the off spring appears in the ratio of 12 white: 3 yellow: 1green. What fruit color ratio is expected from the crosses given below? i) WWgg x WwGG ii) WwGg x wwgg

10. Linkage and Crossing over: In corn there is a dominant ~gene for colored seed and another dominant ~gene for full seed. The recessive alleles of these genes produce colorless seed and shrunken seed. Plants homozygous for colored full seed are crossed with colorless shrunken and the test cross of the F I yields the following results. Colored full 190 Colorless shrunken Colored Shrunken Colorless full 198) Would vou sav that these two genes are linked') If so what is the percentage of crossing over')

Practical Question Paper Max Marks: 40 Time: 3 Hrs

I Prepare squash of material' A' Identify, sketch label the stage with reasons 10 Marks

II Prepare smear of material' B' identify sketch, label the stage with reasons 10 Marks

III Identify the slides C and D -sketch, label with reasons (One from mitosis, and one from Meiosis) 10 Marks

IV Solve the given genetic problems of' E' and' F' 10 Marks

DAVANGERE UNIVERSITY

CBCS Syllabus- BOTANY

III B. Sc, VI Semester; Paper VIII Plant Physiology 50 Hours

Unit I.Plant Water Relations:

Properties of Water, Significance of water for plants Osmosis: Endosmosis, Exosmosis, Water Potential, DPD, Plasmolysis, Deplasmolysis, Significance of Osmosis, Absorption of Water: Introduction, Mechanism of Water Absorption (Active and Passive), Absorption of Minerals: Mechanism:-Passive Absorption-, Donnan's Equilibrium. Active Absorption (Lundergardh and Burstorm). Cytochrome Pump Theory, Carrier Concept Ascent of Sap: Concept, Mechanism- TCT Theory, Mineral Nutrttion: Concept, Macro and Micronutrients, Role of Macronutrients, Deficiency Symptoms - N, P, K, Mg, Ca, Fe, &Mn, Cu, Zn, 10 hr

Unit 2. Transpiration:

Types of Transpiration, Structure of Stomata, Mechanism of Stomatal Transpiration- Starch-Sugar Inter Conversion Theory, Significance, Guttation: Structure of Hydathode, Differences between transpiration and guttation, Translocation of Solutes: Types - Mechanism of translocation-Mass Flow Hypothesis, Enzymes: Nomenclature. Structure, Classification and Properties 15 hr

Unit 3. Photosynthesis:

Introduction, Structure of chloroplast, Mechanism Light Reaction- Cyclic and Non Cyclic Photo-Phosphorylation, Dark Reaction- C3 Pathway, Law of Limiting Factors, C4 Pathway, Respiration: introduction, Structure of Mitochondrion, Types of Respiration, Mechanism of Aerobic Respiration- Glycolysis- Kreb scycle, Electron Transport System, 15 hr

Unit 4. Phytohormones-

Definition, Types of Hormones, Physiological and Practical Application of Auxins, Gibberellins, Cytokinins, ABA, Ethylene 05 hr

Unit 5. Physiology of Flowering-Photoperiodism, types, Role of phytochrome, Vernalization and Dormancy, Plant Movements - A General Account, Classification, Trophic Movements, 05 hr

III B. Sc, VI Semester; Paper VIII Plant Physiology Practical Syllabus

List of Major Experiments

I) Measurement of DPO in Plants by Gravimetric (Potato) Method.

2) To Measure the Rate of Transpiration under Different Conditions of Light and Wind by Ganongsl'hotometer.

3) Suction Force due to Transpiration

4) Separation of Chlorophyll Pigments by Paper Chromatographic Method

List of Minor Experiments

I) Experiment to Study the Relation between Absorption and Transpiration

2) Evolution of Oxygen by Bubble Counting Method. under Different Wavelengths of Light- using Color Transparences- Red. Blue. Green (Yellow) (During Exam Different Conditions need not be asked)

3) Experiment to Study Synthesis of Starch during Photosynthesis

4) Mohls Half Leaf Experiment Spotters I) Experiment to Demonstrate End and Exosmasis using Potato Osmoscope

2) Experiment to Demonstrate Unequal Transpiration in Plants by Cobalt Chloride Paper

3) Passage of Air through Stomata using Colocasia Leaf

4) To Demonstrate that Light is Necessary for Photosynthesis [Ganong' sLight Screen Experiment]

5) Dewar's Thermos Flask Experiment

6) Kuhne's Fermentation Vessel Experiment

7) Experiment to Show Geotropism using Clinostat (Nullifying Effect)

8) Experiment to Show Phototropism in Plants using Phototrophic Chamber.

9) Experiment to Determine the Rate of Plant Growth by using Arc Auxanometer

10)To Determine the Respiratory Quotient (Rq) of Different kinds of Germinating Seeds using Ganong’s Respirometer.

DAVANGERE UNIVERSITY

Bachelor of Science (B.Sc.) - 2016 onwards

Subject: ZOOLOGY

I-SEMESTER (60 hours-4 Hours of Teaching per Week)

Course Code: (Zool.Core: I-1) NONCHORDATA, BIODIVERSITY AND PARASITOLOGY

Module-1: INTRODUCTION (2 Hour)

1. Principles of Animal Classification with Outline Classification of Animal Kingdom – Zoological Nomenclature – International Code – Cladistics – Molecular Taxonomy : an general Account.
2. Definition with an example – Acoelomate,Pseudocoelomate and Coelomate, Protostomes and Deuterostomes, Bilateria and Radiata, Metagenesis, Metamerism, Cephalization. Status of Protista, Origin of Metazoa. (4 Hour)

Module-2: BIODIVERSITY (2 Hour)

Definition, Levels of Biodiversity (Genetic, Species and Ecosystem level) – Number of Species in Different Phyla - Global and India.

Module-3: NONCHORDATA

1. Phylum PROTOZOA – General Characters of the Phylum and Classification up to Classes with suitable example, Locomotion in Protozoa, Reproduction in Protozoa (4 Hour)
2. Phylum PORIFERA – General Characters of the Phylum and Classification up to Classes with suitable examples; Skeleton in sponges; Canal System in Sponges (4 Hour)
3. PhylumCOELENTERATA – General Characters of the Phylum and Classification up to Classes with suitable examples. Corals, Reefs and their Formation; Polymorphism in Coelenterata. (5 Hour)
4. Phylum PLATYHELMINTHES- General Characters of the Phylum and Classification up to Classes with suitable example; Planaria – Structure and Regeneration. (3 Hour)
5. Phylum NEMATHELMINTHES – General Characters of the Phylum and Classification up to Classes with suitable examples; Caenorabidtiselegans – salient features.(3 Hour)
6. Phylum ANNELIDA – General Characters of the Phylum and Classification up to Classes with suitable examples. Type Study - Hirudinaria granulosa – parasitic adaptations (6 Hour)
7. Phylum ARTHROPODA – General Characters of the Phylum and Classification up to Classes with Suitable Examples. Type Study – Penaeus – Appendages: Branchial Formula, General Topics – Metamorphosis in Insect and its Hormonal Regulation, Trophi of Insects, Economic Importance of Insects. (8 Hour)
8. Phylum MOLLUSCA – General Characters of the Phylum and Classification up to Classes with suitable examples. Types Study – Unio – externals, Shell Structure. General Topics – Economic Importance of Mollusca, Shells in Mollusca, Pearl Formation. (7 Hour)
9. Phylum ECHINODERMATA – General Characters of the Phylum and Classification up to Classes with suitable examples.Astropecten– Externals, Water Vascular System. (3 Hour)
10. Minor Phyla: HEMICHORDATA – Salient Features of Balanoglaossus ONYCHOPHORA – Peripatus-Salient Features and Systemic Position (2 Hour)

Module-4: PARASITOLOGY (7 Hour)

Structure, Life History and Pathogenicity of Plasmodium Vivax; Entamoeba histolitica; Trypanosoma; Fasciola hepatica; Taenia solum(Only Life Cycle); Ascaris lumbricoides, Schistosoma, Wuchereria bancrofti (External and Pathogenicity only).Parasitism and Parasitic Adaptations in Helminthes.

Subject: ZOOLOGY I-SEMESTER (3 Hours of Teaching per Week- 15 practicals)

Course Code: (Zool.Pr: I-1) PRACTICALS – I

1. Phylum Protozoa -Amoeba, Euglena, Noctiluca, Opalina 1 Prt.

2. Phylum Porifera – Leucosolenia, Hyalonema, Spongilla,Amphiblastula larva; Spicules and Gemmules, Mounting of Spicules 2 Prts

3. Phylum Coelenterata – Obelia, Physalia, Aurelia, Gorgonia, Madrepora, Metridium, Planula larva 1 Prt.

4. Phylum Platyhelminthes – Planaria, Miracidium Larva

5. Phylum Nemathelminthes – Caenorabdtiselegans .

6. Phylum Annelida – Neries, Heteroneries, , Chaetopteris, Sabella,Aphrodite,Pheritema, LeechTrochophore Larva 1 Prt.

7. Phylum Arthropoda – Sacculina, Scolopendra, Aranea, Lepisma, Carausius, Phyllium,Nauplius Larva. Mounting of Mouth Parts of Available Specimen with diagram (House fly, mosquito, honey bee, moth, butterfly, etc) Collection of Insects / Butterflies / Bugs / Spiders at Your Vicinity – Record in the Practical Record Book. 3 Prts.

8. Phylum Mollusca – Chiton, Dentalium, Patella, Mytilus, Sepia, Octopus, Nautilus, Glochidium Larva. 1 Prt

9. Phylum Echinodermata – Astropecten, Ophiothrix, Echinus, Cucumaria, Antedon, Bipinnaria Larva 1 Prt

10. Minor Phyla – Peripatus, Balanoglaossus, Tornoria Larva 1 Prt

11. Parasitology – Fasciola hepatica; Taenia solium; Ascaris lumbricoides; Schistosoma; Wuchereria bancrofti; Ancylostomaduodenale;Entamoeba Histolitica, Anopheles sps, Aedisegypti 2 Prts.

12. Demonstration and Display (with Figures in Record) – Penaeus Appendages; Cockroach – Mouth Parts, Digestive and Nervous System. 2 Prts.

DAVANGERE UNIVERSITY

Bachelor of Science (B.Sc.) - 2016 onwards

Subject: ZOOLOGY

II-SEMESTER

(60 hours-4 Hours of Teaching per Week) Course Code: (Zool.Core: II-2)

CHORDATA, COMPARATIVE ANATOMY AND ZOOGEOGRAPHY

Module-1: (1 Hour)

General Characters of the Phylum Chordata, outline classification up to orders

Module-2: (3 Hours)

Sub-phylum Urochordata – Herdmania with Distinctive Characters; Ascidian tadpole larva and Retrogressive metamorphosis; Sub-phylum Cephalochordata – Amphioxus with Distinctive Characters

Module-3: (3 Hours)

Agnatha - Cyclostomata – Petromyzon, Myxine – Distinctive Characters; General Organization.

Module-4: PISCES (8 Hours)

General Characters, Classification up to Orders, Salient Features of Dipnoi, Chondrichthyes & Osteichthyes : General Characters with Examples General Topics :scales and Accessory Respiratory Structures in Fishes

Module-5: AMPHIBIA (4 Hours)

General Characters and Classification up to Orders; Origin of Tetrapods

Module-6: REPTILIA (8 Hours)

General Characters and Classification up to Orders (living); Terrestrialization of Vertebrates, Evolution of Temporal Fosse and Arcades; types of poison, poison gland and apparatus; Identification of Poisonous and Non-poisonous Snakes of India.

Module-7: AVES (9 Hours)

General Characters, Classification;Distinctive Features of Archaeornithes and Neornithes with special reference to Paleognathae, Impennae and Neognathae – Passeriformes, Cuculiformes, Psittaciformes, Anseriformes with suitable examples.

General Topics: structure and types of feather, Beak and Foot Modifications in birds

Module-8: MAMMALIA (10 Hours)

General Characters, Classification; Distinctive Features and Distribution of Prototheria, Metatheria, Orders Primates, Chiroptera, Cetacea, Perissodactyla, Artiodactyla, Carnivora, Rodentia, Proboscidea; Dentition in Mammals Type Study – Rabbit – Digestive, Respiratory, Brain &Cranial Nerves, Urinogenital Systems(M&F)

Module-9: COMPARATIVE ANATOMY and Evolution of Vertebrates (10Hours)

Evolutionary Trends in the Structure of Heart, Aortic Arches, and Kidney of Shark, Frog, Lizard, Pigeon and Rabbit

Module-10: ZOOGEOGRAPHY (4Hours)

Zoogeographical Realms - Classification as adapted by Wallace; Climatic Conditions and Fauna of Oriental Region, all Realms with their unique species- Barriers of Dispersal – Topographic, Vegetative and Large bodies of Water - Animal Distribution – Continuous and Discontinuous Distributions with Examples.

Subject: ZOOLOGY II-SEMESTER (3 Hours of Teaching per Week- 15 practicals)

Course Code: (Zool.Pr: II-2) PRACTICALS – 2

1. Sub-phylum Urochordata – Herdmania, Ascidian tadpole larva;Sub-phylum Cephalochordata –Amphioxus, T. S. of Amphioxusthr. Pharynx;Cyclostomata – Petromyzon, Myxine 1 prt.
2. PISCES - Scoliodon, Narcine, Muraena, Hippocampus, Synaptura, Antennarius; Mounting of Placoid Scales 2 prts.
3. AMPHIBIA – Ichthyophis, Bufo, Hyla, Ambystoma and Axolotl Larva 1 prt.
4. REPTILIA –Chelone mydas,Testudo, Chameleon,Draco, Hemidactylus, Bungarus, NajaNaja, Hydrophis 2 prts.
5. AVES - Parrot, Owl, Cattleegret, Duck, Kingfisher, Structure of Quill Feather;Bird Watching - Preparation Submission of Check List of Birds in the Campus / Nearby Places 1 prt.
6. MAMMALIA - Echidna, Ornithorhynchus, Macropus, Whale, Pteropus, Loris, Porcupine2 prts.
7. Distribution of Animals – Peripatus, Protopterus, Lion, Elephant, Lepidosiren, Neocerotodous, Necturus, Sphenodon, Phrynosoma, Penguin, Ostrich, Kangaroo 1prt.
8. COMPARATIVE ANATOMY of Vertebrates –Heart of Shark, Frog, Pigeon and Rabbit
9. Endoskeleton of Rabbit – Skull, Vertebrae, Girdles and Limb Skeleton 3prts.
10. Demonstration and Display (with Figures in Record) Chick – Digestive and Respiratory System; Kidney, Heart. 1prt.
11. Field visit or Education Tour with report is COMPULSORY 1prt.

DAVANGERE UNIVERSITY

Bachelor of Science (B.Sc.) - 2016 onwards

Subject: ZOOLOGY

ZOOLOGY III-SEMESTER (60 hours-4 Hours of Teaching per Week)

Course Code: (Zool.Core: III-3) **BIOCHEMISTRY, PHYSIOLOGY, HISTOLOGY AND ENDOCRINOLOGY**

Module-1: BIOCHEMISTRY (18 Hours)

i) Carbohydrates : Definition, Classification, Structure and Biological Importance with examples; The Glycemic Index (3 Hours)

ii) Proteins: Definition, Classification, Structure (pri., sec., ter., & quat.,) and Biological Importance with examples; Fibrous and Globular Proteins (3 Hours)

iii) Lipids: Definition, Classification, Structure and Biological Importance of Phospholipids, Neutral Lipids and Glycolipids; Saturated and Unsaturated Fatty Acids with examples; Lipid Signaling (3 Hours)

iv) Enzymes: Definition, Classification (IUB System); Mechanism of Enzyme Action; Specificity of Enzymes; Reversibility of Enzyme Action; Enzyme Inhibitors; A Brief Account of Coenzymes, Cofactors and Ions; (5 Hours)

v) Vitamins: Definition, Classification, Structure and Biological Importance and Deficiency Symptoms; Zinc and its Deficiency (4 Hours)

Module-2: PHYSIOLOGY (28 Hours)

i) Water as a Solvent; pH;Buffers and its Action; Osmoregulation in Animals – Types, Osmoregulation in Shark, Marine andFresh Water Teleosts, Kangaroo Rat and Camel (2 Hours)

ii) Digestion: Mechanism of Digestion; Chemical Digestion; Digestion and Absorption of Carbohydrates, Proteins and Lipids; Hormonal Control of Digestion and Absorption; Daily Diet for Adult Man (India) (2 Hours)

iii) Respiration: External and Internal Respiration; Respiratory Pigments (Hb, Haemocyanin, Haemoerythrin); Physiology of Respiration – Exchange of Gases Transport of Oxygen – Oxygen Dissociation Curve; Bohr Effect; Transport of CO2 – Chloride Shift; Respiratory Quotient; Oxygen Poisoning- Ketone Bodies, Antioxidants and Aging (4 Hours)

iv) TCA Cycle; Electron transport, Oxidative Phosphorilation, HMP Pathway (3 Hours)

v) Circulation : Blood Plasma and Types of Cells; Types of Hearts, Structure, Function and Regulation of Human Heart; ECG; Types of Circulation; Blood Pressure; Blood Clotting Mechanism. Disorders of heart (Septal hole, Myocardial infarction, Angioplasty, Cardiomeghally) (3 Hours)

vi) Nitrogen Excretion: In Aquatic and Terrestrial Animals, Types with Examples; Ornithine Cycle; Physiology of Urine Formation – Counter Current Multiplier System in Human (3 Hours)

vii) Muscle Physiology : Principal Types of Muscles; Ultra Structure of Striated Muscles; Contractile Proteins; Mechanism of Muscle Contraction and Relaxation; Sliding Filament Theory; Role of Calcium in MC; Chemical Changes During Muscle Contraction; Neuromuscular Junction (4 Hours)

viii) Nerve Physiology: Structure of Neuron; Morphological Types of Neuro-synapse; Nature and Conduction of Nerve Impulse; Synaptic Transmission; neuro-transmitters in Vertebrates (3 Hours)

ix) Thermoregulation: Types; Animals and theirTemperature Relations; Thermogenesis and its Regulation; Adaptive Changes of Animals in Heat and Cold Environments. (3 Hours) Bioluminence with Examples (1 Hour)

Module-3: HISTOLOGY (8 Hours)

Study of Histological Structure and Functions of the Following Mammalian Organs – Pituitary, Tongue, Stomach, Intestine, Liver, Pancreas, Thyroid, Kidney, Adrenal, Testis, Ovary and Pineal Glands.

Module-4: ENDOCRINOLOGY (6 Hours)

Hormones of - Pituitary, Thyroid, Parathyroid, Pancreas, Adrenal, Testes, Ovaries, Placenta and Pineal Glands and their Role, Gonadotropins; Biosynthesis of Testosterone; Neuro-secretary Releasing Factors; Hypothalamus and its Stimulation and Inhibitory Effects; Effects of Hypo and Hyper- secretion of Various Hormones in Human.

Subject: ZOOLOGY III-SEMESTER (3 Hours of Teaching per Week-15 practicals)

Course Code: (Zool.Pr: III-3) PRACTICALS - 3

I. BIOCHEMISTRY

1. Qualitative Detection in given Samples, Test to be Conducted:

a) for Glucose – Bendict's Test b) for Starch – Iodine Test c) for Protein – Biuret Test, XanthoproticTest 1 prt.

2. Qualitative Detection of Nitrogenous Waste Products in given Samples, Test to be Conducted: a) Test for Ammonia – Nessler's Reagent Test b) Test for Urea – Specific Urease Test c) Test for Creatinine – Jaffe's Test 1 prt.

3. Commenting on the Vitamins Present with Deficiency Diseases

a) Vitamin A –Coriander, Carrot b) Vitamin B1& B2 – Rice Bran, Yeast c) Vitamin C – Citrus Fruits, Banana d) Vitamin D – Fish Liver Oil e) Vitamin E – Germinating Seeds f) Vitamin K – Cabbage 1 prt.

II. PHYSIOLOGY

a) Total RBC count in personal sample of blood

b) Total WBC count in personal sample of blood

c) Estimation of hemoglobin content in blood

d) Preparation of Haemin crystals from blood

e) Estimation of clotting & bleeding time of blood

f) Differential count of human blood 6 prts.

III. HISTOLOGY

Demonstration of Microtomy. Preparation of permanent slides by double staining method. Study of Histological and Physiological Details of the Following Mammalian Organs – Tongue, Stomach, Small Intestine, Liver, Pancreas, Kidney, Pituitary, Adrenal , Thyroid, Testis and Ovary. 6prts.

Subject: ZOOLOGY

ZOOLOGY IV-SEMESTER (60 hours-4 Hours of Teaching per Week)

Course Code: (Zool.Core: IV-4) ENVIRONAMENTAL BIOLOGY, ETHOLOGY, AND BIOSTATISTICS

Module-1: ETHOLOGY (21Hours)

i) Definition and Types of Animal Behavior with Example: Innate Behavior – Reflexes, Instinct, Motivation; Learning Behavior – Habituation, Imprinting, Conditioned Reflexes, Insight Learning; Aggression and Territoriality, Sensory Filtering, Sign Stimuli, Ecolocation (4 Hours)

ii) Social Organization in Animals – Honeybee (with Communication), Ants, Termites, Elephants, Macaques (3 Hours)

iii) Animal Migration : a) Migration in Fishes – Types, Anadromous and Catadromous Migration with Hilsa and Eel as Indian Examples. b) Migration in Birds – Methods of Study, route, Advantages, Origin, Pattern, Mechanics, Preparation, Orientation and Navigation, Significance (4 Hours)

iv) Courtship Behavior – General Principle, Courtships of Three SpinedStickle Back Fish, Betta Splendens, Frog, Peacock (2Hours)

v) Parental Care : In Fishes – Hippocampus, Arius a) In amphibians – Ichthyophis, Rhacophorus, Alytes b) In birds – Koel, Penguin, Sun bird (3 Hours)

vi) Nesting Behavior –Wasps, Birds like Weaver Bird, Bower Bird and Tailor Bird (1 Hour)

vii) Pheromones in Animals; Role of Hormones in Drive; Role of Pheromones in Alarm Spreading; Crypsis, Predator Detection&Tactics (2 Hour)

viii) Animal Cognition, Tool Using by Animals; Biological Clock – Its Nature, Types and Significance; A Brief Account of Coloration and Mimicry in Animals (3 Hours)

Module-2: ENVIRONMENTAL BIOLOGY (33 Hours)

1. Ecosystem: Definition, Types of Ecosystems with Examples, Man Engineered and Micro- ecosystems, Pond Ecosystem- Abiotic and Biotic Components; Interaction between Components (3 Hours)
2. Community Ecology : Community Structure; Ecological Determinants; Ecological Stratification; Ecotone and Edge Effect; Ecological Niches; Ecological Succession; Climax Community (3 Hours)
3. Habitats : Terrestrial Habitat – Types, a Brief Account of Forest and Desert Biomes; Flora, Fauna and Adaptations; Estuary and Marine Habitat with Zonation of Sea; Fresh Water Habitat – Lentic and Lotic Systems, Fauna and its Adaptations (5 Hours)
4. Food Chains and Energy Flow:Types of Food Chains with Examples; Food Webs with Examples; Ecological Pyramids with Examples; Energy Flow and Laws of Thermodynamics (3 Hours)
5. Limiting Factors: Concept, Definition of Liebig's Law and Shelford'sLaw, Combined Effect, Subsidiary Principles with Examples (2 Hours)
6. Population Ecology:Population Density; Natality and Mortality; Population Growth Rate; Biotic Potential – Allele'sPrinciple and Gause's Principle; Life Tables (3 Hours)

7. Biogeochemical Cycles : Carbon, Nitrogen, Phosphorous, Oxygen, Water Cycles; Carbon Debt (5 Hours)
8. Environmental Pollution : With Reference to India – Air, Water, Soil, Noise, and Radiation Pollutions – Sources, Effects and Control; ABrief Account Pollution Control Measures with the Help of Biotechnology (7Hours)
9. Global Impacts: Green House Effect and Acid Rain. Biological Waste Management, Sewage Management (Treatment of Municipal and Industrial Effluents), Introduction to Toxicology, LD50, LC50, Xenobiotics, Bioremediation (3 Hours)

Module-3: BIOSTASTISTICS (6 Hours)

1. Tabulation and Classification of Data, Frequency Distribution and Graphical Distribution of Data, Bar Graph, Tabulation and Histogram; Data Presentation with Special Reference to Biological Samples
2. Measures of Central Tendencies – Mean& types, Median, Mode and their Properties
3. Measures of Dispersion: Range, Mean Deviation, Variance, Frequency, Standard Deviation and Coefficient of Variation, Regression, correlation,Probability – types one examples from biological samples, formulae used in biostatistics
4. Hypothesis Testing: standard error, Student T and Chi-square Test

Subject: ZOOLOGY IV-SEMESTER (3 Hours of Teaching per Week- 15 practicals)

Course Code: (Zool.Pr: IV-4) PRACTICALS - 4

I Environmental Biology:

1. pH of Water and Soil Samples

2. Estimation of CO2 of the Water Samples

3. Estimation of O2 of the Water Samples (Winkler's Method)

4. Estimation of Chlorides of the Water Samples.

5. Estimation of Total hardness of Water sample.

6. Study of Pond Ecosystem by Visiting a Pond

7. Behavioral Study of – Eel, Ichthyophis, male Hippocampus, Rhacophorus, Alytes, Peacock,Termite and Ant

8. Study of Behavior Pattern of Monkeys Available in Your Vicinity, and Record the Number of the Group and Behavior Study; Observation of Social Organization in Honey Bee/ Termites; Observation of Nesting Behavior of Birds in your surrounding area. 8 prts.

II Biostatistics:

1. Collection & presentation of Data. (Using Class room Parameters- Height, Weight, Blood

Group etc.)

2. Tests of Significance. (One problem for each) Student's 't' Test. Chi Square Test. 4 prts.

III Computer Awareness:

1. Windows, MS Office Word, Excel and Power Point, Internet Browsing.

2. Handling Graphs, Adding Photos

3. Handling Data and components to write Project Reports 3 prts.

DAVANGERE UNIVERSITY

Bachelor of Science (B.Sc.) - 2016 onwards

Subject: ZOOLOGY

ZOOLOGY V- SEMESTER (45 hours-3 Hours of Teaching per Week)

Course Code: (Zool.Core: V-5) MOLECULAR BIOLOGY, IMMUNOLOGY, BIOTECHNOLOGY AND WILDLIFE BIOLOGY

Module-1: MOLECULAR BIOLOGY (13Hours)

Experiments to Show DNA and RNA as Genetic Material; Structure and Functions of DNA and RNAs (3); Other Forms of DNA (Non-coding, A,B, Z); Ribozymes; DNA replication, Enzymes in DNA Replication; DNA Repair Mechanism; Recombination in Prokaryotes; Protein Biosynthesis - Transcription (Post-transcription modification of RNA), Translation in Prokaryotes and Eukaryotes; Gene Action and its Expression; Genetic code : Components and Mechanism, Properties

Module-2: IMMUNOLOGY (8Hours)

Primary and Secondary Lymphoid Organs-Bone Marrow,Thymus; Bursa Fabricus; Peyer's Patches; T & B Cell immunity; Antigens and Antigenicity; Antibody- Types, Structure of IgG. Cytokines; Hypersensitivity - Allergy to Different Agents; ImmunologicalTolerance &Anti-immunity; and Immunization; Vaccines – types, DNA vaccine ; anddetailed account on AIDS

Module-3: BIO-TECHNOLOGY (12Hours)

Scope and Basic Concept in Genetic Engineering; important enzymes used in biotechnology; Cloning Vehicles: Plasmids, Cosmids; Introducing Cloned Genes into the Host Cells: Transformation, Transduction, Particle Gun; Electroporation; Liposome Mediated Cultivation; FISH; RAPD,RFLP;A Brief Account of Southern Blotting; PCR; DNA Finger Printing; Monoclonal Antibodies; Genome Library; Introduction to Animal Tissue Culture Technique; A brief account of Transgenic Animals

Module-4: WILDLIFE BIOLOGY (12Hours)

1. Distribution of wild life in India : the Himalayan ranges; the peninsular India sub region; Deccan Plateau; the Western Ghats; Eastern hill chain; Aravali ranges; the Indian desert; tropical rain forest; wild life in Andaman and Nicobar Islands

2. Animal Relationships: Mutualism; Commensalisms; Parasitism; Ammensalism; Predation and Competition with relevant examples

3. Wildlife Problems: Hunting; Over Harvesting; Habitat Destruction due to Over Population; Degradation; Habitat Shrinkage; Possibilities of Climatic Changes; Transgenic Changes; a Brief Account of Exotic/ Invasive sps.

4. Wild Life Conservation : Need; Agencies – Govt. and NGO's - CITES; INECE; TRAFFIC; IUCN; WWF; BIP; CBD; Red Data Book; Ramsar Convention; Kokkarebelluru; SalumaradaThimmakka; Methods of Conservation (in situ and ex situConservation); project Tiger, lion, elephant and crocodile;National Parks and Sanctuaries of Karnataka and its Importance, Location, Species Conserved; Endangered Fauna and Flora of India; Status of Wildlife in India; Wildlife Protection act 1972.

Subject: ZOOLOGY V-SEMESTER (3 Hours of Teaching per Week-15 practicals)

Course Code: (Zool.Pr: V-5) PRACTICALS – 5/5.1 APPLIED ZOOLOGY, WILDLIFE BIOLOGY, BIOTECHNOLOGY AND MOLECULAR BIOLOGY

I. Wild Life Biology

1. Animal relationships :

* For Mutualism – Trichonympha and Termite; Hermit Crab and Sea Anemone; Crocodile and Bird,

* For Commensalism – Sucker Fish and Shark; Sea cucumber and Fish

* For Parasitism – Ascaris, Sacculina on Crab, Leech, Tick and Mite

* For predation – Insect and Frog; Rat and Snake

* For ammensalism – Pencillium, Microcystis

* For competition – Squirrel and Bird; Grasshopper and Rabbit 1 prt.

2. Endangered Species (by Models/Pictures) – Slender Loris; Pangolin; Great Indian Bustard; Grey Hornbill; Green Sea Turtle; Musk Deer, Gharial,Varanus; Indian Rock Python1 prt.

3. Visit to Nearby Game Sanctuary/ Bird Sanctuary / National Parks to Study Wild Life (Catalogue of Animals Observed to be Submitted); Zoological provinces of India with figures /wild life distribution/Biodiversity hotspots to be marked in the India map. 1 prt.

II. Applied Zoology

1. Food Fishes :Catla; Anabas; Labeo; Channa; Shark;Mackerel; Sardine;Wallagoattu1 prt.
2. Caste of honeybee, Study of morphology, Mouth Parts and Sting Apparatus of worker bee; Nature of Bee Hive; Bee Wax and Honey 1 prt.
3. Life Cycle of Bombyx Mori including Externals; Mulberry and Non-mulberry Cocoons; Diseases - Pebrine, Muscardine, Flacherie and Grasserie; demonstration of silk gland 1 prt.
4. Byproducts of Fisheries, Poultry Dairy and Sericulture – Fish Oil; Milk Powder; Egg Powder. Fowl Excreta; Dry Cocoons and Silk Worm Excreta 1 prt.

5. Visit to Poultry/ Dairy/ Fisheries/ Silk Raring Centre/ Biotechnology Lab (Report to be Submitted) - Field Visit is COMPULSORY 2prt.

III. Biotechnology and Molecular biology

1. DNA Isolation and its protocol 1 prt.
2. Electrophoresis - Types, Technique and its Applications; Gel Electrophoresis Protocol 2 prts.
3. Study of DNA Finger Printing; PCR, 1prt.
4. Study of Plasmids, Cosmids (2 examples for each; Photographs can be Used) 1 prt.
5. Types of DNA (A,B,Z) and RNA(t,r,m) Model or Photos 1 prt.

DAVANGERE UNIVERSITY

Bachelor of Science (B.Sc.) - 2016 onwards

Subject: ZOOLOGY

V-SEMESTER (45 hours-3 Hours of Teaching per Week)

Course Code: (Zool.Core: V-6/5.2) APPLIED ZOOLOGY

Module-1: Poultry (6Hours)

Poultry Farm Management; classes and breeds of chick; Rearing House Equipments; Poultry Feed (starter & finisher) and its Composition; Broilers and Layers Rearing; grading of eggs; Nutritive Value of Eggs and Meat; a note on Poultry Diseases and their Control

Module-2: Dairy Farming (6Hours)

Management of Dairy Farm Animals – calf, heifer, pregnant cow, milking cow, dry cow and bull ; Breeds of Cows and Buffaloes; Milk and Milk Byproducts; Processing, Preservation and Marketing of Milk; upgrading and Artificial Insemination

Module-3: Sericulture (6Hours)

Moriculture - a Brief Account; Grainage Activities; Silkworm Rearing; Life Cycle and Morphology of Bombyx Mori; Environmental Conditions Needed for Rearing; Rearing Equipments; Worm Rearing Methods; Non-mulberry Silkworms; Silkworm Pest and Predators; a brief note on Silkworm Diseases –Pebrine, Muscardine, Flacherie and Glacherie; by product of sericulture.

Module-4: Inland Aquaculture (6 Hours)

Brief Account on Culturing of Indian Major Exotic Corps; Induced Breeding of Major Carps and Seed Fish; Types of Rearing Ponds; Endocrine Regulation of Fish Reproduction; a note on Fish by - products and Fish Diseases

Module-5: Apiculture (6Hours)

Different Species; Morphology; Mouth Parts and Sting Apparatus; Social Life& Life cycle; Duties of worker bee; Management of Bee Keeping (Modern Methods); Equipments Used; Economic Importance of Honey, Wax, Pollen, Venom,bee calendar and Bee Pollination; Chemical Composition of Honey

Module-6: Medical Zoology (6Hours)

A brief account of - Major Infectious and Communicable Diseases (Dengue, Filaria, Tuberculosis, Cholera, Anthrax, Typhoid, Encephalitis, Ebola ,Chicken gunia,Plague, Epidemic Typhus, STDs- types their Vectors, Pathogens and Prevention; prophylaxis & treatment; epidemics and eradication programme; general account of drug therapy and drug resistance.

Module-7: Scopes of Applied Zoology (9 Hours)

Biofertilizers, Biosensors, Biochips, Biofuels& types, MEOR(Microbial Enhanced of Oil Recovery), Bioplastic, Bioreactors, Biomining, Biodegradation, SCP(Single Cell Protein); An Account of Bioinformatics.

Subject: ZOOLOGY V-SEMESTER (3 Hours of Teaching per Week)

Course Code: (Zool.Pr: V-6) PRACTICALS – 6/5.2 PROJECT WORK

1. Batches Consisting of 6 Students Each are Formed for the Execution of Project Work.

2. They are given a suitable identified topic for project work by the faculty in-charge of the batch.

3. Each batch should conduct a survey and submit the report on the project under the guidance of the batch in-charge.

4. The project work should concentrate on the problems of surrounding area pertaining to zoology.

5. Each batch should work as a team with suitable coordination among themselves.

6. A copy of project report (hard and soft copy) must be submitted to the department.

DAVANGERE UNIVERSITY

Bachelor of Science (B.Sc.) - 2016 onwards

Subject: ZOOLOGY

ZOOLOGY VI- SEMESTER (45 hours-3 Hours of Teaching per Week)

Course Code: (Zool.Core: VI-7/6.1) CELL BIOLOGY, CANCER AND DEVELOPMENT BIOLOGY

Module-1: CELL BIOLOGY (22Hours)

i) Introduction : History,Tools and Techniques in brief and Subdivisions of Cell Biology (1Hour)

ii) Chromosome: Number;Size of Genome; Morphology; Heterochromatin and Euchromatin; Fine Structure Chromosome – Nucleosome Model; Polytene and Lampbrush Chromosomes; Karyotyping and Ideogram, Study of human karyotype. (6 Hours)

iii) Nucleic Acid: RNA Processing , gene switch off and on; Exons and Introns(4 Hours)

iv) Mitosis: Introduction; Cell Cycle, Centriole Cycle; Mitotic Apparatus; Chemical Events During Prophase; Cytokinesis, Role of Mitotic Apparatus in Chromosome Movement; Significance Meiosis, significance; Phases; Interkinesis; Synaptonemal Complex and Recombination; Mechanism, theories of Crossing Over and its Significance. (5Hours)

v) Cell Lineage; Cell-to Cell Interaction; Cell-to Cell Adhesion; Cell Fusion; Genetic and Induced Teratogenesis; Paedogenesis and Neoteny; Programmed Cell Death-apoptosis; Aging and its Theories; Stem Cells: Sources, Types and their Use in Human Welfare (4Hours)

vi) Sex Determination:Types with Examples; Chromosomal and Genic Balance Theory; Human Chromosomal Abnormalities(Numerical &Structural) - Diff. Syndromes, Gynandromorphs, Intersex, Environmental and Hormonal Effects; Sex Limited & Influenced Characters.(4 Hours)

Module-2: CANCER BIOLOGY (5Hours)

Concept; Types; Characteristics; HeLa cells; Oncogenes; Immune System and Cancer; Tumor; Carcinogenic Agents (Physical, Chemical and Biological); Mitotic Inhibitors;Causes of Human Cancer; Different types of Therapy – Immunotherapy,Interferon.

Module-3: DEVELOPMENTAL BIOLOGY (18Hours)

i) Cleavage and Blastula: Types of eggs; Types planes and patterns of Cleavage with Examples;Effect of Yolk on Cleavage in Frog and Chick; Types of Blastula with Examples (3Hours)

ii) Organizer Phenomenon: Definition; Potencies of the Dorsal Lip of the Blastopore of Amphibian Gastrula; Experiment of Spemann and Mangold; Induction; Chemical Nature, Types and Theories of Organizer, Competence; MorphogenicGradients; TotipotencyandPleuripotency; Fate Map of Frog Blastula; Role of Thyroxine in Control of Metamorphosis in Amphibia(3Hours)

iii) Chick Embryology:Structure of Hen's Egg; Cleavage; Blastula; Gastrulation; Origin and Structure of Primitive Streak; Structure of 18, 24, 48 Hour Chick Embryos;Extra Embryonic Membranes of Chick – Development; Structure and Function of Foetal Membranes (4 Hours)

iv) Placenta:Structure and Functions of Placenta; Morphological and Histological Classification of Placenta with examples; development of human fetus (5Hours)

v) Cloning in Animals–Polly, Dolly; Twins and Multiple Births (1 Hour)

vi) Estrous and menstrual Cycle; Menopause in Human, amniocentesis and Embryo Sexing, IVF& ETC Cryopreservation of Gametes/Embryos (1Hour)

vii) Fertilization: External and Internal; Mechanism, Biochemistry of Fertilization, Time and Significance; fertility and infertility; Immune-contraception; contraceptives and types; Parthenogenesis: Types with Examples; Artificial Parthenogenesis; Significance (3 Hours)

Subject: ZOOLOGY VI-SEMESTER (3 Hours of Teaching per Week-15 practicals)

Course Code: (Zool.Pr: VI-7) **PRACTICALS – 7/6.1 CYTOLOGY, CANCER AND EMBRYOLOGY**

Cell Biology :

1. Study of Permanent Slides of Mitosis and MeiosisDifferent Stages 1 prt.
2. Preparation of Onion Root Tip Squash and Observation of Stages 2 prts.
3. Preparation of Grass Hopper Testis Squash and Observation of Stages 2 prts.
4. Preparation of temporary slide of Salivary Gland Chromosomes of Drosophila and report 1 prt.
5. Study of Cancer Cell; Carcinogenic Agents – Tobacco, Cigarette, Pesticides, Perfumes1 prt.
6. Karyotype Study of Man 1 prt.
7. Syndromes person Photos of Man and its Karyotypes (3 Numerical+3Structural 1 prt.
8. Twins, SiameseandMultiple Births, Neoteny, Cell Cloning Tech. andDolly - Photo1 prt.

Developmental Biology

1. Frog Embryology: V.S of Cleavage; Blastula; Gastrula; Neurula 1 prt.
2. Chick Embryology: Study of Egg of Chick and Whole Mount of 18 hrs., 24 hrs., and 48 hrs., embryos; T S of 18 hrs& 24 hrs. embryos 1 prt.
3. Window Preparation of Hen's Egg 1 prt
4. Structure of Mature Sperm and Graffian Follicle of Human 1 prt.
5. Contraceptive devices: oral and virginal pills, Norplant; IUDs, (vaginal rings, cu T), condoms, spermicides, femidem; 1 prt.

DAVANGERE UNIVERSITY

Bachelor of Science (B.Sc.) - 2016 onwards

Subject: ZOOLOGY

ZOOLOGY VI- SEMESTER (45 hours-3 Hours of Teaching per Week)

Course Code: (Zool. Core: VI-8/6.2) GENETICS, EVOLUTION AND PALEONTOLOGY

Module-1: GENETICS (21 Hours)

i) Mendelian Genetics: Life and Work of Mendel; Mono and Dihybrid Cross; Mendel's Laws; Incomplete Dominance (Flower Color in 4 O'clock Plant, Fizzled Feather in Chick) (3 Hours)

ii) Interaction of Genes:
   a. Supplementary Factor 9:3:3:1 – Comb Pattern in Fowl
   b. Dominant Epistasis 13:3 – Plumage Color in Leghorn
   c. Recessive Epistasis 9:3:4 – Coat Color in Rodents
   d. Complementary Factor 9:7- Flower Color in Sweat Peas
   e. Polygenic Inheritance – Skin Color in Man

f. Lethal Genes – Coat Color in Yellow Mice (5Hours)

iii) Linkage and Crossing Over:Types, Crossing Over, Three Point Test Cross; Construction of Linkage Map in Drosophila (2 Hours

iv) Nature and Nurture: Definition; Experiment on PotentillaGlandulosa; Himalayan Albino Rabbit and Human Twins; Norm of Reaction; Homeostasis; Phenocopy; Pleotropism; Penetrance and Expressivity with Examples (2Hours)

v) Multiple Alleles - Inheritance of Coat Color in Rabbit; ABO Blood Groups in Man; Rh Factor (2 Hours)

vi) Sex Linked Inheritance: White Eye in Drosophila and Haemophilia and Color Blindness in Man; Y-linked Genes; eugenics and pedigree with examples (2Hours)

vii) Gene Concept : Gene Definition; Size; Cistron, Muton; Recon; Operon concept – lac operon; Transposable Elements; Split Genes; HoxGenes; Extra Chromosomal Inheritance (3Hours)

viii) Gene Mutation: Types and significance of Mutations, Molecular Mechanism of Mutation; Rate of Mutation, Detection of Mutation by CIB Technique; Directed Mutagenesis; Protein engineering (2 Hours)

Module-2: EVOLUTION (18 Hours)

i) Theories of Organic Evolution: Lamarckism and Neo-Lamarckism, Weisman's Theory, Darwin- Wallace Theory of Natural Selection (briefly explain founders principle, hybridization, recombination, natural selection, genetic drift-SW effect, variation, Darwinian finches)-Synthetic Theory of Evolution; De Veris Theory of Mutation;Gene frequency, Gene flow and types; Mendelian population. Hardy-Weinberg's Equilibrium with equation and factors affecting equilibrium.Meiotic Drive, Molecular Clock, y-chromosome Adam and Mitochondrial Eve, Haplogroups; Micro and Macro Evolution; Non-Darwinism-Neutral Hypothesis; Molecular Evolution (10Hours)

ii) Evidences of Organic Evolution: Evidences from Comparative Morphology, Anatomy, Biochemistry and Embryology (3Hours)

iii) Speciation: Concept of Species, types ofSpeciation; IsolataryMechanism (Pre and Post Zygotic); Polymorphism: Transient and Balanced with examples. (3 Hours)

iv) Adaptations in Animals: Aquatic (pri& sec), Volant (pri& sec), Arborial, Fossorial and Curssorial habit (2Hours)

Module-3: PALEONTOLOGY (6Hours)

i) An Account of Fossils- types, formation, Dating of Fossils, Preservation of Fossils

ii) Paleontology of Dinosaurs: Tyrannosaurus, Brontosaurus, Pterosaurs, Ichthyosaurus and Archaeopteryx; Geological Time Scale.

iii) Origin and Evolution of Horse and Man; An Account of Connecting Links.

Subject: ZOOLOGY VI-SEMESTER (3 Hours of Teaching per Week-15 practicals)
Course Code: (Zool.Pr: VI-8) PRACTICALS – 8/6.2 GENETICS, EVOLUTION AND PALEONTOLOGY

I. GENETIC PROBLEMS:

i) Monohybrid ratio (2animal examples)

ii) Dihybrid ratio (2 animal examples)

iii) Sex linkage - eye color in Drosophila; color blindness and haemophilia in man(1 each)

iv) Problems on inheritance of blood groups (2 examples) 4 prts.

II. Study of Blood Groups (ABO & Rh): Identification of Blood Groups 2 prts.

III. DROSOPHILA STUDY :

i) Collection and Culture of Drosophila melanogaster 2prt.

ii) Identification of Male and Female Flies & Life Cycle 1 prt.

iii) Mounting of Sex Comb &Study of Mutants 1 prt.

IV. EVOLUTION AND PALEONTOLOGY

i) (a)Study of Homologous Organs – Fore Limb Skeleton of Frog and Bird; (b)Study of

Analogous Organs - Wing of Bird and Insects 2 prts

ii) Study of Vestigial Organs of Man – Vermiform Appendix; Coccyx; Molar Teeth; Comparative

Study of Vertebrate Embryos – Shark, Frog, Lizard, Fowl, Rabbit/Man 1prt.

iii) Study of Fossils – Casts and Moulds; Study of Tyrannosaurus, Brontosaurus, Pterosaur,

Ichthyosaurus; Archaeopteryx 2 prts.

REFERENCES

1. Kotpal series for different Invertebrate phyla
2. Birds by Kotpal
3. General Zoology by Kotpal
4. Invertebrates and Vertebrates volumes by E Ayya
5. Invertebrate Zoology by Jordan and Verma
6. Ecology/ Fundamentals of Ecology by Odum
7. Introduction to Embryology by Balinsky
8. Evolution of Vertebrates by Colbert
9. Life of Vertebrates / Life of Mammals by Young J Z
10. Cytology, Genetics and Evolution by Verma& Agarwal
11. General Endocrinology by Terner
12. Chordate Embryology by Verma
13. Zoology books published by Saras Publications
14. Cytology by Powar
15. Cytology & Molecular biology by De Robertis and De Robertis
16. Genetics by Strikberger
17. Gene VII by Lewin
18. Genetics and Evolution by Dobzonsky and others

19. Zoogeography by V Rastogi
20. Palaeontology by Verma& Agarwal
21. Biochemistry by Lenizer
22. The Invertebrates volumes by Hyman L H
23. Cell physiology by A C Giese
24. The text book of Biotechnology by R C Dubey
25. The text book of Histology by Leeson
26. The text book of Biochemistry by Berry
27. Developmental Biology by Berril N J
28. Text book of Zoology Vol I &Vol II by Parker and Haswell
29. Comparative Animal Physiology by Prosser
30. Economic Zoology by Shukla &Upadhyaya
31. Economic Zoology by Venkiaraman
32. Genetics by Verma& Agarwal
33. Genetics by Winchester
34. Fundamentals of Computers by Rajaraman V
35. The ABC & XYZ of Bee Culture by Morse A Roger
36. Livestock and Poultry Production by Harbans Singh & E N Moore
37. Biostastics by Raghuvanshi&Chavan / Shukla
38. The text book of Animal Physiology by Goel
39. Adaptations by Wallace
40. An atlas of Histology by Freeman
41. Animal Behaviour by Sasidhara
42. Zoogeography of India by Tiwari
43. Immunology by Fatima and Kuby
44. Cell biology Genetics Mol. Biology Evolution and Ecology by Verma
45. Biostastics by Ramakrisha [Google search &Wikipedia as internet source]

Davangere University Shivagangotri, Davangere-577 002

GRADUATE PROGRAMME

Choice Based Credit System -Semester Scheme

BACHELORS IN COMMERCE (B.Com)

Syllabus: 2016-2017

Bachelor in Commerce (B.Com)

I-SEMESTER (5 Hours of per Week)

Course Code: B.Com. Core : 1.3 **FINANCIAL ACCOUNTING**

Course Objectives: To make students to learn the basic principles of Financial Accounting. Pedagogy: Combination of direct teaching, assignments and small group discussions. Course Inputs

Module-1: Basics of Accounting: 15 Hours

Introduction, Accounting as an Information System, Branches of Accounting, Meaning of Financial Accounting, Users of Accounting Information- GAAPS- Basic Concepts and Conventions- Accounting Standards issued by ICAI and IFRS issued by IASB- Manual Vs Computerized Accounting.

Module-2: Financial Statements of Sole Proprietor: 16 Hours

Introduction, Preparation of Manufacturing Account, Trading and Profit & Loss Account and Balance Sheet.

Module-3: Accounting For Consignment Transactions: 19 Hours

Meaning, Consignment Vs. Sales - Proforma Invoice-Account Sales-Types Of Commission, Accounting for Consignment in the books of Consignor and Consignee – Valuation of Stock - Goods Sent at Cost Price and Invoice Price-Normal and Abnormal Loss of Goods Sent on Consignment.

Module-4: Single Entry System of Accounting: 16 Hours

Meaning-Limitations of Single Entry System-Problems on Conversion of Single Entry into Double Entry.

Module-5: Accounting for Agricultural Farms: 10 Hours

Introduction- Objectives of Farm Accounting- Preparation of Crop and Cattle Account- Preparation of Balance Sheet.

Module-6 : Inculcation of Soft Skills: 04 Hours

1. Visit proprietary concerns and discuss the accounting methods adopted by them and give your suggestions for improvement.

2. Visit a Progressive farmer in your area, collect information relating to the income andexpenses connected with cultivation for the year and produce the relevant accounts to enable him to avail loan from a bank.

Skill Development Activities:

1. Single entry system –Tracing missing figures.

2. Final accounts of sole trader-Correcting a wrong trial balance.

3. Preparation of proforma invoice and account sales.

References:

1. Maheswari S.N., Financial Accounting.

2. Raman B.S., Financial Accounting.

3. Shukla & Grewal, Advanced Accounting.

4. Radha Swamy & R.L. Gupta, Advanced Accounting.

5. Anil Kumar & Others, Financial Accounting-1 New Delhi: Himalaya Publishing House.

I-SEMESTER (5 Hours of per Week)

Course Code: (B.Com. Core :1.4) **PRINCIPLES AND PRACTICE OF MANAGEMENT**

Course Objectives: To equip the students with the Principles of Management and Managerial Practice.

Pedagogy: A Combination of Class-room Lectures, Case Analysis, Group Discussions, Student Presentations and Field Work.

Course Inputs

Module-I: Introduction to Management 15 Hours

Introduction to Management-Meaning, Definition, Nature, Scope, Importance and Functional areas of Management- and Role of a Manager-Managerial Skills-Social responsibility of Management and Ethics.

Module-II: Planning 12 Hours

Meaning, Definitions, Nature, Importance, Types of Planning. Merits & Demerits of Planning, Planning Process- Decision Making- Meaning, Definitions & Importance.

Module-III: Organizing 16 Hours

Introduction - Meaning, Definitions, Nature and Purpose of Organization, Principles ofOrganization - Types of Organization - Line, Staff, Functional & Committee Form-Delegation of Authority & Responsibility and Span of Control.

Module-IV: Directing, Leadership and Motivation 15 Hours

Directing- Meaning, Definitions, Nature & Principles of Directing-Leadership-Meaning, Definitions, Importance & Leadership Styles-Motivation- Meaning, Importance & Theories of Maslow and Herzberg.

Module-V: Communication, Controlling and Co-ordination 18 Hours

Communication- Meaning, Importance & Process of Communication-Controlling-Meaning, Need for Control, Essentials of good control system & Modern Controlling Techniques- Management By Objectives(MBO), Management By Exception (MBE), Total Quality Management (TQM) & Just in Time (JIT), {MBO, MBE, TQM & JIT only meaning & Importance}- Co-ordination-Meaning, Nature & Principles of Co-ordination.

Module-VI: Inculcationof soft skills 04 Hours

1. Assuming that you are a General Manager of a company how do you handle a situation where an organization faces unexpected disturbances.

2. Being a leader compose a Motivational Speech to the subordinates in the organization

Skill Development Activities:

1) Collect the Photographs and Bio-data of any three contributors to management thoughts.

2) Visit any business organization in your area and collect information of types of planning adopted by them.

3) Prepare organizational chart of any establishment of your choice.

4) Describe the feedback control system followed by the organization in your area.

Books for Reference:

1. Anne Stephen-Event Management-HPH

2. H.R. Appannaiah, G. Dinakar & H.R. Ramanath-Principles of Management-HPH

3. Knootz. H & O' Dennel- Essentials of Management- Mc Graw Hill

4. Prasad. L.M-Principles of Management- Sulthan chand publication

5. Shashi. K. Gupta- Principles of Management-HPH

I-SEMESTER (5 Hours of per Week)

Course Code: (B.Com. Core :1.5) **PRINCIPLES OF MARKETING**

Course Objectives: To provide conceptual understanding and latest marketing developments and practices

Pedagogy: Combination of Class-room Lectures, Case Study Analysis, Group Discussions, Student Presentations and Field Work.

Course Inputs

Module-1 : Introduction to Marketing 15 Hours

Meaning, Definitions of Market, Marketing and Process of Marketing, Elements of Marketing Mix

Module-2: Consumer Behavior and Market Segmentation 18 Hours

Consumer Behavior - Meaning - Determinants of Buyer Behavior - Maslow's Hierarchy of Needs-Market Segmentation - Meaning, Definition and Importance of Market Segmentation, Strategies of Market Segmentation.

Module-3 : Product and Pricing 17 Hours

Product: Meaning, Definition of a Product, Product Mix, Product Life Cycle, Branding, Packaging and Labeling [Only Meaning and Characteristics]. Pricing: Meaning, Factors influencing Pricing Decisions, Pricing Policies and Strategies.

Module-4 : Channels of Distribution and Promotion 16 Hours

Channels of distribution - Definition, Need, Types, Selection and Decline of Channels, Factors Affecting Channels. Promotion - Meaning, Importance of Promotion, Advertising – Meaning Media Selection, Advertisement Copy. Sales Promotion, Public Relation, and Direct Selling [Only Meaning and Importance]

Module-5 : Recent Trends in Marketing 10 Hours

E- Marketing, - Tele Marketing, M-Business, Relationship Marketing,– Green Marketing – Relationship Marketing – Retailing – Concept Marketing and Virtual Marketing .

Module-6 : Inculcation of Soft Skills 04 Hours

1. Develop an advertisement copy for a product of your choice.

2. Prepare a questionnaire for collecting information regarding Consumer Behavior towards Fast Moving Consumer Goods of your choice.

Skill Development Activities

1. Identify the product of your choice and describe in which stage the product life cycle it is positioned.

2. Suggest strategies for development of a product.

3. Prepare charts for distribution network for a product of your choice.

Books for Reference:

1. Philip Kotler and Gary Armstrong, Principles of Marketing

2. Gandhi J.C., Marketing Management

3. Pillai R.S.N and Bhagwathi, Modern Marketing

4. Neelamegham, Marketing in India

5. Anitha H.S., Marketing Management.

6. Reddy P.N. and Appannaiah, Essentials of Marketing Managements

7. Anitha H.S., Emerging Dimensions in Marketing.

8. Rajan and Nair, Marketing

I-SEMESTER (5 Hours of per Week)

Course Code: (B.Com. Core : 1.6) **FINANCIAL MARKETS AND SERVICES**

Course Objectives: To equip students to understand the Financial Markets and their services.

Pedagogy: Combination of lectures, assignments and group discussions.

Course Inputs

Module-1. Financial Markets 20 Hours

Primary Market - Meaning – Features - Players of Primary Market – Instruments in Primary Market (Names)– Merits and Demerits of Primary Markets; Secondary Market – Meaning – Structure –Functions – Trading and Settlement System of Stock Exchange Transactions – Players in the Stock Market– Merits and Demerits of Stock Markets – Reforms in Stock Market – OTCEI and NSE – Origin – Function – Merits – Demerits.

Module-2. Banking System 13 Hours

Functions of Commercial Banks – primary, subsidiary and miscellaneous – Technique of Credit Creation - Investment Policy of Banks.

Module-3. Regulatory System 12 Hours

Reserve Bank of India – functions – instruments of credit control-SEBI – objectives and functions.

Module-4. Non-Banking Financial Intermediaries 15 Hours

Investment & Finance Companies - Merchant Banks - Hire Purchase Finance - Lease Finance – Housing Finance - Venture Capital Funds and Factoring.

Module-5. Mutual Funds 16 Hours

Concept of Mutual Funds - Growth of Mutual Funds in India - Mutual Fund Schemes – Money Market-Mutual Funds – Private Sector Mutual Funds – Evaluation of the performance of Mutual Funds –Functioning of Mutual Funds in India.

Module-6. Inculcation of Soft Skills 04 Hours

1. Visit a Nationalised Bank and Prepare a proposal for availing short term and long term loans

2. Visit a stock market in your area and write a report on trading methods.

Skill Development Activities

1. Procedure and documents required to open a Demat account

2. Visit any development bank offering mutual fund schemes and collect information

3. Collect recent information of RBI monetary policy

4. Visit an institution offering merchant banking services and collect information regarding services

5. List name of venture capital companies

Books for reference

1. Financial markets and services ; E. Gordon , K. Natarajan ,HPH

2. India financial system - theory and practice ; Khan M.Y., Tata McGraw Hill

3. Monetary planning of India ; Gupta S.B., S. Chand

4. RBI bulletin

II- SEMESTER (5 Hours per Week)

Course Code: (B.Com. Core : 2.3) **ADVANCED FINANCIAL ACCOUNTING**

Course Objectives: To acquaint the students with the basic principles of Financial Accounting.

Pedagogy: Combination of lectures, assignments and group discussion

Module-1: Royalty Accounts, Excluding Sublease 18 Hours

Module-2: Hire Purchase Accounting including Repossession 18 Hours

Module-3: Departmental Accounts 18 Hours

Module-4: Branch Accounts 18 Hours

Preparation of Accounts in the Books of Head Office only including Preparation of Trading and Profit and Loss Accounts for Verification.

1. Branch which deals in Cash and Credit Sales, and

2. Branch which Receives Goods at Invoice Price (excluding Stock and Debtors System-Incorporation Entries-Foreign Branches)

Module-5: Human Resource Accounting: 04 Hours

Definition, Objectives, Methods, Advantages and Limitations.

Module-6 : Inculcation of Soft Skills: 04 Hours

a) Collect information from the Annual Reports of three PSUs where Human Resource is shown as asset in their Balance Sheets.

b) Prepare the royalty agreement for the following relationships

i) Manufacturer and Patentee.

ii) Landlord and Tenant.

iii) Author and Publisher.

Skill Development Activities:

1. Draft hire purchase agreement.

2. Collect the copies of hire purchase agreements.

3. Draft a layout structure of Departmental stores.

4. List out the basis of allocation of common expenses among different departments.

References:

1. Anil Kumar and others, Financial Accounting

2. Iyengar S.P., Advanced Accounting

3. Raman B.S., Financial Accounting 1 and 2

4. Shukla M.C., T.S. Grewal and S.C. Gupta, Advanced Accounting

II- SEMESTER (5 Hours per Week)

Course Code: (B.Com. Core : 2.4) **HUMAN RESOURCE MANAGEMENT**

Course Objectives: The objective of the course is to expose the students to the various aspects of human resources development strategies

Pedagogy: Class room Lectures, Assignments and Presentations.

Course Inputs

Module-I: Human Resource Management 16 Hours

Meaning, Definition, Nature, Scope, Managerial and Operative Objectives, Evolution andDevelopment of Human Resource Management, Role of Human Resource Manager and Responsibilities of Human Resource Manager.

Module-II: Human Resource Planning and Development. 12 Hours

Meaning, Importance and Need for Human Resource Planning, Benefits of Human Resource Planning. Meaning and Definition and Features of HRD, Need, Objectives and Functions of HRD.

Module-III: Job Analysis and Job Design. 16 Hours

Job Analysis, Concepts, Objectives, Significance, Process of Job Analysis, Techniques of Job Analysis, Job Description, Job Specification, Job Design.

Module-IV: Recruitment and Selection. 16 Hours

Recruitment-Need for Recruitment, Techniques, Sources-Internal and External Sources and Modern Methods-Process of Recruitment, Recruitment Policy, Selection, Steps in Selection Process, Test and Interviews, Types, Placement and Induction.

Module-V: Employee Training. 16 Hours

Need and Importance / Objectives, Types and Methods of Training, Benefits and Training, Designing Training Programmer, Executive Development Programmer-Need and Techniques. Meaning of Performance Appraisal, Need, Objectives and Steps in Performance Appraisal.

Module-VI: Inculcation of Soft Skills. 04 Hours

i. Visit any organization in your area and write the methods of selection and recruitment process of Employees adopted by that organization.

ii. Visit any organization and write the steps adopted in that organization for performance appraisal of employees.

Skill Development Activities:

1. Visit any industry and give brief note on Human Resource Planning.

2. Visit any training and Write brief note on the same.

3. Conduct an IQ test and affix summary to the record.

Reference Books:

1. Gupta C. B., Human Resource Management, Sultan Chand and Sons.

2. Edwin Flippo, Principles of Personal Management, McGraw Hill.

3. Kanka, Human Resource Management, Sultan Chand Pubication.

4. Prasad L M, Human Resource Management, Sultan Chand and Sons.

5. Subbarao P., Human Resource Management, Himalaya Publishing House.

II- SEMESTER (5 Hours per Week)

Course Code: (B.Com. Core : 2.5) **MARKET AND COST BENEFIT ANALYSIS**

Course Objectives: To acquaint students in finding business solutions for decision making

Pedagogy: Class room Lectures, Assignments and Presentations.

Course Inputs

Module 1. Demand and supply analysis: Demand – meaning, law of demand, elasticity of demand , determinants of demand, demand forecasting – methods & problems; Supply- law of supply and determinants of supply 15 Hours

Module 2. Cost analysis and profit planning : Economies of scale , cost – meaning ,types – explicit and implicit cost , incremental cost ,opportunity cost ,TC, AC, MC, FC, VC – behaviour in short and long run (equations ,problems) ; BEP – meaning ,chart, problems on unit and value method , margin of safety 18 Hours

Module 3. Market analysis and pricing decisions; Types of competition – meaning and features of perfect and imperfect (monopoly , monopolistic, oligopoly) competition ; Pricing – determinants and methods – cost plus pricing , target pricing , marginal cost pricing , product line pricing, price bidding , new product pricing , pricing over PLC 18 Hours

Module 4. project planning; Meaning –stages of capital budgeting , components , techniques, simple problems 15 Hours

Module 5. Linear programing ; Meaning , characteristics , methods , problems on graphical method 10 Hours

Module-6 : Inculcation of Soft Skills 04 Hours

1. Forecast the sales of a firm of your choice considering the sales data of past five years.

2. Prepare a comparative report of pricing behaviour of 3 firms and comment.

Skill Development Activities

1. Give specific examples of - explicit and implicit cost , incremental cost , opportunity cost , social cost , direct and indirect cost , sunk cost

2. Compute BEP of a business unit

3. Identify monopoly industries in public and private manufacturing and service sectors

Books for reference

1. Varshney and Maheshwari ; S.Chand : Managerial Economics

2. S. Shankaran : Managerial Economics

3. P.N. Reddy and Appannaiah ;HPH : Managerial Economics

4. P.C. Thomas : Managerial Economics

II- SEMESTER (5 Hours per Week)

Course Code: (B.Com. Core : 2.6) **LAW AND PRACTICE OF BANKING**

Course Objective: To enable the students to understand the Laws of Banking Operations and practical functioning of the Banks.

Pedagogy: A Combination of Class-room Lectures, Case Study Analysis, Group Discussion, Student Presentations and Field Work.

Course Inputs

Module 1: Banker and Customer 16 Hours

Definition of Banker and customer, Relationship between banker and customer- primary and secondary, Banker’s rights and obligations.

Module 2: Customer and account opening procedure 16 Hours

Types of accounts- account opening procedure (KYC norms) ; Special types of customers- Minor, joint account, HUF, Partnership account, joint stock company (public and private), Non Resident Indian account, Registered and unregistered societies and clubs- precautions to be taken by the banker while opening and operating the accounts.

Module 3: Negotiable Instruments 16 Hours

Meaning of negotiable instrument, definition, essentials- Kinds of negotiable instrument- Promissory Note, Bill of Exchange and Cheque- Meaning, Definition, Essentials of valid cheque, types, crossing of cheque- types of crossing, material alteration and endorsement- types of endorsement.

Module 4: BANKING OPERATIONS 18 Hours

Collecting Banker: Meaning – Duties & Responsibilities of Collecting Banker – Holder for Value – Holder in Due Course - Statutory Protection to Collecting Banker Paying Banker: Meaning – Precautions – Statutory Protection to the Paying Banker – Dishonor of Cheques –

Grounds of Dishonor – Consequences of wrongful dishonor of Cheques. Lending Operations: Principles of Bank Lending – Kinds of lending facilities such as Loans, Cash Credit, Overdraft, Bills Discounting, Letters of Credit – NPA: Meaning, circumstances & impact – regulations of priority lending for commercial banks.

Module 5: Technology in Banks 10 Hours

Internet banking, ATM, E- banking, core banking, online banking, Tele banking- Meaning and operation.

Module 6: Inculcation of soft skills 04 Hours

1. Prepare a write up on Electronic fund transfer- NEFT and RTGS used in NationalisedCommercial Banks.

2. Report the Procedure and Provisions adopted by nationalized bank for lending education loan.

Skill Development Activities

1. Collect and fill in the account opening form, pay-in-slip and withdrawal slip.

2. Draft a proforma of a cheque and showing different types of crossing.

3. Visit a nearest ATM and report procedure for using ATM cards.

Books for Reference

1. Gordon & Natarajan: Banking Theory Law and Practice, Himalaya publishing house.

2. S. P. Srivastava ; Banking Theory & Practice, Anmol Publications

3. Reddy and Appannaiah; Law and practice of banking, Himalaya publishing house.

4. Tandon M.L: Banking Law and Practice in India, Indian Law House

III-SEMESTER (5 Hours per Week)

Course Code: B.Com. Core : 3.3 CORPORATE ACCOUNTING-I

Course Objectives: To enable students to acquire skills and to develop knowledge at strategic level.

Pedagogy: Combination of Class-room lectures, Case studies, Group Discussion, Seminar Presentations, Soft Skills and Field work.

Course Inputs

Module – 1: ISSUE OF SHARES AND DEBENTURES: (16 Hours)

Introduction, Meaning, and Types of Shares and Share Capital – Issue of Shares, Allotment of Shares, Calls on Shares, Calls-in-Arrears, Calls in Advance, Forfeiture of Shares, Problems on Issue of Shares, Forfeiture and Reissue of Shares and Pro-rata Allotment. Debentures: Meaning, Definition, Types, Difference between Shares and Debentures.

Module–2: VALUATION OF SHARES AND GOODWILL: (16 Hours)

Need for valuation of Equity Shares, Fully paid and partly paid shares-Net Asset Method-Yield Method-Fair Market Value Method. Valuation of Goodwill: Meaning, Need, Average Profit Method, Super Profit Method, and Capitalization Method.

Module-3: PREPARATION OF FINANCIAL STATEMENTS OF JOINT STOCK COMPANY: (16 Hours)

Introduction, Meaning, Objectives, Types, Importance and Limitations of Financial Statements,Preparation of Financial Statements of a Company (Format as per Schedule III of Companies Act, 2013) in Vertical Format with Note (excluding Publishing and Hotel Companies).

Module–4: INTERNAL AND EXTERNAL RECONSTRUCTION: (16 Hours)

Meaning, Need, Objectives of Internal Reconstruction - Differences between Internal andExternal Reconstruction - Problems on Internal Reconstruction only.

Module –5: LIQUIDATION OF COMPANIES: (16 Hours)

Meaning, Types of Liquidation, Preparation of Liquidators Final Statement of Account.

Module–6: RECENT DEVELOPMENTS IN ACCOUNTING: (16 Hours)

Value Added Statements, Economic Value Added, Environmental Accounting, Commitment to Environment, Brand Accounting, International Accounting, Creative Accounting, Responsibility Accounting, Inflation Accounting (Concept only).

Module-7 SKILL ORIENTATION:

1. Types of Loans, Rate of Interest and Documents demanded by the Banks in the process of sanctioning loans.

2. Recent Internal Reconstruction in India with reference to Case Studies.

Skill Development Activities:

1. Collect of Share Application Form, and Prospectus of any organisation.

2. Collect the Financial Statements of Joint Stock Company.

3. Preparation of Liquidators Final Statements of Accounts with imaginary figures.

Reference Books:

1. Anil Kumar – Financial Accounting, HPH.

2. Arulandam & Raman – Corporate Accounting – II.

3. Dr.S.N. Maheswari - Financial Accounting.

4. S.P. Jain & K.L.Narang – Corporate Accounting.

5. R.L.Gupta – Advanced Accounting, Volume II, Jain Book Depot.

6. B.S.Raman – Corporate Accounting, United Publications.

III-SEMESTER (5 Hours per Week)

Course Code: B.Com. Core : 3.5) **CORPORATE LAW**

Course Objectives: To enable students to acquire knowledge regarding provisions ofCompanies Act 2013.

Pedagogy: Combination of Class-room lectures, Case studies, Group Discussion, Seminar Presentations, Soft Skills and Field work.

Module-1:INTRODUCTION TO COMPANY: (10 Hrs)

Meaning, Definition –Features- Advantages and Disadvantage; Kinds of Companies; High Lights of Companies Act 2013.

Module-2: A) FORMATION OF A JOINT STOCK COMPANY: (24 Hrs)

Stages involved in the formation of a Company (in brief):

a) Promotion Stage : Meaning of Promoter-Position and Functions of Promoter,

b) Incorporation Stage- Meaning, Procedure for Incorporation-Basic Documents-Memorandum of Association, Articles of Association, Prospectus and Statement in Lieu of Prospectus- Meaning-Importance and Contents- Distinction between Memorandum of Association and Articles of Association .

c) Capital Subscription Stage.

d) Business Commencement Stage.

B) FORMATION OF GLOBAL COMPANY:

Meaning- Types-Features and Legal Formalities .

Module-3: MANAGERIAL PERSONNEL OF COMPANY: (16 Hrs)

Directors and Company Secretary-Meaning, Types, Qualification, Appointment, Position, Rights, Duties, Liabilities and Removal. CSR Committee.

Module-4: CORPORATE MEETINGS: (16 Hrs)

Meaning, Types of Meetings, Board of Directors, Statutory Meeting, Annual General Meeting and Extra-ordinary General Meetings-Provisions and Procedures for conducting Meeting-Agenda, Quorum, Resolutions, Minutes, Proxy and Requisites of a Valid Meeting.

Module-5: WINDING–UP OF COMPANY: (10 Hrs)

Meaning, Modes of Winding up, Official Liquidator and his Duties, Provisions applicable to every mode of Winding up.

Module 6: SKILL ORIENTATION: (4 Hrs)

You being the Secretary of a Company:

1. Draft a notice to convene Annual General Meeting.

2. Prepare Letter of Allotment/Regret along with the basis of allotment.

Skill Development Activities:

1. Collect and fill De-mat account opening form and prospectus-cum-share applicationform.

2. Draft a Memorandum of Association.

3. Draft Resolutions of various Meetings.

Books for reference:

1) Elements of Corporate Law -S.N. Maheshwari

2) Business Law for Management - Balchandran

3) Company Law and Secretarial Practice- M.C. Kuchal

4) Elements of Company Law- N.D. Kapoor

5) Company Law and Secretarial Practice- Sherlekar

6) Essentials of Company Law and Secretarial Practice-Dr. P.N Reddy and H.R. Appanaiah

III-SEMESTER (5 Hours per Week)

Course Code: B.Com. Core : 3.4) **LAW & PRACTICE OF INCOME TAX-I**

Objectives : To enable the students to grasp the legal provision and practical aspects of Income Tax Act.

Pedagogy : Combination of class room lectures, case laws, group discussion, Assignments, students presentation , Soft Skills, and Field work.

Note : This subject should be taught with reference to the provision of Income tax Act 1961 as Amended up to date.

Module-1: INTRODUCTION TO TAXATION: (6 hours)

Meaning of Tax, Characteristics and objectives of Taxation, Types of Taxes-Direct and Indirect Taxes only, Advantages and Disadvantages of Direct and Indirect Taxes.

Module-2: BASIC CONCEPTS OF INCOME TAX ACT: (8 hours)

Assessment Year, Previous Year, Person, Assessee, Income, Gross Total Income, Total Income, Agricultural Income, Exempted Incomes under Section 10.

Module-3: RESIDENTIAL STATUS AND INCIDENCE OF TAX: (10 hours)

Determination of Residential Status of an Individual, Computation of Gross Total Income of an Individual on the basis of Residential Status (Theory & Problems)

Module-4: INCOME FROM SALARIES: (20 hours)

Meaning of Salary, Definition of Salary u/s 17 (1), Allowances, Perquisites, Provident Fund, Retirement Benefits, Deductions and Problems on Computation of Taxable Salary.

Module-5: INCOME FROM HOUSE PROPERTY: (16 hours)

Basis for charge, Deemed owner, Annual Value, Determination of Annual Value,Deductions from Annual Value - Problems on Computation of Income from House Property.

Module-6: DEDUCTIONS UNER SECTION 80:

Deductions under Section 80C, 80CCC, 80CCD, 80CCG, 80D, 80DD, 80DDB, 80E, 80G, 80GG 80TTA and 80U (Problems on 80C and 80G only).

Module-7: SKILLS ORIENTATION: (4 hours)

1. Prepare a salary statement showing taxable salary of at least 5 employees of any organisation you visited.

2. As a Tax Practitioner, advise an individual regarding tax savings scheme.

Skill Development Activities:

1. Prepare a chart showing the list of Direct and Indirect Taxes.

2. Prepare a chart showing meaning of salary for different purposes.

3. Collect Form No 16 of an employee and paste it

Reference Books:

1. Mehrotra H.C and Goyal, Direct taxes, Sahithya Bhavan Publication, Agra.

2. Vinod Singhania, Direct Taxes, Taxxman Publication Private Ltd, New Delhi.

3. Gaur and Narang, Law and practice of Income Tax, Kalyani Publications, Ludhiana.

4. Bhagawathi Prasad, Direct Taxes.

5. Dr. Saha, Law and Practice of Income Tax, Himalaya Publishing House.

III-SEMESTER (5 Hours per Week)

Course Code: B.Com. Core : 3.6) **COMPUTER CONCEPTS FOR COMMERCE**

Course Objectives: To enable students to learn the fundamentals of computer and its application to business.

Pedagogy: Combination of Class-room Lectures, Practice in the Computer Laboratory and Exercises.

Module-1:COMPUTER CONCEPTS: (10 Hours)

Introduction, Meaning, and Evolution of Computers-History-Generation – Classification of Computers: Digital, Analog, Hybrid, Mini, Micro, Mainframe, Super Computers, General and Specific Computers, Personal Computers, Palm Computer, Laptops and Desktops. Application of Computer in Business and Office Environmentand other Areas.

Module-2: PERIPHERAL DEVICES: (08 Hours)

Block Diagram of a Digital Computer System and Functions of each Block; Input and Output Devices, Keyboard – Mouse – Scanner – Joystick – OMR – MICR-OCR -Bar Code Reader, Modem –Printer-Types of Printers - Web-Camera – Digital Camera–Ipod- Visual Display Unit - CRT and LCD (Projector).

Module-3: COMPUTER MEMORY: (08 Hours)

Main Memory / Primary Memory-RAM and ROM, EPROM-EEPROM - PROM, Secondary Memory-Floppy Disk, Hard Disk, CD-ROM, and PenPen Drive – Cache Memory.

Module–4: COMPUTER SOFTWARE: (08 Hours)

Meaning of Software –Classification of Software: System Software –Application Software-Operating System: Meaning and Functions of Operating System – Programming Languages: High Level Language, Low Level Language - MS-DOS: Meaning of MS-DOS - Meaning of Command – Types of Commands.

Module-5: MS-WORD: (08 Hours)

Meaning and Features - Advantages, Basic Operations, Opening Document, Creating, Saving, Formatting, Spell Check, Alignment, Table Creation, Mail Merge (Theory only), Shortcut Keys.

Module-6: MS-EXCEL: (08 Hours)

Meaning and Features of Electronic Spread Sheet- Advantages, Managing Work Books, Create, Open, Save and Close, Basic Formulas, Using Mathematical Functions, Inserting Rows and Columns, Moving Worksheets – Charts.

Module-7: SOFT SKILLS IN COMPUTER KNOWLEDGE: (14 Hours)

MS-Word: Preparation of Formal and Informal Letters, Table Creation, Report Making, etc. MS-Excel: Procedures, Preparation, and Execution of different Spread Sheets in Computer Lab like Admission Process, Marks Card, Salary Statement, Electricity Bill, Simple and Compound Interest, Income Tax Calculation, Area and Circumference of a Circle, Triangle and Rectangle, Commission payable.

Skill Development Activities:

1. DOS COMMANDS: Basic Internal and External Commands: DATE, TIME, DIR, COPY, DEL, REN, XCOPY, FORMAT, EDIT, MD, RD.

2. MS-WORD: Letter Writing, Visiting Cards and Mail Merge Practical.

3. MS-EXCEL: Preparation of Marks Statement, Salary Statement, Electricity Bill, etc.

Reference Books:

1. Rajaram V., Fundamentals of Computers, S. Chand and Co.

2. Sanjay Saxena, A First Course in Computers, Vikas Publishing House.

3. Sudalaimuthu S. and Anthony Raj., Computer Application in Business,Himalaya Publishing House.

4. Dr. Saha, K.B. Manjunath and Dr. T. Jayanna, Computer Fundamentals and Technology, Himalaya

IV- SEMESTER (5 Hours of Teaching per Week)

Course Code: B.Com: 4.3) **CORPORATE ACCOUNTING-II**

Course Objectives: The objective is to acquaint the students and make them familiar with the process and preparation of accounts of different types of organizations.

Pedagogy: Combination of Class-room lectures, Case studies, Group Discussion, Seminar Presentations, Soft Skills, and Field work.

Module-1: FINANCIAL STATEMENTS OF LIFE INSURANCE COMPANIES

(16 HOURS)

Meaning, Definition and Features of Life Insurance Company, Preparation of Revenue Account and Balance Sheet in vertical Formats with Schedules and Preparation of Valuation of Balance Sheet.

Module-2: FINANCIAL STATEMENTS OF GENERAL INSURANCE COMPANIES:

(18 HOURS)

Meaning, Definition, Features and Types of General Insurance Company, Preparation of Revenue Account, Profit and Loss Account and Balance Sheet of Fire, Accidents, and Marine Insurance in vertical Formats Schedules.

Module-3: FINANCIAL STATEMENTS OF BANKING COMPANIES: (18 HOURS)

Preparation of Profit and Loss and Balance Sheet under New Regulations in Vertical Format with Schedules.

Module-4: FIRE CLAIMS: (10 HOURS)

Introduction-Need-Loss of Stock Policy-Steps for ascertaining Fire Insurance Claim-Treatment of Salvage-Average Clause-Computation of Fire Insurance Claim (excluding Stock of Normal and Abnormal items).

Module-5: INFLATION ACCOUNTING: (14 HOURS)

Meaning-Definition-Need-Importance-Objectives-Merits and Demerits-Problems on Current Purchasing Power Method (CPP) and Current Cost Accounting Method (CCA).

Module 7: SKILL ORIENTATION: (4 Hours)

1. Prepare Final Accounts & Balance Sheet of an Insurance Company you visited or any reported cases.

2. Prepare Final Accounts & Balance Sheet of Banking Company, you visited or any reported case.

Skill Development Activities:

1. Ask the students to visit the nearest General Insurance Company to collect different forms, Medi-claims, fire, accident, etc.

2. Preparation of different schedules with reference to final accounts of Banking Companies

3. Preparation of financial statement of Life Insurance Company.

4. Preparation of financial statement of General Insurance Company.

REFERENCE BOOKS:

1 Anil Kumar – Financial Accounting, HPH.

2 Arulandam & Raman – Corporate Accounting – II.

3 Dr. S.N. Maheswari - Financial Accounting.

4 S.P. Jain & K.L.Narang – Corporate Accounting.

5 R.L.Gupta – Advanced Accounting, Volume II, Jain Book Depot.

6 B.S.Raman – Advanced Accounting.

7 Dr. Saha and Venkatesh Babu S –Banking and Insurance Company Accounts - HPH

IV- SEMESTER (5 Hours per Week)

Course Code: B.Com: 4.4) **LAW & PRACTICE OF INCOME TAX-II**

Course Objectives: To enable students to acquire skills and to develop knowledge at strategic level.

Pedagogy : Combination of Class-room lectures, Case studies, Group Discussion, Seminar Presentations, Soft Skills, and Field work.

NOTE: This subject should be taught with reference to the provision of Income tax Act 1961 as Amended up to date

Module 1: PROFITS AND GAINS OF BUSINESS OR PROFESSION: (16 hours)

Meaning of Business and Profession, expressly allowed expenses, Disallowed expenses, Allowable losses, Problems on computation of income from business (Sole Trader only), Problems on computation of income from profession. (Medical Practitioner, Advocate and Chartered Accountant).

Module-2: INCOME FROM CAPITAL GAINS: (18 hours)

Basis for charge, Capital assets, Types of capital assets, Transfer, Cost of acquisition and cost of improvement, Exemption under section 54, 54B, 54EC and 54F, Computation of taxable capital gains (including exempted capital gains)

Module 3: INCOME FROM OTHER SOURCES: (16 hours)

Incomes taxable under this Head, Securities, Types of Securities, Rules for Grossingup of Interest, Bond Washing Transaction, Computation of Income from other Sources.

Module 4: SET OFF AND CARRY FORWARD OF LOSSES, TOTAL INCOME AND TAX LIABILITY: (20 hours)

Set Off and Carry Forward of Losses (Theory only) Computation of Total Income including all Heads and Computation of Tax Liability of an Individual.

Module-5: ASSESSMENT PROCEDURE AND INCOME TAX AUTHORITIES: (6 hours)

Due date of filing returns, Filing of returns by different assesses, E-filing of returns, Types of Assessment, Permanent Account Number -Meaning, Procedure for obtaining PAN and transactions were quoting of PAN is compulsory. Income Tax Authorities and their Powers.

Module-6: SKILL ORIENTATION: (4 hours)

1. Prepare a Chart showing the steps involved in E-filing.

2. Draw an organization chart of Income Tax department in your locality.

SKILL DEVELOPMENT ACTIVITIES:-

1. Fill in Form 49 (Application for allotment of PAN)

2. Due date for filing the returns and rate of taxes applicable for individuals.

3. Draw a chart showing determination of annual value under different situations.

REFERENCE BOOKS:-

1. Mehrotra H.C and Goyal, Direct taxes, Sahithya Bhavan Publication, Agra.

2. Vinod Singhania, Direct Taxes, Taxxman Publication Private Ltd, New Delhi.

3. Gaur and Narang, Law and practice of Income Tax, Kalyani Publications, Ludhiana.

4. Bhagawathi Prasad, Direct Taxes.

5. Dr. Saha, Law and Practice of Income Tax, Vision Book House.

IV- SEMESTER (5 Hours of Teaching per Week)

Course Code: (B.Com: 4.5) **BUSINESS REGULATORY FRAME WORK**

Course Objectives: To familiarize the students with different Business Laws and their interpretation.

Pedagogy : Combination of Class-room Lectures, Case Laws, Group Discussion, Student Presentations, Soft Skills, and Field Work.

Module-1: INTRODUCTION TO LAW AND LAW OF CONTRACT: (10 Hours)

Meaning and Definition of Law and Business Law, Scope of Business Law, Sourcesof Indian Business Law, Indian Contract Act of 1872 – Definition, Types of Contracts.

Module-2: ESSENTIALS OF A VALID CONTRACT: (20 Hours)

Offer, Acceptance, Consideration, Capacity of Parties, Free Consent, Legality of Object and Consideration.

Module-3: DISCHARGE OF A CONTRACT: (10 Hours)

Remedies for Breach of Contract, Quasi Contracts.

Module-4: CONSUMER PROTECTION ACT 1986: (12 Hours)

Objectives, Definition of Consumer, Consumer Dispute, Complaint, Complainant, Deficiency of Service, Rights of Consumer, Consumer Education, Consumer Protection Council, Consumer Grievances Redressal Agencies – District Forum, State Commission and National Commission.

Module-5: CYBER LAW / INFORMATION TECHNOLOGY ACT, 2000: (16 Hours)

Objectives, Definition of various Terms, Salient Features, Provisions relating to Piracy and related Offences and Penalties, and Cyber Appellate Tribunal.

Modeule-6: SKILL ORIENTATION:

A) Conduct Mock Trial and ask the students to play the different roles relating to:

1) Carlill v/s Carbolic Smoke Ball Co. Ltd.,

2) Mohri Bibi v/s Dharmdas Ghosh

3) Abdul Aziz v/s Masum Ali

B) Cyber Law: Sanjay Kumar v/s State Govt. of Hariyana (2013)

C) Consumer Law: Karnataka Power Transmission Corporation v/s Ashok Iron Works Pvt. Ltd. (2009)

SKILL DEVELOPMENT ACTIVITIES:

1. Collect Affidavit, Power of attorney, Gift Deed, Sale Deed and vacalat forms.

2. Visit a Consumer Redressal Forum and list out the nature of Disputes referred to Consumer Court.

3. Visit a Court and prepare a report on the proceedings of the court.

4. List out the different courts situated at the District level.

REFERENCE BOOKS:

1. Ashwathappa, Principles of Business Law, HPH

2. Das P. K., Right to Information Act

3. Gogana P. S., Business and Corporate Laws

4. Gulshan S. S., Business Law

5. Kapoor N. D., Commercial Law

6. B.S Raman., Business Law

7. K.D. Basava., Business Law

8. K. Rama Rao., Ravi S.P., Business Regulatory Framework., HPH

IV- SEMESTER (5 Hours of Teaching per Week)

Course Code: (B.Com: 4.6) **INFORMATION TECHNOLOGY IN BUSINESS**

Objective: To impart the students the latest trends in the technological developments

Pedagogy: Combination of Class-room Lectures, Practice in the Computer Laboratory and Exercises.

Module- 1: MANAGEMENT INFORMATION SYSTEM: (10 hours)

Meaning and Definition of MIS, Characteristics of MIS, Objectives of MIS, Limitations of MIS. Definition of Information and Data, Difference between Information and Data, Data Processing, Importance of Information in Decision Making, Information needs at different levels of Decision Making.

Module – 2: INTRODUCTION TO OBJECT ORIENTED PROGRAMMING WITH C++: (10 hours)

Introduction of C++, Features and Merits of C++, Basic Structure of C++ program, Key Words, Identifiers, Data Types, Constants and Variables, Data Type Declaration Statement, Assigning Values to a Variable , Operators, Expressions, Loading, Compiling and Saving.

Module – 3: PROGRAMMING IN C++: (10 hours)

Input/ Output (cout, cin); program flow control statements, Branching statements, Looping statements, Jumping statements, If statements, If-else statement, Switch statement, While statement, Do while statement, FOR statements, input and output operators.

Module – 4: ARRAYS: (8 Hours)

Introduction to Array and Types of Arrays like One Dimensional Array, Two Dimensional Array.

Module – 5: ALGORITHM AND FLOW CHART: (8 hours)

Meaning of Algorithm- Meaning and Definition of Flow Chart, Symbols and Functions.

Module – 6: SKILL OROENTATION: (34 Hours)

Writing and Execution of ‘C’ Programs like Arithmetical Functions, Simple and Compound Interest, Area and Circumference of a Circle, Triangle and Rectangle,Square, Cube, fourth and Fifth of a number, Generation of Numbers, MultiplicationTable, Fibonacci Series, Future Annuity, Factorial of a Number, Conditional Marks Statement of a Student, Salary Statement of an Employee, Commission Payable to a Salesman, Leap Year, etc.

SKILL DEVELOPMENT ACTIVITIES:

1. Write a C program to find area and circumference of a circle.

2. To find the Simple and Compound Interest, Future Annuity, etc.

3. To find commission payable to a salesman.

REFERENCES:

1. Kotur P.B.,Computer Fundamentals and C Programs-

2. Rajaraman V., Computer Programming in C, Prentice Hall of India.

3. Yashwanth. P. Kanetkar Let Us C,BPB Publications.

V-SEMESTER (4 Teaching hours per Week)

Course Code: B.Com. Core: 5.1 **FUNDAMENTALS OF STATISTICS**

Course Objectives : To familiarize the students with the fundamental tools of Statistics.

Pedagogy : Combination of Class-room lectures, Case studies, Group Discussion, Seminar, Soft Skills, Presentations and Field work.

Module-1: INTRODUCTION: (06 Hours)

Meaning, Definitions, Characteristics, Functions, Scope and Limitations of Statistics. Statistical Investigation - Meaning and Steps in brief.

Module-2: COLLECTION OF DATA: (10 Hours)

Primary Data and Secondary Data – Meaning, Methods and Merits and Demerits of each method. Classification – Meaning, Types, Variables, Frequency and Frequency Distribution. Tabulation – Meaning, Rules for Construction, Parts of a Statistical Table. Problems on Classification and Tabulation.

Module-3: DIAGRAMMATIC AND GRAPHIC REPRESENTATION OF

STATISTICAL DATA: (12 Hours)

Meaning, Types of Diagrams - Simple, Multiple, Sub-divided, Percentage and Rectangle. Graphs - Histogram and Location of Mode; Ogive Curves and Location of Median and Quartiles.

Module-4: MEASURES OF CENTRAL TENDENCY (AVERAGES): (12 Hours)

Meaning of Central Tendency - Arithmetic Mean: Definition, Properties, Merits andDemerits, Median and Mode. Geometric and Harmonic Mean (Individual Series only). Numerical Problems.

Module-5: MEASURES OF DISPERSION: (12 Hours)

Meaning, Properties of Dispersion – Types - Range, Quartile Deviation, Mean Deviation (by Mean, Median and Mode) Standard Deviation and Co-efficient of each method.

Module-6: MEASURES OF SKEWNESS: (08 Hours)

Meaning, Types, Tests of Skewness, Absolute and Relative measures of Skewness, Methods-Karl Pearson’s Co-efficient of Skewness and Bowley’s Co-efficient of Skewness.

Module-7: SKILL ORIENTATION: (04 Hours)

1. Prepare a questionnaire to study the consumer satisfaction of any product.

2. Collect the secondary data of production, sales and profit for three years of any organization and prepare percentage bar diagram.

SKILL DEVELOPMENT ACTIVITIES:

1. Collect the Population Census Reports from the website.

2. Preparation of Statistical Tables.

3. Finding of consistency of two batsmen on the basis of runs scored in ten test matches.

REFERENCE BOOKS:

1. S. C. Gupta, Statistical Methods.

2. S. P. Gupta, Fundamentals of Statistics.

3. Sanchati and Kapoor, Statistics -Theory, Methods & Applications.

4. S. S. Desai, Business Statistics.

5. G. V. Kibhojkar, Business Statistics.

V SEMESTER (4 Teaching hours per Week)

Course Code: B.Com. Core: 5.2 **FINANCIAL MANAGEMENT**

Course Objectives: To develop ability among the students to take financing and investment decisions using various tools and techniques of Financial Management.

Pedagogy: Combination of Class-room lectures, Case studies, Group Discussion, Seminar, Soft Skills, Presentations and Field work.

Module- 1: INTRODUCTION: (08 hours)

Introduction – Meaning of Finance – Business Finance – Finance Function – Aims of FinanceFunction, Organization structure of Finance Department. Financial Management: Meaning, Definition and Objectives of Financial Management. Financial Decisions – Role of a Financial Manager – Financial Planning: Steps in Financial Planning, Principles of a Sound Financial Planning.

Module-2: TIME VALUE OF MONEY: (10 hours)

Introduction, Meaning and Definition, Need. Future Value (Even Flow – Uneven Flow and Annuity) – Present Value (Even Flow – Uneven Flow and Annuity), Calculation of EMI.

Module-3: INVESTMENT AND DIVIDEND DECISION: (20 hours)

Introduction – Meaning and Definition of Capital Budgeting, Features, Significance, Process. Capital Budgeting Techniques - Payback Period, Accounting Rate of Return, Net Present Value, Internal Rate of Return and Profitability Index. Problems thereon. Dividend Decision:

Introduction, Meaning and Definition, Determinants of Dividend Policy, Types of Dividends, Problems on Walter and Gorden Model.

Module-4: FINANCING DECISION: (14 hours)

Introduction–Capital Structure: Meaning, Factors influencing Capital Structure, Optimum Capital Structure. Cost of Capital: Calculation of Cost of Equity, Cost of Preference share, Cost of Debt, Cost of Retained Earning and Weighted Average Cost of Capital. Computation and Analysis of EBIT, EBT, EPS – Leverages.

Module-5: WORKING CAPITAL MANAGEMENT: (08 hours)

Introduction–Meaning of Working Capital, Significance of Adequate Working Capital, Sources of Working Capital, Determinants of Working Capital, Problems thereon.

Module-6: SKILL ORIENTATION: (04 hours)

1 You being the Finance Manager of a Company, advice the management in designing an Appropriate capital structure.

2. How EMI is calculated by banks while granting loans by using time value of money. Illustrate with an example.

SKILL DEVELOPMENT ACTIVITIES:

1. Draw the organization chart of Finance Function.

2. Illustrate operating cycle for at least 2 companies of your choice.

3. Evaluate the NPV of an investment made in any one of the capital projects with imaginary figures for 5 years.

REFERENCE BOOKS:

1. Khan and Jain, Financial Management.

2. P.V. Kulakarni, Financial Management.

3. I.M. Pandey, Financial Management.

4. Prasannna Chandra, Financial Management.

5. Sharma and Shashi K Gupta, Financial Management.

6. R.M. Srivastav, Financial Management and Policy.

7. S.C. Kuchhal, Financial management, Chaitnya Publishing House, Allahabad.

V-SEMESTER (4 Teaching hours per Week)

Course Code: B. Com: Core 5. 3 **ELEMENTS OF COSTING**

Course Objectives: To enable the students to understand the fundamentals of cost accounting and to create cost consciousness among the students.

Pedagogy: Combination of Class Rooms Lectures, Group Discussion, Student Presentations, Soft Skills, Industrial Visits and Field work.

Module-1: INTRODUCTION: (16 Hours)

Meaning and Definition of Cost, Costing, Cost Accounting and Cost Accountancy. Differences between Financial Accounting and Cost Accounting. Objectives, Advantages and Limitations of Cost Accounting. Methods and Techniques of Costing. Cost Unit, Cost Centre, Classification of Cost, Preparation of Cost Sheet, Tenders, Quotations and Estimations. Cost Accounting Standards- Meaning and Types (CAS-1 to CAS-12).

Module-2: MATERIALS: (14 Hours)

Meaning, Definition and Classification of Materials - Material Control-Purchase Procedure-Store keeping, Techniques of Inventory Control. Methods of Pricing of Material Issues-Problems on FIFO, LIFO, HIFO, Simple Average, and Weighted Average Methods.

Module-3: EMPLOYEE COST: (10 Hours)

Meaning and Definition, Labour Cost Control, Time Keeping and Time Booking, Methods of Wage Payment- Problems on Time Rate, Piece Rate and Incentive Plans: Halsey Plan, Rowan Plan. Treatment of Idle Time and Overtime - Labour Turnover- Causes and Effects. Preparation of Wage Sheet.

Module-4: OVERHEADS: (12 Hours)

Meaning, Definition and Classification- Primary and Secondary Distribution of Overheads. Problems on Allocation, Apportionment, and Re-apportionment (Direct Re- distribution Method and Repeated distribution Method only) - Absorption of Overheads- Calculation of Machine Hour Rate (Single Machine).

Module-5: RECONCILIATION OF COST AND FINANCIAL ACCOUNTS: (08 Hours)

Meaning, Reasons for differences in Profits, Problems on Reconciliation Statement including preparation of Cost Sheet, Trading and Profit and Loss Account.

Module-6: INCULCATION OF SOFT SKILLS: (04 Hours)

1. Write a report on the organization structure of costing department, and stores department of an organization visited by you. Suggest measures to improve.

2. Write on incentive payable to the employees of the following organisations. a) Manufacturing unit (Factory workers) b) Transport c) Hotel. Give suggestions.

SKILL DEVELOPMENT ACTIVITIES:

1. Naming the appropriate method of costing with justification for each of the following Industries-Paper Mill, Printing, Sugar Mill, Lathe Workshop, Rice Mill, Hospital, Oil Refinery, Pickle Manufacturing, KSRTC, Hotel.

2. Naming the appropriate cost unit with justification for the following industries- KPC, KPTCL, Hotel, Water supply, Brick making, Rice mill, Bakery, Sugar mill, Railways-Passengers and goods transport.

3. Write the specimen format and a note on the following: Bin Card, Stores Ledger, Payroll, Time Card, Purchase Requisition.

REFERENCE BOOKS:

1. M. N, Arora, Cost Accounting, HPH.

2. Dyckman Bierman and Murse, Cost Accounting.

3. S. P. Iyengar, Cost Accounting.

4. S. P. Jain and K. L. Narang, Cost Accounting, Kalyani Publications.

5. Jawahar, Cost Accounting, HPH.

6. J. Madegowda, Cost Accounting (Elements of Cost and Methods of Costing), Himalaya Publishing House.

7. J. Madegowda, Advanced Cost Accounting, Himalaya Publishing House.

8. Nigam and Sharma, Cost Accounting.

9. Pattana Shetty and Palekar, Cost Accounting.

10. N. K. Prasad Cost Accounting.

11. K.B. Manjunath and S. Venkatesh Babu, Elements of Cost, HPH.

V SEMESTER (4 Teaching hours Per Week)

Course Code: B.Com Core: 5.4 **BUSINESS MATHEMATICS**

Course Objectives: To enable the students to understand and apply the Mathematical Techniques to solve practical business problems.

Pedagogy : Combination of Class-room Lectures, Group Discussion, Student presentation,Soft Skills, and Field Work.

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Module-1: NUMBER SYSTEM: (10 hours)

Natural Numbers, Even, Odd Numbers, Integers. Prime Numbers, Rational and Irrational Numbers, Properties of Rational Numbers. Binary, Base-5 and Decimal system (Conversion of Binary and base-5 to decimals and vice versa) HCF and LCM.

Module-2: MATRICES, PERMUTATIONS AND COMBINATIONS: (14 Hours)

Meaning and Types of Matrices- Problems on Addition, Subtraction and multiplication of two Matrices-Meaning, Computations and Problems on permutations and combinations.

Module-3: COMMERCIAL MATHEMATICS: (14 Hours)

Problems on Simple Interest, Compound Interest - Finding TD, BD and BG-Ratios and Proportions –Meaning and Properties and Problems thereon - Problems on Speed, Time and Work.

Module-4: THEORY OF EQUATIONS: (12 Hours)

Meaning-Problems on Linear Equations. Solving Pure and Adfected Quadratic Equations (Factor Method and Sridharacharya Method only) - Problems using Sum and Product of Roots – Problems on Simultaneous Equations (Only Elimination Method).

Module-5: MEASUREMENT OF SOLIDS: (10 Hours)

Problems on Area and Perimeter of Triangle, Square, Rectangle, Circle, Parallelogram- Surface Areas and Volumes of Cube, Cylinders, Cone, Pyramids and Prisms.

Module-6: INCULCATION OF SOFT SKILLS: (04 Hours)

1. Form a matrix of cost and quantity of three commodities of two merchants and find which is most profitable by matrix multiplication method.

2. Collect and analyse the interest rates and variation between the interest rates charged by Nationalized Banks and Co-operative Banks on loans and deposits.

SKILL DEVELOPMENT ACTIVITIES:

1. Show the number of ways in which your telephone number can be permuted to get odd No

2. Mention the different ways to go to Davanagere from your native place using MN theorem.

3. Visit any Commercial Bank in your area and get the information about the rate of interest on loans and deposits.

REFERENCE BOOKS:

1 Saha and Rama Rao, Business Mathematics, HPH.

2 S.N. Dorairaj, Business Mathematics, United Publication.

3 R. Gupta, Mathematics for Cost Accountants.

4 S. P. Gupta, Business Mathematics.

5 Madappa and Sridhara Rao, Business Mathematics.

6 Padmalochana Hazarika, Business Mathematics.

V SEMESTER (4 Teaching hours Per Week)

Course Code: B.Com Core: 5. 5 NEW VENTURE CREATION AND MANAGEMENT

Course Objectives: To enable the students to understand the theoretical and practical aspects of Business enterprises.

Pedagogy: Combination of class room teaching, case study analysis, Soft Skills, group discussion and field work.

Module-1: INTRODUCTION: (10 Hours)

Meaning of Idea, Sources of New Idea - Methods of Generating Ideas- Creative Problem Solving- Opportunities recognizing- Product Planning and Development Process.

MODULE-2: BUSINESS PLANS: (10 Hours)

Creating and starting the Venture-Business Plans: Scope of Business Plans, Presenting the Business Plan, Waiting the Business Plan, Using and Implementing the Business Plan. A brief idea about Institutional Support System.

MODULE-3: LEGAL ASPECTS FOR ENTREPRENEURS: (10 Hours)

Law concerning Entrepreneur viz., Business Ownership, Sales and Income Tax and Workman Compensation Act. Role of various National and State Agencies which render assistance to Small Scale Industrial Entrepreneurs in India.

MODULE-4: ENTREPRENEUR AND ENTREPRENEURSHIP: (10 Hours)

Concept of Entrepeneur, and Entrepreneurship, Characteristics of Entrepreneurs, Types of Entrepreneurs, Functions of Enterpreneur, Role of Entrepreneurship in Economic Development, Manager Vs Entrepreneurs, Entrepreneur Vs Intrapreneur

Module-5: WOMEN ENTREPRENEURSHIP: (10 Hours)

Definition of Women Entrepreneurs, Factors influencing Women Entrepreneurs, Problems of Women Entrepreneurs and Remedial Measures, Development of Women Entrepreneurs and Women Entrepreneurship, Support to Women Entrepreneurs.

Module-6: ENTREPRENEURIAL DEVELOPMENT PROGRAMME: (10 Hours)

Meaning and Definition of Entrepreneurial Development Programs, Objectives, Need for Training and Development, Phases of Entrepreneurial Development Programs, Institutions providing Entrepreneurial Training.

Module-7: INCULCATION OF SOFT SKILLS: (04 Hours)

1. Visit the DIC and list out the schemes of Government of Karnataka for Women Entrepreneurs.

2. Prepare a Project Report to get financial assistance for a new business.

SKILL DEVELOPMENT ACTIVITIES:

1. Visit any five small scale Business firms in your area and collect details regarding the nature of business, capital investment, number of employees, and raw materials used.

2. Visit the DIC and Collect various schemes for promoting entrepreneurs.

3. Visit a nearby bank and collect details regarding the loan facilities provided by the bank to promote Women entrepreneurship.

REFERENCE BOOKS:

1. A. Sahay and V. Sharma, Entrepreneurship and New Venture Creation, Excel Books.

2. Arora and Arora, Entrepreneurship Development.

3. G.B. Baliger, Entrepreneurship Development and Small Scale Industries.

4. E. Garden and K. Natarajan, Entrepreneurship Development, Himalaya Publishing House.

5. S.S. Khanka and Gupta, Entrepreneurship Development, Sultan Chand and Sons.

6. Nadimani, Dynamics of Industrial Entrepreneurship.

7. Vasanth Desai, Small Scale Industries and Entrepreneurship

V SEMESTER (4 Teaching hours per week)

Course Code: B.Com: 5.6 **BUSINESS TAXATION**

Course Objectives: To enable the students to grasp the legal provision and practical aspects of Income Tax Act relating to HUF, Firms, AOP and Companies.

Pedagogy: Combination of class room lecture, case laws, group discussion, Assignments students presentation, Soft Skills and Field work.

NOTE: This subject should be taught with reference to the provision of Income tax Act 1961 as Amended up to date.

Module-1: RESIDENTIAL STATUS AND INCIDENCE OF TAX: (06 hours)

Determination of Residential Status of HUF, Firm and Company- Computation of GTI of HUF, Firm and Company based on Residential status.

Module-2: ASSESSMENT OF HUF: (12 hours)

Meaning, Schools of Hindu Law, Treatment of fee or salary earned by coparcener as director or partner, Remuneration paid by HUF to a member for conducting its business, Incomes nottreated as HUF incomes, Partition of HUF, Deductions under section 80C to 80U applicableto HUF, Computation of Total income of HUF and Tax Liability.

Module-3:- ASSESSMENT OF FIRM: (12 hours)

Meaning, Partners and Partnership, Partnership Deed, Book Profits, Assessment of firm u/s 184, Deduction under section 80 G to 80 JJA applicable to Firm, Computation of total income and tax liability of firm assessed u/s 184 and income of partners. Assessment of firm u/s 185- computation of total income and tax liability of firm assessed u/s 185.

Module-4: ASSESSMENT OF AOP / BOI: (12 hours)

Meaning, Computation of share of member, Exemption of share, Computation of total income and tax liability of AOP or BOI.

Module-5:- ASSESSMENT OF COMPANIES: (12 hours)

Meaning, Types of companies, Deduction under section 80 G to 80 JJA, Computation of Total Income and Tax Liability of Companies (Excluding Problems on Computation of Book Profits).

Module 6:- TAX DEDUCTION AT SOURCE AND ADVANCE TAX: (06 hours)

Meaning of TDS, Provision regarding TDS, TDS to be made from Salaries, Filing of quarterly statement – Theory and Problems. Meaning of advance tax, computation of advance

tax, Instalment of advance tax and due dates – Problems related to Non-corporate and Corporate Assesse.

Module 7:- INCULCATION OF SOFT SKILLS: (04 hours)

1. Prepare a Partnership Deed enabling the firm to avail maximum tax benefit.

2. Prepare a plan regarding location of a new company to enjoy tax holiday.

SKILL DEVELOPMENT ACTIVITIES:-

1. Fill Form No 49B and paste it.

2. Fill in of Challan for payment of tax (Self Assessment Tax and Advance Tax).

3. ITR-1 (SAHA J) or Brief up the amendments made in the current finance Act relating to Income Tax Act.

REFERENCE BOOKS:

1. H.C. Mehrotra and Goyal, Direct Taxes, Sahithya Bhavan Publication, Agra.

2. Vinod Singhania, Direct Taxes, Taxxman Publication Private Ltd, New Delhi.

3. Gaur and Narang, Law and Practice of Income Tax, Kalyani Publications, Ludhiana.

4. Bhagawathi Prasad, Direct Taxes.

5. R.G. Saha and N. Usha Devi, Income Tax (Direct Tax), HPH.

V- SEMESTER (4 Teaching hours per Week)

Course Code: B.Com: 5.9-1 **TOURISM MANAGEMENT (Elective**)

Course Objectives: To enable the students to understand the theoretical and practical aspects of Tourism management.

Pedagogy: Combination of class room teaching, case study analysis, Soft Skills, group discussion and field work.

Module-1: INTRODUCTION TO TOURISM TRADE: (10 hours)

Introduction, Concept and Definition of Tourism, features of Tourism, Nature of Tourism, Vehicles for Tourism, Importance of Tourism, Components of Tourism, Tourism Product and Product Mix- Meaning and Definition, Characteristics of Tourism Products, Principles of Tourism Mix.

Module-2: TOUR PACKAGING MANAGEMENT: (10 hours)

Origin and Development of Tour Packaging; Types of Tour, Component of Standard Package Tour, Factors affecting Tour Formulation, Tour Designing Process, Significance of Package Tour, Tour Brochure.

Module-3: TOURISM AND TRANSPORT INDUSTRY: (12 hours)

Tourism Infrastructure, Role of Modes of Transport in Tourism Development, Factors affecting the Choice of Modes of Transport, Tourism and Land Transport, Tourism and Railway Transport, Tourism and Water Transport, Tourism and Air Transport, Impact of Environment on Tourism.

Module-4: TOURISM MARKETING PLANNING: (08 hours)

Meaning of Tourism Marketing Planning, Stages in Tourism Marketing Planning, Problems in Tourism Marketing Planning.

Module-5: ACCOMMODATION BUSINESS: (10 hours)

History of Accommodation, Importance of Accommodation, Accommodation Planning, Types of Accommodation, Hotel Accommodation - Types of Hotels, Supplementary Tourist Accommodation, Youth Hostels.

Module-6: HUMAN RESOURCE DEVELOPMENT FOR TOURISM: (10 hours)

Introduction of HRD, Meaning, and Significance, HRD Systems, Models and practices in Travel Industry. Tourism manpower Strategies, Training and Development, HRD problems and issues in Travel Industry.

Module-7: Inculcation of Soft Skills: (04 hours)

1. As a Tour Secretary of your College, prepare a tour plan within your District / State.

2. List any five natural tourist spots and identify the special features, and history which hasmade them revenue generating spots.

Skill Development Activities:

1. List the package tours organized by travel agencies.

2. Prepare a chart showing the organization structure of a travel agency and tour operators.

3. List the accommodation facilities for tourists in your taluk head quarters.

REFERENCE BOOKS:

1. A.K. Bhatia, Tourism Development Principles and Practices, Sterling Publishers Pvt. Ltd.

2. Bishwanath Ghosh, Tourism and Travel Management, Vikas Publishing House Pvt. Ltd., New Delhi.

3. P. C. Ratan, Tourism, Transport and Travels Management, Anmol Publications Pvt. Ltd., New Delhi.

4. M.M. Anand, Tourism and Hotel Industry in India: Sterling Publishers Pvt. Ltd., New Delhi.

5. Cottman, Travel and Tourism, VNR Publications.

6. Devshish Gupta, Tourism Marketing HPH.

7. Bishwanath Ghosh, Tourism and Travel Management, Vikas Publishing House.

V- SEMESTER (4 Teaching hours per Week)

Course Code: B.Com: 5.9-2 **VISUAL BASIC AND DBMS IN BUSINESS (Elective)**

Course Objectives: To enable the students to learn the Visual Basic for simple tasks and Database Management System Using Oracle.

Pedagogy: Combination of Class-room Lectures, Practice in the Computer Laboratory and Exercises.

Module-1: INTRODUCTION: (10 Hours)

Meaning, Features, Merits and Limitations of Visual Basic, Drawings with Visual Basic, Manipulating, Colors and Pixels with Visual Basic Multiple Document Interface, Constants, Operator, Conditional Statements, Command Buttons, Labels, Text Box, Image, Shapes, Properties, etc.

Module-2: LOOPING: (04 Hours)

Using Looping Procedures, For Statement, While Statement, Functions and Data Base Programming with Visual Basic.

Module-3: VB PROGRAMS: (04 hours)

Writing Basic Programs Addition, Modification and Deletion of Records, Single Document Interface, Creation of Dialogue Boxes.

Module-4: DATA BASE MANAGEMENT SYSTEM: (04 Hours)

Meaning of Data, Database, RDBMS, Features, Advantages and Disadvantages of Database, Need of Relational Database, Models of Database Management System.

Module-5: INTRODUCTION TO SQL (ORACLE): (08 hours)

SQL - Meaning, Concepts, Commands, Data Definition, Data Manipulation Commands, SQL*plus Editing Commands, Create Table, Insert Into, Primary Key, Select, Delete, Update, Rollback, Commit and Save.

Module-6: SOFT SKILLS: (34 Hours)

Writing and Execution of VB Programs like Arithmetical Functions, Simple and Compound Interest, Area and Circumference of a Circle, Triangle and Rectangle, Square, Cube, Fourth and Fifth of a number, Generation of Numbers, Multiplication Table, Fibonacci Series, Future Annuity, Factorial of a Number, Conditional Marks Statement of a Student, Salary Statement of an Employee, Commission Payable to a Salesman, Leap Year, etc.

SKILL DEVELOPMENT ACTIVITIES:

1. Create a structure of a Table named ‘Employee’ with the following attributes: Enum, Ename, Design, Dept, Basic.

2. Give the steps for creating query using the table Employee to calculate salary elements (DA, HRA, etc).

3. Simple Visual Basic Programs like Simple and Compound Interest, Future Annuity, Biggest and Smallest among numbers.

REFERENCE BOOKS:

1. Visual Basic Programming, BPB Publications.

2. ORACLE -7, Ivan Bayross, BPB Publications.

3. Dr. Saha, K.B. Manjunath and Dr. T. Jayanna, Visual Basic and SQL, HPB.

V Semester (4 Teaching hours Per Week)

Course Code : B.Com: 5.9-3 **RETAIL MANAGEMENT (Elective)**

Course Objectives: To familiarize the students with the elements of Retail management aspects.

Pedagogy: Combination of Class-room lectures, Case studies, Group Discussion, Seminar Presentations, Soft skills and Field work.

Module-1: INTRODUCTION TO MODERN RETAIL MANAGEMENT: (10 Hours)

Meaning and Definition of Retail, Retailing and Retail Management –Functions of Retailing-Importance of Retailing-Current Retail Scenario in India-Types of Retail Formats-Franchising in Retailing.

Module-2: RETAIL MARKETING: (12 Hours)

Retail Marketing Concept-Retail Marketing Mix-Retail Consumer Buying Behaviour-Influence of Group and Individual Factors-Buying Decision Process and Its Implication on Retailing-Customer Service and Customer Satisfaction-Retail Planning Process.

Module-3: RETAIL LOCATION AND OPERATIONS STRATEGIES: (14 Hours)

Importance of Retail locations-Factors determining the Location Decision –Interior and Exterior Design-Trade area analysis-Rating Plan Method-Store Layout-Factors affecting Store Layout-Store Facade-Space Planning. Retail Operations: Responsibilities of Store Manager-Store Security-Store Record and Accounting System.

Module-4: MERCHANDISE MANAGEMENT: (08 Hours)

Meaning and Definitions-Factors Influencing Merchandising-Functions of Merchandising Manager - Sources of Merchandise- Merchandising Planning- Analyzing Merchandise Performance.

Module-5: PRICING AND PROMOTION IN RETAILING: (08 Hours)

Retail Pricing - Factors Influencing Retail Prices - Controlling Costs-Retail Pricing Strategies. Retail Promotion: Retail Promotion Mix – Advertising - Promotion Strategies - Retail Communication Mix - Relationship Marketing Strategies – CRM - RHRM- GAPs Model and LVC (Life time Value of a Customer)-Understanding Retail Branding.

Module-6:EMERGING TRENDS IN RETAIL MANAGEMENT& SKILLS: (08 Hours) E-retailing-Organized Retailing-Impact of Information Technology in Retailing- EDI-

Bar- Coding- Mobile Retail-Digital Wallets-FDI in Indian Retailing and Its Impact-Consumerism- Legal and Ethical Issues in Retailing-International Retail Structures-Future of Retailing.

Module-7: INCULCATION OF SOFT SKILLS: (04 Hours)

1. Draft an Advertisement Copy for a Retail Shopping Store.

2. Write a report on buying behavior of at least 10 customers of a Shopping Mall / Retail Store in your area visited by you.

SKILL DEVELOPMENT ACTIVITIES:

1) Enumerate and Describe the Various Retail Marketing Establishments in your area.

2) Draw a Chart Showing Retail Store Operations.

3) List out the Current Trends in E-retailing.

REFERENCE BOOKS:

1) Swapna Pradhan, Retail Management.

2) Venkatesh Babu and Others , Retail Marketing Management, H.P.H.

3) M.V. Kulkarni, Retail Management.

4) H. Ravi Singh, Retail Management, Chetana Publications, Mysore.

5) Raju Nair, Retail Management, H.P.H.

6) Karthic, Retail Management, H.P.H.

7) R.S.Tiwari, Retail Management, H.P.H.

8) A.T.Lamba, The Art of Retailing, T.M.H.

9) M. Prakash, B.S.Ravishankar, A. Shankara, Retail Management.

V Semester (4 Teaching hours Per Week)

Course Code B.Com: 5.9-4 **ACCOUNTING STANDARDS (Elective)**

Course Objectives: To familiarize and acquaint the student with accounting standards and various Financial reporting practices.

Pedagogy: Combination of Class-room lectures, Case studies, Group Discussion, Seminar, Soft Skills, Presentations and Field work.

Module-I: INTRODUCTION: (08 hours)

Accounting Theory: Concept – Role –Classification – Approaches – Accounting Principles.

Module-2: ACCOUNTING STANDARDS IN INDIA: (10 hours)

Accounting Standards Framework: Concept – Importance - Types – Difficulties – Enforcement – Accounting Standards Board in India. Accounting Standards Overview (AS-1 to AS-10): AS-1: Disclosure of accounting policies – AS-2: Valuation of inventories –AS-3: Cash flow statement –AS-4: Contingencies and events occurring after balance sheet date – AS-5: Net profit or loss for the period, prior period items and changes in accounting policies – AS-6: Depreciation Accounting – AS-7: Construction Contracts – AS-9: Revenue Recognition – AS 10: Accounting for Fixed assets.

Module-3: ACCOUNTING STANDARDS IN INDIA - II: (12 hours)

Accounting Standards Overview (AS11 to AS-20): AS-11: The effects of changes in foreign exchange rates- AS-12: Accounting for government grants – AS-13: Accounting for investments – AS-14: Accounting for amalgamations – AS-15: Employee benefits – AS-16: Borrowing costs – AS-17: Segment reporting – AS-18: Related party disclosures – AS-19: Leases – AS-20: Earning per share. Accounting Standards Overview (AS-21 to AS-32): AS-21: Consolidated financial statements – AS-22: Accounting for taxes on income – AS-23: Accounting for investments in associates in consolidated financial statements – AS-24: Discontinuing operations – AS-25: Interim Financial Reporting – AS-26: Intangible assets – AS-27: Financial reporting of interests in join ventures – AS-28: Impairment of assets – AS-29: Provisions, Contingent liabilities and contingent assets; AS-30: Financial Instruments:Recognition and Measurement; AS-31: Financial Instruments: Presentation – AS-32: Financial Instruments: Disclosures.

Module-4: INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS): (10 hours)

Uniform Global Financial Reporting: Need – Differences between IAS, Indian GAAP and US GAAP – Translation of Indian GAAP Statements in to US GAAP and IFRS – International Accounting Standards Board. IFRS: Meaning – An overview of IFRS – Convergence with IFRS – Benefits of Convergence – Challenges of Convergence – Role of ASB in post convergence Scenario.

Module-5: FINANCIAL REPORTING:(10 hours)

Financial Reporting: General Purpose – Qualities – Significance of Corporate Annual Reports Developments on Financial Reporting Objectives: True blood Report (USA), Corporate Report (UK), Stamp Report (Canada). – Recent Trends in Corporate Reporting in India.

Module-6: Inculcation of Soft Skills: (04 hours)

1. Prepare a Financial Statement as per IND Accounting Standards.

2. Write on recent trends in Corporate Reporting.

Skill Development Activities:

1. Collect a Financial Reports of any two Companies as per IND Accounting Standards.

2. Collect a Financial Reports of any two Companies as per IFRS.

3. Collect the list of Indian Companies adopting IND Accounting Standards and IFRS.

REFERENCE BOOKS:

1. Jawaharlal , Accounting Theory and Practice, Himalaya Publishing Company.

2. D.S. Rawat, Accounting Standards, Taxmann Allied Services Private Limited.

3. Kamal Garg, IFRS Concepts and Applications, Bharat Law House Pvt. Limited.

4. T.P. Ghosh, IFRSs For Finance Executives, Taxmann Allied Services Private Limited.

5. L.S. Porwal, Accounting Theory, Tata McGraw Hill Publishing Company.

6. S.P. Jain. and K.L. Narang, Accounting Theory and Management Accounting, Kalyani.

7. Chartered Accountant, ICAI.

8. Management Accountant, ICAI.

VI-SEMESTER (4 Teaching hours per Week)

Course Code: B.Com. Core: 6.1 **STATISTICAL METHODS**

Course Objectives: To enable students to understand the practical application of statistical tools in business area.

Pedagogy: Combination of Class-room lectures, Case studies, Group Discussion, Seminar, Soft Skills, Presentations and Field work.

Module-1: CORRELATION ANALYSIS: (14 Hours)

Meaning, Definition and Types of Correlation, Degree of Correlation, Karl Pearson's and Bowley's Co-efficient of Correlation, Probable Error (Univariate and Bivariate Tables). Problems thereon.

Module- 2: REGRESSION ANALYSIS: (12 Hours)

Meaning, Lines of Regression, Relation between correlation coefficient and Regression coefficient. Determination of Regression Co-efficient, Estimation through Regression Equations (Univariate and Bivariate Tables), Problems thereon.

Module- 3: TIME SERIES ANALYSIS: (12 Hours)

Introduction, Definition, Utility and Components of Time Series, Measurement of Trend: Meaning, Methods: Graphic, Semi-Average, Moving Average and Method of Least Square, Problems on each method.

Module-4: INTERPOLATION AND EXTRAPOLATION (10 Hours)

Meaning, Utility, Algebraic Methods – Binomial and Newton's Methods only.

Module-5: INDEX NUMBERS: (12 Hours)

Meaning, Purpose, Steps and Problems in the Construction of Index Numbers, Limitations, Types –Weighted, Simple Aggregate Index Number, Simple Price Relative Method, Weighted Index Numbers, Laspeyre's, Paasche's, Bowley's and Fisher's, Ideal Index Numbers, Test of Adequacy – TRT and FRT- Cost of Living Index Number – Aggregate Expenditure Method, and Family Budget Method.

Module-6: INCULCATION OF SOFT SKILLS: (04 Hours)

1. Forecast the sales of a firm using time series technique (at least 10 years).

2. Take any two variables of your choice and find relationship between them.

SKILL DEVELOPMENT ACTIVITIES:

1. Collect the GDP growth rate statements, diagrams and graphs.

2. Construct the cost of living index of two families and interpret.

3. Finding the unknown value by using Regression Equation.

REFERENCE BOOKS:

1. S. C. Gupta, Statistical Methods.

2. S. P. Gupta, Fundamentals of Statistics.

3. Sanchati and Kapoor, Statistics -Theory, Methods and Applications.

4. S. S. Desai, Business Statistics.

5. G. V. Kibhojkar, Business Statistics.

VI-SEMESTER (4 Teaching hours per Week)

Course Code: B.Com. Core: 6.2 **MANAGEMENT ACCOUNTING**

Course Objectives: To enable students to acquire theoretical and practical knowledge of Management Accounting for taking managerial decisions.

Pedagogy: Combination of Class-room lectures, Case studies, Group Discussion, Seminar Presentations, Soft Skills and Field work.

Module-1: INTRODUCTION: (12 Hours)

Introduction, Concept, Meaning, Definition, Importance and Scope, Objectives, and Functions. Differences between Financial Accounting, Cost Accounting and Management Accounting. Role and Responsibility of Management Accountant, Advantages and Limitations of Management Accounting.

Module -2: ANALYSIS AND INTERPRETATION OF FINANCIAL STATEMENTS: (12 Hours)

Meaning, Importance and Types of Financial Analysis. Tools: Comparative Financial Statements, Common size Statements, Trend Percentages.

Module-3: RATIO ANALYSIS: (12 Hours)

Meaning, Definition, Significance and Limitations of Ratio Analysis. Classification of Ratios:

a) Profitability Ratios: Gross Profit Ratio, Net Profit Ratio, Operating Profit and Cost Ratio.

b) Turnover Ratios: Inventory Turnover Ratio, Inventory Conversion Period, Debtors Turnover Ratio, Debt Collection Period, Creditors Turnover Ratio, Debt Payment Period.

c) Liquidity Ratio: Current Ratio, Liquid Ratio, Absolute Liquid Ratio.

d) Solvency Ratio: Debt Equity Ratio, Proprietary Ratio and Capital Gearing Ratio, Earning Per Share and Return on Capital Employed. Problems thereon.

Module-4: FUND FLOW AND CASH FLOW STATEMENTS: (12 Hours)

Fund Flow Statement: Meaning, Definitions, Uses, and Limitations – Preparation of Funds Flow Statements – Problems thereon. Cash Flow Statement: Meaning, Definition, Uses and Limitations-Differences between Fund Flow Statement and Cash Flow Statement (Theory only).

Module-5: BUDGETARY CONTROL: (12 Hours)

Meaning of Budget, Budgeting and Budgetary Control - Advantages and Limitations of Budgetary Control – Types of Budget: Problems on Sales Budget, Production Budget, Purchase Budget, Cash Budget, and Flexible Budget.

Module-6: INCULCATION OF SOFT SKILLS: (04 Hours)

1. Collect information from any Financial Institution, analyse its short-term and long-term solvency by using Ratios.

2. Collect financial information of any Company for 5 years and analyse and interpret it using Trend Percentage.

SKILL DEVELOPMENT ACTIVITIES:

1. Collect the financial statement of an organization, identify current assets, current liabilities, and non-current liabilities from it.

2. Preparation of fund flow statement and determination fund from operations with imaginary figures.

3. Preparation of flexible budget with imaginary figures.

REFERENCE BOOKS:

1. J. Madegowda, Advanced Management Accounting, Himalaya Publishing House.

2. S.P. Gupta, Management Accounting.

3. M.Y. Khan and P.K. Jain, Management Accounting.

4. S.N. Maheshwari, Management Accounting.

5. B.S. Raman, Management Accounting.

6. R.K. Sharma and Shashi K. Gupta, Management Accounting, Kalyani Publications.

VI-SEMESTER (4 Teaching hours per Week)

Course Code: B.Com. Core: 6.3 **METHODS AND TECHNIQUES OF COSTING**

Course Objectives: To enable the students to understand the methods of Costing and Techniques of Cost Accounting.

Pedagogy: Combination of Class-room lectures, Case studies, Group Discussion, Seminar Presentations Soft Skills, Industrial Visits and Field work.

Module-1: CONTRACT COSTING: (12 Hours)

Meaning, Features, Treatment of Certain Important Costs, Contract Price, Work Certified, Work Uncertified, Retention Money, Profit on Incomplete Contracts, Preparation of Contract Accounts and Balance Sheet.

Module-2: PROCESS COSTING: (13 Hours)

Meaning, Features, Treatment of Normal Loss, Abnormal Loss and Abnormal Gain. Preparation of Process Accounts (excluding Joint Products and By-Products and Equivalent Production).

Module-3: OPERATING COSTING: (10 Hours)

Meaning, Classification of Operating Costs, Problems on preparation of Operating Cost Sheet (only transport undertakings).

Module-4: MARGINAL COSTING: (12 Hours)

Meaning, Definitions, Merits and Limitations, Marginal Cost Equations: P/V Ratio, Break-Even Analysis, Cost-Volume-Profit Analysis and Problems thereon.

Module-5: STANDARD COSTING: (13 Hours)

Meaning, Definitions, Differences between Standard Costing and Budgetary Control, Advantages and Limitations of Standard Costing. Analysis of Variances: Material Cost Variance, Material Price Variance, Material Usage Variance. Labour Cost Variance, Labour Rate of Pay Variance, Labour Efficiency Variance, Idle Time Variance, Problems thereon. Overhead Variance (Theory only).

Module-6: RECENT DEVELOPMENTS IN COST ACCOUNTING:

Target Costing, Activity Based Costing, Life Cycle Costing, Just in Time, Learning Curve. (Meaning, Advantages and Limitations).

Module-7: INCULCATION OF SOFT SKILLS: (04 Hours)

1. Prepare a contract agreement for constructing a building covering all clauses.

2. Write on any two applications of marginal costing.

SKILL DEVELOPMENT ACTIVITIES:

1. Visit a contractor and collect copy of contract agreement.

2. Visit and collect information from any process industry regarding stages of production, overheads, normal and abnormal losses.

3. Calculate passenger kms with imaginary figures.

REFERENCE BOOKS:

1. M. N. Arora, Cost Accounting, HPH.

2. B. S. Raman , Cost Accounting.

3. S. P. Iyengar, Cost Accounting.

4. S. P. Jain and K. L. Narang, Cost Accounting, Kalyani Publications.

5. Jawahar, Cost Accounting, HPH.

6. J. Madegowda, Cost Accounting - Elements of Cost and Methods of Costing, Himalaya Publishing House.

7. J. Madegowda, Advanced Cost Accounting, Himalaya Publishing House.

8. Nigam and Sharma, Cost Accounting.

9. Pattan Shetty and Palekar, Cost Accounting.

10. N. K. Prasad, Cost Accounting.

VI-SEMESTER (4 Teaching hours per Week)

Course Code: B.Com. Core: 6.4 **AUDITING AND ASSURANCE**

Course Objectives: To make students to learn the basic principles and practice of Auditing and Assurance.

Pedagogy: Combination of direct teaching, assignments, soft skills and small group discussions.

Module-1: INTRODUCTION TO AUDIT: (08 Hours)

Meaning, Definition, objectives, Conduct of Audit, Distinction between Auditing and Accounting – Types Audit: Statutory, Cost, Internal, Continuous and Concurrent, Information Systems Audit (IS) and Annual Audit - Preparation before Audit.

Module-2: INTERNAL CHECK AND VOUCHING: (10 Hours)

Internal Check: Meaning, Definition, Essentials of a Good Internal Check -Internal Check Regarding: Cash Purchases, Cash Sales, Wages and Stock. Vouching: Meaning, Definition and Importance - Vouching of Cash Transactions, Credit Purchases and Credit Sales.

Module-3: AUDITING AND ASSURANCE STANDARDS: (12 Hours)

Standard setting process, Statement on Standard Auditing Practices (SAP) in connection with Accounting Standards. Significance of the Audit and Assurance Standard issued by Institute

of Chartered Accountants of India. Responsibility of an Auditor for AAS, Understanding of following Standards. SA200 Basic Principles Governing an Audit, SA200A Objectives and Scope of Audit of Financial Statements, SA230 Auditing Documentation, SA300 Planning an Audit of Financial Statements, SA320 Audit Materiality, SA440 Risk Assessments and Internal Control, SA501 Audit Evidence, SA520 Analytical Procedure, SA700 Auditors Report on Financial Statements.

Module-4: COMPANY AUDITORS:(08 Hours)

Appointment, Qualifications, Disqualifications, Rights, Duties and Liabilities of Company Auditor. Audit Report – Types.

Module-5: VERIFICATION AND VALUATION OF ASSETS AND LIABILITIES: (10 Hours)

Meaning, Definition, Methods of Valuation. Verifications and Valuation of Land and Building, Plant and Machinery, Goodwill, Creditors and Bills Payable.

Module-6: AUDIT UNDER COMPUTERISED INFORMATION SYSTEM: (12 Hours)

Audit trials, special audit techniques. Audit software, Test data. Procedures to conduct audit-control procedure to be adopted by the auditor in applying computer assisted audit technique-characteristics of an effective computer audit programme system—characteristics of online computer system- factors to be considered by the auditor in case of CAAT- Controls to be reviewed by the auditor.

Module-7: INCULCATION OF SOFT SKILLS: (04 Hours)

1. As an Auditor, under which circumstances do you consider it necessary to qualify audit report. Draft a qualified audit report.

2. You have been appointed as an auditor a large sized company. What steps would you like to take to ensure a smooth and effective audit?

SKILL DEVELOPMENT ACTIVITIES:

1. Collect the information about types of audit conducted in different organisations.

2. Formulate an internal check system for cash sales.

3. Collect Audited Financial Statements of different organsiations.

REFERENCE BOOKS:

1. B.N. Tandon, Principles of Auditing, S. Chand and Company, New Delhi.

2. B.S. Raman, Auditing.

3. T.R. Sharma, Auditing Principles and Problems, Sahitya Bhawan, Agra.

4. J.M. Manjunatha and others, Auditng and Assurance, HPH.

5. Gupta Karnal, Contemporary Auditing, Tata Mc. Graw-Hill, New Delhi.

6. R.G. Saxena, Principles of Auditing.

VI-SEMESTER (4 Teaching hours per Week)

Course Code: B.Com. Core: 6.5 **ORGANIZATIONAL BEHAVIOR**

Course Objectives: The objective is to help student comprehend, perceive and understand group dynamics and behavioral aspects in an organization. Develop decision making skills through case discussions.

Pedagogy: Combination of Class-room lectures, Case studies, Group Discussion, Seminar Presentations, Soft Skills and Field work.

Module-1: INTRODUCTION: (10 Hours)

Introduction to Organization Behaviour, Concept and Nature of Organizational Behaviour, Contributing Disciplines in the Field of OB: Need to Understand Human Behaviour, Challenges and Opportunities.

Module-2: INDIVIDUAL BEHAVIOUR: (16 Hours)

Personality- Concept, Meaning and Definition, Types, Determinants and Traits. Perception: Meaning and Definitions, Process, Factors affecting Perception. Learning- Meaning and Definition, Determinants of learning, Learning Theories. Values: Concept of Value, Types of Values, Formation of Values.Attitudes: Concept of Attitude, Types, Formation of Attitudes.

Module-3: GROUP DYNAMICS: (10 Hours)

Concept of Group and Group Dynamics; Types of Groups; Formal and Informal Groups; Stages of Group Development, Theories of Group formation; Group Norms, Group Cohesiveness.

Module-4: ORGANIZATION CULTURE AND CONFLICT MANAGEMENT: (12 Hours)

Organizational Culture- Concept, Functions, Socialization; Creating and Sustaining Culture; Managing Conflict- Sources, Types, Process and Resolution of Conflict; Managing Change; Empowerment and Participation.

Module-5: ORGANIZATIONAL CHANGE: (12 Hours)

Meaning–Features – Factors in Organization Change – Resistance to Change – Managing Resistance to Change.

Module-6: INCULCATION OF SOFT SKILLS: (04 Hours)

1. By considering group norms, form different groups and analyse cohesiveness.

2. State the academic conflicts among B.Com students and resolution of those conflicts.

SKILL DEVELOPMENT ACTIVITIES:

1. Draw different structure of an organisation.

2. Identify any five companies and mention their vision, mission statements and slogans.

3. Prepare a questionnaire with at least ten questions on personality attitude of employees towards their organization and identify the personality traits of any five personalities.

REFERENCE BOOKS:

1. L.M. Prasad, Organizational Behavior, Sultan Chand and Sons.

2. Stephen P. Robbins, Organizational Behavior; Prentice Hall of India Pvt. Ltd.

New Delhi.

3. Moorehead and Griffen, Organizational Behavior, Sultan Chand and Sons.

4. Joseph, Weiss (2004), Organizational Behaviour, Jaico Publishing Company.

5. S.S. Khanka, Organizational Behavior, Sultan Chand and Sons, New Delhi.

6. Luthans, Fred, (2003), Organizational Behavior, Tata McGraw Hill, New Delhi.

7. K. Ashwathappa, Organisational Behaviour, Himalaya Publishing House.

VI-SEMESTER (4 Teaching hours per Week)

Course Code: B.Com. Core: 6.6 **GOODS AND SERVICES TAX ANDCUSTOMS ACT**

Course Objectives:

1. To equip the students with the knowledge of Goods and Services Tax.

2. To make the B. Com students more knowledgeable in the field of GST so that they can be self-employed as tax consultants / practitioners.

MODULE -1. INTRODUCTION TO GST: (10 hours)

Present Indirect Tax Structure, Problems of Indirect Taxes, Need for Introduction of GST, Definitions of GST, Meaning of the term GST, Dual Model of GST (Central GST (CGST), State GST (SGST) or Union Territory GST (UTGST), Inter-State GST (IGST), Feature of IGST.

MODULE-2: SCOPE AND DEFINITIONS OF GST: (10 hours)

Scope of GST (Section 1), Definitions (Section 2), Actionable Claim, Address of Delivery, Address on Records, Adjudicating Authority, Agent, Agriculture, Agriculturist, Aggregate Turnover, Appointed Day, Assessment, Business, Capital Assets, Capital Goods, Input Tax, Output Tax Person, Place of Business, Casual Taxable Person.

MODULE – 3: RATES OF GST: (08 hours)

Zero Rating, Zero Rating of exemptions, Exemption and lower rate of tax for certain items such as food and healthcare, Abatements (i.e. deductions), GST Structure Rates.

MODULE – 4: VALUATIONS OF GOODS AND SERVICES UNDER GST: (12 hours)

Introduction to Valuation under GST, Meaning and Types of Consideration.

a) Consideration received through money.

b) Consideration not received in money.

c) Consideration received fully in money, valuation rules for supply of goods and services:

1) General Valuation Rules

2) Special Valuation Rules

Other cases for valuation of supply, imported services, imported goods, valuation for discount. Transaction Value: Meaning and conditions for transaction value, inclusive transaction value, and exclusive discount excluded from transaction value. Problems on GST.

MODULE - 5: INPUT TAX CREDIT AND TAX INVOICE: (08 hours)

Meaning of input tax credit, manner of taking input tax credit, tax invoice, credit note, debit note. Problems on input tax.

MODULE- 6: CUSTOMS ACT 1962: (12 hours)

Introduction, Meaning and Definitions, Basis of determining the duty, Merits and Demerits of customs duty, types of custom duties. Computation of Assessable Value and Customs Duty. Problems thereon.

MODULE-7: INCULCATION OF SOFT SKILLS: (04 Hours)

1) Prepare a tax invoice under the GST Act.

2) Write the procedure for registration under GST.

Skill Development Activities:

1) Prepare a chart showing rates of GST.

2) Compute taxable value and tax liability with imaginary figures under CGST, SGST and IGST.

3) List out the exempted Goods and Services under GST.

REFERENCE BOOKS:

1. V.S.DATEY, Goods and Services Taxes, Taxmann.

2. Sathpal Puliana, M. A. Maniyar, Glimpse of Goods and Service Tax, Karnataka Law

Journal Publications, Bangalore.

3. Pullani and Maniyar, Goods and Service Tax, Published by Law Journal, Bangalore.

4. H.C. Mehrotra and V.P. Agarwal, Goods and Services Tax.

5. H.C. Mehotra and S.P. Goyal, Goods and Services Tax.

6. Ghousia Khatoon, C.M. Naveen Kumar and S.N. Venkatesh, Goods and Services Tax, Himalaya Publishing House, Bangalore.

7. R.G. Saha, S.K. Podder and Shruthi Prabhakar, Fundamentals of GST and Customs Act, Himalaya Publishing House.

8. G. B. Baligar, Goods and Services Tax, Ashok Prakashan, Hubli.

9. www.gst.gov.in, ctax.kar.nic.in

VI-SEMESTER (4 Teaching hours per Week)

Course Code: B.Com. 6.9-1 **HOSPITALITY MANAGEMENT (Elective)**

Course Objectives: To expose the students to the various aspects related to Hospitality Management.

Pedagogy: Combination of Class-room lectures, Case studies, Group Discussion, Seminar Presentations, Soft Skills and Field work.

Module-1: INTRODUCTION TO HOSPITALITY INDUSTRY: (10 hours)

The term 'Hotel', evolution and development of hospitality industry and tourism famous hotels worldwide. Classification of hotels. (Based on various categories like size, location, clientele, length of stay, facilities, ownership) Organizational chart of hotels (Large, Medium, Small).

Module -2: ACCOMMODATION BUSINESSES: (10 hours)

History of Accommodation, Importance of Accommodation, Accommodation Planning, Types of Accommodation, Hotel Accommodation, Supplementary Tourist Accommodation, Youth Hostels.

Module-3: REGISTRATION AND CLASSIFICATION OF GUESTS: (15 hours)

Registration activities - Pre-arrival registration - room assignment and Room rate – Checking the methods of payments - Maintenance of registration records. Room change - Issue of room keys, Guest- concept, Types of Guest-FIT, VIP, Business Travellers, GIT, Special Interest Tours, Domestic and International.

Module-4: EVENT MANAGEMENT: (10 hours)

Meaning and Definition of Event Management, Role of Events for promotion of Tourism, Types of Events - Cultural, Festivals, Religious, Business etc; Need of Event Management, Key Factors for Best Event Management; Emerging trends in hospitality management.

Module-5: FOOD AND BEVERAGES SERVICES: (15 hours)

Food Service Areas- Specialty Restaurants, Coffee shops, cafeteria, Fast food, Bar and Discotheque; Types of meals – Breakfast-Introduction, types, service methods, Brunch, Lunch, Hi-tea, Dinner, Supper; Classification of catering establishments (commercial and non-commercial).

Module-6: INCULCATION OF SOFT SKILLS: (04 Hours)

1. Analyse the cultural event held in your college and justify with suitable findings and suggestions.

2. Analyse the treatment of Guest in a Hotel with special reference to Food and Beverages services.

SKILL DEVELOPMENT ACTIVITIES:

1. Visit a hotel and prepare a brief report on the organization of different Departments.

2. Visit a hotel in your city/place and prepare, based on your observation, a brief report on the Food and Beverage Lines,

3. Prepare a list of Hotels in your city/place and the accommodation facility available with room capacity, occupation ratio, tariff, room services, etc,

REFERENCES BOOKS:

1. Walker, John R., Introduction to Hospitality Management, Prentice Hall.

2. Rutherford and G. Denney, Hotel Management and Operations, Wiley.

3. Coleman, Lee and Frankle, Powerhouse Conferences, Educational Institute of AH & MA.

4. Hoyle, Dorf and Jones, Meetings, Conventions and Group Business, Educational institute of AH & MA. 03. Vijay Dhawan, Food and Beverage Service.

5. Michael L Kasarana and Richard Brooks, Managing Front Office Operations.

6. Stainley Phornco, Operations Management.

7. Sudhir Andrews, House Keeping Manual.

8. Dennis Foster, Introduction to Hospitality.

VI-SEMESTER (4 Teaching hours per Week)

Course Code: B.Com. Core: 6.9-2 **E-COMMERCE, HTML AND TALLY (Elective)**

Course Objectives: To make the students to understand the concept of Internet, Internet programming using HTML and fundamentals of E-Commerce

Pedagogy: Combination of Class-room Lectures, Practice in the Computer Laboratory and Exercises.

Module-1: E-COMMERCE: (08 Hours)

Conventional Commerce: Meaning-Limitations-Difference between Conventional Commerce and E–Commerce. E-Commerce: Meaning, Definition, Features, Objectives, Advantages, Disadvantages. Electronic Data Interchange (EDI): Meaning, Definition, Features, Advantages, Disadvantages. E-mail: Meaning - Procedures for Opening, Saving, Sending.

Module-2: INTRODUCTION TO INTERNET: (08 Hours)

Meaning and brief history of Internet, Intranet and Extranet, E-Mail, Meaning and Features of Networking, LAN, WAN, MAN, WWW, Advantages and Disadvantages of Internet, Difference between Internet and Intranet.

Module-3: INTRODUCTION TO HTML: (06 Hours)

Introduction to Browsers, Web Pages, HTML tags, commonly used commands, titles, footers, text styles, other text effects lists, tables, linking documents.

Module-4: M-COMMERCE: (06 Hours)

Meaning- Characteristics- Advantages and Disadvantages of Mobile Commerce- Infrastructures –Wireless- Standards and Applications.

Module-5: COMPUTERIZED ACCOUNTING IN TALLY: (12 Hours)

Introduction, Meaning, Features, Advantages, Disadvantages. Menus in Tally, Create a Company, Ledger Creation and Group Assignment, Group Creations Voucher Types: Exercises in making voucher entries, Displaying Trial balance, Trading and P & L Account, Balance Sheet, Funds Flow Statements, Cash Flow Statements, etc.

Module-6: SOFT SKILLS IN HTML PROGRAMS: (24 Hours)

Write a HTML Program to create a first page, to create a student information, to create a center tag, to display six headings tags, to create formatting tags, to create a BGCOLOR andmarquee tag, to create a font size and font color tag, to create a subscript tag, to create a superscript tag, to create a paragraph tag, to create a horizontal line tag, to formatting by using bold, big, small, emphasized, italic, superscript and subscript of a single document, to create a List items/ un-order list and order list, to create table contain 2 rows and 2 columns, to create table with 3 columns and 4 rows, to create table with color, to create College admission form, to display Teaching Staff of your College with the following details: Column headings: Sl. No, Name of Teacher, and Designation. Number of Teachers 10 (Imaginary Names and their Designation), to display result sheet of 10 students with the following details: Column headings: Sl. No, Name of Student, and Percentage. Number of students 10 (Imaginary names and their percentage), and use Radio button and checkbox tags.

SKILL DEVELOPMENT ACTIVITIES:

1. Introduction, Meaning, Advantages and Disadvantages of E-commerce.

2. File creation, Ledger creation, Group creation in Tally.

3. Types of vouchers, Exercises in making voucher types in Tally.

REFERENCE BOOKS:

1. E.M, Awad, E-Commerce From Vision to Fulfillment, PHI.

2. Bhadra, Satpati and Dhar, Principles of e-commerce, Dishari Prakashani.

3. Dick oliver and ollyHoizchlah, Teach yourself HTML in 24 hours

4. Douglas E Corner, Computer Network and Internet.

5. Microsoft Commerce Solution, Web Technology, Microsoft Press.

6. D. Parmeshwaran, E-Commerce, BPB Publications.

7. C.S. Rayuda, E-Commerce, Himalaya Publication House.

8. C.S. Rayudu , E-Commerce, E-Business, Himalaya Publishing House.

9. Dr. Saha, K.B. Manjunath and Dr.T. Jayanna, Internet, Web Designing and E-Commerce, Himalaya Publishing House.

VI-SEMESTER (4 Teaching hours per Week)

Course Code: B.Com. 6.9-3 **CONSUMER BEHAVIOUR (Elective)**

Course Objectives:-To enable students to develop Consumer based marketing strategies and create and enhance customer value.

Pedagogy:-Combination of class room lecture, case laws, group discussion, Assignments, students presentation, Soft Skills and Field work.

Module-1: INTRODUCTION: (14 hours)

Meaning and Definition of Consumer Behaviour, Difference between consumer and Customer, Nature and Characteristics of Indian Consumers, Organized and Un Organized Retail Consumer Buying Behavior, Consumerism - consumer safety, consumer information choice redress marketers response to consumer issues, Consumer Movement in India, Rights of the Consumer, Responsibilities of consumers in India.

Module-2: ROLE OF RESEARCH IN UNDERSTANDING CONSUMER BEHAVIOR: (16 hours)

Consumer Research-Consumer Research Paradigms (Qualitative and Quantitative Research Methods) Developing research objectives, collecting secondary data, designing primary research, data analysis and reporting research findings. Models of Consumer Behavior- Input-Process-Output Model, Nicosia Model, Howard Sheth Model, Engel Kollat Blackwell Models of Consumer Behavior,

Module-3: INDIVIDUAL INFLUENCES ON CONSUMER BEHAVIOR: (15 hours)

Motivation: Basics of Motivation, Needs, Goals, Positive and Negative Motivation, Rational Vs Emotional motives, Personality: Basics of Personality, Theories of Personality and Marketing Strategy, Attitudes and Attitude Change; Concept and Strategies of attitude change.

Module-4: EXTERNAL INFLUENCES ON CONSUMER BEHAVIOUR: (15 hours)

Family Influences on Buyer Behavior, Social Class Basics, What is Social Class? (Social class and Social status, Reference Groups, Opinion Leaders and Social Influences In-group versus out-group influences, Cultural Influences on Consumer Behaviour Understanding cultural and sub-cultural influences on individual, norms and their role, customs, traditions and value system

Module-5: INCULCATION OF SOFT SKILLS: (04 hours)

1. Collect information regarding any five consumer cases from the consumer court.

2. Collect information from individual regarding influences of cultural factors on purchase Behavior of consumer.

Skill Development Activities:

1. Collect the information about the consumer attitudes while purchasing of a new product.

2. Collect external factors influencing on purchase behavior of a consumer.

3. Prepare a questionnaire about introducing a new product.

REFERENCE BOOKS:

1. Leon. G. Schiffman and Leslve Lazerkanuk, Consumer Behaviour; 6th Edition; PHI, New Delhi, 2000.

2. Suja.R. Nair, Consumer Behaviour in Indian perspective, First Edition, Himalaya Publishing House, Mumbai, 2003.

3. Batra / Kazmi, Consumer Behaviour.

4. David. L. Loudon and Albert J. Bitta; Consumer Behaviour; 4th Edition, Mcgraw Hill, Inc; New Delhi, 1993.

5. Assael Henry, Consumer Behaviour and Marketing Action; Asian Books Pvt. Ltd, Thomson learning, 6th Edition; 2001.

6. Jay D. Lindquist and M. Joseph Sirgy, Shopper, Buyer and Consumer Behaviour, 2003.

4. Blackwell. Consumer Behaviour, 2nd Edition.

5. S.A. Chunawalla, Commentary on Consumer Behaviour.

6. Sontakki, Consumer Behaviour.

7. Schiffman, Consumer Behaviour.

VI-SEMESTER (4 Teaching hours per Week)

Course Code: B.Com. 6.9-4 **FINANCIAL REPORTING (Elective)**

Course Objectives: To understand, analyse and interpret the basic framework of financial reporting.

Pedagogy: Combination of Class-room lecture, Case studies, Group Discussion, Seminar Presentations, Soft Skills and Field work.

Module-1: BASIS OF FINANCIAL REPORTING (10 Hours)

Purpose of financial reporting, users of financial reports, conceptual framework for financial statements.

Module-2: UNDERSTANDING FINANCIAL STATEMENTS: (14 Hours)

Structure of Financial Statements: Introduction, Statement of Financial Position (Balance Sheet), Statement of Earnings (Income Statement), and Statement of Cash Flows (Cash Flow Statement). Additional disclosure statements: Need for Additional Statements, Auditor's Report, Director's Report, Funds Flow Statement, Electronic Dissemination, and Corporate Governance.

Module-3: COMPONENTS OF FINANCIAL STATEMENTS: (08 Hours)

Inventories, Receivables, Assets (Fixed Tangible, Intangible), Leases, Revenue, Income-Tax, Retained Earnings.

Module-4: ANALYSIS & INTERPRETATION OF FINANCIAL STATEMENTS: (18 Hours)

Ratio Analysis – Liquidity, Solvency, Activity & Profitability Analysis, Comparative andCommon Size Analysis (Vertical and Horizontal Analysis), Financial Statement Variation byType of Industry Expanded Analysis: Financial Ratios used in Annual Reports,Management's use of Analysis, Graphing Financial Information.

Module-5: Financial Reporting Under IFRS: (10 hours)

Introduction to IFRS, Meaning and Scope of IFRS, Need for IFRS, GAAP v/s IAS, IAS v/s IFRS, Nature and operations of IASB and IFRIC, the status and use of IFRSs around the world.

Module-6: INCULCATION OF SOFT SKILLS: (04 Hours)

1. Collect Director's report of any Company.

2. Prepare Annual Report of a Company by using Financial Ratios.

Skill Development Activities:

1. Collect Auditors Report of any Company.

2. Prepare financial report of a Company as per Company's Act.

3. Collect Financial Report of any Company which are adopting IFRS.

REFERENCE BOOKS:

1. Lal, Jawahar, Corporate Financial Reporting: Theory and Practice, Taxmann Applied Services, New Delhi.

2. J.R. Raiyani, and G. Lodha, International Financial Reporting Standard (IFRS) and Indian Accounting Practices, New Century Publications.

3. N.T. Singh, and P. Agarwal, Corporate Financial Reporting in India, Raj Publishing, Jaipur.

4. V.G. Hennie, International Financial Reporting Standards: A Practical Guide, Washington: World Bank.

5. D. Alexander, A. Britton, and A. Jorissen, Global Financial Reporting and Analysis, Cengage Learning, Indian edition.

6. T.S. Grewal, Introduction to Accounting, S. Chand and Co., New Delhi.

DAVANGERE UNIVERSITY

B. A. (CBCS) 2016-2017 Onwards

HISTORY

I-Semester Work load per week: 6 Hrs

Paper: HISTORY OF ANCIENT INDIA (Early period to 1206 A.D)

Module-1:

- Geographical Features of India- Sources: Literary and Archeological
- Harappan Culture: Town Planning, Religious, Economic and Social Conditions.
- Rig Vedic Aryans-Origin-Political Conditions-Social Life-Later Vedic Period-Political and Social Conditions.

Module-2:

- India in 6^{th} C.B.C.: Causes for the rise of New Religions.
- Jainism: Life and Teachings of Mahavira.
- Buddism: Life and Teachings of Budda.

Module-3:

- Mouryas: Chandraguptha Mourya- Ashoka- Kalinga war-Concept of welfare state-Ashoka Damma- Ashoka and Buddhism-(concepts of pan Indian state to be highlighted) –Mouryan Administration- causes for the declaim of Mouryan Empire.
- Kushanas: Kanishka Patronage to Buddhism, Cultural Contributions of Kushanas.

Module-4:

- Guptas: Samudragupta-Development of Sanskrit Language and Literature-Development of Science and Technology-Revival of Hindhism, Administration.
- Harsha Vardhana: His Achievements-Cultural Contribution-Nalanda University.

Module-5:

- Arab Invasions, Invasion of Gazni and Ghori Mohammed on India.
- Terrian Battles of 1191 and 1192 A.D.

Maps:

- Mouryan Empire Under Ashoka.
- Kushana Empire Under Kanishka
- Gupta Empire Under Samudra Gupta.
- Places: Thaneshwara, Kanuj, Prayag, Ujjaaini, Thaksha Shile, Patiliputra, Saanchi, Nalanda, Vaishali, Peshawar, Gandhara, Saranatha, Maski, Harappa, Mahenjodhara, Lothal, Bhodgaya, Kundalavana, Kaandahar, Lumbinivana.

Books for References:

1) Altekar.A.S: State and Government in Ancient India.
2) Bhasham A.L: Wonder that was India.
3) Koambi.D.D : The Culture and Civilization of Ancient India in Historical Outlines.
4) Romala Thapar : A History of India Vol-I
5) Shasthri K A N: A History of South India.
6) Mujamdar R C., Ray Chaudhari and K K Darta: An Advanced History of India Vol-I
7) Sharma R S: Ancient of India.
8) Panikkar K M: A Survey of Indian History.
9) Jha D N: Ancient India-An Introduction Outlines.

B. A. (CBCS) 2016-2017 Onwards

HISTORY

II- Semester (Work load per week: 6 hrs)

Paper: HISTORY OF MEDIVAL INDIA (1206-1757 A.D)

Module-1: Delhi Sulthanite

- Qutd-U-Aibaq and foundation of Delhi Sulthanate.
- Allauddin Khilji and his Administrative Reforms.
- Mohammed-Bin-Tughluq and his Administrative Experiments.

Module-2: Cultural contributions of Delhi Sulthanate

Contributions of Delhi Sulthanate

- Society and Economy
- Literature
- Arts and Architecture

Module-3: Bhakthi Movement(Life and Philosophy)

- Kabir, Nanak, Meerabhi
- Sufi saints
- Kanakadasa and Purandaradasa.

Module-4: Mughal Empire

- Babar and establishment of the Mughal Empire.
- Shershah and his Administration
- Akbar-Rajput and Religious Policy.
- Aurangazeb-Religious policy

Module-5: Cultural Conditions Under the Mughals

- Mughal Administration
- Socio-Economic Condition
- Development of Literature
- Art and Architecture.

Module-6: The Marathas

- Shivaji and his Administration
- Expansion of the Maratha Supremacy under the Peswa.

Module-7: The Advant of Europeans

- The Portuguees
- The Duch
- The French the English Anglo-French Rivalry(The Carnatic Wars)

Maps:

- Khilji Empire Under Allauddhin Khilji
- The Mughal Empire Under Aurangzeb
- The Maratha Kingdom Under Shivaji.
- Places: Delhi, Agra, Fathepur Sikri, Ajmeer, Kandhahar, Chittur, Doulathabad, Kalinjar, Ahmedabad, Sasaram, Poona, Raigada, Panipath, Hampi, Sattara, Kabul, Malva, Mangalore, Bijapur, Golkonda, Surath.

Books for References:

1. Mohammed Habib(1974); Polity and Society in Early Medeival of India, People's Pub House.
2. Sharma S.R.(2003): Cresent India, A Study in Medeival History, Bharatiya Kala Prakashan
3. Shastri K.A.N.,(1976): A History of South India. 4th edition,Oxford University Press
4. Sarkar J.N.,(1992): Shivali and His Times, Orient Blackswan, Mumbai, India.
5. Asaf K.M., W.H.Moreland: Life and condition of the people of Hindustan.1)Agrarian System of India 2)From Akbar to Aurangzeb 3)India at the Death of Akbar
6. Tapan Roychoudhari, Irfan Habib(1982): Cambridge Economic History of India vol-I, Cambridge University Press Archive, Cambridge.
7. Daren P.S., Studies in Medieval Indian History
8. Irfan Habib.,(1999): Agrarian System of Mudhal India, 1556-1707,Oxford University Press, Delhi
9. Sathish Chandra (1987) Essays in Medieval Indian Economic History, Munshiram Manoharlal Publishers
10. Perieval Spear, (1990) History of India vol-II, Penguin Books.
11. Pereival Spear, Vincent Arthur Smith,(1965) The Oxford History of Modern India 1740 to 1977, Clarendon Press.
12. Robert P.E. (1990) History of British India, Aksht Publications
13. Gopal S. British Role in India.
14. Dharma Kumar(2005) Cambridge Economic History of India vol-II, Orient Blackswan, New Delhi
15. Naveen Mudghal Administration of Deccan under Nizam mulka Asifazha.
16. Percy Brown, (1968) Indian Architecture-islamic Period,D.B. Tarapurevala.

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B. A. (CBCS) 2016-2017 Onwards

HISTORY

III-Semester Work load per week: 6 Hrs

Paper: HISTORY OF MODERN INDIA (1757-1885 A.D.)

Module-1:

i. The British Supremacy in Bengal-Battle of Plassey and Battle of Boxer
ii. Land Reforms Under British- The Permanent I and Revenue System-The mahalwari System and the Ryotawari system-Merits and Demerits
iii. Expansion of British Empire-Subsidiary Alliance-Doctrine of Lapse.

Module-2: Tribal Revolts

i. The Shanthalas
ii. The Mundas
iii. Indigo Movement.

Module-3:

i. The Revolt of 1857-causes-Course and Effects
ii. The Queen's Proclamation

Module-4:

i. Growth of Education Under the British
ii. Lord Mecaulay's Recommendations
iii. Wood Dispatch-Hunter Commission

Module-5: Constitutional development

i. Regulating Act of 1773
ii. Pitt's India Act of 1784 Act of 1813

Module-6:

i. Socio-Religious Reforms Movement-the Brahma Samaja-Arya Samaja-The Prarthana Samaja. Swami Vivekananda and Ramakrishna Mission. The Theosophical Society. The Alighar Movement-Jyothiba Pule-Narayana Guru.
ii. Reactionary Policy of Lord Lytton. Pro-People Movement of Lord Rippon.

Maps:

1. The British Empire in 1764
2. India in 1800
3. India in 1856
4. Places- Plassey, Basur, Calcutta, Madras, Mysore, Hydrabad,Surath, Satara, Jhansi, Merat, Delhi, Lucknow, Mumbai, Lahore, Poona, Mangalore, Nagapura, Barakpura, Kanpura, Oadh.

References:

1. Erics Stroke, (1978) Peasant and the Raj. Cambridge University Press. Cambridge.
2. Erics Stroke, (1978) Peasant and the Raj, Studies in Agrarian Society and the Peasant Rebellion in Colonial India, Cambridge University Press.
3. Kenneth Jones,(1990) Socio Religious Movements in British India, Cambridge University Press
4. Panikar K.M. (2010) Colonialism, Culture and Resistance, Oxford University Press.
5. Ranajith Guha. (1999) Elementary Aspects of Peasant Insurgency in Colonial India, Duke University Press Delhi.
6. Savarkar. V.D. The Indian War of Independence 1909, London.

HISTORY

IV-Semester Work load per week: 6 Hrs

Paper-4: INDIAN NATIONAL MOVEMENT (1885-1947)

Module-1: 04 hrs

Factors Responsible for the Rise of Nationalism in India.

Module-2: 08 hrs

National Movement-Establishment of Indian National Congress, Moderates and Extremists

Module-3: 06 hrs

Home Rule Movement- Militant Nationalists and Their Programmes-Bhagath Singh-Azad, Rajguru

Module-4: 20 hrs

The Gandhian Era- Non Co-operation movement- The Swaraj Party- Simon Commission-Civil Disobedience Movement- Dandi march-Gandhi-Irwin pact-Round Table Conference-Gandhiji-Ambedkar Communal Award-Poona pact- Cripp's Proposals-Quit India Movement-Cabinet Independence Act.

Module-5: 06 hrs

Constitutional developments Act of 1909, Act of 1919 and Act of 1935

Module-6: 06 hrs

The role of Subhas Chandra Bose in The Indian National Movement

Module-7: 09 hrs

Growth of Communalism- Muslim League-The Hindu Mahasabha-Jinna and Nehru-Partition of India and Independence

Module-8: 06 hrs

Ambedkar as a Reformist- Socio-religious Awakening.

Maps 03 hrs

1. Partition of Bengal 1905
2. The British India-1947
3. The Partition of India in 1947
4. Places- Mumbai, Culcutta, Surat, Jaliyan walabad, Dandi, Delhi, Lahore, Dhaka, Belgaum, Bardoli, Chouri chora, Tripura, Lucknow, Adiyar, Sabarmathi, Gaya, Simla, Yarawada, Ankola, Ahmedabad.

References:

1. Panikkar K.N. Colonism, Culture Resistance, Oxford University Press, New Delhi
2. Bipan Chandra (1984) Communalism in Modern India, Vikas Publications, New Delhi.

3. Bipan Chandra (1988) India's Struggle for Independence, Penguin Books, New Delhi
4. Shekhar Bandopadhyaya (2004) From Plassey to Partition, Orient Longman, New Delhi
5. Sumit Sarkar (1983) Modern India 1885-1947, Mcmillan Publications, Madras.

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HISTORY

V Semester (Work load per week: 5 hrs)

Paper: HISTORY OF MODERN EUROPE -I (1789-1945 A.D. (Course Code: His.Core: 5-1)

MODULE – I The French Revolution of 1789 A.D.

l. Causes - Achievements of National Assembly Result of the French Revolution.

II. Napoleon Bonaparte -Life and Rise of Napoleon Bonaparte-His Italian and Egyptian Expedition- Administrative reforms of Napoleon Bonaparte - Factors responsible for the fall of Napoleon Bonaparte.

MODULE -2The era of reaction

I. Metternich Age II. The congress of Vienna 1815 A.D

MODULE-3 The rise of Nationalism in Europe

I. Unification of Italy II. Unification of Germany

MODULE-4 The Eastern question

I. Definition -Factors responsible for the rise of Nationalism in the Balkans

II. The Greek war of independence

III. The Crimean war of 1854-56 A.D

IV. The First and Second Balkan wars of 1912 -1913A.D.

MODULE-5 The World War and Revolution

I. The First World war-1914-1918-Causes-Course and Results.

II. The Russian revolution of 1917-Causes-Course and Results.

MODULE-6 Europe between the two World wars

I. Fascism· Features of Fascism, Domestic and Foreign policy of Mussolini.

II. Nazism - Features of Nazism, Domestic and Foreign policy of Hitler.

III. The Second World War 1939 to 1945 A.D -Causes - Course and Results.

a) Napoleon Empire b) Unification of Italy c) The Nazi occupation of Austria & Czechoslovakia.

Map: Important places: Paris, Verssailes, Ajaccio, Elba, Vienna, Tilsit, Tourin, Neples, Milan. Nice, Genova, Leipzig, London. Rome, Madrid, Lizban, Berlin, Mascow, Genova, Sebastopol, Constantinople, Sarajivo- Bhukharest, Brasels, Brest litovski, Belgrade, Warsaw, Yalta, Munich, Franckfort.

Books for Reference:

1. Wall bani. and tailo- Civilization past (vol-III)
2. Edward. M. Neil Burns- Western Civilizasation-its History and culture
3. William.M.Mac Nell- Rise of the West
4. Gottschalk and Lack- Rise of Modern Europe
5. Lipson- Europe in the 19^{th} and 20^{th} Centuries
6. Albert soboul- Understanding the French Revolution
7. C.D.M.Kette by- History of Modern times
8. M.Fort- Europe 1880-1918
9. David Thompson-Europe since Nepolean, the struggle for mastery over Europe
10. Allen R Malaysia-Prospect and retrospect: The impact and aftermath of colonial rule
11. Anthony D smith- State and national in the third world.
12. Fieldnousec K- The colonial empire
13. Beasly A D- Modern Europe
14. Dobba Maurice- Studies in the development of capitalism
15. Girald D- The struggle for Asia 1820-1914 AD

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HISTORY

V Semester (Work load per week 5 hrs)

Paper: CONTEMPORARY INDIAN HISTORY (1947-2000) (Course Code: His.Core: 5-2)

MODULE- I

Integration of princely states of India -With special Reference to Saradar Vallabhai Patel Reorganization states on Linguistic basis with special reference to Andhra Pradesh and Orissa

MODULE- 2

Nehru Era-Industrial development in five year plans-foreign policy and China war.

MODULE - 3

Era of Indira Gandhi- Nationalization of commercial Banks-14 points programs-Proclamation of Emergency and The first ever non-congress Govt, in center-Punjab crisis and Blue Star Operation

MODULE-4

Rajiv Gandhi-Panchayath raj-Development of Science and Techonology-Srilankan policy.

MODULE - 5

Religion and Politics in India - Secularism and Communalism - tools for Communalization of Society. Educational bodies - (NCERT-UGC-ICSSlc-ICRR-ICHR)

MODULE - 6

Formation of Regional Parities in South . 1998-1999 General Elections-National Democratic Alliance-Importance of the reign of A.B.Vajapeye - Bus diplomacy Kargil war

MAPS

I) Formation of Andhra Pradesh.

2) Formation of Orissa.

3) Union Territory of Delhi.

Places: Kargil, Siyachin, Kashmir. Simla. Ayodya, Lahore. Amruthsar, Junagada, Hyadrabad, Raibareli, Nagpur, Durgapura. Rorkela, Pokran, Jaipur, Shri Perambadur. Bangalore. Mysore, Godra, Patna.

FOR REFERENCE:

l. H.H.Dodwal- The Cambridge History of India (vol-O5)

2. Pror.K.B.Keswani- History of modern India (1800-1984)

3. B.L.Growcr- A New look at modern Indian History.

4.P.S..Ioshi and Colker- History of\lodcrn India (1980-1984)

5. R.Pame Dutt- India Today

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HISTORY

VI Semester (Work load per week: 5 hrs)

Paper: **HISTORY OF KARNATAKA (FROM VIJAYANAGARA TO 2000 AD)** (Course Code: His.Core: 6-1)

MODULE -I

I. Vijayanagara Empire-The Achievements ofSri Krishna Devaraya

II. The Battle ofTalikot-Causes for the decline of Vijayanagara Empire

III. Administration and Cultural Contribution of Vijayanagara .

MODULE - 2

I. The Political History of the Paleyagars of Chitradurga- Bharamannanayaka_ Madacarinayaka V

II. Cultural Contributions-Religion -Lireraturc-An and Architecture

MODULE - 3

I. Anti colonial struggle with special reference to Hyder Ali - I and II Anglo Mysore Wars

II. Tippu Sulthan- III and IV .Anglo Mysore Wars

MODULE- 4

I. Wodeyars of Mysore , Krishnaraja Wodeyars- III - Krishna raja Wodeyars-IV

II. Reforms of commissioners rule in princely state of Mysore with special reference to Mark Cubbon and L.B.Bowring.

III. Diwans Rule in princely state of Mysore- Rangacharlu-K.Sheshadri lyer-Sir M. Vishveshwaraiah and Mirza Ismail.

MODULE- 5

I. Freedom Movement in Karnataka with special reference to Belgaum congress session of 1924 A. D.-Isuru- Vidhurashvatha and Shivapura congress.

II. Unification Movement of Karnataka

MODULE - 6

I. The reign of Devaraja Urs- Emergency- Land and Social reforms- The Backward class movement in Karnataka with special reference to L.G.Havanur Commission.

II. Border disputes-Water disputes- and Dalit Movement,

MAPS: Vijayanagara Empire under Sri Krishna Devaraya

2. Mysore under Tippu Sulthan

3. Mysore in 1800 A.D.

Places : Hampi, Udayagiri. Chitradurga, Chandavalli, Sri Ranga Patna, Mysore, Kolar, Bangalore, Belgaum. Esur Vidhurashwatha. Shivapura, Ankola, Muddenahall., Bhadravathi. Sringeri. Madras. Mangalore. Kasaragodu, Nandi Hill.

BOOK FOR REFERENCE

Basavaraja K.R.- History of Karnataka

M. V. Krishna Rao and Halappa. P. B.Desai.S. H.Ratti- History of Freedom movement in Karnataka .

B.R.Gopal- History of Karnataka.

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HISTORY

VI Semester (Work load per week: 5 hrs)

Paper: **HISTORY OF CONTEMPORARY WORLD (1945-2005)** (Course Code: His.Core: 6-2)

MODULE - I

Post second world war - U.N.O-Main Organs-Political and non-political achievements.

MODULE - 2

Cold war - different stages.

MODULE - 3

Non -Alignment- The third world-National Liberation movement- South Africa.

MODULE - 4

Gulf Crisis , Afgan civil war -Question of Dis-Ornamcnt (NPT. CTBT. WMD.)

MODULE - 5

End of cold war and its process of disintegration of USSR and its impact on world politics.

MODULE - 6

Globalization - New Global Economics Scenario (WHO. GATT. IMF, World Bank)

MODULE - 7

American attack on Iraq-2003-Causes -Course and Effects.

MAPS

Places of Historical importance (locate and Mention their Historical importance in a sentence) (Any ten places for question paper 4--- 8 marks)

Riyadh. Bundung, Lisbon, Madrib, Hiroshima. Nagasaki. Newyark, Moscow, Johannesburg, London. Beijing. Constantinople, cape of Good hope Tehran, Bombay, Tokyo. Genova, Newyork. Venice, Paris, Islamabad. Athens, Colombo.

References:

I. Visa V.S (Ed): Property Reduction in Developing countries.

2. S.K Ray: Refuges and Human Rights

3. A.K. Sen: International Relations since 0909

4. Cohen. R: Global social Movement.

5. Went. R Globalization.

6. Evans. T. Polities of human Rights

7. Lobo Nancy: Globalization. Hindu Nationalism and Christians in India

8. Parth . S. Ghosh: Co-operation and Conflict in South Asia.

9. A.C. International Affairs since 1919.

10. Prakash Chandra, Prem Arora: Comparative politics and International relations.

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B. A. (CBCS) 2016-2017 Onwards

POLITICAL SCIENCE

1ST SEM (6 Hrs per Week)

I Paper Basic Principles of Political Science

Module-I

a) Meaning, Nature, scope and importance of political science.
b) Approaches to the study of political science: Historical, Comparative and Behavioural.
c) Political theory: Meaning, nature and significance.

Module-II

a) State: Nature of the state with reference to Herbert Spencer's organic theory of state.
b) Origin of state:Social contract theories propounded by Thomas Hobbes, John Locke and J.J.Rousseau.
c) Soverenity:Monistic and Pluralistic theories.

Module-III

a) Major political trends: Liberalism, Marxism/Communism, Feminism (Women Empowerment) and the theory of welfare state.

Module-IV Basic Political Concepts

a) Law- Source and kinds
b) Rights- kinds and safeguards.
c) Political obligation-meaning and kinds.
d) Duties of citizens.
e) Liberty- meaning and kinds.
f) Equity- meaning and kinds.

Module-V

a) Democracy- meaning, kinds and essential conditions for the successful working of democracy.
b) Political participation- Motivating factors for effective participation.
c) Political alienation (apathy)-Reasons.

References:-

1) Appadorai- Substance of Politics
2) Adidoctor- Issues of Political theory.
3) Gokhale.B.K.-Political Science (Theory and Governmental machinery)
4) Laski.H.J: Grammer of Politics
5) Ashirvatham. A.: Political Theory.
6) Kapur.A.C. : Principles of Political Theory.
7) Johari.J.C.- Contemporary Political Theory: new dimensions basic concepts and major trends, sterling publishers.
8) S.P.Verma:-Modern Political Theory
9) Rajeev Bhargav and Ashok Acharya:- Political Theory: an introduction.
10) Robert.A.Dhal:- Modern Political Analysis.
11) M.J.Vinod and Meena Deshpande:- Contemporary Political Theory-PHI Publications

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B. A. (CBCS) 2016-2017 Onwards

POLITICAL SCIENCE

2nd SEM (6 Hours per Week)

POLITICAL THOUGHT

Module-I Plato and Aristotle

a) Plato: Concept of Ideal State and Theories of Communism and Education.
b) Aristotle: Views on revolution, best state and theory of classification of governments.

Module-II Gautam Buddha, Kautilya and Basavanna

a) Buddha:1. Buddist political thought with reference to idea of good government (Dasharaja Dharma).
   2. Citizens' Sannadate/Good Conduct (Sadaacharya and Ashtanga Marga)

b) Kautilya: Theories of Saptanga, Mandal and Shadgunya.

c) Basavanna: Concepts of Equity Rights and Law.

Module-III

a) J.S.Mill: Concepts of Liberty and Representative Government.
b) H.J.Laski: Concepts of Equality Rights and Law.

Module-IV

a) Raja Ram Mohan Roy: Concepts of Liberalism (Natural Rights) and Civil Society.
b) Balagangadhara Tilak: Views on 'Nationalism'.
c) Mahatma Gandhi: Concepts of Swarajya, Satyagraha and Sarvodaya.
d) Jawaharlal Nehru: Views on Secularism and Democratic Sociolism.
e) Dr. B.R. Ambedkar: Concepts of Social Democracy and Eradication of untouchability.

References:

1) G.H.Sabine-A History of political Theory,4th Edition revised by T.L. Thorson.
2) Sukhbir Singh- History of political thought-Rastogi publication.
3) J.P.Sudha- History of political thought.
4) Dr.G.C.Nayak- Indian Political Traditions. Kalyani publications 3rd edition.
5) Dr. U. Sharma- Representative political thinkers, L.N.Agarwal publications.
6) R.C.Gupta- Indian Political Thought, L.N.Agarwal publications.
7) D.K.Mohanty- Indian Political Tradition from Manu to Ambedkar.Anmol Publ.

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B. A. (CBCS) 2016-2017 Onwards

POLITICAL SCIENCE

3rd SEM **(6 Hours per Week)**

COMPOARATIVE GOVERNMENTS AND POLITICS

Module-I

a) Meaning and importance of studying governments comparatively.
b) Approaches to the comparative governments-Historical, Legal, Structural-Functional and System.

Module- II

The salient Features of the constitutions of the U.K., U.S.A., Switzerland and China.

Module- III

Legislative Systems in U.K., U.S.A., Switzerland and China.

Module- IV

Executive Systems in U.K., U.S.A., Switzerland and China.

Module- V

Judicial Systems in U.K., U.S.A., Switzerland and China.

Module- VI

Party Systems in U.K., U.S.A., Switzerland and China.

References:

1) G. Almond: Comparative Politics today a world view.
2) J.C. Johari: Major Constitutions of the World.
3) H.C. Huton, David and Charles: An Introduction to Chinese Politics.
4) R. Maddes- Constitutions of the World.
5) Finer Mathew- Theory and practice of modern government.
6) J.C. Johari- Select World Constitution.

7) K.K. Ghai- Major Governments.
8) S.A. Palekar- Comparative politics and government, PHI learning pvt limited.
9) VishwaBhagavan and Vidhyabhushan- Select Modern Governments.
10) Gabrial A Almond, G Bingham, Russel, J Dalton- Comparative politics today; A World View.
11) Subrata Mukherjee- Theoritical foundations of comparative politics.
12) S N Ray- Modern Comparative politics; Approaches, Methods and issues.

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POLITICAL SCIENCE

4th SEM (6 Hours per Week)

INDIAN GOVERNMENT AND POLITICS

Module- I

a) Making of Constitution.
b) Preamble.
c) Salient features.

Module- II

a) Fundamentals Rights and Duties
b) Directive Principles of State Policy.

Module- III Union and State Executive

a) The President of India; Election, Powers and Functions.
b) Vice President; Election, Powers and Functions.
c) Prime Minister and Council of Ministers; Election, Powers and Functions.
d) Governor; Appointment, Powers and Functions.
e) Chief Minister and Council of Ministers.

Module- IV Union and State Legislature

a) The Parliament of India; Composition, Powers and Functions.
b) The Speaker; Powers and Functions.
c) State Legislative Assembly and Council.

Module- V Judicial Systems in India

a) Supreme Court; Composition and Jurisdiction.
b) High Courts; Composition and Jurisdiction.
c) Judicial activism with special focus on Public Interest Litigation.

Module- VI Democratic Decentralisation

a) Rural-Local Self Government; Gram Panchayat, Taluk Panchayat and Zilla Panchayat.
b) Urban-Local Self Governments; Town Panchayat, Town Municipal Council, City Municipal Council and City Corporation

Module- VII The Procedures of the Constitutional Amendment

Module- VIII Threats to India's democracy

a) The Politics of Caste
b) Communalism
c) Socio-Economic Inequalities.
d) Criminalization of Politics.

Module- IX Reforming Indian Policy

a) Inclusive growth and Social Justice.
b) Secular Outlook
c) Judicious political representation for women.

References:

1) M.V. Pylee- India's Constitution
2) Hansraj- Indian Political System
3) Subhash Kashyap- Constitution of India
4) J N Pandey- The Constitution of India

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B. A. (CBCS) 2016-2017 Onwards

POLITICAL SCIENCE

Course Code: (Pol.Sci.Core: V - 5) (5 Hours per week)

PRINCIPLES OF PUBLICADMINISTRATION

Module – I Introduction

a) Meaning, nature, scope and significance of Public Administration.b) Distinction between Public and Private Administration.

Module-II Organisation.

a) Meaning and principles of organisation 1) Hierarchy. 2) Unity of command. 3) Span of Control. 4) Centralisation. 5) Decentralisation. 6) Coordination.

Module -III

TheChiefExecutive: meaning, kinds (presidential, parliamentaryand collegiate) and functions.

Module-IV

a) Department: Bases. b) Public corporations. c) Independent regulatory commission.

Module- V Personnel System.

a) Recruitment, Training, Promotion and Morale.

Module -VI Administrative Behaviour.

a) leadership: Qualities of good leadership andtypes of leadership b) PublicRelations: techniques of communication and role of mass media in maintaining good public relations c) Planning: Meaning, Process and its types.

References:

1) Avasthi and Maheshwari.S.R.: Public Administration

2) Tyagi.A.R: Public Administration

3) Vishnu Bhagawan and vidhyabhushan : public administration

4) C.P.Bhambri: public administration

5) B.L.Fadia: public administration.

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POLITICAL SCIENCE

V- SEMESTER Course Code: (Pol. Sci. Elective: V- 6) , (5 hrs. per Week)

PRINCIPLES OF INTERNATIONAL RELATIONS

Module-I

a) Meaning, Nature, Scope and importance of International Relations. b) Approaches to the study of International Relations; i) Classical- Historical and Philosophical, ii) Scientific- The Realist and Systems theory.

Module - II

a) National Power: Meaning, Elements and limitations on National Power. b) National Interest: Meaning, Types and Methods of promoting national interest.

Module – III Foreign Policy.

a) Meaning, Objectives, Principles and determinants of Foreign policy. b) Foreign Policies of India, USAand China

Module -IV Instruments of Foreign Policy.

a) Diplomacy: Meaning, Kinds and Functions. b) War- Kinds, Causes, Effects and Remedies. c) Propaganda: Meaning and Methods. d) Economic instruments.

Module - V Control Over Inter - State Relations.

a) Disarmament. b) Collective security. c) Balance of power. d) Pacific Settlement of International Disputes. e) Alliances.

Module - V, Contemporary Global Concerns

a) Democracy. b) Human Rights. c) Gender justice. d) Terrorism. e) Environmental Issues. f) Nuclear Proliferation.

References:

1) Palmer Perkins: International Relations - Third revised edition.

2) Hans.J. Morgenthace revised by Kenneth.W.Thompson: Politics among Nations.

3) Vinav Kumar Malhotra: international Relations (4th revised and enlarged edition),

4) U.R.Ghai: International Politics: Theory and Practice (12th edition 2007).

5) ManendraKumar: International Relations.

6) Johari. J.C:International Politics.

7) R.TJangam: International Politics (1970) allied publishers.

8) H.T.Ramakrishna: International Relations 3rd edition 1993.

9) Oxford University Press: Dictionar'}/ of Intemational Relations.

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POLITICAL SCIENCE

VI- SEMESTER

Course Code: (Pol.Sc. Core : VI - 7) (5 hrs per week)

INDIAN PUBLIC ADMINISTRATION

Module -I : Indian Public Administration within the framework of the Constitution

a) Parliamentary Democracy. b) Federal Nature of the Constitution.

Module -II : Structure of Central Government

a) The Cabinet and Council of Ministers. b) Central Secretariat c) Cabinet secretariat - Cabinet Secretary, The Prime Minister's Office. i) Structure of State Government ii) The cabinet and council of ministers. iii) State secretariat and chief secretary.

Module - III Personnel System in India

a) Kindsof Public Services: All India Services, Central CivilServices and State Civil Services. b) Recruitment, Training, Promotion and Morale. c) Public Service Commissions in India: Composition and functions. d) Financial Management: Budget - Preparation Enactment and Execution. e) Comptroller and Auditor General of India.

Module - IV District Administration

a) Role and importance of District Administration. b) Deputy Commissioner/ District Magistrate: powers and duties. c) Assistant Commissioner- Powers and duties. d) Tahashildar : Powers and duties.

Module - V Major Issues in Indian Administration

a) Relationship between political and permanent executive. b) Ethics in Governance. c) Issueof corruption with special focus on the role of civil society in its eradication. d) Public grievances redressal authority with reference to Lok Pal, Lok Ayukta, Central Vigilance Commission and Anti-Corruption Bureau. e) Good governance and E- Governance. f) Development and environmental issues.

References:

1) Sri Ram Maheshwari: Indian Administration, published by orient longman ltd, New Delhi.

2) Bhushan and Bhagwan : Indian Administration, S.Chandand company ltd.

3) Bidyut Chakarbarty & Prakash Chand: Indian Administration.

4) Ramesh. K. Arora: Indian Public Administration: Institutions and Issues

DAVANGERE UNIVERSITY

B. A. (CBCS) 2016-2017 Onwards

POLITICAL SCIENCE

VI-SEMESTER Course code: (Pol.Sci.Elective: VI-8) (5hrs Per Week)

INTERNATIONAL ORGANISATIONS

Module-I

a) Meaning, characteristics and role (functions) of International organisations. b) Modern Nation-State System: Meaning, Development and characteristics.

Module -II: United Nations Organisation - UNO.

a) Establishment, Aims, objectives and principles. b) Principal organs and their functions. c) Specialised agencies. d) Evaluation of UNO: Achievements and failures.

Module-III: Regionalization of World Politics.

a) Conceptualizing the role of regional systems. b) Some major regional organizations

I. EU- Establishment, Objectives and its changing face

II. SAARC-Establishment, Structure, Objectives, Functions and Constraints

III. OPEC - Composition and objectives.

IV. BRICS- Composition and objectives.

V. ASEAN- Composition and Objectives.

Module - IV: Non- Alignment Movement

a) Meaning, Origin, Aims and Objectives. b) Role of NAM in Maintaining World Peaceand Security.

Module-V: International law.

a) Meaning, Scope and sources of international law. b) Nature of international law or is international law a true law?

Module - VI: Dynamics of International Politics

a) . Decolonization, Rise of Super Powers, Cold War, Arms Race- Weapons of Mass Destruction. b) Unipolarity: American Hegemony.

References:

1) Prakashchander and PremArora - "Comparative politics and International Relations ,26th edition, cosmos book hives.

2) PremArora - The United Nations - A study of international organisation- latest revised edition, cosmos book hives (pvt ltd).

3) A.C.Roy: International Relations since 1919- world press private ltd

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CBCS Scheme-syllabus-2016-17
Subject : Psychology

Course-Code: Psychology-I 3 hours per week

Sem- I FUNDAMENTALS OF PSYCHOLOGY

Module-1: Introduction: a) Definition of Psychology, b) Branches of Psychology- Basic and applied; c) Scientific Methods of Psychology- Experimental, Naturalistic observation, Questionnaire method; d) Psychology and its relationship with other disciplines-Sociology, Anthropology, Philosophy, Biology and Medicine.

Module 2: Neutral Transmission: Cell Neuron and Gliel Cells; Nerve impulse transmission; sensory and motor pathways reflexes.

Module 3: Attention and Sensation; a) Attention Characteristics and determination characteristics b) Structure and Function of Sensory Organs (5 basic senses); c) Colour Blindness; d) After images.

Module 4: Perception: Meaning of Perception, Laws of perceptual organisation, Illusions, Depth perception and ESI

Module 5: Emotion and Motivation: Emotion-Meaning,Nature, Characteristics and Psychological changes. Motivation- Meaning, Biological(hunger, thirst and sex) Social motives (Maslow's Heirarchical Needs Theory)

Books for References:

1 Atikinson R C- Introduction to Psychology IBH Publications
2 Morgan C T King R A and Robinson- Introduction to Psychology,Oxford and IBH Publications
3 Introduction to Psychology: N L Munn
4 Natraj P – Psychology for Biginners, Mysore: Srinivasa Publications
5 Natraj P – Samanya Manovignana, Mysore: Srinivasa Publications

Practicals (50 marks) (weekly 3 hours) 1 Batch=3 hours, 1 practical=3 hrs

1 Directional Observation and Accuracy of Report

2 Factor in Muller- Lyer illusion

3 Progressive Weights

4 Emotion and free Associon

5 Span of Attention

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Subject : Psychology

Sem- II BASIC BIOLOGICAL PROCESSES (3 Hours per week)

Module-1: Central Nervous System:a) Biological explanation of behaviour, the mind- body relationship-types and functions; spinal cord; the hind brain and the ventricles; b) Cerebral cortex- organisation (occipital, parietal, temporal and frontal lobes)

Module 2: Peripheral nervous system and glands: autonomic system: somatic system

Module 3: Methods of Investigation: How the behaviour is controlled by the brain: The stereotaxic instrument; lesions and ablations; Stimulation of recording from brain; Labelling and measurement of brain activity; Studies involving then structure of living human brains.

Module 4: Development and Evolution of Brain: Development- Growth and differentiation of then vertebrate brain, axon (Path finding and competition) Evolution- difficulties involved, comparison between human brains and other brains, relationship between brain size and intelligence.

Module 5: Visual and Auditory Process: Structure of the eye and visual pathway.

Books for References:

1 Kalat J W 1995, Biological Psychology 5th edition.Brook/Cole Publishing Company, Newyork

2 Levintyhal C F 1996 Introduction to Physiological Psychology 3rd edition, Prentice Hall of India Private Ltd, New Delhi.

Practicals (50 marks) (weekly 3 hours) 1 Batch=3 hours, 1 practical=3 hrs

1. Localization of sound
2. Mapping of colour zones
3. Colour Blindness

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Subject : Psychology

Course-Code : (Psychology 3) (3 hours per week)

SEMESTER-III

BASIC COGNITIVE PROCESS

UNIT 1 : Introduction: History and current status of cognitive psychology;, Attention-Meaning and Theories;Pattern Recognition – Meaning and theories.

UNIT 2 : Learning: Definition;, Theories-Trial and Error, Insight, Imitation, Classical and Operant conditioning; Transfer of Training.

UNIT 3 : Thinking and Reasoning: Thinking –Meaning and Types;, Reasoning Meaning and Types;, Creativity – Measures and Factors;, Problem Solving Approaches.

UNIT 4 : Memory and Forgetting: Memory-meaning, STM, LTM and Memory Improvement; Forgetting – Normal and Abnormal, Causes of Forgetting.

UNIT 5 : Intelligence: Nature and Determinants;, Concept of IQ;, Distribution of Intelligence;, Intelligence Tests-Verbal, Non-verbal and Performance

TEXT BOOKS

1. P. Nataraj. Psychology for begginers. srinivasa publication, Mysore.
2. Introduction to Psychology. N.L.Munn.

BOOKS FOR REFERENCES

1. Matlin, M.W. 1995. Cognition. Prism Books Pvt., Bangalore, india
2. Kellog. R.T. 1995. Cognitive Psychology, Sage. New Delhi. India

PRACTICALS (50Marks) (Weekly 3Hours) 1Batch=3 hours, 1 practical = 3 hours)

1. Insight on Motor Learning.

2. Determine the effect of Set on Attention
3. Effect of Meaning on Retention
4. Assessment of intelligence (RPM)
5. Effect of feeling tone on recall

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Subject : Psychology
SEMESTER – IV (3 hours per week)

BASIC SOCIAL PROCESS

UNIT 1 : Introduction: Definition and Scope of Social Psychology;, Social Perception Cognition;, Perceiving ourselves – Self concept, Self Esteem, Self Presentation and Experiences.

UNIT 2 : Social Interaction and Interpersonal Attraction: Social Interaction-Meaning, Modes-(Co-operation, competition, communication, accommodation, assimilation); Interpersonal attraction-Meaning, Theories(Balance and Reward theories), Sociometry

UNIT 3 : Group Processes: Group-Meaning, Group influence (Social facilitation, loafing, Deindividualization group polarization);, Group thinking;, Leadership-Meaning, Types (Convey and Bartlett), Functions of a Leader.

UNIT 4 : Attitudes and Prejudices: Attitudes – Meaning, Formation and Change;, Prejudices-Meaning, Sources and Reduction.

UNIT 5 : Applied Social Psychology: Community Mental Health – Positive Mental Health, Social Medicine (Awareness regarding Drug abuse, alcoholism and HIV);, Tension and Conflicts: Meaning. Techniques of Conflict Resolution.

TEXT BOOKS

1. Kuppuswamy B. 1994 An introduction to Social Psychology 2nd Ed. MPP Pvt Ltd., Bombay.
2. P. Nataraj. Samajika Manovijnana Srinivasa Publication, Mysore.

BOOK FOR REFERENCES

1. Alcock, J.E., Carment, D.W. Sadava, S.W., Collins, J.E., and Green, J.M. (1997). A textbook of social psychology. Scarborough, Ontario: Prentice Hall/Allyn and Bacon.
2. Baron, R.A., and Bryne, D. (1998), Social Psychology. New Delhi: Prentice Hall.
3. Fieldman, R.S., (1985). Social Psychology: Theories, research and application. New York: McGraw Hill.
4. Myers, David, G (1994). Exploring social Psychology. New York: Mc Graw Hill.
5. Kuppuswamy. B. 1994. An introduction to Social Psychology, 2nd Ed. MPP Pvt. Ltd., Bombay.
6. Semin G.R.Fielder K. (1996) Applied social psychology London, Sage.

PRACTICALS (50Marks) (Weekly 3Hours) 1Batch=3 hours, 1 practical = 3 hours)

1. Measuring Social Distance
2. Impact of Competition on performance
3. Rumour in communication
4. Effect of Co-operation on performance
5. Assessment Stereo type

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CBCS Scheme-syllabus-2016-17
Subject : Psychology
V-Semester

Course-Code : (Psychology V.5) (3 hours per week)

SEMESTER-V

LIFE SPAN DEVELOPMENT Paper-V

UNIT 1: Introduction: Areas & importance of development of Psychology;, Approaches; c) Longitudinal and cross sectional, Principles of Human development, Genetic tradition of prenetal development.

UNIT 2: Infancy to Childhood: Infancy:- General characteristics of infancy; Early and late childhood. Development tasks (physical, emotional, social and moral development).

UNIT 3: Puberty and Adolescence: Characteristics and developmental tasks, (physical, emotional, social & moral). **Early and late adolescence:** Characteristics and developmental task (physical, emotional, social and moral development).

UNIT 4: Adulthood:- Interests, Social activities, Sex role adjustments; Vocational and marital adjustment.

UNIT 5: Old Age:- Characteristics of old age; Adjustment and physical changes; Decline in motor and mental capacities; Changes in interests; Recreational, social and religious.

TEXT BOOKS

1. Developmental Psychology by E.B. Hurlock.

PRACTICALS-V (50Marks) (Weekly 3Hours) 1Batch=3 hours, 1 practical = 3 hours)

1. Assessment of social maturity (V.S.M.S) (Bharath Raj scale)
2. Assessment of Adjustment Bell's adjustment Inventory (student Form)
3. Assessment of emotional maturity.
4. Assessment of emotional intelligence.
5. Assessment of social maturity.

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Subject : Psychology
V-SEMESTER

Course Code: (Psy.Core: V-6) **PERSONALITY.** Paper VI (3 hours per week)

Module-1: Personality
Nature, Definition, Biological and Social Determinants, Classification of Personality – Sheldon, Jung, Type-A and Type-B.

Module-2: Theories of Personality
Freud's Psychoanalytical Theory; Jung's Analytical Theory; Murray's Personality.

Module-3: Theories of Personality
Lewin's Field Theory-Eysenck's Theory – Cattell's Factor Theory

Module-4: Theories of Personality
Allport's Psychology of the Individual – Roger's Self Theory – George Kelly's Personal Construct Theory.

Module-5: Assessment of Personality
Rating Scales - Interview – Questionnaires – Projective Tests, Application of Personality Testing in Various Areas – Clinical, Organization, Social, Educational.

TEXT BOOK
1. Abnormal psychology. By COLEMAN

Book for References:

1. Calvin H.S., and Liondzey G., (1970) Theories of Personality, John Wiley and Sons Inc., New York.
2. Mischel W., (1971) Introduction to personality, Holt, Rinehart and Winston, New York.
3. Nataraj P., (1990) Psychology for Beginners, Srinivasa Publications, Mysore.

V-SEMESTER

Course Code: (Psy.Pr: V-5) **PRACTICALS** (50Marks) (Weekly 3Hours) 1Batch=3 hours, 1 practical = 3 hours)

1. Eysenck's Personality Inventory
2. Cattell's 16 PF Questionnaire – Form C
3. Assessment of Temperament
4. Assessment of Inferiority and Insecurity Feelings
5. Personal Value Questionnaire

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Subject : Psychology
VI-Semester

Course-Code : (Psychology V.7) (3 hours per week)

Course Code: (Psy.Core: VI-7) CLINICAL PSYCHOLOGY Paper-VII

Module-1:

(i) Introduction to Clinical Psychology; Definition, Normality and Abnormality
(ii) Models of Abnormality – Medical; Psychoanalytical; Behavioral; Cognitive; and Humanistic and Socio Cultural.

Module-2:

(i) System of Classification: DSM and ICD
(ii) Anxiety: Somatoform and Dissociative Disorder (Meaning and Symptoms)

Module-3:

(i) Mood Disorders
(ii) Schizophrenia and
(iii) Personality Disorders; Meanings and Methods of Assessment

Module-4: Clinical Assessment

(i) Case History
(ii) Clinical Interview
(iii) Psychological Testing
(iv) Physiological Assessment

Module-5:

(i) Counselling and Guidance
(ii) Therapeutic Approaches: Biological – ECT, Drug and Psychosurgery; Psychological –Psychotherapy and Behaviour Therapy.

Text Books & References:

1. Balakrishna Acharya, Apasamany Manovijnana, Prasaranga, University of Mysore.
2. Barlow and Durand, (1995) Abnormal Psychology, Books/Cole Publishing Company, Neew York.
3. Davision, G.C. and Neale, J.M. Abnormal Psychology.
4. Nataraj.P., Manoroga Manovijinana. Srinivasa Publications, Mysore.
5. Sarason I.G., and Sarason B.R., (1996) Abnormal Psychology: The Problem of Maladaptive Behaviors, Prentice Hall of India Pvt. Ltd., New Delhi.
6. Venkatreddy C.N., (2001) Apasamnya Manovijnana Mattu Adhunika Jeevana, Sri Siddalingeshwara Book Depot and Publications, Gulbarga.

VI-SEMESTER

Course Code: (Psy.Pr: VI-7) PRACTICALS-VII (50 Marks) (Weekly 3Hours) 1Batch=3 hours, 1 practical = 3 hours)

1. Medico Psychological Questioner
2. Thematic Apperception Text (TAT)
3. Assessment of Depression (Beck's Depression Inventory)
4. Assessment of Stress
5. Assessment Memory ( )

VI-SEMESTER. PAPER-VIII

Course Code: (Psy.Core: VI-8) RESEARCH METHODOLOGY & STATISTICS

Module-1: Research Methodology

Meaning of Research, Objectives, Types, Approaches and Significance of Research.

Module-2: Research Designs

Meaning and Types. Principles and Important Concepts Relating to Research Design, Report Writing-Layout of Research Report.

Module-3: Relevance of Statistics

Importance of Statistics in Social Sciences with special Reference to Psychology, Scale of Measurement-Nominal, Ordinal, Interval and Ratio Scale.

Module-4: Data Collection

Different Methods, Classification of Data- Frequency Distribution (Class Intervals) Graphical Representation (Frequency, Polygon and Histogram)

Module-5: Measure of Central Tendency and Variability

Measures of Central Tendency-Mean, Median and Mode (Grouped and Ungrouped Data); Measures of Variability-Range, Average Deviation Quartile Deviation and Standard Deviation (Grouped and Ungrouped Data)

Text Books & References:

1. S.K. Mangal 2010 Statistics for Psychology & Education-HPI Ltd.
2. Kothari C.R., (1985) Research Methodology – Methods and Techniques, Wishwa Prakashan, New Delhi.
3. Yashodhara Y., (1995) Shikshanadalli Sankya Shasthra, Jagannath Publication. Mysore.

PROJECT WORK (50 Marks)

Davangere University
CBCS (2016-17) Syllabus
Subject: Sociology

I-Semister PRINCIPLES OF SOCIOLOGY 6 Hours per week

Module-1: Introduction to Sociology 10 Hours

- Origin and Development of Sociology
- Meaning, Subject-matter and Scope
- Sociology as a Science, Features, Sociology as an art
- Utility of Sociology

Module-2: Fundamental concepts in Sociology (Meaning and Characteristics) 10 Hours

- Society
- Community
- Social Structure

- Association
- Status and Role

Module-3: Socialization 10 Hours

- Meaning, Characteristics and Importance
- Agencies of Socialization- Family, School, State, Religion and Mass Media
- Types of Socialization

Module-4: Social Interaction and Social Processes 10 Hours

- Social Interaction: Meaning, Characteristics and Significance
- Social Processes: Meaning, Characteristics and Types
- Major Social Processes: Co-operation, Competition, Conflict, Accomodation and Assimilation

Module-5: Culture and Civilization 10 Hours

- Culture: Meaning, Nature and Importance
- Components of Culture
- Culture and Civilization
- Culture Lag and Cultural Diffusion

Module-6: Social Change 10 Hours

- Meaning and definitions.
- Characteristic Features
- Factors.

References:

1. Abraham Francis,(2006); Contemporary Sociology, Oxford University Press, New Delhi.
2. Bottomore T B Sociology: A Guide to Problems and Literature, George Allen and Unwin, Bombay, India.
3. Davis Kingsley,(1982) Human Society, Surfeit Publications, New Delhi.
4. Giddens Anthony(2001) (4th Ed) Sociology, Blackwell Publishers, Cambridge, New Delhi
5. Gisbert Pascual,(1983) Fundamentals of Sociology, Orient Longmans, Bombay.
6. Green A W, (1964) (4th Ed) Sociology-Analysis of Life in Modern Society.
7. Haralmbos Michael(1997) Sociology-Themes and Perspectives, Oxford University Press, New Delhi.
8. Horion Paul and Hunt Chester (1984) Sociology, McGrow Hill Co.,New Delhi
9. Ian Robertson,(1980) Sociology, Worth Publishers INC, New York
10. Jayaram N (1988) Introductory Sociology, MacMillan India, Madras.
11. Lesle Gerald, Richard Larson, Benjamin Gorman, (1994) (3rd Ed) Introductory Sociology Order and Change in Society, Oxford University Press, New Delhi.
12. Johnson Harry M (1995) Sociology; A Systematic Introduction,Allied Publishers, New Delhi.
13. Ogburn and Nimkoff, (1964) A Handbook of Sociology, Eurasin Publishing House Pvt. Ltd. Ramnagar, New Delhi.
14. Samuel Koenig(1960) Sociology-An Introduction to the Science of Society, Barnes and Noble, INC, New York.

Davangere University
CBCS (2016-17) Syllabus
Subject: Sociology

II-Semister **STRUCTURE OF INDIAN SOCIETY** 6 Hours per week

Module-1: Introduction (10 Hours)

- Features of Indian Society

- Philosophical Basis of Indian Society- Varnashrama, Purusharthas and Samskaras
- Unity in Diversity Basis.
- Factors of Continuity and Change

Module-2: Marriage in India (10 Hours)

- Marriage among Hindus, Muslims and Christians
- Divorce: Meaning, Causes and Consequences, Preventive measures
- Recent Changes in Marriage.

Module-3: Family System in India (10 Hours)

- Family: Meaning and Characteristics.
- Types of Family.
- Changing Aspects of Family

Module-4: Caste System in India (10 Hours)

- Meaning, Features and Theories of Caste
- Backward Classes, SCs, OBCs and Minorities; Problems and Measures
- Changing Aspects of Caste.

Module-5: Villages in India (10 Hours)

- Meaning and Features.
- Types of Villages, Settlement Patterns
- Recent Changes in Rural Society.

Module-6: Tribal Society in India (10 Hours)

- Meaning and Characteristics of Tribe.
- Tribal Population: A briefe Profile.
- Problems and Measures.

References:

1. Beteille Andue(1992)- Backward Classes in Contemporary India, Oxford University Press, New Delhi.
2. Bose N K (1961)-Culture and Society in India, Asia Publishing House, Bombay.
3. Chaudhuri Buddhabed (1990)-Tribal Development in India, Inter India Publications, New Delhi.
4. De Souza (2000)- Contemporary India Transitions, Sage Publications, New Delhi.
5. Dube S C (1977)- Tribal Heritage of India, Vikas Publications, New Delhi.
6. Hasnain N (1983)- Tribes in India, Harnam Publication, New Delhi
7. Inden Ronald (1990)- Imaging India, Brasil Blackward, Oxford.
8. Karve Irawati, (1961)- Hindu Society: An Interpretation, Deccan College, Poona
9. Kothari Rajani (1973) (ed)- Caste in Indian Politics, Oxford university Press, New Delhi.
10. Mandelbaum(1970)- Society in India, Popular Prakashan, Bombay.
11. Satya Murty T V (1996)- Religion, Caste Gender and culture in Contemporary India
12. Singh K S (1985)- Tribal Society Manohar, New Delhi
13. Kapadia K M (1998)- Marriage and Family in India, Oxford University, Press, New Delhi.

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III-Semister: CLASSICAL(WESTERN) SOCIOLOGISTS 6 Hours per week

Module-1: Auguste Compte (10 Hours)

- Positivism and Law of Three Stages
- Hierarchy of Sciences-Religion of Humanity
- Social statics and Social Dynamics

Module-2: Herbert Spencer (10 Hours)

- Theory of Evolution-Social Darwinism
- Organic Analogy
- Types of Society

Module-3: Karl Marx (10 Hours)

- Historical materialism
- Theory of Class Struggle
- Theory of Alienation

Module-4: Max Weber (10 Hours)

- Ideal Types
- Protestant Ethic and Spirit of Capitalism
- Bureacracy

Module-5: Emile Durkhem (10 Hours)

- Social Facts
- Division of Labour
- Theory of Suicide

Module-6: Vilfredo Pareto (10 Hours)

- Logical and Non logical actions.
- Residues and disiratives.
- Circulation of elites.

References:

1. Aron Raymond-Main Currents in Sociological Thought
2. Barnes H E –Introduction to the History of Sociology
3. Bogardus E A –The History of Social Thought.
4. Coser, Lewis A –Masters of Sociological Thought.
5. Flethcer Ronald- The Making of Sociology
6. Francis Abraham and John Henry Morgan- Sociological thought
7. George Ritzer- Companion to Major Theories
8. Guy Rocher- A General Introduction to Sociology
9. Harolambos Michel- Sociology-Themes and Perspectives
10. Morrison, Ken, Mars Durkheim, Weber- Formation of Modern Social Thought
11. Ritizler George- Sociological Theory
12. Shankar Rao C N –Study of Social Thought
13. Timnsheff Nicholas and George Theodorson –Sociological Theory
14. Zetlin Irving- Rethinking Sociology: A Critique of Contemporary Theory

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Subject: Sociology

IV-SEMESTER (6 Hours of Teaching per Week)

INDIAN SOCIAL THINKERS

Module-1: Introduction (10 Hours)

- Meaning and Nature of Social Thought
- Development of Social Thought in India
- Importance of Social Thought

Module-2: Manu (10 Hours)

- Dharma: Meaning, Forms and Sources
- Varnashrama Dharma
- Manu’s views on Women.

Module-3: Basaveshwara (10 Hours)

- Social Equity
- Basaveshwara on Status of Women.

- Concept of Kayaka (work).

Module-4: Mahatma Gandhiji and Dr. B. R. Ambedkar (10 Hours)

- Views of Mahatma Gandhiji on Truth and Non Violence, Satyagraha, Sarvodaya
- Dr. B. R. Ambedkar's Views on Untouchability and Eradication of Caste.
- Periar and his Contribution.

Module-5: Contributions of Indian Sociologist (10 Hours)

- G.S.Ghurya (Caste and Race)
- M.N.Srinivas (Sanskritization and Westernization)
- Iravate Karve (Kinship Types)
- Yogendra Singh (Modernisation of Indian Traditon)

Module-6: Contributions of Sociologist of Karnataka (10 Hours)

- M.S.A.Rao
- C.Parvathamma
- M.S.Gore
- N.K.Ishwaran

References;

1. Ambedkar B.T., Complete Works of Dr. B.R. Ambedkar,Government of Maharashtra, Bombay
2. Barnes H.E.(1959) Introduction to the History of Sociology,University of Chicago Press, Chicago
3. Gandhi M.K., My Experiments with Truth-Autobiography, Navajivana Prakashana, Ahmedabad
4. Mali H. B.,(2001)Samajika Chintaneya Adyayana(Kannada), Bharath Prakashan, Dharwad
5. Mulugund I.C.,(2008) Reading in General Sociolkogy,Shrusti Prakashana,Dharwad.
6. Nagesh H.V.,(2001) Samajika Chintaneya Ondu Adayana(Kannada), Bharath Prakashan, Dharwad.

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V-SEMESTER (6 Hours of Teaching per Week)

Paper 5.1: SOCIAL DEMOGRAPHY

Module-I Introduction (10 Hours)

a) Origin and Development of Demography
b) Meaning, Nature and Scope
c) Importance of Social Demography

Module-II: Sources of Population Data (10 Hours)

a) Census
b) Civil Registration, Sample Survey, etc.
c) Vital Statics.

Module-III Components of Population Growth

a) Fertility: Meaning, Trends, Differential Fertility
b) Mortality: Meaning, Trends, Differential Mortality
c) Migration: Meaning, Types and Consequences.

Module-IV Theories of Population Growth

a) Malthusian Theory of Population
b) Optimum Theory of Population
c) Theory of Demographic Transition

Module-V. Population Growth

a) Trends in World Population Growth
b) Trends and Patterns of Population Growth in India
c) Causes and Consequences of Population Growth in India

Module-VI: Population Control

a) History of Family Planning Programmes
b) Family Welfare Programs
c) Population Policy - 2000

References:

1. Bende and Kanithkar: Population Problems in India New Delhi: Himalayan Publisher.
2. Bose, Asish: Demographic Diversity of India Delhi 3.R. Publishing, Corporation, 1991. Census of India Reports -2001.
3. Chandrasckar, S. (Ed) (1974): Infant Mortality. l'opulation Growth and Family Planning in India London: George Allen & Unwin Ltd.
4. Finkle, Jason Land C. Alison Mclntosh (Ed) (1994): The New Policies of Population. New York: The Population Council.
5. Premi, M.K- etal (1983): An Introduction to Social Demography Delhi: Vikas Publishing House.
6. Rajendra Sharma (1997): Demography and Population Problems New Delhi: Atlantic Publishers.
7. Shrivastava O.S. (1994): Demography and Population Studies. New Delhi: Vikas Publishing House.
8. Hansraj -Demography

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V-SEMESTER (6 Hours of Teaching per Week)

Paper 5.2: RESEARCH METHODOLOGY

Module-I: Introduction (10 Hours)

a) Meaning and Importance of Social Research
b) Science - Pure and Applied
c) Types and Methods of Social Research-Pure and Applied, Survey and Case Study.

Module-II Tools of Social Research (10 Hours)

a) Concepts
b) Theory
c) Hypotheses
d) Facts

Module-III Research Design (10 Hours)

a) Meaning and Importance
b) Types of Research Design
c) Sampling-Importance and Types

Module-IV Methods of Data Collection (10 Hours)

a) Data-Meaning and Sources of Primary and Secondary Data
b) Primary Data Collection, Observation, Interview and Questionnaire
c) Secondary Data Sources

Module-V Analysis and Report Writing (10 Hours)

a) Editing, Coding and Tabulation
b) Analysis and Interpretation
c) Report writing

Module-VI Uses of Computer in Research

a) Importance of Computer in Social Research
b) ICT- Internet Usage, Smart Phone.
c) Data Processing on Computer (SPSS Package)

References:

1. Ram Ahuja (2001): Research Methods, Rawat Jaipur
2. Baily Kenneth (1998): Methods of Social Research, John wiley & Sons, New York.

3. Bose Pradi Kumar (1995): Research Methodology New Delhi ICSSR
4. David Dooley (1997): Social Research Methods, Prentice Hall, New Delhi.
5. Goode William J & Hart Paul K (1952): Methods of Social Research, McGraw Hill, New Delhi.
6. Hughes, John. (1987): The Philosophy of Social Research London: Longman.
7. Jayram N. (1989): Sociology Method and Theory Madras: Macmillian
8. Kothari C.R. (1989): Research Methodology-Methods and Techniques. Bangalore: Wiley Eastern
9. Madge, John. (1970): The Origins of' Scientific Sociology. London: Tavistock.
10. Marsh Catherine (1988): Exploring Data Cambridge Polity Press
11. Moser CA & Kalton G (1971) Survey Methods in Social Investigations, ELBS & Heinemann, London
12. Mukherjee P N(eds) (2000): Methodology of Social Research: Delermmas and Perspectives New Delhi Sage
13. Popper K. (1999): The Logic of Scientific Discovery. London: Routledge.
14. Srinivas, M.N. and A.M. Shah (1979): Field Worker and the Field. New Delhi: Oxford References:
15. Young P.V. (1988): Scientific Social Surveys and Rcscarvh. New Delhi: Prentice Hall

Davangere University
CBCS (2016-17) Syllabus
Subject: Sociology

VI-SEMESTER (6 Hours of Teaching per Week)

Paper 6.1: GENDER STUDIES

Module-I: Introduction (10 Hours)

a) Meaning, Nature and Scope of Sociology of gender
b) Importance of Studying gender
c) Emergence of Gender Studies in India.

Module-II: Basic Concepts (10 Hours)

a) Sex and Gender
b) Feminism
c) Patriarchy and Empowerment
d) Third Gender: Meaning, Problems

Module-III: Status of Women in India (10 Hours)

a) During Ancient Times
b) During Medieval Times
c) During Modem Times

Module-IV: Problems of Women (10 Hours)

a) Inequality - Social, Economic and Political
b) Crimes and Atrocities against Women
c) Problem of Dowry

Module-V: Empowerment of Women in India (10 Hours)

a) Strategies for Empowerment
b) Role of Government in the Development of Women. Programmes & Legislations.
c) Women Welfare Measures undertaken by the Government of Karnataka.

Module-VI: Women in India Today (10 Hours)

a) Women in the field of Economy
b) Women in Politics.
c) Women in Education, Science and Technology.

References:

1. Altekar, A.S. (1983): The Position of Women in Hindu Civilization, Delhi: Motilal Banarasidass, Second Edition: P Fifth reprint.

2. Chanana, Karuna, (1988): Socialization, Women and Education: Explorations in Gender identity, New Delhi: Orient Longman.
3. Desai, Neera and M. Krishnaraj. 1987: Women and Society in India, Delhi: Ajanta.
4. Dube, Leela et.al, (eds.) 1986: Visibility and Power: Essays on Women in Society and Development.New Delhi: OUP.
5. Dube, Leela. (1997): Women and Kinship: Comparative Perspectives on Gender in South and South-East Asia. Tokyo: united Nations University Press.
6. Forbes, G. (1998): Women in India.New Delhi: Cambridge University Press.
7. Ghandially, Rehana (ed) 1988: Women in Indian Society. New Delhi: Sage.
8. Government of India. 1974: Towards Equality: Report of the Committee on the Status of Women.
9. Maccoby, Eleaner and Carol Jacklin. 1975: The Psychology of Sex Differences. Stanford University Press .
10. McCormack, C. and M. Strathern (ed.) 1980: Nature, Culture and Gender, Cambridge University Press.
11. Sharmila Rage (2004): Sociology of Gender, Sage,New Delhi.
12. Sharma, Ursula. 1983: Women, Work and Property in NorthWest India. London: Tavistock.
13. Shulamitz, Reinharz and Lynn Davidman (1991): Feminist Research Methods. Oxford University Press.
14. Tong, Rosemarie. (1989): Feminist Thought: A Comprehensive Introduction. Colarodo: Westview Press,
15. Whelham, Imelda, (1997): Modern Feminist Thought Edinburgh: Edinburgh University Press.

Davangere University
CBCS (2016-17) Syllabus
Subject: Sociology

VI-SEMESTER (6 Hours of Teaching per Week)

Paper 6.2: SOCIAL PROBLEMS IN INDIA TODAY

Module-I: Introduction (10 Hours)

a) Meaning and Nature of Social Problem
b) Causes and Consequences of Social Problems
c) Social Problems and Social Disorganization

Module II: Crime and Devience (10 Hours)

a) Meaning, Nature and Types
b) Causes and Consequences
c) Measure to Control.

Module-III: Prostitution (10 Hours)

a) Meaning, Nature and Types
b) Causes and Consequences
c) Measures to Solve the Problem
d) HIV AIDS: Causes, Effects and Measures.

Module- IV: Alcoholism and Drug Addiction (10 Hours)

a) Meaning, Nature and Types
b) Causes and Consequences
c) Measures to Eradicate Alcoholism

Module-V: Terrorism (10 Hours)

a) Meaning and Nature
b) Causes and Effects
c) Measure to Combat Terrorism.
d) National Integration: Meaning, Obstacles and efforts for National Integration

Module-VI: Corruption in Public Life (10 Hours)

a) Meaning and Nature.
b) Causes and Effects of Corruption
c) Measures Undertaken to Control Corruption

References:

1. Ahuja Ram (1998): Social Problems in India. Jaipur: Rawat Publications.
2. Dutt Gupta Bela. (1964): Contemporary Social Problems in India.
3. Davis James (1970): Social Problems Enduring Major Issues and Change, New York, Free Press.
4. Elliot and Merril (1950): Social Disorganisation. New York. Harper & Brothers
5. Gill S S (1998): The Pathology of Corruption New Delhi Harpcr Collin Publishers.
6. Karavala Perin C (1959): A Study in Indian Crime, Bombay, Popular Book Depot.
7. Madan C.R. (1994): Indian Social Problems, New Delhi: Allied Publishers.
8. Memoria C.B, (1999): Social Problems and Social Disorganisation. New Delhi: Kitab Mahal .
9. Merton R K & Nisbert R (1961): Contemporary Social Problems.
10. Ministry of Home Affairs (1998): Crime in India. New Delhi: Government of India.
11. Meeton Robert K and Robert Nisbert (1976): Contemporary Social Problems, New York Harcourt Brace, Jovavich Ink.
12. Reid Suetitus (1976): Crime and Criminology, Illinois Deyden press.
13. Sutherland Edwin H and Donald R Cressey (1968): Principles of Criminology Bombay Times of India Press.
14. Thomas G. (1994) AIDS in India-Myth & Reality. Jaipur Rawat Publications.

ECONOMICS SYLLABUS

DAVANGERE UNIVERSITY

CBCS Syllabus

B.A. Optional: ECONOMICS

Semester-I

Paper: Eco.Core:1.1: Micro Economic Theory (Work Load per week:6 Hrs)

Module-1: An Introduction to Micro Economics

Introduction: Importance of study of Economics. Scarcity and Efficiency Microeconomics and Macroeconomics, production possibility curve and basic economics problems.

Module-2: Theory of Demand and Supply

Meaning and definition of demand. Demand schedule and demand curve, individual demand and Market demand, the law of demand, Extension and contraction of demand. Factors influencing the demand. Exceptions to the law of demand. Meaning and definition of supply, the law of supply. Supply schedule and curve. Individual and Market supply, the law of supply. Extension and contraction of supply. Factors influencing the supply. Elasticity of Demand: Meaning, Types of elasticity: Price, Income and Cross elasticity -Types of price elasticity demand. Methods of measurement and determinants of elasticity of demand. Elasticity of supply. Applications: tax, price and quantity.

Module-3: Theory of Consumer Behaviour and utility

Cardinal Analysis: Utility, Law of diminishing marginal utility, Equi marginal utility, consumer's equilibrium. The paradox of value, consumer surplus and its applications. Ordinal analysis: Indifference curves. Meaning, Indifference schedule, indifference map, properties of indifference curves. Budget line- Equilibrium position- Income, Price and substitution effects, Inferior goods v/s Giffen goods, consumer surplus.

Module-4: Theory of Production and cost Analysis

Theory of production and Marginal products: Total product, average product and marginal product. Law of variable proportions, Law of diminishing returns and returns to scale. Economic analysis of costs: Total cost, fixed cost, variable cost, marginal cost, average cost, average fixed cost, average variable cost. Short run and long run costs curves, production and costs, diminishing returns and U shaped cost curves. Revenue concepts: Total revenue, Average revenue and marginal revenue curves.

Module-5: Product and Factor Pricing

Product Pricing: Perfect competation-Monopoly-Price discrimination, monopolistic competition-oligopoly-price and output determination under these markets. Factor pricing: Rent-meaning and Definition, Ricardian theory of rent. Wages-Meaning and Definition-subsistence theory of wages. Interest- Meaning and Definition, Loanable funds theory of interest profit- Meaning and definition- Risk theory of profit.

Books of Reference:

1. Mc-Connell R Campbell and Stanley Bruce (2011) 19th Edition, Micro Economics, McGraw Hill Irwin, New York.

2. Samuelson P A (2005) 18th Edition, Economics, Tata McGraw Hill Publishing Company Ltd, New Delhi.

3. Mithani D M (2010) Modern Economic Analysis, Himalaya Publishing House, Mumbai.

4. Mukherjee Sampat, (2009) Modern Economic Theory, New Age International Publishers, New Delhi

5. Sankaran S (2010) Economic Analysis, Margham publications, Madras.

CBCS Syllabus

B.A. Optional: ECONOMICS

Semester-II

Paper: Eco.Core:2.1: Macro Economic Theory (Work Load per week: 6 Hrs)

Module-1: An over view of Macro Economics

Meaning and concepts of Macroeconomics, objectives of Macroeconomics and Instruments of macroeconomics.

Module-2: Measurements of Economic Activity

Gross domestic product: Details of the national Income accounts, Gross Domestic Product-Net Domestic Product-Gross National Product, Net national product-National Income- Personal and Disposable Income, the circular flow of National income, National income and welfare, Net economic welfare – New methods of estimation and difficulties.

Module-3: Classical Theory of Employment

Basic concepts of classical theory-Say's law of market, classical remedy for Unemployment (Pigou theory), Wage-cut theory, Evaluation of classical theory of Employment.

Module-4: Keynesian Theory of Employment

J M Keynes and his contribution to Macroeconomics, consumption function- saving function-marginal propensity to consume and marginal propensity to save-determinants of consumption. Investment function-determinants of investment-marginal efficiency of capital, Aggregate demand and aggregate supply and their determinants. Equilibrium of Agregate Demand and aggregate supply curve. Multiplier effects-Accelerator, interaction between Multiplier and Accelerator.

Module-5: Inflation, Business cycle and Macro Economic Policy

Inflation: Meaning, Measurements-Types and effects. Control of Inflation. Deflation: Meaning, and effects. The business cycles: Meaning and definition, features and phases of business cycle, Monetary policy and Fiscal policy- Objectives and goals.

Texts Books:

1. Mc Connell R Campbell and Stanley Bruce (2011), 19th Edition Macro Economics, McGraw Hill Irwin New York.
2. Samuelson P A (2005) 18th Edition, Economics, Tata McGraw Hill publishing company Ltd New Delhi.
3. Mithani D.M. (2010) Modern Economic Analysis, Himalaya Publishing House Mumbai.
4. Mukherjee Sampat, (2009) Modern Economic Theory, New Age International Publishers, New Delhi.
5. Sankaran S (2010) Economic Analysis, Margham publications Madras.
6. Vaish M C (2010) Macro Economic Theory, Vishwa prakashan, New Delhi.

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B.A. Optional: ECONOMICS

Semester-III

Paper: Eco.Core:3.1: Quantitative techniques for Economic (Work Load per week: 6 Hrs)

Module-1: Mathematical tools for Economics analysis.

Nature and scope of mathematical economics-role of mathematics in economic theory, concepts of sets-meaning-types-union of sets-intersection of sets. Linear and non-linear function-demand and supply function-cost curves and indifference curves.

Module-2: Market Equilibrium

An analysis of quantity demand (QD) and Quantity supplied (QS) in market Equilibrium-Impact of specific tax and subsidy on market equilibrium.

Module-3: Definition and scope of statistics

Definition, importance of statistics in economics and its limitations. Types of statistics, variables – types.

Module-4: Sources of Data and Describing Data

Primary and Secondary sources – classification and tabulation of data. 'Frequency distributions' and graphical presentation of data. Histogram – Frequency polygon, cumulative frequency polygon – ogives.

Module-5: Descriptive Statistics

Measures of central tendency – Mean – Median – Mode. Measures of dispersion: Range, semi inter quartile range, mean deviation and standard deviation, Lorenz curve. Correlation: Meaning, importance, types of correlation. Karl Pearson's correlation coefficients. Index numbers: construction – difficulties – Price index numbers, weighted index numbers – tests of index numbers – Fisher's , Paasche's and Marshall – Edgeworth index numbers.

Text Books:

1. Anderson David R, Dennis J. Sweeney and Thomas A Williams, (2002) Statistics for Business and Economics, Thomson South Western Singapore.
2. Bose D. (2000) An Introduction to Mathematical Economics, Himalaya publishing House, Mumbai.
3. Veerachamy R. (2005) Quantitative Methods for Economics, New Age International Publishers Private Ltd. New Delhi.
4. S P Gupta, Fundamentals of Statistics.

B.A.Optional : ECONOMICS Semester-IV

Paper: Eco.Core:4.1: Money,Banking and Finance (Work Load per week : 6 Hrs)

Module-1 : Introduction to Money

Money- evolution-meaning-and types-functions of money- role of money in an economy-demand and supply of money.

Module-2: Commercial banking

Origin of banking-Role and importance of banking- commercial banking-Types of deposits/accounts - banking instruments – cheques-Drafts-Pass Book- Bank advances-Creation of credit- Banker and customer relationship-balance sheet of a bank.

Module-3 : Co- operative banks, Developmental banks and Non Banking Financial Institutions.

Co-operative banks- structure- Types of Co-Operative Banks- problems of Co-Operative banks. Developmental banks**:** Nature of Developmental banks Distinctive features of a Developmental banks- Industrial development bank of India - Industrial Credit and Investment corporation of India- National Bank for agricultural and rural development. Non Banking Financial Institutions (NBFIs) : Types of Non Banking Financial Institutions. Factors contributing to the growth of NBFIs. Globalisation and NBFIs.

Module-4: Central Banking.

Meaning of **Ce**ntral Bank - Central bank in developed and developing Countries-Functions of central bank-regulatory and promotional measures-quantitative and qualitative measures-monetary Policy and its Significance.

Module-5: Financial Markets

Introduction- structure of Indian financial System- money market and capital market in India –credit instruments of financial markets- Problems of money market in underdeveloped money markets.

Texts Books:

1. Machiraju H.R- Indian Financial System
2. Pannikkar K K -Banking Theory and Practice
3. Shekar K C and Lakshmi Shekar – Banking Theory and Practice
4. **V**arshney P N and D K Mittal – Indian Financial System

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B.A. Optional: ECONOMICS

Semester-V Paper: Eco.Core: 5.1: Public Finance (Work Load per week: 5 Hrs)

Module -1: Introduction. Principles of Public economics.

Nature -Scope and Importance of Public Finance. Public Finance and private finance role of public finance in Less developed and developing countries. Principle of Maximum Social Advantage- Distinction between Private and public goods. Market imperfection - Externalities.

Module -2: Public Expenditure and Public revenue

Principles of public expenditure -Wagner's Law of Increasing state activities- Kinds of Public expenditure and Canons of Expenditure Sources of public revenue - Tax revenue and nontax revenue Types of Direct and indirect taxation - proportional tax progressive tax and regressive taxes-Incidence and shifting of taxes - effects of taxation -Characteristics of a Good Tax system.

Module -3: Public Debt and Deficit financing.

Meaning of public debt- causes for public debt- Limitations to raising public debt burden of public debt -Debt redemption. Deficit financing: Meaning techniques of deficit financing - objectives of deficit financing

Module -4: The Public Budget and Fiscal Policy.

Classification of budget: programme and performance of budget- Budgetary deficits >- primary deficit- Revenue deficits Zero base Budgeting - Revenue and expenditure of central government- India's public debt- deficit financing in India - Objectives of Fiscal Policy.

Text Books:

l. Agarwal R C; Public Finance- Theory and Practice

1 Bhatia H L; Public Finance

3. Singh S K; Public Finance in Theory and Practice

4. Sundaram K P M and Andley; Public Finance

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B.A. Optional: ECONOMICS

Semester-V: Paper: Eco.Core: 5.2: Indian Economy (Work Load per week: 5 Hrs)

Module -I: Indian Economy: An Introduction

Characteristics of the Indian Economy. Natural resources and human resource and economic developments- growth of population in India- Quality of population Population policy human development- concepts and measures National income of India- National income estimation

in India-Trends in national income- growth and structure- limitations of national income estimation in India.

Module -2: Agriculture and Industry in India

Production and occupational structure- the role of agriculture in national economy green revolution National agricultural policy- 2000- Public Distribution System- land reforms- size of farms and productive efficiency- rural credit in India- agricultural marketing- agricultural labour. Large Scale Industries: Iron and Steel Industry Cotton textile industry- sugar industry information technology. Small Scale Industries: Role of small scale industries in Indian Economy- sickness in Indian Industry- Labour productivity and labour policy in India- National commission on labour.

Module -3: Foreign Trade in Indian Economy

Foreign trade of India- imports and exports of India- direction of Indian foreign trade balance of payments- impact of WTO on India's foreign trade- India's foreign exchange reserves.

Module-4: Problems of Indian Economy

Poverty- poverty eradication programmes in India- Mahatma Gandhi National Rural Employment Guarantee Scheme- 2005-Indian Public Debt-Deficit Financing in India. Text Books:

1) P M Sundaram and Ruddar Dutt (2014); Indian Economy. S Chand and sons New Delhi

2.Misra S K and V K Puri (2014); Indian Economy Himalaya Publications Mumbai

3.Agarwal A N (2012); Indian Economy- Problems of Development and planning. Vishwa prakashana • New Delhi.

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B.A. Optional: ECONOMICS

Semester-VI: Paper: Eco.Core: 6.1: International Economic Theory

(Work Load per week: 5 Hrs)

Module-1: Introduction

Importance of international economics- distinction between internal and international trade - Need for the study of international Economics.

Module -2: Theories of International Trade

Absolute cost advantage theory - comparative cost theory - Heckscher -Ohlin theory - Leontief paradox

Module -3: Terms of trade and commercial policy

Meaning -gross terms of trade -net terms of trade - income terms of trade- concepts of reciprocal demand- factors affecting terms of trade- deterioration in terms of trade - gains from trade Free trade and protection trade policy relative merits and demerits. Tariffs- types

and effects of tariffs -quotas -Its effects on trade - role of multinational corporations- trade liberalisation - world trade organization (WTO) and its functions - WTO and India

Module -4: Balance of payment and International Monetary System

Concepts of balance of trade and balance of payment- disequilibrium in balance of Payment- different measures to correct disequilibrium in the balance of payment Merits and demerits of devaluation- Functions of International Monetary Fund (1MF) and World Bank and its affiliates.

Texts Books:

I. Dominick Salvatore- International Economics
II. Mithani D M - International Economics
III. Mannur H U - International Economics

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CBCS Syllabus
B.A. Optional: ECONOMICS

Semister-VI Eco.Core: 6.2: Karnataka Economy (Work Load per week: 5 Hrs)

Module -1: Introduction

Natural resources-population- rural and urban socio- economic conditions- indicators of development state- gross domestic product- per capita income

Module -2: Agricultural Development and Industrial development

Resource potentialities - present level of development- agricultural output composition and trends -land reforms- agricultural marketing- agricultural prices and rural income- economic prospects of allied activities -fisheries- Livestock Floriculture sericulture and horticulture. Industrial policy - Trends in major. medium and small industries - rural industrialisation - prospects of village and cottage industries-industrial finance- KSFC-SIDBI- KSIIDC

Module -3: Infrastructure Development and State Finance

Present state of development- economic infrastructure- irrigation –power transportation- communication -marketing - social infrastructure- education and health -planning for infrastructure development. State revenue- trends in tax revenue and non-tax revenue- sharing of central taxes and grants in aid- trends in expenditure trends in state's indebtedness.

Module -4: Regional disparities in Karnataka

Position and extent- causes and consequences The concepts of backward area- criteria and identification - techniques to reduce imbalances- fiscal incentives and decentralisation of industries- recommendations of Pande, Wanchoo and Shivaraman Committees.

References:

1. Government of Karnataka- Five Year Plan Drafts Bangalore
2. Government of Karnataka- Inter State Economic Indicators, Bangalore
3. Government of Kamataka-Report on the redressal of Backward Regions in Karnataka

4. Madaiah M and R Ramapriya-Karnataka Economy.
5. Nanjundappa D M -Some Aspects of Karnataka Economy, Dharwad
6. Puttaswamaiah- Volumes on Karnataka -

SKILL DEVELOPMENT SYLLABUS (B.A., B.Sc., B.Com., B.B.M.)

DAVANGERE UNIVERSITY

CBCS Scheme

V-Semister; SKILL DEVELOPMENT **Paper-I** Hours: 32

Objective: To enable the students to understand the importance of Personality and develop soft skills for their future life.

Unit-1: Personality: Meaning-Development- components of Personality-Elements of Success Determinants of Personality- Soft skills-importance of soft skills-different soft skills-skills training.

Unit-2: Know They self/Self-Discovery: Importance of knowing yourself- SWOT analysis Benefits of SWOT analysis-SWOT analysis grid -Questions to complete the grid.

Unit-3: Forming values: Introduction -Meaning-what is value & values relating to education-self and others, Civic responsibility, Personal values-cultural values, Social values.

Unit-4: Art of listening: Benefits of active listening-common poor listening Habits-Listening Tips-Art of reading - determining reading rates -Activities for increasing reading rates: Art of writing-importance of writing-writing tips. Art of E-mail writing.

Unit-5: Body Language: Forms of body language -Parts of body Language-Developing confidence with correct body language. Etiquette and Manners-Benefits of Etiquette and manners -Practicing good manners. Manners in different places and functions.

Reference books:

1. Soft Skills - Dr. K .ALEX S. Chand & Co., Ltd., Ram Nagar, New Delhi-110055.
2. Personality Development- Dr. R.C. Bhatia. Ane Books Pvt. Ltd., Ansari Road, New Delhi-I 10002, India, Daryaganj.
3. Soft Skills- John. Z Sonmez, Dreamtech Press, 19-A, Ansaari Road, Daryaganj, New Delhi-110002.

DAVANGERE UNIVERSITY

CBCS Scheme

VI-Semister; SKILL DEVELOPMENT **Paper-II** Hours: 32

Objective: To make them to equip different skills required for their career.

Unit-1: Defining Communication-Special features of communication, Communication process importance of Communication-Barriers to Communication-Tips for effective Communication-Tips for powerful Presentation-Art of public speaking- public speaking tips.

Unit-2: Carrer Planning-Benefits of career Planning-Guidelines for choosing Career-Myths about choosing a career- Tips for successful career Planning-Things one should Know while starting career and during his career.

Unit-3: Preparing CV/Resume-Introduction-Meaning-Difference among Bio-data, CV and Resume-The purpose, facts, tips of writing Bio-data, CV and Resume. Tips to write cover letter.

Unit-4: Interview Skills -Introduction- Types of Interview- Types of questions asked Telephonic Interview-Dress code -Tips to make good impression in an interview How to search for Job effectively.

Unit-5: Time Management- Importance of time Management: Steps for time Management Features of time -Secrets of time Management-Tips for effective time Management. Stress Management- effects of stress-kinds of stress-stress Management tips.

Reference books:

4. Soft Skills - Dr. K .ALEX S. Chand & Co., Ltd., Ram Nagar, New Delhi-110055.
5. Personality Development- Dr. R.C. Bhatia. Ane Books Pvt. Ltd., Ansari Road, New Delhi-I 10002, India, Daryaganj.
6. Soft Skills- John. Z Sonmez,dreamtech Press, 19-A, Ansaari Road, Daryaganj, New Delhi-110002.

Question paper pattern

1. BA. (Language)

   I to IV Semesters: Paper I to IV

2. BCom/BBM (Language)

   I to IV Semesters: Paper I to IV

3. BA. (Optional)

   I to VI Semesters: Paper I to X

ಕುಲಸಚಿವರು,
ದಾವಣಗೆರೆ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ

(2018-19)

VI-Semester - PAPER-X

Subject: English –OPTIONAL

Literary Theory

4 Hours /week

Max: 80 Marks

Unit one: Terms and Concepts:

- Formalism,
- Irony,
- Colonial discourse,
- Gender,
- Patriarchy,
- Intentional fallacy
- Imperialism and neo- imperealism
- Gynocriticism

Unit Two:

I) The New Criticism:

- Cleanth Brooks- "The Formalist Critic"
- F.R. Leavis - "Literary criticism and Philosophy"

II) Post colonialism:

- Edward Said – "Overlapping Territories"
- Ania Loomba - "Introduction To Post Colonialism"

III) Feminism:

- Elaine Showalter: "Towards A Feminist Poetics"
- Elizabeth messy: "Sexual Politics and Critical Judgment"

iv) Reader Response theory:

- Wolfgang Iser: " Indeterminacy and the Reader Response Theory"
- Stanley Fish: "Interpreting the Variorum"

(The above essays are from 20th century literary theory by K.M. Newton)

ಕುಲಸಚಿವರು,
ದಾವಣಗೆರೆ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
ಶಿವಗಂಗೋತ್ರಿ, ದಾವಣಗೆರೆ-577 002.

(2018-19)

BA

VI-Semester - PAPER-IX

Subject: English –OPTIONAL

Twentieth Century Literatures-II

3 Hours /week

Max: 80 Marks

Unit 1: Poetry

Wole Soyinka: "Journey", "Telephone Conversation",

Pablo Neruda: "United Fruit Company", "For Everyone"

Aaiz Ahmed Faiz: "Prison Evening", "Some Lover to Some Beloved"

Unit 2: DRAMA:

Arthur Miller: *Death of a Salesman*

Unit 3: FICTION:

Chinua Achebe: *Things Fall Apart*

ಕುಲಸಚಿವರು,
ದಾವಣಗೆರೆ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
ಶಿವಗಂಗೋತ್ರಿ, ದಾವಣಗೆರೆ-577 002.

(2018-19)

BA

VI-Semester-- PAPER-VIII

Subject: English –OPTIONAL

Twentieth Century Literatures-I

3 Hours /week

Max: 80 Marks

Unit 1: MODERN Poetry

T.S. Eliot: "Prufrock"

W.B. Yeats: "Sailing To Byzantium", "Easter 1916"
W.H Auden: "The Shield of Achilles", "Musee De Beaux Arts"

Unit 2: FICTION:

D.H.Lawrence: *Sons and Lovers*

Earnest Hemingway: "The Doctor and the Doctor's Wife"

James Joyce: "After the Race"

ಕುಲಸಚಿವರು,
ದಾವಣಗೆರೆ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
ಶಿವಗಂಗೋತ್ರಿ, ದಾವಣಗೆರೆ-577 002.

(2018-19)

BA

V-Semester - PAPER-VII

Subject: English –OPTIONAL

VICTORIAN LITERATURE- Part II

3 Hours /week

Max: 80 Marks

Unit 1: Poetry

Mirza Arif: "Six Rubaiyats" (Kashmiri)
Kambara: "The Wild Horse" (Kannada)
Daya Pawar: " Oh Great Poet" (Marathi)
J.P.Sharma: "Kalahandi" (Odiya)
Uma Maheshwaran: "Dosa" (Tamil)
O.N.V. Kurup: "Earthen Pots" (Malayalam)

Unit 2: Drama

Vijay Tendulkar: *Silence! The Court is in Session.*

Unit 3: Short Stories

Manto: "Toba Tek Singh "
Ananthamurthy : " Mounic "
Lalithambika Anthajanam: "The Revenge Herself"

ಕುಲಸಚಿವರು,
ದಾವಣಗೆರೆ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
ಶಿವಗಂಗೋತ್ರಿ, ದಾವಣಗೆರೆ-577 002.

(2018-19)

BA

V-Semester - PAPER-VI

Subject: English –OPTIONAL

VICTORIAN LITERATURE- Part II

3 Hours /week

Max: 80 Marks

UNIT-I: VICTORIAN POETRY

Lord Alfred Tennyson: "Lotus Eaters"; "Ulysses"

Robert Browning: "My Last Duchess", "The Laboratory"

Thomas Hardy: "Penpethy (Green Slates)"; "The Satin Shoes"

UNIT-II: VICTORIAN PROSE

1) Mathew Arnold: "The Function of Criticism at the Present time"

2) J. S. Mill:" On Liberty"

3) Thomas Carlyle: "On History"

(2018-19)

BA

V-Semester - PAPER-V

Subject: English –OPTIONAL

VICTORIAN LITERATURE- Part I

3 Hours /week

Max: 80 Marks

UNIT-I BACKGROUND:

- Social and political background
- Industrial society and its problems
- The great realistic school of fiction
- Victorian prose as social commentary.

UNIT-II VICTORIAN FICTION:

1) Charles Dickens: *Great Expectations*

2) Emily Bronte: *Wuthering Heights*.

ಕುಲಸಚಿವರು,
ದಾವಣಗೆರೆ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
ಶಿವಗಂಗೋತ್ರಿ, ದಾವಣಗೆರೆ-577002.

2. ಕನ್ನಡ ಕತೆಗಳು 1. ಸಾಲದ ಮಗು(ಕುವೆಂಪು) ಕೊನೆಯ ಗಿರಾಕಿ (ನಿರಂಜನ) ಧನಿಯರ ಸತ್ಯನಾರಾಯನ(ಕೊರಡಕಲ್ಲು ಶ್ರೀನಿವಾಸರಾವ್) ಕೃಷ್ಣೇಗೌಡರ ಆನೆ(ತೇಜಸ್ವಿ) ಗುಲಾಬಿ ಟಾಕಿಸ್(ವೈದೇಹಿ), ಕಳ್ಳು ಬಳ್ಳಿ(ಬಿ.ಟಿ. ಜಾನ್ಹವಿ)

ಸ್ನಾತಕೊತ್ತರ ಕನ್ನಡ ಎಂ.ಎ ಪಠ್ಯಕ್ರಮದ ಬದಲಾವಣೆಗಳನ್ನು ಅಳವಡಿಸಿಕೊಂಡು ಬೋಧಿಸುವುದಕ್ಕೆ ಅಧ್ಯಯನ ಮಂಡಳಿ ಶಿಫಾರಸ್ಸು ಮಾಡಿತು.

ಅಧ್ಯಕ್ಷರ ಅಪ್ಪಣೆಯ ಮೆರೆಗೆ ರಾಘವೇಂದ್ರ ಪ್ರಥಮ ದರ್ಜೆ ಕಾಲೆಜು, ದಾವಣಗೆರೆ ಇವರು ಬಿ.ಎಸ್ಸಿ ಹಾಸ್ಪಿಟಾಲಿಟಿ ಸೈನ್ಸ್ ಕೋರ್ಸಿಗೆ ಪಠ್ಯಕ್ರಮ ತಯಾರಿಸಲು ಬಂದಿರುವ ಕುಲಸಚಿವರ ಮನವಿಯನ್ನು ಪರಿಶೀಲಿಸಲಾಯಿತು. ಕನ್ನಡೆತರರಿಗೆ ಪಠ್ಯಕ್ರಮವನ್ನು ಸಭೆಯು ಪರಿಶೀಲಿಸಿ ಬಂದ ಮನವಿಯನ್ನು ಅನುಮೊದಿಸಿ ಅವರು ಮನವಿ ಪತ್ರದಲ್ಲಿ ಲಗತ್ತಿಸಿರುವ ಪಠ್ಯಕ್ರಮವನ್ನೆ ಇಡಲು ನಿರ್ದರಿಸಲಾಯಿತು

ಈ ಮೆಲ್ಕಂಡ ನಿರ್ಣಯಗಳನ್ನು ಓದಿ ಸಹಿಮಾಡಲಾಯಿತು.

9. ಪ್ರೊ.ಡಿ.ವಿ.ಪರಮಶಿವಮೂರ್ತಿ, ತುಮಕೂರು (ಅಧ್ಯಕ್ಷರು)

10. ಪ್ರೊ.ಕೆ. ರವೀಂದ್ರನಾಥ. ಹಂಪಿ (ಸದಸ್ಯರು)

11. ಪ್ರೊ. ಎಸ್.ಎಂ. ಗಂಗಾಧರಯ್ಯ, ಬೆಳಗಾವಿ (ಸದಸ್ಯರು)

12. ಪ್ರೊ.ಶಿವಾನಂದ ಕೆಳಗಿನಮನಿ, ಶಿವಮೊಗ್ಗ (ಸದಸ್ಯರು)

13. ಡಾ. ಕೆ.ಎಂ. ಮಲ್ಲಿಕಾರ್ಜುನಪ್ಪ, ದಾವಣಗೆರೆ (ಸದಸ್ಯರು)

14. ಡಾ. ಎಲ್.ಎಸ್. ಲೋಕೇಶ್, ಚಿತ್ರದುರ್ಗ (ಸದಸ್ಯರು)

15. ಶ್ರೀ ಪಿ. ಶ್ರೀಶೈಲಪ್ಪ, ಜಗಳೂರು (ಸದಸ್ಯರು)

16. ಶ್ರೀ ಜಿ. ವೆಂಕಟೇಶ್, ಚಳ್ಳಕೆರೆ (ಸದಸ್ಯರು)

ಅದೇ ಪತ್ರಿಕೆಯ ನಾಲ್ಕನೆ ಘಟಕದಲ್ಲಿ ಮಹದೇವಿಯಕ್ಕ, ಹರಿಹರ, ಚಾಮರಸ, ಲಕ್ಷ್ಮೀಶ, ಸರ್ವಜ್ಞ ಕವಿಗಳನ್ನು ಬಿಡಲಾಗಿದೆ.
ಮೂರನೇ ಪತ್ರಿಕೆಯಲ್ಲಿ 5 ನೇ ಘಟಕವಾದ ವಿಮರ್ಶೆಯ ಪ್ರಕಾರಗಳಲ್ಲಿ ರೂಪನಿಷ್ಠ, ರಾಚನಿಕ ವಸ್ತುನಿಷ್ಠ, ಸ್ತ್ರೀವಾದಿ ವಿಮರ್ಶೆಗಳನ್ನು ಬಿಡುವುದು.

ಈ) 1.6 ಪತ್ರಿಕೆಯಲ್ಲಿ ಈ ಕೆಳಗಿನಂತೆ ಬದಲಾವಣೆ ಮಾಡಲಾಗಿದೆ

1. 1.6.1 ಚಂಪೂ ಕಾವ್ಯ ಪರಂಪರೆ
2. 1.6.2 ಧಾರ್ಮಿಕ ಸಾಹಿತ್ಯ ಅಧ್ಯಯನ
3. 1.6.3 ವಿಶೇಷ ಕವಿ ಅಧ್ಯಯನ – ರನ್ನ

ಎರಡನೆ ಸೆಮಿಸ್ಟರ್ ಪತ್ರಿಕೆಯಲ್ಲಿ 2.6 ಪತ್ರಿಕೆಯಲ್ಲಿ ಈ ಕೆಳಗಿನಂತೆ ಬದಲಾವಣೆ ಮಾಡಲಾಗಿದೆ

1. 2.6.1 ಷಟ್ಪದಿ ಕಾವ್ಯ ಪರಂಪರೆ
2. 2.6.2 ಮಹಿಳಾ ಸಾಹಿತ್ಯ
3. 2.6.3 ವಿಶೇಷ ಕವಿ ಅಧ್ಯಯನ – ಹರಿಹರ

ಮೂರನೆ ಸೆಮಿಸ್ಟರ್ ಪತ್ರಿಕೆಯಲ್ಲಿ 3.6 ಪತ್ರಿಕೆಯಲ್ಲಿ ಈ ಕೆಳಗಿನಂತೆ ಬದಲಾವಣೆ ಮಾಡಲಾಗಿದೆ

1. 3.6.1 ಸಾಂಗತ್ಯ ಕಾವ್ಯ ಪರಂಪರೆ
2. 3.6.2 ಕನ್ನಡ ಪ್ರವಾಸ ಸಾಹಿತ್ಯ ಮತ್ತು ಆತ್ಮಚರಿತೆ
3. 3.6.3 ವಿಶೇಷ ಕವಿ ಅಧ್ಯಯನ – ಕನಕದಾಸ

ನಾಲ್ಕನೆ ಸೆಮಿಸ್ಟರ್

5 ನೇ ಪತ್ರಿಕೆಯಲ್ಲಿ ಪಠ್ಯಗಳಾಗಿ ಆಯ್ದ ಜನಪದ ಒಗಟುಗಳ ಬದಲಾಗಿ ಮೈಲನಹಳ್ಳಿ ರೇವಣ್ಣರ ಜಗ್ಗಿಬಿದ್ದಾವೆ ಜಂಬುನೇರಲ ಹಣ್ಣು ಹಾಗು ಉತ್ತರ ಕರ್ನಾಟಕದ ಜನಪದ ಕತೆಗಳು ಬದಲಾಗಿ

ಜನಪದ ರಮ್ಯ ಕಥಾನಕಗಳು (ಸಂಪಾದಕರ ಡಾ.ಕೃಷ್ಣಮೂರ್ತಿ ಹನೂರು) ಇದರಲ್ಲಿ 1. ಲೀಲಾವತಿ ರಾಣಿ, ಪದ್ಮಾವತಿರಾಣಿ, ಗಜಪತಿರಾಯ ಕಥೆಗಳನ್ನು ಗಮನಿಸುವುದು.

4.6 ಪತ್ರಿಕೆಯಲ್ಲಿ ಈ ಕೆಳಗಿನಂತೆ ಬದಲಾವಣೆ ಮಾಡಲಾಗಿದೆ

1. 4.6.1 ತ್ರಿಪದಿ–ತತ್ತ್ವಪದ ಕಾವ್ಯ ಪರಂಪರೆ
2. 4.6.2 ಕರ್ನಾಟಕ ರಂಗಭೂಮಿ ಅಧ್ಯಯನ
3. 4.6.3 ವಿಶೇಷ ಕವಿ ಅಧ್ಯಯನ – ಡಾ.ಜಿ.ಎಸ್.ಶಿವರುದ್ರಪ್ಪ

ಮುಕ್ತ ಆಯ್ಕೆ ಪತ್ರಿಕೆ

1. ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂಸ್ಕೃತಿ

ಕುಲಸಚಿವರು,
ದಾವಣಗೆರೆ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
ಶಿವಗಂಗೋತ್ರಿ, ದಾವಣಗೆರೆ-577002.

2. ಕನ್ನಡದಲ್ಲಿ ಸಾಹಿತ್ಯ ವಿಮರ್ಶೆ ನಡೆದು ಬಂದ ಬಗೆ–ಸ್ಥೂಲ ಪರಿಚಯ
3. ನವೋದಯ, ಪ್ರಗತಿಶೀಲ, ನವ್ಯ, ದಲಿತ–ಬಂಡಾಯ ಹಾಗು ಸ್ತ್ರೀವಾದಿ ವಿಮಶೆಯ ಲಕ್ಷಣಗಳು

ಪಠ್ಯಗಳ ಅಧ್ಯಯನ

1. ಜನ್ನನ ಯಶೋದರ ಚರಿತೆ (ಗಿರಡ್ಡಿ)
2. ಮಾತಿನ ಮಾರಾಮಾರಿ(ತೇಜಸ್ವಿ)
3. ಸಾಹಿತ್ಯದಲ್ಲಿ ವಿನಯ(ಜಿ.ಎಚ್. ನಾಯಕ)
4. ಸ್ತ್ರೀವಾದ ಮತ್ತು ಸ್ತ್ರೀವಾದಿ ವಿಮರ್ಶೆ(ವಿಜಯಾ ದಬ್ಬೆ)

ಮೇಲಿನ ಸೆಮಿಸ್ಟರ್‌ಗಳಿಗೆ ಹಿಂದಿನ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ ಮಾದರಿಯನ್ನೆ ಮುಂದುವರೆಸುವುದು.

ಪಠ್ಯಪುಸ್ತಕ ರಚನೆಯ ಬಗ್ಗೆ

1. ಸಂಪಾದಕರು ಪಠ್ಯ ರಚನೆಯ ವೆಳೆಯಲ್ಲಿ ಪ್ರಾದೇಶಿಕತೆಗೆ ಆದ್ಯತೆ ನೀಡಬೇಕು, ಪ್ರತಿಶತ 70 ಸಾರ್ವತ್ರಿಕ ಶೇಕಡಾ 30 ಪ್ರಾದೇಶಿಕತೆಗೆ ಒತ್ತು ನೀಡಬೇಕು.
2. ಸಂಪಾದಕರ ಆಯ್ಕೆಯನ್ನು ಮಾಡುವಾಗ ಸೇವಾ ಜೇಷ್ಟತೆ, ವಿಷಯ ಪರಿಣಿತಿ, ಹಾಗು ಪಠ್ಯ ರೂಪಿಸುವ ಆಸಕ್ತಿಯನ್ನು ಮಾನದಂಡವನ್ನಾಗಿಟ್ಟುಕೊಳ್ಳಬೇಕು.
3. ಪಠ್ಯದಲ್ಲಿ ಅಶ್ಲಿಲ ಪದಗಳು, ಧಾರ್ಮಿಕ ನಿಂದನೆ, ಇತರರನ್ನು ಅವಹೇಳನ ಮಾಡುವ ಯಾವುದೇ ಅಂಶಗಳಿರಬಾರದು. ವಿಶ್ವವಿದ್ಯಾನಿಲಯಕ್ಕೆ ಮುಜುಗರವಾಗುವ ಯಾವುದೇ ವಿಷಯವಿರಬಾರದು. ದಾವಣಗೆರೆ ವಿ ವಿಯ ಸಂಯೋಜಿತ ಕನ್ನಡ ಅಧ್ಯಾಪಕರು ಮಾತ್ರ ಸಂಪಾದಕರಾಗಿರತಕ್ಕದ್ದು. ಸಂಪಾದರು ಪಠ್ಯದಲ್ಲಿ ಲೇಖಕರಾಗಿರುವಂತಿಲ್ಲ. ಅಧ್ಯಯನ ಮಂಡಳಿಯ ಸದಸ್ಯರು ಸಂಪಾದಕರಾಗಬಾರದು.
4. ಸಂಪಾದನಾ ಪ್ರಕ್ರಿಯೆಯನ್ನು ಅಧ್ಯಯನ ಮಂಡಳಿ ಸದಸ್ಯರಾದ ಪ್ರೊ ಶ್ರೀಶೈಲಪ್ಪ ಮತ್ತು ಪ್ರೊ.ಜಿ.ವೆಂಕಟೇಶ್ ಅವರು ನಿರ್ವಹಿಸುವುದು.

ಸ್ನಾತಕೋತ್ತರ ವಿಷಯ :– ಸಿ.ಬಿ.ಸಿ.ಎಸ್

ಎಂ.ಎ ಕನ್ನಡ ಪಠ್ಯದಲ್ಲಿ

ಒಂದನೆ ಸೆಮಿಸ್ಟರ್ ಪತ್ರಿಕೆಯಲ್ಲಿ

1.1 ಆಧುನಿಕ ಕನ್ನಡ ಸಾಹಿತ್ಯ – ಭಾಗ 1 (ನವೋದಯ ಪೂರ್ವ, ನವೋದಯ, ಪ್ರಗತಿಶೀಲ)
ಅ)ಇಲ್ಲಿ ತಾತ್ವಿಕತೆ ಎಂಬುದನ್ನು ಉದ್ದೇಶ ಎಂದು ಬದಲಾಯಿಸಿಕೊಳ್ಳುವುದು.
ಆ)ಘಟಕ 1 ರಲ್ಲಿ ಆಧುನಿಕ ಸಾಹಿತ್ಯದ ಮುಖ್ಯ ಘಟ್ಟಗಳು ಭಾಗವನ್ನು 2 ಎಂದು ಬದಲಾಯಿಸಿಕೊಳ್ಳುವುದು.
ಇ) ಎರಡು ಮತ್ತು ಮೂರನೇ ಘಟಕಗಳನ್ನು ಕೈಬಿಡುವುದು.
ಎರಡನೆಯ ಪತ್ರಿಕೆಯಲ್ಲಿ ಮುರನೆ ಘಟಕದಲ್ಲಿ ಪೊನ್ನ, ರನ್ನ, ಜನ್ನ, ನಾಗಚಂದ್ರರನ್ನು ಕೈಬಿಡುವುದು.

ಕುಲಸಚಿವರು,
ದಾವಣಗೆರೆ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
ವಿದ್ಯಾರ್ಥಿ, ದಾವಣಗೆರೆ-577 002.

ತೃತೀಯ ಸೆಮಿಸ್ಟರ್ ಪತ್ರಿಕೆ 3

(2019–20, 2020–21, 2021–22)

ಶಬ್ದಮಣಿದರ್ಪಣಂ(ಅಕ್ಷರ ಪ್ರಕರಣ, ಸಂಧಿ ಪ್ರಕರಣ)

ಗದಾಯುದ್ಧ ಸಂಗ್ರಹ

ನಾಲ್ಕನೆಯ ಸೆಮಿಸ್ಟರ್ ಪತ್ರಿಕೆ 4

(2019–20, 2020–21, 2021–22)

ಶಬ್ದಮಣಿದರ್ಪಣಂ(ನಾಮ ಪ್ರಕರಣ, ಸಮಾಸ ಪ್ರಕರಣ)

ದಾಳ (ಎಸ್.ಜಿ.ಸಿದ್ದರಾಮಯ್ಯ)(ನಾಟಕ)

ಐದನೆಯ ಸೆಮಿಸ್ಟರ್ – ಪತ್ರಿಕೆ 5/1

(2019–20, 2020–21, 2021–22)

ಭಾರತೀಯ ಕಾವ್ಯ ಮೀಮಾಂಸೆ

(ಕಾವ್ಯ ಲಕ್ಷಣ, ಪ್ರತಿಭೆ, ಕವಿ, ಸಹೃದಯ, ಕಾವ್ಯ ಪ್ರಯೋಜನ,ಉಪಮೆ, ರೂಪಕ, ಕಾವ್ಯ ಪ್ರತಿಮೆ, ರೀತಿ ಸಿದ್ಧಾಂತ, ಧ್ವನಿ ಸಿದ್ಧಾಂತ, ರಸ ಸಿದ್ಧಾಂತ',

1. ಜನಪದ ಖಂಡ ಕಾವ್ಯಗಳು (ಆಯ್ದ ಮೂರು) ಜಿ.ಶಂ.ಪ

ಐದನೆ ಸೆಮಿಸ್ಟರ್ – ಪತ್ರಿಕೆ 5/2

(2019–20, 2020–21, 2021–22)

ಕನ್ನಡ ಭಾಷೆ – ರಚನೆ ಮತ್ತು ಸ್ವರೂಪ (ಹಿಂದಿನ ಪತ್ರಿಕೆಯನ್ನೇ ಮುಂದುವರಿಸುವುದು)

ಆರನೆಯ ಸೆಮಿಸ್ಟರ್ – ಪತ್ರಿಕೆ 6/1

(2019–20, 2020–21, 2021–22)

ಛಂದಸ್ಸು ಮತ್ತು ಹರಿಶ್ಚಂದ್ರಕಾವ್ಯ ಸಂಗ್ರಹ

ಆರನೆಯ ಸೆಮಿಸ್ಟರ್ – ಪತ್ರಿಕೆ 6/2

(2019–20, 2020–21, 2021–22)

ಸಾಹಿತ್ಯ ವಿಮರ್ಶೆ ಮತ್ತು

1. ಸಾಹಿತ್ಯ ವಿಮರ್ಶೆಯ ಸ್ವರೂಪ ಮತ್ತು ಲಕ್ಷಣ

ಕುಲಸಚಿವರು,
ದಾವಣಗೆರೆ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
ಶಿವಗಂಗೋತ್ರಿ, ದಾವಣಗೆರೆ-577 002.

ಮಧ್ಯಕಾಲೀನ – ಕಾವ್ಯ, ವಚನ, ಕೀರ್ತನೆ
(ಹರಿಹರ, ರಾಘವಾಂಕ, ವಚನಗಳು, ಕಿರ್ತನೆಗಳು)

ಆಧುನಿಕ ಪೂರ್ವ – ಕಾವ್ಯ, ಗದ್ಯ, ತತ್ತ್ವಪದ, ಜಾನಪದ
(ಯಾವುದಾದರು ಎರಡು ಪ್ರಕಾರ)

ಆಧುನಿಕ – ಕೌಶಲ್ಯ ಕನ್ನಡ,

ಎರಡನೆ ಸೆಮಿಸ್ಟರ್‌ಗೂ ಕವಿ, ಕಾವ್ಯ ಭಾಗಗಳನ್ನು ಬದಲಾಯಿಸಿಕೊಂಡು ಮೇಲಿನ ಕ್ರಮವನ್ನೇ ಅನುಸರಿಸುವುದು. ಆಧುನಿಕ ಪ್ರಕಾರದಲ್ಲಿ ವೈಚಾರಿಕ ಪ್ರಬಂಧಗಳಿಗೆ ಆಧ್ಯತೆ ನೀಡುವುದು.

ಎರಡನೆಯ ಸೆಮಿಸ್ಟರ್ ಪತ್ಯದ ಹೆಸರು – ಬಿ.ಎ, ಬಿಎಸ್ಸಿ ಇತರೆ – ಕನ್ನಡ ಶ್ರಾವಣ

ಎರಡನೆಯ ಸೆಮಿಸ್ಟರ್ ಪತ್ಯದ ಹೆಸರು – ಬಿ.ಕಾಂ/ ಬಿ.ಬಿ.ಎಂ – ಕನ್ನಡ ಶಿಶಿರ

ಮೂರನೆಯ ಸೆಮಿಸ್ಟರ್ ಪತ್ಯದ ಹೆಸರು – ಬಿ.ಎ, ಬಿಎಸ್ಸಿ ಇತರೆ – ಕನ್ನಡ ಸೊಗಸು

ಮೂರನೆಯ ಸೆಮಿಸ್ಟರ್ ಪತ್ಯದ ಹೆಸರು – ಬಿ.ಕಾಂ/ ಬಿ.ಬಿ.ಎಂ – ಕನ್ನಡ ಮುಂಗಾರು

ನಾಲ್ಕನೆಯ ಸೆಮಿಸ್ಟರ್ ಪತ್ಯದ ಹೆಸರು – ಬಿ.ಎ, ಬಿಎಸ್ಸಿ ಇತರೆ – ಕನ್ನಡ ಕುಸುಮ

ನಾಲ್ಕನೆಯ ಸೆಮಿಸ್ಟರ್ ಪತ್ಯದ ಹೆಸರು – ಬಿ.ಕಾಂ/ ಬಿ.ಬಿ.ಎಂ – ಕನ್ನಡ ಸುಗಂಧ

ಪತ್ಯಪುಸ್ತದಲ್ಲಿ ಲೇಖಕರ ಪರಿಚಯ, ಸಾರಾಂಶ, ಕಠಣ ಪದಗಳ ಅರ್ಥ, ಮಾದರಿ ಪ್ರಶ್ನೆಗಳು ಕಡ್ಡಾಯವಾಗಿ ಇರಬೇಕು.

ಐಚ್ಛಿಕ ಕನ್ನಡ ಪತ್ರಿಕೆ 1 ಮತ್ತು 2

(2019–20, 2020–21, 2021–22)

ಪ್ರಥಮ ಸೆಮಿಸ್ಟರ್ ಮತ್ತು ದ್ವಿತೀಯ ಸೆಮಿಸ್ಟರ್‌ಗೆ ಈಗಾಗಲೇ ತಯಾರಿಸಿರುವ (ಲಗತ್ತಿಸಿದೆ)ಪತ್ಯಕ್ರಮವನ್ನು ಅನುಸರಿಸುವುದು.

ಕುಲಸಚಿವರು,
ದಾವಣಗೆರೆ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
ಶಿವಗಂಗೋತ್ರಿ, ದಾವಣಗೆರೆ-577 002.

ಚರ್ಚಿತ ವಿಷಯಗಳು

ಸಭೆಯು ಈ ಕೆಳಕಂಡಂತೆ ಚರ್ಚಿಸಿತು

1. ಪ್ರಥಮ ಸೆಮಿಸ್ಟರ್, ಬಿ.ಎ/ಬಿ.ಎಸ್ಸಿ(ಹೋಂಸೈನ್ಸ್)ಬಿ.ಸಿ.ಎ/ಬಿಎಸ್‌ಡಬ್ಲು/ಬಿಎಫ್ಟಿ/ಬಿ.ಎಸ್.ಎ – (2019–20, 2020–21, 2021–22)

ಕನ್ನಡ ಭಾಷಾ ಪತ್ರಿಕೆ – 1 , ಕನ್ನಡ ಚೈತ್ರ
ಒಟ್ಟು ಅಂಕಗಳು 80 (ಆಂತರಿಕ ಅಂಕಗಳು 20) ಎರಡೂ ಒಟ್ಟು 100,
ಬೋಧನಾ ಅವಧಿ 4 ಘಂಟೆಗಳು, ಮೂರು ಘಂಟೆ ಅವಧಿ ಪರೀಕ್ಷೆ.

ಕನ್ನಡ ಚೈತ್ರ, **ಪಠ್ಯಕ್ರಮ**

ಪತ್ರಿಕೆ – 1

ಪ್ರಾಚೀನ– ಪ್ರಾಚೀನ ಕಾವ್ಯ, ಗದ್ಯ, ಕಾವ್ಯ ಶಾಸ್ತ್ರ ಹಾಗೂ ಶಾಸನ ಸಾಹಿತ್ಯ (ಸ್ಥಳೀಯ)
(ಪಂಪ, ನಾಗಚಂದ್ರ, ವಡ್ಡಾರಾಧನೆ, ಕವಿರಾಜಮಾರ್ಗ, ಕೋಡಿಮಠ ಶಾಸನ, ತಮಟಕಲ್ಲು ಶಾಸನ)

ಮಧ್ಯಕಾಲೀನ – ಕಾವ್ಯ, ವಚನ, ಕೀರ್ತನೆ
(ಹರಿಹರ, ರಾಘವಾಂಕ, ವಚನಗಳು, ಕಿರ್ತನೆಗಳು)

ಆಧುನಿಕ ಪೂರ್ವ – ಕಾವ್ಯ, ಗದ್ಯ, ತತ್ತ್ವಪದ, ಜಾನಪದ
(ಯಾವುದಾದರು ಎರಡು ಪ್ರಕಾರ)
ಆಧುನಿಕ – ನವೋದಯ, ನವ್ಯ, ದಲಿತ, ಬಂಡಾಯ, ಸ್ತ್ರೀವಾದಿ ಸಾಹಿತ್ಯ
(ಕಥೆ, ಕವನಗಳು, ಮೂರು ಲಲಿತ ಪ್ರಬಂಧಗಳು, ಕೌಶಲ್ಯ ಕನ್ನಡ)

2. ಪ್ರಥಮ ಸೆಮಿಸ್ಟರ್ ಬಿ.ಕಾಂ/ ಬಿ.ಬಿ.ಎಂ
(2019–20, 2020–21, 2021–22)

ಕನ್ನಡ ಭಾಷಾ ಪತ್ರಿಕೆ – 1, ಕನ್ನಡ ವಸಂತ

ಒಟ್ಟು ಅಂಕಗಳು 80 (ಆಂತರಿಕ ಅಂಕಗಳು 20) ಎರಡೂ ಒಟ್ಟು 100,
ಬೋಧನಾ ಅವಧಿ 4 ಘಂಟೆಗಳು, ಮೂರು ಘಂಟೆ ಅವಧಿ ಪರೀಕ್ಷೆ.

ಕನ್ನಡ ವಸಂತ, ಪಠ್ಯಕ್ರಮ

ಪತ್ರಿಕೆ – 1,

ಪ್ರಾಚೀನ– ಕಾವ್ಯ, ಗದ್ಯ
(ಪಂಪ, ನಾಗಚಂದ್ರ, ವಡ್ಡಾರಾಧನೆ, ಕವಿರಾಜಮಾರ್ಗ, ಕೋಡಿಮಠ ಶಾಸನ, ತಮಟಕಲ್ಲು ಶಾಸನ)

ಕುಲಸಚಿವರು,
ದಾವಣಗೆರೆ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
ಶಿವಗಂಗೋತ್ರಿ, ದಾವಣಗೆರೆ-577 002.

ಬಿ.ಎ. ಐದನೆ ಸೆಮಿಸ್ಟರ್(ಸಿ.ಬಿ.ಸಿ.ಎಸ್.ಸ್ಕೀಂ)

2018-19, 2019-20, 2020-21

ಅಂಕಗಳು:80
ಆಂತರಿಕ:ಅಂಕಗಳು 20
ವಾರಕ್ಕೆ 5 ಗಂಟೆಗಳ ಬೋಧನೆ

ಐಚ್ಛಿಕ ಕನ್ನಡ ಪತ್ರಿಕೆ 5.1 ಕನ್ನಡ ಭಾಷೆ: ರಚನೆ ಮತ್ತು ಸ್ವರೂಪ

1. ಧ್ವನಿ ರಚನೆ, ಪದರಚನೆ, ವಾಕ್ಯರಚನೆ
   ಅ) ಧ್ವನಿರಚನೆ: ಪದಾದಿ-ಪದಾಂತ್ಯ, ಸಮಾಸ-ಸಂಧಿ, ಪ್ರಕೃತಿ-ಪ್ರತ್ಯಯ
   ಆ) ಪದರಚನೆ: ನಾಮಪದ ಮತ್ತು ತದ್ಧಿತ ಪದಗಳ ವಿಶ್ಲೇಷಣೆ- ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು-ನಾಮಪದಗಳ ಹೊಸ ಸೃಷ್ಟಿ - ತದ್ಧಿತ ಪ್ರತ್ಯಯಗಳು

   ಇ) ವಾಕ್ಯ ರಚನೆ: ಕರ್ತೃ-ಕರ್ಮ-ಕ್ರಿಯಾಪದ, ಸರಳ, ಸಂಯುಕ್ತ, ಮಿಶ್ರ, ಕ್ರಿಯಾ, ನಿಷೇಧ ವಾಕ್ಯಗಳು, ಸಂಭಾವನಾರ್ಥಕ, ಪ್ರಶ್ನಾರ್ಥಕ ವಿಧಿ,

2. ಕನ್ನಡ ಭಾಷೆಯ ಪ್ರಾಚೀನತೆ

3. ಕನ್ನಡ ಭಾಷೆಯ ಅವಸ್ಥಾಂತರಗಳು: ಪೂರ್ವದ ಹಳಗನ್ನಡ, ಹಳಗನ್ನಡ, ನಡುಗನ್ನಡ, ಹೊಸಗನ್ನಡ

4. ಭಾಷಾ ಪ್ರಭೇದಗಳು: ಉಪಭಾಷೆಗಳು-ಅವುಗಳ ಉಗಮಕ್ಕೆ ಕಾರಣ, ಕನ್ನಡ ಪ್ರಾದೇಶಿಕ ಉಪಭಾಷೆಗಳು ಮತ್ತು ಅವುಗಳ ಲಕ್ಷಣ

5. ಭಾಷಾ ವ್ಯತ್ಯಾಸ : ಧ್ವನಿ ವ್ಯತ್ಯಾಸ, ಅರ್ಥ ವ್ಯತ್ಯಾಸ, ಸ್ವೀಕರಣ

ಆಧಾರ ಗ್ರಂಥಗಳು:-

1. ಕನ್ನಡ ಭಾಷಾ ಚರಿತ್ರೆ-ಎಂ.ಎಚ್. ಕೃಷ್ಣಯ್ಯ
2. ಕನ್ನಡ ಭಾಷೆಯ ರಚನೆ ಮತ್ತು ಬಳಕೆ-ಕೆ.ಪಿ. ಭಟ್, ನಾಗಭೂಷಣ್, ಬೆಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
3. ವರ್ಣನಾತ್ಮಕ ವ್ಯಾಕರಣ-ಎಚ್. ಎಸ್. ಬಿಳಿಗಿರಿ
4. ಕನ್ನಡ ಕೈಪಿಡಿ-ಮೈಸೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ

ಬಿ.ಎ. ಐದನೆ ಸೆಮಿಸ್ಟರ್(ಸಿ.ಬಿ.ಸಿ.ಎಸ್.ಸ್ಕೀಂ)

2018-19, 2019-20, 2020-21

ಅಂಕಗಳು:80
ಆಂತರಿಕ ಅಂಕಗಳು:20
ವಾರಕ್ಕೆ 5 ಗಂಟೆಗಳ ಬೋಧನೆ

ಐಚ್ಛಿಕ ಕನ್ನಡ ಪತ್ರಿಕೆ 5.2 ಸಾಹಿತ್ಯ ವಿಮರ್ಶೆ

1. ಸಾಹಿತ್ಯ ವಿಮರ್ಶೆಯ ಸ್ವರೂಪ ಮತ್ತು ಲಕ್ಷಣ
2. ಕನ್ನಡದಲ್ಲಿ ಸಾಹಿತ್ಯ ವಿಮರ್ಶೆ ಬೆಳೆದು ಬಂದ ಬಗೆ-ಸ್ಥೂಲ ಪರಿಚಯ
3. ನವೋದಯ, ಪ್ರಗತಿಶೀಲ, ನವ್ಯ ದಲಿತ-ಬಂಡಾಯ ಹಾಗು ಸ್ತ್ರೀವಾದಿ ವಿಮರ್ಶೆಯ ಲಕ್ಷಣಗಳು

ಪಠ್ಯಗಳ ಅಧ್ಯಯನ :

1. ಜೀವನವನ್ನು ಕುರಿತ ಸಾಹಿತ್ಯ-ಮಾಸ್ತಿ ವೆಂಕಟೇಶ್ ಅಯ್ಯಂಗಾರ್
2. ಕನ್ನಡ ನವ್ಯ ಕವಿತೆಯಲ್ಲಿಯ ಮನೋಧರ್ಮ-ಶಾಂತಿನಾಥ ದೇಸಾಯಿ
3. ನವ್ಯಕತೆ ಹೇಗೆ ನವ್ಯ?- ಪಿ. ಲಂಕೇಶ್
4. ಸಾಹಿತ್ಯ ಮತ್ತು ಜನಪರ ಚಳವಳಿಗಳು – ಎಚ್. ದಂಡಪ್ಪ

ಪರಾಮರ್ಶನ ಗ್ರಂಥಗಳು

1. ರಾಜೇಂದ್ರ ಚೆನ್ನಿ: ಅಮೂರ್ತತೆ ಮತ್ತು ಪರಿಸರ 2003, ಅಭಿನವ ಪ್ರಕಾಶನ, ಬೆಂಗಳೂರು
2. ಶಾಂತಿನಾಥ ದೇಸಾಯಿ : ನವ್ಯ ಸಾಹಿತ್ಯ ದರ್ಶನ, ಪರಿಸರ ಸಾಹಿತ್ಯ ಪ್ರಕಾಶನ, 1990, ಶಿವಮೊಗ್ಗ
3. ಗಿರಡ್ಡಿ ಗೋವಿಂದರಾಜ : ನವ್ಯ ವಿಮರ್ಶೆ, ಅಕ್ಷರ ಪ್ರಕಾಶನ 1973, ಸಾಗರ
4. ಜಿ.ಎಸ್. ಶಿವರುದ್ರಪ್ಪ : ವಿಮರ್ಶೆಯ ಪೂರ್ವ ಪಶ್ಚಿಮ, 1984 ಶಾರದಾ ಪ್ರಕಾಶನ, ಬೆಂಗಳೂರು
5. ಓ.ಎಲ್. ನಾಗಭೂಷಣಸ್ವಾಮಿ : ವಿಮರ್ಶೆಯ ಪರಿಭಾಷೆ, 1998, ಪರಿಸರ ಸಾಹಿತ್ಯ, ಶಿವಮೊಗ್ಗ
6. ತಿಪ್ಪೇರುದ್ರಸ್ವಾಮಿ ಎಚ್: : ಸಾಹಿತ್ಯ ವಿಮರ್ಶೆಯ ಮೂಲತತ್ವಗಳು, 1970, ಪ್ರಸಾರಾಂಗ, ಮೈಸೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಮೈಸೂರು
7. ಪೂರ್ಣಚಂದ್ರ ತೇಜಸ್ವಿ : ವಿಮರ್ಶೆಯ ವಿಮರ್ಶೆ, 2010, ಪುಸ್ತಕ ಪ್ರಕಾಶನ, ಮೈಸೂರು
8. ಸುವರ್ಣ ಸಾಹಿತ್ಯ ವಿಮರ್ಶೆ – (ಸಂ) ಸುಮಿತ್ರಾಬಾಯಿ, ಎಚ್. ದಂಡಪ್ಪ, ಕನ್ನಡ ಮತ್ತು ಸಂಸ್ಕೃತಿ ಇಲಾಖೆ, ಕರ್ನಾಟಕ ಸರ್ಕಾರ
9. ರಂ.ಶ್ರೀ. ಮುಗಳಿ : ಸಾಹಿತ್ಯ ವಿಮರ್ಶೆಯ ಮೂಲತತ್ವಗಳು
10. ಜಿ.ಎಸ್. ಶಿವರುದ್ರಪ್ಪ : ಕಾವ್ಯಾರ್ಥ ಚಿಂತನ
11. ವಿ.ಎಂ. ಇನಾಂದಾರ್ : ಪಾಶ್ಚಾತ್ಯ ಕಾವ್ಯ ಮೀಮಾಂಸೆ
12. ಜಿ..ಎಸ್. ಶಿವರುದ್ರಪ್ಪ ಮತ್ತು ಕೆ.ವಿ. ನಾರಾಯಣ, ಕಾವ್ಯಾರ್ಥ ಪದಕೋಶ
13. ಎಚ್. ತಿಪ್ಪೇರುದ್ರಸ್ವಾಮಿ : ಸಾಹಿತ್ಯ ವಿಮರ್ಶೆಯ ಮೂಲತತ್ವಗಳು
14. ಯು.ಆರ್. ಅನಂತಮೂರ್ತಿ : ಪ್ರಜ್ಞೆ ಮತ್ತು ಪರಿಸರ

ಮಾದರಿ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ

ಐಚ್ಛಿಕ ಕನ್ನಡ ಪತ್ರಿಕೆ : 5.2, ಸಾಹಿತ್ಯ ವಿಮರ್ಶೆ

ಅವಧಿ : 3 ಗಂಟೆಗಳು — ಅಂಕಗಳು : 80

1. ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ: (6 ಪ್ರಶ್ನೆಗಳನ್ನು ಕೊಡಬೇಕು)	4 X 10=40
2. ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ : (6 ಪ್ರಶ್ನೆಗಳನ್ನು ಕೊಡಬೇಕು)	4 X 5=20
3. ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ (ಟಿಪ್ಪಣಿ) (6 ಪ್ರಶ್ನೆಗಳನ್ನು ಕೊಡಬೇಕು)	4 X 5=20

Skill Development Course (Compulsory)
Soft Skills/Life Skills /Personality Development-1

ಅಂಕಗಳು:80
ಆಂತರಿಕ:ಅಂಕಗಳು 20
ವಾರಕ್ಕೆ ನಾಲ್ಕು ಗಂಟೆಗಳು

ಬಿ.ಎ. ಆರನೆಯ ಸೆಮಿಸ್ಟರ್(ಸಿ.ಬಿ.ಸಿ.ಎಸ್.ಸ್ಕೀಂ)

2018-19, 2019-20, 2020-21

ಅಂಕಗಳು:80
ಆಂತರಿಕ ಅಂಕಗಳು:20
ವಾರಕ್ಕೆ 5 ಗಂಟೆಗಳ ಬೋಧನೆ

ಐಚ್ಛಿಕ ಕನ್ನಡ ಪತ್ರಿಕೆ 6.1 ಕನ್ನಡ ಭಾಷೆಯ ಬಳಕೆಯ ಬಗೆಗಳು

ಅ) ಭಾಷೆಯ ಬಳಕೆ : 1) ಭಾಷಾ ಕೌಶಲ-ಪ್ರಯೋಜನಗಳು ವ್ಯಕ್ತಿತ್ವ-ಭಾಷೆಯ ನಡುವಿನ ಸಂಬಂಧ, ವೃತ್ತಿ ನಿರ್ವಹಣೆ -ಭಾಷಾ ಕೌಶಲ
2) ಆಡುನುಡಿಯ ಭಾಷೆ
3) ಬರವಣಿಗೆಯ ಭಾಷೆ-ವ್ಯತ್ಯಾಸಗಳು
4) ಶಿಷ್ಟ ಭಾಷೆ ಮತ್ತು ಪ್ರಮಾಣ ಭಾಷೆ

ಆ) ಕನ್ನಡ ಆಡಳಿತ ಭಾಷೆ : 1) ಆಧುನೀಕರಣದ ಸ್ವರೂಪ ಮತ್ತು ಬಗೆಗಳು
2) ಸಂಸ್ಕೃತ, ಉರ್ದು, ಪರ್ಶಿಯನ್, ಇಂಗ್ಲೀಷ್-ಭಾಷೆಗಳ ಪ್ರಭಾವ
3) ಆಡಳಿತ ಕನ್ನಡದ ಭಾಷೆ ಬೆಳೆದು ಬಂದ ಬಗೆ

ಇ) ವ್ಯಾವಹಾರಿಕ ಕನ್ನಡ : 1) ವಿವಿಧ ರೀತಿಯ ಅರ್ಜಿ ಬರೆಯುವಿಕೆ
2) ಜಾಹೀರಾತುಗಳು
3) ಕರಡು ಪ್ರತಿ ತಿದ್ದುವುದು
4) ನಿರೂಪಣ ಕಲೆ ಮತ್ತು ಭಾಷಣ ಕಲೆ

ಈ) ವಿವಿಧ ಮಾಧ್ಯಮ ಭಾಷೆ : 1) ಸುದ್ದಿ ಮಾಧ್ಯಮ ಭಾಷೆ
2) ಸುದ್ದಿ ಸಂಗ್ರಹ ಮತ್ತು ಸಂಪಾದನೆ
3) ಸುದ್ದಿ ತಯಾರಿಕೆ-ಸುದ್ದಿ ಓದುವಿಕೆ
4) ಮನೋರಂಜನ ಮಾಧ್ಯಮದ ಭಾಷೆ
5) ಪ್ರಚಾರ ಮಾಧ್ಯಮದ ಭಾಷೆ

ಪರಾಮರ್ಶನ ಗ್ರಂಥಗಳು :-

1. ಕನ್ನಡ ಸಾಹಿತ್ಯ ಕೋಶ : ರಾಜಪ್ಪ ದಳವಾಯಿ
2. ಕನ್ನಡ ಕೈಪಿಡಿ : ಡಾ ಕೆ.ವಿ. ಪುಟ್ಟಪ್ಪ
3. ಕನ್ನಡ ಭಾಷೆಯ ರೂಪರೇಷೆಗಳು : ಡಾ/ ವಿಲಿಯಂ ಮಾಡ್ತ, ಕ.ವಿ.ವಿ, ಧಾರವಾಡ
4. ವ್ಯಾವಹಾರಿಕ ಕನ್ನಡ : ಎಚ್ಚೆನ್ಕೆ, ಚೇತನ ಬುಕ್ ಹೌಸ್, ಮೈಸೂರು
5. ಕನ್ನಡಕ್ಕೆ ಬೇಕು ಕನ್ನಡದ್ದೇ ವ್ಯಾಕರಣ : ಡಿ.ಎನ್. ಶಂಕರಭಟ್ಟ
6. ಸಾಮಾನ್ಯ ಭಾಷಾ ವಿಜ್ಞಾನ : ಡಾ.ಕೆ. ಕೆಂಪೇಗೌಡ, ಭಾರತೀ ಪ್ರಕಾಶನ ಮೈಸೂರು
7. ಭಾಷಾ ವರ್ಗೀಕರಣ : ಡಾ.ಕೆ. ಕೆಂಪೇಗೌಡ, ಭಾರತೀ ಪ್ರಕಾಶನ ಮೈಸೂರು
8. ಇಂದಿನ ಕನ್ನಡ ರಚನೆ ಮತ್ತು ಬಳಕೆ : ಶ್ರೀಧರ್ ಎಸ್.ಎಲ್. ಕನ್ನಡ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಹಂಪಿ
9. ಭಾಷಾ ವಿಶ್ವಕೋಶ: ಸಂ. ಕೆ.ವಿ. ನಾರಾಯಣ, ಕನ್ನಡ ವಿ.ವಿ, ಹಂಪಿ
10. ಕನ್ನಡ ಜಗತ್ತು: ಅರ್ಧ ಶತಮಾನ : ಕೆ.ವಿ. ನಾರಾಯಣ, ಕನ್ನಡ ವಿ.ವಿ, ಹಂಪಿ
11. ಭಾಷೆಯ ಬಗೆಗೆ ನೀವೇನು ಬಲ್ಲಿರಿ : ಡಿ.ಎನ್. ಶಂಕರಭಟ್
12. ಪತ್ರಿಕಾ ಭಾಷೆ : ಪದ್ಮರಾಜ ದಂಡಾವತಿ, ಕರ್ನಾಟಕ ಪತ್ರಿಕಾ ಅಕಾಡೆಮಿ 2001
13. ಸಂವಹನ ಕನ್ನಡ : ನಾಗರಾಜರಾವ್ ಜವಳಿ, ಸತ್ಯನಾರಾಯಣ ಮಲ್ಲಿಪಟ್ಟ ದಾಸಜನ, ಮಂಗಳೂರು 2001
14. ಆಡಳಿತ ಕನ್ನಡ : ಎಚ್ಚೆನ್ಕೆ, ಚೇತನ ಬುಕ್ ಹೌಸ್, ಮೈಸೂರು
15. ಆಡಳಿತ ಕನ್ನಡ : ಸಂ, ಅಶೋಕಕುಮಾರ ರಂಜೆರೆ, ಸಾಂಬಮೂರ್ತಿ, ವೀರೇಶ್ ಬಡಿಗೇರ ಕನ್ನಡ ಅಭಿವೃದ್ಧಿ ಪ್ರಾಧಿಕಾರ, ಕನ್ನಡ ವಿ.ವಿ. ಹಂಪಿ

ಮಾದರಿ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ

ಐಚ್ಛಿಕ ಕನ್ನಡ ಪತ್ರಿಕೆ : 6.1, ಕನ್ನಡ ಭಾಷೆಯ ಬಳಕೆಯ ಬಗೆಗಳು

ಅವಧಿ : 3 ಗಂಟೆಗಳು ಅಂಕಗಳು : 80

1. ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ: 4 X 10=40
   (6 ಪ್ರಶ್ನೆಗಳನ್ನು ಕೊಡಬೇಕು)
2. ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ : 4 X 5=20
   (6 ಪ್ರಶ್ನೆಗಳನ್ನು ಕೊಡಬೇಕು)
3. ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ (ಟಿಪ್ಪಣಿ) 4 X 5=20
   (6 ಪ್ರಶ್ನೆಗಳನ್ನು ಕೊಡಬೇಕು)

ಬಿ.ಎ. ಆರನೆಯ ಸೆಮಿಸ್ಟರ್(ಸಿ.ಬಿ.ಸಿ.ಎಸ್.ಸ್ಕೀಂ)

2018-19, 2019-20, 2020-21

ಅಂಕಗಳು:80
ಆಂತರಿಕ ಅಂಕಗಳು:20
ವಾರಕ್ಕೆ 5 ಗಂಟೆಗಳ ಬೋಧನೆ

ಐಚ್ಛಿಕ ಕನ್ನಡ ಪತ್ರಿಕೆ 6.2 ತೌಲನಿಕ ಅಧ್ಯಯನ

1. ತೌಲನಿಕ ಅಧ್ಯಯನ ಎಂದರೇನು : ತೌಲನಿಕ ಅಧ್ಯಯನದ ಪ್ರಯೋಜನಗಳು
2. ತೌಲನಿಕ ಅಧ್ಯಯನದ ವಿವಿಧ ಬಗೆಗಳು
3. ತೌಲನಿಕ ಅಧ್ಯಯನ : ಅ) ಪ್ರಭಾವಗಳ ಸ್ವರೂಪದ ಅಧ್ಯಯನ
   ಆ) ಪರಿವರ್ತನೆಯ ಸ್ವರೂಪದ ಅಧ್ಯಯನ

4. ಪ್ರಕಾರಗಳ ಸ್ವರೂಪದ ವಿಭಿನ್ನತೆಯ ಅಧ್ಯಯನ (ಸಾಹಿತ್ಯ ಕೃತಿಯು, ಸಿನಿಮಾ ಪ್ರಕಾರದಲ್ಲಿ ಹೊಂದುವ ಬದಲಾವಣೆ)

ಪಠ್ಯಗಳ ಅಧ್ಯಯನ

1) ಕನ್ನಡ ಕಾವ್ಯ ಪರಂಪರೆ, ಸಂಸ್ಕೃತ ಕಾವ್ಯ ಮೀಮಾಂಸೆ-ಕಿ.ರಂ. ನಾಗರಾಜ
2) ಭಾರತೀಯತೆ ಮತ್ತು ಕನ್ನಡ ಲೇಖಕ-ಯು. ಆರ್. ಅನಂತಮೂರ್ತಿ
3) ಕರ್ಣನ ಮೂರು ಚಿತ್ರಗಳು-ಶಂ. ಬಾ. ಜೋಷಿ

ಪರಾಮರ್ಶನ ಗ್ರಂಥಗಳು :

1. ಯು.ಆರ್. ಅನಂತಮೂರ್ತಿ : ಯುಗ ಪಲ್ಲಟ, ಪ್ರಜ್ಞೆ ಮತ್ತು ಪರಿಸರ
2. ಮಲ್ಲೇಮರಂ. ಜಿ.ವೆಂಕಟಸುಬ್ಬಯ್ಯ ಸಂ : ಶಾಂಭಾಕೃತಿ ಸಂಪುಟ -3, ಕನ್ನಡ ಪುಸ್ತಕ ಪ್ರಾಧಿಕಾರ, ಬೆಂಗಳೂರು 1999
3. ಗಿರಡ್ಡಿ ಗೋವಿಂದರಾಜು : (ಸಂ) ಜನ್ನ 2008, ಕರ್ನಾಟಕ ಸಾಹಿತ್ಯ ಅಕಾಡೆಮಿ, ಬೆಂಗಳೂರು
4. ವಸಾಹತುಶಾಹಿ ಮತ್ತು ಭಾಷಾಂತರ-ವಿ.ಜಿ. ತಾರಕೇಶ್ವರ್, ಪ್ರಸಾರಾಂಗ, ಕನ್ನಡ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಹಂಪಿ
5. ಭಾಷಾಂತರದ ಸಾಂಸ್ಕೃತಿಕ ನೆಲೆಗಳು : ಸಂ. ಕಲೀಗೌಡ ಬೀಚನಹಳ್ಳಿ, ಪ್ರಸಾರಾಂಗ, ಕನ್ನಡ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ, ಹಂಪಿ
6. ಶೇಕ್‌ಸ್ಪಿಯರ್ : ಎರಡು ಸಂಸ್ಕೃತಿಗಳಲ್ಲಿ – ರಾಮಚಂದ್ರದೇವ, ಗ್ರಂಥಾವಳಿ, ಬೆಂಗಳೂರು
7. ಶೇಕ್‌ಸ್ಪಿಯರ್ ಮತ್ತು ಕನ್ನಡ ಸಾಹಿತ್ಯ ಸಂ. ಜಿ.ಎಸ್. ಶಿವರುದ್ರಪ್ಪ, ಕರ್ನಾಟಕ ಸಾಹಿತ್ಯ ಅಕಾಡೆಮಿ, ಬೆಂಗಳೂರು ಬೆಂಗಳೂರು
8. ಶ್ರೀಕಂಠೇಗೌಡರ ಕೃತಿಗಳು : ಸಂ. ಹ.ಕ. ರಾಜೇಗೌಡ, ಎಂ.ಎಸ್. ಶ್ರೀಕಂಠೇಗೌಡ ಸ್ಮಾರಕ ಸಮಿತಿ, ಮೈಸೂರು
9. ನಾಡುನುಡಿಯ ರೂಪಕ : ಶಿವರಾಮ ಪಡಿಕ್ಕಲ್, ಪ್ರಸಾರಾಂಗ, ಬೆಂಗಳೂರು.
10. ಓ.ಎಲ್. ನಾಗಭೂಷಣಸ್ವಾಮಿ : ವಿಮರ್ಶೆಯ ಪರಿಭಾಷೆ, ಪರಿಸರ ಸಾಹಿತ್ಯ, 1998 ಶಿವಮೊಗ್ಗ
11. ತೆರೆದ ಪದ್ಯ : ಸಂ ನಟರಾಜ್ ಹುಳಿಯಾರ್, ಕನ್ನಡ ಪುಸ್ತಕ ಪ್ರಾಧಿಕಾರ (ಕಿ.ರಂ. ಅವರ ಸಮಗ್ರ ಲೇಖನಗಳ ಸಂಪುಟ)

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ಮಾದರಿ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ

ಐಚ್ಛಿಕ ಕನ್ನಡ ಪತ್ರಿಕೆ : 6.2, ತೌಲನಿಕ ಅಧ್ಯಯನ

ಅವಧಿ : 3 ಗಂಟೆಗಳು — ಅಂಕಗಳು : 80

1. ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ: 4 X 10=40
   (6 ಪ್ರಶ್ನೆಗಳನ್ನು ಕೊಡಬೇಕು)
2. ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ : 4 X 5=20
   (6 ಪ್ರಶ್ನೆಗಳನ್ನು ಕೊಡಬೇಕು)
3. ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ (ಟಿಪ್ಪಣಿ) 4 X 5=20
   (6 ಪ್ರಶ್ನೆಗಳನ್ನು ಕೊಡಬೇಕು)

Skill Development Course(Compulsory)
Soft Skills/Life Skills /Personality Development-2

ಅಂಕಗಳು:80
ಆಂತರಿಕ ಅಂಕಗಳು:20
ವಾರಕ್ಕೆ ನಾಲ್ಕು ಗಂಟೆಗಳು

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Davangere-577002.

ಐಚ್ಛಿಕ ಪತ್ರಿಕೆ – 3

2017–2018 2018–2019 2019–2020

ಭಾರತೀಯ ಕಾವ್ಯ ಮೀಮಾಂಸೆ ಮತ್ತು ಕನ್ನಡ ಕಾವ್ಯ ಮೀಮಾಂಸೆ

ಮಾದರಿ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ

ಸಮಯ : 3 ಗಂಟೆಗಳು ಗರಿಷ್ಠ ಅಂಕಗಳು–80

ಭಾರತೀಯ ಕಾವ್ಯ ಮೀಮಾಂಸೆ – 'ಅ' ವಿಭಾಗ

1. ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ (5 ಪ್ರಶ್ನೆಗಳನ್ನು ಕೊಡಬೇಕು) 3X10=30
2. ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ (6 ಪ್ರಶ್ನೆಗಳನ್ನು ಕೊಡಬೇಕು) 4X5=20

ಕನ್ನಡ ಕಾವ್ಯ ಮೀಮಾಂಸೆ – ' ಆ ' ವಿಭಾಗ

3. ಎರಡು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ (3 ಪ್ರಶ್ನೆಗಳನ್ನು ಕೊಡಬೇಕು) 2X10=20
4. ಎರಡು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ (4ಪ್ರಶ್ನೆಗಳನ್ನು ಕೊಡಬೇಕು) 2X5=10

Third Semester

2017–2018 2018–2019 2019–2020

Foundation Course
B.A., B.S.W. , B.Com, B.B.M
General Science & Management

Marks =80
Internal Assessment =20

Co-Curricular/Extra-Curricular Activities Internal Assessment=50

Third Semester

2017–2018 2018–2019 2019–2020

Foundation Course
B.Sc. B.CA., B.S.A, B.Ed,
Social Science & Management

Marks =80
Internal Assessment =20

Co-Curricular/Extra-Curricular Activities Internal Assessment=50

ಬಿ.ಎ/ಬಿ.ಎಸ್.ಸಿ/ಬಿ.ಎಸ್.ಸಿ(ಹೋಂಸೈನ್ಸ್)ಬಿ.ಸಿ.ಎ./ಬಿ.ಎಸ್.ಡಬ್ಲ್ಯೂ/ಬಿ.ಎಫ್.ಡಿ / ಬಿ.ಎಸ್.ಎ/ಬಿ.ಕಾಂ/ಬಿ.ಬಿ.ಎಂ.

2017–2018 2018–2019 2019–2020

IV Semester

Foundation Course
B.A., B.S.C, B.Sc(H) B.C.A B.S.W, B.Fd., B.S.A, B.Com, B.B.M.-
Computer Applications

Marks =80

Internal Assessment=20

Co-Curricular/Extra-Curricular Activities

Internal Assessment=50

REGISTRAR

DAVANGERE UNIVERSITY

Scheme of Teaching & Evaluation and Curriculum to be Introduced from the Academic Year 2021-22

Based
On
NATIONAL EDUCATION POLICY-2020

for
Four Year Undergraduate Program

Bachelor of Commerce (B.Com.)

A. Scheme of Teaching & Evaluation
B. Curriculum of Courses

A. Scheme of Teaching & Evaluation for B.Com. (Basic/Hons.)

Semester I								
Sl. No.	**Course Code**	**Title of the Course**	**Categoryof Courses**	**Teaching Hoursper Week (L + T + P)**	**SEE**	**CIE**	**Total Marks**	**Credits**
1	**Lang.1.1**	**Language - I**	**AECC**	**3+1+0**	**60**	40	100	**3**
2	**Lang.1.2**	**Language – II**	**AECC**	**3+1+0**	**60**	40	100	**3**
3	B.Com.1.1	**Financial Accounting**	**DSC**	**3+0+2**	**60**	40	100	4
4	B.Com.1.2	**Management Principles and Applications**	**DSC**	**4+0+0**	**60**	40	100	4
5	B.Com.1.3	**Principles of Marketing**	**DSC**	**4+0+0**	**60**	40	100	4
6	B.Com.1.4	**Digital Fluency**	**SEC-SB**	**1+0+2**	**-**	100	100	**2**
7	B.Com.1.5	**Within the Faculty: *** **1. Innovation Management** **Across the Faculty**** **2. Accounting for Everyone** **3. Financial Literacy**	**OEC**	**3+0+0**	**60**	40	100	**3**
Sub –Total (A)					360	340	700	**23**

Note:

* **Within the Faculty:** The Course 1 is meant for Commerce Students and shall be taught by Commerce Teachers (Both B.Com & BBA Teachers).

** **Across the Faculty:** The Courses (2 & 3) are meant for Other Department / Discipline Students and shall be taught by Commerce Teachers (Both B.Com & BBA Teachers).

Semester II								
Sl. No.	Course Code	Title of the Course	Categoryof Courses	Teaching Hoursper Week (L + T + P)	SEE	CIE	Total Marks	Credits
8	Lang.2.1	Language - I	AECC	3+1+0	60	40	100	3
9	Lang.2.2	Language – II	AECC	3+1+0	60	40	100	3
10	B.Com.2.1	Advanced Financial Accounting	DSC	3+0+2	60	40	100	4
11	B.Com.2.2	Business Mathematics	DSC	3+0+2	60	40	100	4
12	B.Com.2.3	Law & Practice of Banking	DSC	4+0+0	60	40	100	4
13	B.Com.2.4	Health Wellness/ Social & Emotional Learning	SEC-VB	1+0+2	-	100	100	2
14	B.Com.2.5	Environmental Studies	AECC	2+0+0	60	40	100	2
15	B.Com.2.6	Within the Faculty: 1. Life Skills Across the Faculty: 2. Financial Environment 3. Investing in Stock Markets	OEC	3+0+0	60	40	100	3
Sub –Total (B)					420	380	800	25

EXIT OPTION WITH CERTIFICATION – with ability to solve well defined problems.

Note:

* **Within the Faculty:** The Course 1 is meant for Commerce Students and shall be taught by Commerce Teachers (Both B.Com & BBA Teachers).

** **Across the Faculty:** The Courses (2 & 3) are meant for Other Department / Discipline Students and shall be taught by Commerce Teachers (Both B.Com & BBA Teachers).

Semester III								
Sl. No.	Course Code	Title of the Course	Categoryof Courses	Teaching Hours per Week (L + T + P)	SEE	CIE	Total Marks	Credits
16	Lang.1.1	Language - I	AECC	3+1+0	60	40	100	3
17	Lang.1.2	Language – II	AECC	3+1+0	60	40	100	3
18	B.Com.3.1	Corporate Accounting	DSC	3+0+2	60	40	100	4
19	B.Com.3.2	Business Statistics	DSC	3+0+2	60	40	100	4
20	B.Com.3.3	Cost Accounting	DSC	3+0+2	60	40	100	4
21	B.Com.3.4	Artificial Intelligence	SEC	1+0+2	60	40	100	2
22	B.Com.3.5	1. Advertising Skills 2. Entrepreneurial skills	OEC	3+0+0	60	40	100	3
Sub –Total (C)					420	280	700	23

Semester IV								
Sl. No.	Course Code	Title of the Course	Categoryof Courses	Teaching Hours per Week (L + T + P)	SEE	CIE	Total Marks	Credits
23	Lang.1.1	Language - I	AECC	3+1+0	60	40	100	3
24	Lang.1.2	Language – II	AECC	3+1+0	60	40	100	3
25	B.Com.4.1	Advanced Corporate Accounting	DSC	3+0+2	60	40	100	4
26	B.Com.4.2	Costing Methods & Techniques	DSC	3+0+2	60	40	100	4
27	B.Com.4.3	Business Regulatory Framework	DSC	4+0+0	60	40	100	4
28	B.Com.4.4	Constitution of India	AECC	2+0+0	60	40	100	2
29	B.Com.4.5	Sports/NCC/NSS/others (if any)	SEC-VB	1+0+2	-	100	100	2
30	B.Com.4.6	1. Business Ethics 2. Corporate Governance	OEC	3+0+0	60	40	100	3
Sub –Total (D)					420	380	800	25

EXIT OPTION WITH DIPLOMA – Ability to solve broadly defined problems.

Semester V								
Sl. No.	Course Code	Title of the Course	Categoryof Courses	Teaching Hours per Week (L + T + P)	SEE	CIE	Total Marks	Credits
31	B.Com.5.1	Financial Management	DSC	3+0+2	60	40	100	4
32	B.Com.5.2	Income Tax Law and Practice-I	DSC	3+0+2	60	40	100	4
33	B.Com.5.3	Auditing and Assurance	DSC	4+0+0	60	40	100	4
34	B.Com.5.4 Elective	One Course from the Selected Elective Group	DSE - 1	3+1+0	60	40	100	3
35	B.Com.5.6 Elective	GST- Law & Practice	Vocational - 1	2+0+2	60	40	100	3
36	B.Com.5.7	Cyber Security/Ethics & Self Awareness	SEC - VB	1+0+2	60	40	100	2
Sub –Total (E)					360	240	600	20

Semester VI								
Sl. No.	Course Code	Title of the Course	Categoryof Courses	Teaching Hours per Week (L + T + P)	SEE	CIE	Total Marks	Credits
37	B.Com.6.1	Management Accounting	DSC	3+0+2	60	40	100	4
38	B.Com.6.2	Income Tax Law and Practice-II	DSC	3+0+2	60	40	100	4
39	B.Com.6.3 Elective	Three courses from the Selected Elective Group	DSE – 2	3+1+0	60	40	100	3
40	B.Com.6.4 Elective		DSE – 3	3+1+0	60	40	100	3
41	B.Com.6.5 Elective		DSE – 4	3+1+0	60	40	100	3
42	B.Com.6.6	Basics of Spread Sheet Modelling OR Report on Study of Startups and Innovative Business Ideas	Vocational-2	2+0+2	60	40	100	3
43	B.Com.6.7	Professional Communication	SEC - SB	2+0+0	60	40	100	2
Sub –Total (F)					420	280	700	22
Grand Total - Degree					2400	1900	4300	138

EXIT OPTION WITH BACHELOR DEGREE -Ability to solve complex problems that are ill-structured requiring multi-disciplinary skills to solve them.

Semester VII								
Sl. N o.	Course Code	Title of the Course	Categoryof Courses	Teaching Hours per Week (L + T + P)	SEE	CIE	Total Marks	Credits
44	B.Com.7.1	International Business	DSC	4+0+0	60	40	100	4
45	B.Com.7.2	Advanced Business Statistics	DSC	3+0+2	60	40	100	4
46	B.Com.7.3	Advanced Financial Management	DSC	3+0+2	60	40	100	4
47	B.Com.7.4	One Course from the Selected Elective Group	DSE - 5	3+1+0	60	40	100	3
48	B.Com.7.5	ERP Applications	Vocational-3	2+0+2	60	40	100	3
49	B.Com.7.6	Research Methodology	-	2+0+2	60	40	100	3
Sub –Total (G)					360	240	600	21

Semester VIII								
Sl. No.	Course Code	Title of the Course	Categoryof Courses	Teaching Hours per Week (L + T + P)	SEE	CIE	Total Marks	Credits
50	B.Com.8.1	Financial Reporting-IND.AS	DSC	3+0+2	60	40	100	4
51	B.Com.8.2	Strategic Financial Management	DSC	4+0+0	60	40	100	4
52	B.Com.8.3	Business Analytics OR Data Analysis & Decision Sciences	DSC	3+0+2	60	40	100	4
53	B.Com.8.4	Managing Digital Platforms	Vocational-4	2+0+2	60	40	100	3
54	B.Com.8.5	Research Projects/Internship with Viva – voce	-	-	120	80	200	6
		OR						
		Two Courses from the Selected Elective Group 8.5 (A) & 8.5 (B)	DSE-6	3+1+0	60*	40*	100*	3*
			DSE-7	3+1+0	60*	40*	100*	3*
Sub –Total (H)					360	240	600	21
Grand Total – Honors					3120	2380	5500	180

* Students who do not opt Research Project / Internship shall take two elective courses such as 8.5 (A) & 8.5 (B).

BACHELOR DEGREE WITH HONORS – Experience of workplace problem solving inthe form of internship or research experience preparing for higher education or entrepreneurship experience.

Notes:

- One Hour of Lecture is equal to 1 Credit.
- One Hour of Tutorial is equal to 1 Credit (Except Languages).
- Two Hours of Practical is equal to 1 Credit

Acronyms Expanded:

- **AECC : Ability Enhancement Compulsory Course**
- **DSC © : Discipline Specific Core (Course)**
- **SEC-SB/VB : Skill Enhancement Course-Skill Based/Value Based**
- **OEC : Open Elective Course**
- **DSE : Discipline Specific Elective**
- **SEE : Semester End Examination**
- **CIE : Continuous Internal Evaluation**
- **L+T+P : Lecture + Tutorial + Practical(s)**

Note: Practical Classes may be conducted in the Business Lab or in Computer Lab or in Class room depending on the requirement. One batch of students should not exceed half (i.e., 50 or less than 50 students) of the number of students in each class/section. 2 Hours of Practical Class is equal to 1 Hour of Teaching, however, whenever it is conducted for the entire class (i.e., more than 50 students) 2 Hours of Practical Class is equal to 2 Hours of Teaching.

ELECTIVE GROUPS AND COURSES:

Discipline Specific Electives – V Semester						
Sl. No	**Accounting**	**Finance**	**Banking & Insurance**	**Marketing**	**Human Resources**	**IT**
1	**Ind. AS and IFRS**	**Financial Markets & Intermediaries**	**Indian Banking System**	**Retail Management**	**Human Resources Development**	**Financial Analytics**

Discipline Specific Electives – VI Semester						
1	**e-Business & Accounting**	**Investment Management**	**Banking Innovations & Technology**	**Customer Relationship Marketing**	**Cultural Diversity at Work Place**	**HR Analytics**
2	**Accounting for Services Sector**	**Global Financial System & Practices**	**Principles & Practice of Insurance**	**Digital Marketing**	**New Age Leadership Skills**	**Marketing Analytics**
3	**Accounting for Government and Local Bodies**	**Risk Management**	**Insurance Law and Regulations**	**Consumer Behavior & Marketing Research**	**Labour Laws & Practice**	**ICT Application in Business**

Discipline Specific Electives – VII Semester						
1	**Forensic Accounting**	**Corporate Structuring**	**Banking Products & Services**	**Logistics & Supply Chain Management**	**Strategic HRM**	**DBMS & SQL**

Discipline Specific Electives – VIII Semester						
1	**Innovations in Accounting**	**Corporate Valuation**	**e-Banking**	**E - Commerce**	**International HRM**	**Web & Social Intelligence**
2	**Accounting Information System**	**Analysis of Financial Statements**	**Insurance Planning & Management**	**Services Marketing**	**Employee Welfare & Social Security**	**Artificial Intelligence & Machine Learning in Business**

NOTE: Student shall continue with the same elective group in V and VI semesters, however, he/she may change the elective group in VII semester, but shall continue in the same group in VIII semester.

A. Curriculum of Courses

1.1 Financial Accounting

1.2 Management Principles & Applications

1.3 Principles of Marketing

1.4 Digital Fluency –Curriculum as suggested by KSHEC

1.5 Within the Faculty:

- **Innovation Management**

Across the Faculty:

- **Accounting for Everyone**
- **Financial Literacy**

Name of the Program: Bachelor of Commerce (B.Com.)
Course Code: B.Com. 1.1
Name of the Course: Financial Accounting

Course Credits	No. of Hours per Week	Total No. of Teaching Hours
4 Credits	4 Hrs	60 Hrs

Pedagogy: Classrooms lecture, tutorials, Group discussion, Seminar, Case studies & field work etc.,

Course Outcomes: On successful completion of the course, the Students will be able to

a) Understand the theoretical framework of accounting as well accounting standards.
b) Demonstrate the preparation of financial statement of manufacturing and non-manufacturing entities of sole proprietors.
c) Exercise the accounting treatments for consignment transactions & events in the books of consignor and consignee.
d) Understand the accounting treatment for royalty transactions & articulate the Royalty agreements.
e) Outline the emerging trends in the field of accounting.

Syllabus:	**Hours**
Module No. 1: Theoretical Framework of Accounting	**12**
Introduction-Meaning and Scope of Accounting- Accounting Terminologies- Uses and Users of Accounting information-Accounting Process-Basis of Accounting: Cash and Accrual basis-Branches of Accounting-Accounting Principles-Concepts and Conventions-Accounting Standards-Indian Accounting Standards (IND AS).	
Module No. 2: Financial Statements of Sole Proprietors	**12**
Introduction-Meaning of Sole Proprietor-Financial Statements of Non-Manufacturing Entities: Trading Account-Income Statement/Profit & Loss Account-Balance Sheet; Financial Statements of Manufacturing Entities: Manufacturing Account-Trading Account-Profit & Loss accountant- Balance Sheet.	
Module No. 3: Consignment Accounts	**12**
Introduction-Meaning of Consignment-Consignment vs Sales-Pro-forma Invoice-Accounts Sales-Types Commission-Accounting for Consignment Transactions & Events in the books of Consignor and Consignee - Treatment of Normal & Abnormal Loss. -Valuation of Closing Stock-Goods sent at Cost Price and Invoice Price.	
Module No. 4: Royalty Accounts	**14**
Introduction-Meaning-Types of Royalty-Technical Terms: Lessee, Lessor, Minimum Rent – Short Workings –Recoupment of Short Working–Accounting Treatment in the books of Lessee and lessor – Journal Entries and Ledger Accounts including minimum rent account.	
Module No. 5: Emerging Trends in Accounting	**10**
Digital Transformation of Accounting-Big Data Analytics in Accounting-Cloud Computing in accounting- Accounting with drones- Forensic Accounting- Accounting for Planet--Creative Accounting-Outsourced Accounting- Predictive Accounting (Theory Only).	

Skill Developments Activities:

1. Collect Annual Reports of sole proprietors and identify accounting concepts and conventions followed in the preparation of the annual reports.
2. Collect Annual Reports of sole proprietors and identify the different components.
3. Preparation of Pro-form invoice and accounts sales with imaginary figures.
4. Collect Royalty Agreements and draft dummy royalty agreements with imaginary figures.

5. Identify latest innovations and developments in the field of accounting.
6. Any other activities, which are relevant to the course.

Text Books:

1. ICAI Study Materials on Principles & Practice of Accounting, Accounting and Advanced Accounting.
2. SP Iyengar (2005), Advanced Accounting, Sultan Chand & Sons, Vol. 1.
3. Robert N Anthony, David Hawkins, Kenneth A. Merchant, (2017) Accounting: Text and Cases, McGraw-Hill Education, 13th Edition.
4. Charles T. Horngren and Donna Philbrick, (2013) Introduction to Financial Accounting, Pearson Education, 11th Edition.
5. J.R. Monga, Financial Accounting: Concepts and Applications. Mayur Paper Backs, New Delhi, 32nd Edition.
6. S.N. Maheshwari, and. S. K. Maheshwari. Financial Accounting. Vikas Publishing House, New Delhi, 6th Edition.
7. B.S. Raman (2008), Financial Accounting Vol. I & II, United Publishers & Distributors
8. Compendium of Statements and Standards of Accounting. The Institute of Chartered Accountants of India, New Delhi.

Note: Latest edition of text books may be used.

Name of the Program: Bachelor of Commerce (B.Com.)
Course Code: B.Com. 1.2
Name of the Course: Management Principles and Applications

Course Credits	No. of Hours per Week	Total No. of Teaching Hours
4 Credits	**4 Hrs**	**60 Hrs**

Pedagogy: Classrooms lecture, Case studies, Group discussion, Seminar & field work etc.,

Course Outcomes: On successful completion of the course, the Students will be able to

a) Understand and identify the different theories of organisations, which are relevant in the present context.
b) Design and demonstrate the strategic plan for the attainment of organisational goals.
c) Differentiate the different types of authority and chose the best one in the present context.
d) Compare and chose the different types of motivation factors and leadership styles.
e) Choose the best controlling techniques for better productivity of an organisation.

Syllabus:	**Hours**
Module No. 1: Introduction to Management	**10**
Introduction-Meaning and importance of Management-Managerial Functions- Essence of Manger ship-Evolution of the Management thoughts: Classical organizational theories-Neo-Classical theories-Modern organizational theories.	
Module No. 2: Planning	**12**
Introduction-Meaning-Nature-Purpose-Types of plans-Planning process; Strategic planning: Concept-Process-Importance and Limitations; Environmental Analysis and diagnosis: Meaning-importance and Techniques (SWOT/TOWS/WOTS-UP-BCG Matrix-Competitor Analysis); Decision-making-Concept-Importance-Committee and Group decision making Process.	
Module No. 3: Organizing	**12**
Introduction-Meaning-Concept and Process of Organizing – An overview-Span of management-Different types of authority (line, staff and functional)-Decentralization-Delegation of authority; Formal and Informal Structure-Principles of Organizing; Network Organisation Structure.	
Module No. 4: Staffing and Leading	14
Introduction-**Staffing:** Concept of Staffing-Staffing Process; **Motivation:** Concept-Importance-extrinsic and intrinsic motivation-Major Motivation theories: Maslow's Need-Hierarchy Theory-Hertzberg's Two-factor Theory-Vroom's Expectation Theory; **Leadership:** Concept- Importance-Major theories of Leadership (Likert's scale theory, Blake and Mouten's Managerial Grid theory, House's Path Goal theory, Fred Fielder's situational Leadership), Transactional leadership, Transformational Leadership, Transforming Leadership; **Communication:** Concept-purpose-process-Oral and written communication-Formal and informal communication networks-Barriers to communication-Overcoming barriers to communication.	
Module No. 5: Controlling and Coordination	**12**
Control: Concept-Process-Limitations-Principles of Effective Control-Major Techniques of control– Ratio Analysis, ROI, Budgetary Control, EVA, PERT/CPM, Emerging issues in Management; **Coordination:** Meaning-Nature-Importance-Principles of Coordination.	

Skill Development Activities:

1. Collect the photographs and bio-data of any three leading contributors of management thoughts.
2. Visit any business organisation and collect the information on types of planning adopted by them.
3. Visit any business organisation and collect different types of authority followed and also the draw the organizational structure.
4. Analyse the leadership styles of any select five companies of different sectors.
5. Visit any manufacturing firm and identify the controlling system followed.

Any other activities, which are relevant to the course.

Text Books:

1. Harold Koontz and Heinz Weihrich (2017), Essentials of Management: An International and Leadership Perspective, McGraw Hill Education, 10th Edition.
2. Stephen P Robbins and Madhushree Nanda Agrawal (2009), Fundamentals of Management: Essential Concepts and Applications, Pearson Education, 6th Edition.
3. James H. Donnelly, (1990) Fundamentals of Management, Pearson Education, 7th Edition.
4. B.P. Singh and A.K.Singh (2002), Essentials of Management, Excel Books
5. P C Tripathi & P N Reddy (2005), Principles of Management, TMH Publications, 3rd Edition.
6. Koontz Harold (2004), Essentials of Management, Tata McGraw Hill.

Note: Latest edition of text books may be used.

Name of the Program: Bachelor of Commerce (B.Com.)
Course Code: B.Com. 1.3
Name of the Course: Principles of Marketing

Course Credits	No. of Hours per Week	Total No. of Teaching Hours
4 Credits	**4 Hrs**	**60 Hrs**

Pedagogy: Classrooms lecture, Case studies, Group discussion, Seminar & field work etc.,

Course Outcomes: On successful completion of the course, the Students will be able to

a) Understand the basic concepts of marketing and asses the marketing environment.
b) Analyse the consumer behaviour in the present scenario and marketing segmentation.
c) Discover the new product development & identify the factors affecting the price of a product in the present context.
d) Judge the impact of promotional techniques on the customers & importance of channels of distribution.
e) Outline the recent developments in the field of marketing.

Syllabus:	**Hours**
Module No. 1: Introduction to Marketing	**14**
Introduction-Nature-Scope-Importance of Marketing; Concepts & Approaches of Marketing: Need-Want-Demand-Customer Value-Customer Creation; Evolution of marketing; Selling vs Marketing; Marketing Environment: Concept-importance-Micro and Macro Environment. Marketing Management-Meaning-importance.	
Module No. 2: Consumer Behaviour & Market segmentation	**13**
Consumer Behaviour: Nature and Importance-Consumer buying decision process; Factors influencing consumer buying behaviour; **Market segmentation:** Concept, importance and bases; Target market selection-Positioning concept-Importance and bases; Product differentiation vs. market segmentation. **Marketing Mix:** Product-Price-Place & Promotion.	
Module No. 3: Product and Pricing	**12**
Product: Concept and importance-Product classifications-Concept of product mix; Branding-packaging and labelling; Product-Support Services; Product life-cycle; New Product Development Process; Consumer adoption process. **Pricing:** Significance. Factors affecting price of a product. Pricing policies and strategies.	
Module No. 4: Promotion and Distribution	**13**
Promotion: Nature and importance of promotion; Communication process; Types of promotion: advertising, personal selling, public relations & sales promotion, and their distinctive characteristics; Promotion mix and factors affecting promotion mix decisions. **Distribution Channels and Physical Distribution:** Channels of distribution - meaning and importance; Types of distribution channels; Functions of middle man; Factors affecting choice of distribution channel; Wholesaling and retailing; Types of Retailers; e-retailing, Physical Distribution.	
Module No. 5: Recent Developments in Marketing	**08**
Social Marketing, online marketing, direct marketing, services marketing, green marketing, Rural marketing; Consumerism, Search Engine Marketing-Mobile Marketing- Marketing Analytics-Social Media Marketing-Email Marketing-Live Video Streaming Marketing-Network Marketing, any other recent developments in Marketing.	

Skill Development Activities:

1. Analyse the marketing environment of your locality and identify need, wants & purchasing power of customers.

2. Collect consumer behaviour towards home appliances in your locality.
3. Visit any organisation and collect the information towards pricing of the products.
4. Visit any wholesalers/Retailers; collect the role of them in marketing.
5. Identify the recent developments in the field of marketing.
6. Any other activities, which are relevant to the course.

Reference Materials:

1. Philip Kotler (2015), Principles of Marketing. 13th edition. Pearson Education.
2. Saxena Rajan, (2017) Marketing Management, Tata McGraw-Hill Publishing Company Ltd., New Delhi. Fifth Edition.
3. Kumar Arun & MeenakshiN (2016), Marketing Management, Vikas Publishing House Pvt. Ltd., New Delhi. Third Edition
4. Panda Tapan (2008), Marketing Management, Excel books, New Delhi, Second Edition.
5. Michael, J. Etzel, Bruce J. Walker, William J Stanton and Ajay Pandit. Marketing: Concepts and Cases. (Special Indian Edition)., McGraw Hill Education
6. William D. Perreault, and McCarthy, E. Jerome., Basic Marketing. Pearson Education.
7. Majaro, Simon. The Essence of Marketing. Pearson Education, New Delhi.
8. Iacobucci and Kapoor, Marketing Management: A South Asian Perspective. Cengage Learning.
9. Chhabra, T.N., and S. K. Grover. Marketing Management. Fourth Edition.

Note: Latest edition of text books may be used.

Name of the Program: Bachelor of Commerce (B.Com.)
Course Code : 1.5-1 (Open Elective Course)
Name of the Course: Innovation Management

Course Credits	No. of Hours per Week	Total No. of Teaching Hours
3 Credits	**3 Hrs**	**45 Hrs**

Pedagogy: Classrooms lecture, Case studies, Group discussion & Seminar etc.,

Course Outcomes: On successful completion of the course, the Students will be able to

a) Familiarize and explore different forms of innovation.
b) Acquaint the economic aspects of innovation
c) Know the marketing of innovation products.
d) Enable students think and act on innovation.
e) Analyse the reality of innovation in the present context.

Syllabus:	**Hours**
Module No. 1: Exploring Innovations	**12**
Concept of innovation, historic retrospective, typology of innovations, innovation process, Macroeconomic view of innovation approaches to innovations, Assumptions and barriers to innovations, Innovation sources, i.e. science and R&D, technology transfer, push and pull approaches. Processes used to explore innovations along the technology, market and strategy dimensions as the innovation moves from idea to market.	
Module No. 2: Application of Innovation	**08**
Organizational aspects of innovation, Soft methods and techniques of innovation management, Creative approaches, Systemic and analytical methods and techniques of innovation management, Economic aspects of innovations encompassing sources of innovation financing.	
Module No. 3: Marketing Innovation Products	**09**
Strategic considerations on innovations, innovation platforms that incorporate new product development, process innovations, service innovation, service design innovation, multiple product options, portfolios and standards	
Module No. 4: Evaluation of Innovation	**10**
Effectiveness evaluation, integration of risks, factors influencing economic effectiveness, Post implementation analysis of innovation projects, Intellectual property of innovations, legal aspects of innovations	
Module No. 5: Innovation in Reality	**06**
Mind-set, lateral thinking, out of box approach, creativity, innovation for problem solving. Caselets.	

Skill Development Activities:

1. Draw insights from the most innovative and successful corporations namely Apple, IBM, and Microsoft.
2. List out the reasons for failure in startup innovations.
3. Design innovative projects (any field) in collaboration with team members.
4. Creative projects that provide an innovative solution to real-world problems emphasizing on SDGs.
5. Any other activities, which are relevant to the course.

Text Books:

1. Wagner, Tony. Creating Innovators: The Making of Young People Who Will Change the World. New York: Scribner, 2012.
2. CK Prahalad and MK Krishnan : The new age of innovation, McGraw Hill

3. Paul Traut: Innovation Management and New product Development ,Pearson
4. Khandwalla: Corporate Creativity, McGraw hill
6. Snyder, Duarte, Unleashing Innovation, How Whirlpool Transformed an Industry, JosseyBass, 2008
7. Fraser, Healther, Design Works; Toronto: University of Toronto Press, 2012 Govindarajan, Vijay & Trimble, Chris, 10 Rules for Strategic Innovators; Boston: Harvard Business School Press, 2005
8. Govindarajan, Vijay & Trimble, Chris, Reverse Innovation; Boston: Harvard Business School Press, 2012.
9. Hamel, Gary, The Future of Management; Boston: Harvard Business School Press, 2007.

Note: Latest edition of text books may be used.

Name of the Program: Bachelor of Commerce (B.Com)
Course Code: B.Com. 1.5-2 (Open Elective Course)
Name of the Course: Accounting for Everyone

Course Credits	No. of Hours per Week	Total No. of Teaching Hours
3 Credits	3 Hrs	45 Hrs

Pedagogy: Classrooms lecture, Case studies, Group discussion, Seminar & field work etc.,

Course Outcomes: On successful completion of the course, the Students will be able to

a) Analyse various terms used in accounting;
b) Make accounting entries and prepare cash book and other accounts necessary while running a business;
c) Prepare accounting equation of various business transactions;
d) Analyse information from company's annual report;
e) Comprehend the management reports of the company.

Syllabus:	Hours
Module No. 1: Introduction to Accounting	**11**
Meaning, Importance and Need, Its objectives and relevance to business establishments and other organizations, and individuals. Accounting information: meaning, users and utilities, sources of accounting information. Some Basic Terms –Transaction, Account, Asset, Liability, Capital, Expenditure & Expense, Income, Revenue, Gain, Profit, Surplus, Loss, Deficit. Debit, Credit, Accounting Year, Financial Year.	
Module No. 2: Transactions and Recording of Transactions	**08**
Features of recordable transactions and events, Basis of recording – vouchers and another basis. Recording of transactions: Personal account, Real Account and Nominal Account; Rules for Debit and Credit; Double Entry System, journalizing transactions; Preparation of Ledger, Cash Book including bank transactions. (Simple Problems)	
Module No. 3: Preparation of Financial Statements	**10**
Fundamental Accounting Equation; Concept of revenue and Capital; Preparation of financial statements. (Simple problems)	
Module No. 4: Company Accounts	**08**
Explanation of certain terms – Public Limited Company, Private Limited Company, Share, Share Capital, Shareholder, Board of Directors, Stock Exchange, Listed Company, Share Price, Sensex - BSE, NSE; Annual report, etc. Contents and disclosures in Annual Report, Company Balance Sheet and Statement of Profit and Loss. Content Analysis based on annual report including textual analysis.	
Module 5: Management Reports	**08**
Reports on Management Review and Governance; Report of Board of Directors - Management discussion analysis- Annual Report on CSR – Business responsibility report – Corporate governance report – Secretarial audit report.	

Skill Development Activities:

1. Download annual reports of business Organisations from the websites and go through the contents of the annual report and present the salient features of the annual report using some ratios and content analysis including textual analysis.
2. Prepare accounting equation by collecting necessary data from medium sized firm.
3. Prepare financial statements collecting necessary data from small business firms.
4. Collect the management reports of any large scale organisation and analyse the same.
5. Any other activities, which are relevant to the course.

Text Books:

1. Hatfield, L. (2019). Accounting Basics. Amazon Digital Services LLC.
2. Horngren, C. T., Sundem, G. L., Elliott, J. A., & Philbrick, D. (2013). Introduction to Financial Accounting. London: Pearson Education.
3. Siddiqui, S. A. (2008). Book Keeping & Accountancy. New Delhi: Laxmi Publications Pvt. Ltd.
4. Sehgal, D. (2014). Financial Accounting. New Delhi: Vikas Publishing House Pvt. Ltd.
5. Tulsian, P. C. (2007). Financial Accounting. New Delhi: Tata McGraw Hill Publishing Co. Ltd.
6. Mukharji, A., & Hanif, M. (2015). Financial Accounting. New Delhi: Tata McGraw Hill Publishing Co. Ltd.
7. Maheshwari, S. N., Maheshwari, S. K., & Maheshwari, S. K. (2018). Financial Accounting. New Delhi: Vikas Publishing House Pvt. Ltd.
8. Khan, M.Y. and Jain, P.K. Management Accounting. McGraw Hill Education.
9. Arora, M.N. Management Accounting, Vikas Publishing House, New Delhi

Note: Latest edition of text books may be used.

Name of the Program: Bachelor of Commerce (B.Com)
Course Code: B.Com. 1.5-3 (Open Elective Course)
Name of the Course: Financial Literacy

Course Credits	No. of Hours per Week	Total No. of Teaching Hours
3 Credits	3 Hrs	45 Hrs

Pedagogy: Classrooms lecture, Case studies, Group discussion, Seminar & field work etc.,

Course Outcomes: On successful completion of the course, the Students will be able to

a) Describe the importance of financial literacy and list out the institutions providing financial services;
b) Prepare financial plan and budget and manage personal finances;
c) Open, avail, and manage/operate services offered by banks;
d) Open, avail, and manage/operate services offered by post offices;
e) Plan for life insurance and property insurance & select instrument for investment in shares.

Syllabus:	Hours
Module No. 1: Introduction	**10**
Meaning, importance and scope of financial literacy; Prerequisites of Financial Literacy – level of education, numerical and communication ability; Various financial institutions – Banks, Insurance companies, Post Offices; Mobile App based services. Need of availing of financial services from banks, insurance companies and postal services.	
Module No. 2: Financial Planning and Budgeting	**07**
Concept of economic wants and means for satisfying these needs; Balancing between economic wants and resources; Meaning, importance and need for financial planning; Personal Budget, Family Budget, Business Budget and National Budget; Procedure for financial planning and preparing budget; Budget surplus and Budget deficit, avenues for savings from surplus, sources for meeting deficit.	
Module No. 3: Banking Services	**10**
Types of banks; Banking products and services – Various services offered by banks; Types of bank deposit accounts – Savings Bank Account, Term Deposit, Current Account, Recurring Deposit, PPF, NSC etc.; Formalities to open various types of bank accounts, PAN Card, Address proof, KYC norm; Various types of loans – short term, medium term, long term, micro finance, agricultural etc. and related interest rates offered by various nationalized banks and post office; Cashless banking, e-banking, Check Counterfeit Currency; CIBIL, ATM, Debit and Credit Card, and APP based Payment system; Banking complaints and Ombudsman.	
Module No. 4: Financial Services from Post Office	**08**
Post office Savings Schemes: Savings Bank, Recurring Deposit, Term Deposit, Monthly Income Scheme, Kishan Vikas Patra, NSC, PPF, Senior Citizen Savings Scheme (SCSS), Sukanya Samriddhi Yojana/ Account (SSY/SSA); India Post Payments Bank (IPPB). Money Transfer: Money Order, E-Money order. Instant Money Order, collaboration with the Western Union Financial Services; MO Videsh, International Money Transfer Service, Electronic Clearance Services (ECS), Money gram International Money Transfer, Indian Postal Order (IPO).	
Module 5: Protection and Investment Related Financial Services	**10**
Insurance Services: Life Insurance Policies: Life Insurance, Term Life Insurance, Endowment Policies, Pension Policies, ULIP, Health Insurance and its Plans, Comparison of policies offered by various life insurance companies. Property Insurance: Policies offered	

by various general insurance companies. Post office life Insurance Schemes: Postal Life Insurance and Rural Postal Life Insurance (PLI/RPLI). Housing Loans: Institutions providing housing loans, Loans under Pradhanmantri Awas Yojana – Rural and Urban.

Investment avenues in Equity and Debt Instruments: Portfolio Management: Meaning and importance; Share Market and Debt Market, Sensex and its significance; Investment in Shares – selection procedure for investment in shares; Risk element; Investment Management - Services from brokers and Institutions, and self-management; Mutual Fund.

Skill Development Activities:

1. Visit banks, post offices, and insurance companies to collect information and required documents related to the services offered by these institutions and to know the procedure of availing of these services.
2. Fill up the forms to open accounts and to avail loans and shall attach photocopies of necessary documents.
3. Prepare personal and family budget for one/six/ twelve month on imaginary figures.
4. Try to open Demat account and trade for small amount and submit the report on procedure on opening of Demat account and factors considered for trading.
5. Any other activities, which are relevant to the course.

Text Books:

1. Avadhani, V. A. (2019). Investment Management. Mumbai: Himalaya Publishing House Pvt. Ltd.
2. Chandra, P. (2012). Investment Game: How to Win. New Delhi: Tata McGraw Hill Education.
3. Kothari, R. (2010). Financial Services in India-Concept and Application. New Delhi: Sage Publications India Pvt. Ltd.
4. Milling, B. E. (2003). The Basics of Finance: Financial Tools for Non-Financial Managers. Indiana: universe Company.
5. Mittra, S., Rai, S. K., Sahu, A. P., & Starn, H. J. (2015). Financial Planning. New Delhi: Sage Publications India Pvt. Ltd.
6. Zokaityte, A. (2017). Financial Literacy Education. London: Palgrave Macmillan.

Note: Latest edition of text books may be used.

A. Curriculum

2.1 Advanced Financial Accounting

2.2 Business Mathematics

2.3 Law & Practice of Banking

2.4 Health Wellness / Social & Emotional Learning– Curriculum as suggested by KSHEC

2.5 Environmental Studies - Curriculum as suggested by DUD

2.6 Within the Faculty

- **Life Skills**

Across the Faculty

- **Financial Environment**
- **Investing in Stock Markets**

Name of the Program: Bachelor of Commerce (B.Com.)
Course Code: B.Com. 2.1
Name of the Course: Advanced Financial Accounting

Course Credits	No. of Hours per Week	Total No. of Teaching Hours
4 Credits	**4 Hrs**	**60 Hrs**

Pedagogy: Classrooms lecture, Case studies, Tutorial classes, Group discussion, Seminar & field work etc.,

Course Outcomes: On successful completion of the course, the Students will be able to

a) Understand & compute the amount of claims for loss of stock & loss of Profit.
b) Learn various methods of accounting for hire purchase transactions.
c) Deal with the inter-departmental transfers and their accounting treatment.
d) Demonstrate various accounting treatments for dependent & independent branches.
e) Prepare financial statements from incomplete records.

Syllabus:	**Hours**
Module No. 1: Insurance Claims for Loss of Stock & Loss of Profit	**10**
Introduction-Meaning of fire-computation of Claim for loss of stock- Computations of Claim for loss of Profit-Average Clause.	
Module No. 2: Hire Purchase Accounting	**12**
Introduction-Meaning of hire purchase-difference between hire purchase and instalment-Nature-features-terms used-Ascertainment of Interest-Accounting for hire purchase transactions-Repossession.	
Module No. 3: Departmental Accounts	**12**
Introduction-meaning-advantages and disadvantages-methods of departmental accounting-basis of allocation of common expenditure among different departments-types of departments-inter department transfer and its treatment	
Module No. 4: Accounting for Branches	**14**
Introduction-difference between branch accounts and departmental accounts-types of branches-Accounting for dependent & independent branches; Foreign branches: Accounts for foreign branches-Techniques for foreign currency translation. (Theory only).	
Module No. 5: Conversion of Single Entry into Double Entry	**12**
Introduction - Meaning-Limitations of Single Entry System-Difference between Single entry and Double entry system - Problems on Conversion of Single Entry into Double Entry.	

Skill Developments Activities:

1. Identify the procedure & documentations involved in the insurance claims.
2. Collect hire purchase agreements and draft dummy hire purchase agreements with imaginary figures.
3. Identify the common expenditures of an organisation among various departments.
4. Collect the procedure and documentations involved in the establishment of various branches.
5. Visit any sole proprietor firm and identify the steps involved in the conversion of single entry into double entry system.
6. Any other activities, which are relevant to the course.

Text Books:

1. ICAI Study Materials on Principles & Practice of Accounting, Accounting and

Advanced Accounting.
2. SP Iyengar (2005), Advanced Accounting, Sultan Chand & Sons, Vol. 1.
3. Robert N Anthony, David Hawkins, Kenneth A. Merchant, (2017) Accounting: Text and Cases, McGraw-Hill Education, 13th Edition.
4. Charles T. Horngren and Donna Philbrick, (2013) Introduction to Financial Accounting, Pearson Education, 11th Edition.
5. J.R. Monga, Financial Accounting: Concepts and Applications. Mayur Paper Backs, New Delhi, 32nd Edition.
6. S.N. Maheshwari, and. S. K. Maheshwari. Financial Accounting. Vikas Publishing House, New Delhi, 6th Edition.
7. B.S. Raman (2008), Financial Accounting Vol. I & II, United Publishers & Distributors
8. Compendium of Statements and Standards of Accounting. The Institute of Chartered Accountants of India, New Delhi.

Note: Latest edition of text books may be used.

Name of the Program: Bachelor of Commerce (B.Com.)
Course Code: B.Com. 2.2
Name of the Course: Business Mathematics

Course Credits	No. of Hours per Week	Total No. of Teaching Hours
4 Credits	**4 Hrs**	**60 Hrs**

Pedagogy: Classrooms lecture, Case studies, Tutorial classes, Group discussion, Seminar & field work etc.,

Course Outcomes: On successful completion of the course, the Students will be able to

a) Understand the number system and indices applications in solving basic business problems.
b) Apply concept of commercial arithmetic concepts to solve business problems.
c) Make use of theory of equation in solving the business problems in the present context.
d) Understand and apply the concepts of Set Theory, Permutations & Combinations and Matrices solving business problems.
e) Apply measurement of solids in solving simple business problems.

Syllabus:	**Hours**
Module No. 1: Number System and Indices	**14**
Introduction - Meaning - Natural Numbers - Even & Odd Numbers - Prime, Rational Number and its features & Irrational Numbers - simple problems on finding sum of natural, Odd and Even numbers- HCF and LCM, problems thereon; Indices-Introduction, Laws of indices, application of laws for simplification, simple problems.	
Module No. 2: Commercial Mathematics	**10**
Introduction - Meaning of Simple and Compound interest and problems thereon,- Annuities, types & problems on present and future value of annuity; Ratios and Proportions-meaning and problems thereon-problems on speed, time and work.	
Module No. 3: Theory of Equation	**12**
Introduction - Meaning-Problems on Linear equations and solving pure and adfected quadratic equations (factor and Sridharacharya methods only), problems on Simultaneous equations (Elimination method only).	
Module No. 4: Set Theory, Permutations & Combinations and Matrices	**13**
Introduction - Meaning & types of sets-Laws of Sets-Venn diagram-problems thereon; Meaning and problems on permutations and combinations; Matrices-Meaning & types of Matrices, simple problems on addition, subtraction and multiplication.	
Module No. 5: Measurement of Solids	**11**
Introduction - Meaning and problems on Area and perimeter/circumference of Triangle, Square, Rectangle, Circle, Cone and Cylinder.	

Skill Developments Activities:

1. Show the number of ways in which your telephone number can be arranged to get odd numbers.
2. Visit any Commercial Bank in your area and collect the information about types of loans and the rates of interest on loans.
3. Use Matrix principles to implement food requirement and protein for two families.
4. Measure your classroom with the help of a tape and find the cost of the carpet for the floor area of the classroom.
5. Any other activities, which are relevant to the course.

Text Books:

1. Saha and Rama Rao, Business Mathematics, HPH.
2. S.N.Dorairaj, Business Mathematics, United Publication.
3. R. Gupta, Mathematics for Cost Accountants.
4. S. P. Gupta, Business Mathematics.
5. Madappa and Sridhara Rao, Business Mathematics.
6. Padmalochana Hazarika, Business Mathematics.
7. Dr.B.H.Suresh, Quantitative Techniques, Chetana Book House.
8. Dr. Padmalochan Hazarika, A Textbook of Business Mathematics, S. Chand, New Delhi, No. 4, 2016.
9. A. P. Verma, Business Mathematics, Asian Books Private Limited, New Delhi, No. 3, January 2007.
10. D. C. Sancheti & V. K. Kapoor, Business Mathematics, S. Chand, New Delhi, 2014
11. A Lenin Jothi, Financial Mathematics, Himalaya Publications, Mumbai, No. 1, 2009.
12. B. M. Aggarwal, Business Mathematics, Ane Books Pvt. Ltd., No. 5, 2015

Note: Latest edition of text books may be used.

Name of the Program: Bachelor of Commerce (B.Com.)
Course Code: B.Com. 2.3
Name of the Course: Law and Practice of Banking

Course Credits	No. of Hours per Week	Total No. of Teaching Hours
4 Credits	**4 Hrs**	**60 Hrs**

Pedagogy: Classrooms lecture, Case studies, Group discussion, Seminar & field work etc.,

Course Outcomes: On successful completion of the course, the Students will be able to

a) Summarize the relationship between Banker & customer and different types of functions of banker.
b) Analyse the role, functions and duties of paying and collecting banker.
c) Make use of the procedure involved in opening and operating different accounts.
d) Examine the different types of negotiable instrument & their relevance in the present context.
e) Estimate possible developments in the banking sector in the upcoming days.

Syllabus:	**Hours**
Module No. 1: Introduction to Banking	**14**
Introduction- Meaning – Need – Importance – Primary, Secondary & Modern functions of banks - Origin of banking- Banker and Customer Relationship (General and special relationship) - Origin and growth of commercial banks in India – Types of Banks in India– Banks' Lending - changing role of commercial banks. RBI: History-Role & Functions.	
Module No. 2: Paying and Collecting Banker	**14**
Paying banker: Introduction - Meaning – Role – Functions - Duties - Precautions and Statutory Protection and rights - Dishonor of Cheques – Grounds of Dishonor – Consequences of wrongful dishonor of Cheques; **Collecting Banker**: Introduction - Meaning – Legal status of collecting banker - Holder for value -Holder in due course – Duties & Responsibilities - Precautions and Statutory Protection to Collecting Banker.	
Module No. 3: Customers and Account Holders	**10**
Introduction - Types of Customers and Account Holders - Procedure and Practice in opening and operating accounts of different customers: Minors - Joint Account Holders- Partnership Firms - Joint Stock companies - Executors and Trustees - Clubs and Associations and Joint Hindu Undivided Family.	
Module No. 4: Negotiable Instruments	**12**
Introduction – Meaning & Definition – Features – Kinds of Negotiable Instruments: Promissory Notes - Bills of Exchange - Cheques - Crossing of Cheques – Types of Crossing; Endorsements: Introduction - Meaning - Essentials & Kinds of Endorsement – Rules of endorsement.	
Module No. 5: Recent Developments in Banking	**10**
Introduction - New technology in Banking – E-services – Debit and Credit cards - Internet Banking-Electronic Fund Transfer- MICR – RTGS - NEFT –ECS- Small banks-Payment banks- Digital Wallet-Crypto currency- KYC norms – Basel Norms - Mobile banking-E-payments - E-money. Any other recent development in the banking sector.	

Skill Development Activities:

1. Refer RBI website and identify the different types of banks operating in India.
2. Visit any Public sector bank & discuss with the branch manager about the role and functions as a paying and collecting banker.
3. Collect and fill dummy account opening forms as different types of customer.
4. Draft specimen of Negotiable instruments: bill of exchange, Promissory Notes and

Cheques.

5. Identify and prepare report on pros and cons of recent development in the field of banking sector.
6. Any other activities, which are relevant to the course.

Text Books:

1. Gordon & Natarajan, Banking Theory Law and Practice, HPH, 24th Edition
2. S. P Srivastava (2016), Banking Theory & Practice, Anmol Publications
3. Maheshwari. S.N. (2014), Banking Law and Practice, Kalyani Publishers, 11 edition
4. Shekar. K.C (2013), Banking Theory Law and Practice, Vikas Publication, 21st Edition.
5. Dr. Alice Mani (2015), Banking Law and Operation, SBH.

Note: Latest edition of text books may be used.

Name of the Program: Bachelor of Commerce (B.Com.)
Course Code: B.Com. 2.6-1 (Open Elective Course)
Name of the Course: Life Skills

Course Credits	No. of Hours per Week	Total No. of Teaching Hours
3 Credits	**3 Hrs**	**45 Hrs**

Pedagogy: Classrooms lecture, Case studies, Group discussion & Seminar etc.,

Course Outcomes: On successful completion of the course, the Students will be able to

a) Define and Identify different life skills required in personal and professional life
b) Develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.
c) Explain the basic mechanics of effective communication and demonstrate these through presentations.
d) Take part in group discussions and use appropriate thinking and problem solving techniques to solve new problems.
e) Understand the basics of teamwork and leadership.

Syllabus:	**Hours**
Module No. 1: Overview of Life and Professional Skills	**10**
Overview of Life Skills: Meaning and significance of life skills, Life skills identified by WHO: Self-awareness, Empathy, Critical thinking, Creative thinking, Decision making, problem solving, Effective communication, interpersonal relationship, coping with stress, coping with emotion. Life skills for professionals: positive thinking, right attitude, attention to detail, having the big picture, learning skills, research skills, perseverance, setting goals and achieving them, helping others, leadership, motivation, self-motivation, and motivating others, personality development, IQ, EQ, and SQ	
Module No. 2: Self Awareness, Stress Management, Emotions and Ethics	**10**
Self-awareness: definition, need for self-awareness; Coping With Stress and Emotions, Human Values, tools and techniques of SA: questionnaires, journaling, reflective questions, meditation, mindfulness, psychometric tests, feedback. Stress Management: Stress, reasons and effects, identifying stress, stress diaries, the four A's of stress management, techniques, Approaches: action-oriented, emotion-oriented, acceptance oriented, resilience, Gratitude Training, Coping with emotions: Identifying and managing emotions, harmful ways of dealing with emotions, PATH method and relaxation techniques. Morals, Values and Ethics: Integrity, Civic Virtue, Respect for Others, Living Peacefully. Caring, Sharing, Honesty, Courage, Valuing Time, Time management, Cooperation, Commitment, Empathy, Self-Confidence, Character, Spirituality, Avoiding Procrastination, Sense of Engineering Ethics.	
Module No. 3: 21st Century Skills	**09**
21st century skills: Creativity, Critical Thinking, Collaboration, Problem Solving, Decision Making, Need for Creativity in the 21st century, Imagination, Intuition, Experience, Sources of Creativity, Lateral Thinking, Myths of creativity, Critical thinking Vs Creative thinking, Functions of Left Brain & Right brain, Convergent & Divergent Thinking, Critical reading & Multiple Intelligence. Steps in problem solving: Problem Solving Techniques, Six Thinking Hats, Mind Mapping, Forced Connections. Analytical Thinking, Numeric, symbolic, and graphic reasoning. Scientific temperament and Logical thinking	
Module No. 4: Group and Team Dynamics	**06**

Introduction to Groups: Composition, formation, Cycle, thinking, Clarifying expectations, Problem Solving, Consensus, Dynamics techniques, Group vs Team, Team Dynamics, and Virtual Teams. Managing team performance and managing conflicts, Intrapreneurship.	
Module No. 5: Leadership	**10**
Leadership: Leadership framework, entrepreneurial and moral leadership, vision, cultural dimensions. Growing as a leader, turnaround leadership, managing diverse stakeholders, crisis management. Types of Leadership, Traits, Styles, VUCA Leadership, Levels of Leadership, Transactional vs Transformational Leaders, Leadership Grid, Effective Leaders.	
Skill Development Activities: 1. Seminars for effective communication and presentation skills. 2. Activities on Time management. 3. Activities for understanding of Non-verbal Communication and Body Language. 4. Task for Communication in a multi-cultural environment. 5. Activities to prove leadership qualities. 6. Any other activities, which are relevant to the course.	
Text Books: 1. Shiv Khera, You Can Win, Macmillan Books, New York, 2003. 2. Barun K. Mitra, "Personality Development & Soft Skills", Oxford Publishers, Third impression, 2017. 3. Caruso, D. R. and Salovey P, "The Emotionally Intelligent Manager: How to Develop and Use the Four Key Emotional Skills of Leadership", John Wiley & Sons, 2004. 4. Kalyana, "Soft Skill for Managers"; First Edition; Wiley Publishing Ltd, 2015. 5. Larry James, "The First Book of Life Skills"; First Edition, Embassy Books, 2016. 6. Shalini Verma, "Development of Life Skills and Professional Practice"; First Edition; Sultan Chand (G/L) & Company, 2014. 7. Daniel Goleman, "Emotional Intelligence"; Bantam, 2006. 8. Butterfield Jeff, "Soft Skills for Everyone", Cengage Learning India Pvt Ltd; 1 edition, 2011. 9. Training in Interpersonal Skills: Tips for Managing People at Work, Pearson Education, India; 6 edition, 2015. 10. The Ace of Soft Skills: Attitude, Communication and Etiquette for Success, Pearson Education; 1 edition, 2013. **Note: Latest edition of text books may be used.**	

Name of the Program: Bachelor of Commerce (B.Com.)
Course Code: B.Com. 2.6-2 (Open Elective Course)
Name of the Course: Financial Environment

Course Credits	No. of Hours per Week	Total No. of Teaching Hours
3 Credits	3 Hrs	45 Hrs

Pedagogy: Classrooms lecture, Case studies, Group discussion, Seminar & field work etc.,

Course Outcomes: On successful completion of the course, the Students will be able to

a) Understand the fundamentals of Indian Economy and its significance.
b) Evaluate the impact of monetary policy on the stakeholders of the Economy.
c) Assess the impact of fiscal policy on the stakeholders of the Economy.
d) Examine the status of inflation, unemployment and labour market in India
e) Inference the financial sector reforms in India.

Syllabus:	**Hours**
Module No. 1: Fundamentals of India Economy	**10**
Introduction - Production & Cost-Demand & Supply-Perfect & Imperfect Competition-Monopoly-National Income Accounting-Business Cycle-Open Economy-Utility theory-GDP-GNP-impact- other Marco financial indicators.	
Module No. 2: Monetary Policy	**12**
Introduction - Meaning-objectives-qualitative & quantitative measures for credit control. Influence of policy rates of RBI: Repo-Reverse repo- Marginal standing facility and Bank rate. Influence of reserve ratios of RBI: CRR-SLR-Exchange rates-lending/deposit rates-design & issues of monetary policy-LAF - RBI Role, functions and its Governance	
Module No. 3: Fiscal Policy	**08**
Introduction - Meanings-objectives- public expenditure-public debt-fiscal & budget deficit-Keynesian approach-fiscal policy tools-fiscal policy effects on employment-supply side approach-design & issues of fiscal policy-fiscal budget- Role of Ministry of Finance in Fiscal Policy.	
Module No. 4: Inflation, Unemployment and Labour market	**08**
Introduction - **Inflation:** Causes of rising & falling inflation-inflation and interest rates-social costs of inflation; **Unemployment** – natural rate of unemployment-frictional & wait unemployment. **Labour market** and its interaction with production system; Phillips curve-the trade-off between inflation and unemployment-sacrifice ratio-role of expectations adaptive and rational	
Module 5: Financial Sector Reforms:	**07**
Introduction - Financial sector reforms - Recommendation & action taken -SARFESI Act-Narasimham Committee I & II- Kelkar Committee- FRBM Act - Basel-BIS-history-need-mission-objectives-Basel norms I, II & III- criticism of Basel norms-Implementations of Basel norms in India- impact of Basel norms on Indian banks.	

Skill Development Activities:

1. Collect last ten year GDP rate and examine the same.
2. Collect last two years monetary policy rates of RBI and analyse the impact of the same.

3. Collect last five years fiscal policy of Indian Government and analyse the impact of the same on rural poor.
4. Collect last five year data on inflation, unemployment rate and labour market conditions and critically prepare the report.
5. Identify the recent financial sector reforms in India.
6. Any other activities, which are relevant to the course.

Text Books:

1. V K Puri and S K Mishra, Indian Economy, HPH.
2. Datt and Sundharam's, Indian Economy, S Chand
3. Ramesh Singh, Indian Economy, McGraw Hill education.
4. Khan and Jain, Financial Services, Mcgraw Hill Education, 8th edition
5. RBI working papers
6. Mistry of Finance, GOI of working papers
7. SEBI Guidelines Issued from time to time.

Note: Latest edition of text books may be used.

Name of the Program: Bachelor of Commerce (B.Com)
Course Code: B.Com. 2.6-3 (Open Elective Course)
Name of the Course: Investments in Stock Markets

Course Credits	No. of Hours per Week	Total No. of Teaching Hours
3 Credits	**3 Hrs**	**45 Hrs**

Pedagogy: Classrooms lecture, Case studies, Group discussion, Seminar & field work etc.,

Course Outcomes: On successful completion of the course, the Students will be able to

a) Explain the basics of investing in the stock market, the investment environment as well as risk & return;
b) Analyse Indian securities market;
c) Examine EIC framework and conduct fundamental analysis;
d) Perform technical analysis;
e) Invest in mutual funds market.

Syllabus:	**Hours**
Module No. 1: Basics of Investing	**10**
Basics of Investment & Investment Environment. Risk and Return, Avenues of Investment - Equity shares, Preference shares, Bonds & Debentures, Insurance Schemes, Mutual Funds, Index Funds. Indian Security Markets - Primary Market, Secondary Market and Derivative Market. Responsible Investment.	
Module No. 2: Fundamental Analysis	**11**
Top down and bottom up approaches, Analysis of international & domestic economic scenario, Industry analysis, Company analysis (Quality of management, financial analysis: Both Annual and Quarterly, Income statement analysis, position statement analysis including key financial ratios, Cash flow statement analysis, Industry market ratios: PE, PEG, Price over sales, Price over book value, EVA), Understanding Shareholding pattern of the company.	
Module No. 3: Technical Analysis	**08**
Trading rules (credit balance theory, confidence index, filter rules, market breath, advances vs declines and charting (use of historic prices, simple moving average and MACD) basic and advanced interactive charts. Do's & Don'ts of investing in markets.	
Module No. 4: Indian Stock Market	**08**
Market Participants: Stock Broker, Investor, Depositories, Clearing House, Stock Exchanges. Role of stock exchange, Stock exchanges in India- BSE, NSE and MCX. Security Market Indices: Nifty, Sensex and Sectoral indices, Sources of financial information. Trading in securities: Demat trading, types of orders, using brokerage and analyst recommendations	
Module 5: Investing in Mutual Funds	**08**
Concept and background on Mutual Funds: Advantages, Disadvantages of investing in Mutual Funds, Types of Mutual funds- Open ended, close ended, equity, debt, hybrid, index funds and money market funds. Factors affecting choice of mutual funds. CRISIL mutual fund ranking and its usage, calculation and use of Net Asset Value.	

Skill Development Activities:

1. Work on the spreadsheet for doing basic calculations in finance.
2. Learners will also practice technical analysis with the help of relevant software.
3. Practice use of Technical charts in predicting price movements through line chart, bar chart, candle and stick chart, etc., moving averages, exponential moving average.
4. Calculate of risk and return of stocks using price history available on NSE website.
5. Prepare equity research report-use of spreadsheets in valuation of securities,

fundamental analysis of securities with the help of qualitative and quantitative data available in respect of companies on various financial websites, etc.

6. Any other activities, which are relevant to the course.

Text Books:

1. Chandra, P. (2017). Investment Analysis and Portfolio Management. New Delhi: Tata McGraw Hill Education.
2. Kevin, S. (2015). Security Analysis and Portfolio Management. Delhi: PHI Learning. Ranganatham,
3. M., & Madhumathi, R. (2012). Security Analysis and Portfolio Management. Uttar Pradesh: Pearson (India) Education.
4. Pandian, P. (2012). Security Analysis and Portfolio Management. New Delhi: Vikas Publishing House.

Note: Latest edition of text books may be used.

Guidelines for Continuous Internal Evaluation (CIE) and Semester End Examination (SEE)

The Members of the Committee deliberated on the framework of Continuous Internal Evaluation (CIE) as well Semester End Examination (SEE) for the courses. The CIE and SEE will carry 40% and 60% weightage each, to enable the course to beevaluated for a total of 100/200 marks, irrespective of its credits. The evaluation system of the course is comprehensive & continuous during the entire period of the Semester. For a course, the CIE and SEE evaluation will be on the following parameters:

Sl. No.	Parameters for the Evaluation	Percentage	Marks
1	**Continuous Internal Evaluation (CIE) (A)**	40	40 Marks
	i. Continuous & Comprehensive Evaluation (CCE)		
	• Assignment (s)	05	05 Marks
	• Seminar (s)	05	05 Marks
	• Practical Activities	05	05 Marks
2	i. Internal Assessment Tests (IAT)	20	20 Marks
	ii. Attendance *	05	05 Marks
3	Semester End Examination (SEE) (B)	60	60 Marks
4	Total of CIE and SEE (A + B)	100	100 Marks

* **Attendance**

Up to 74.99	0 Mark
75-79.99	01 Mark
80-84.99	02 Marks
85-89.99	03 Marks
90-94.99	04 Marks
95 and above -	05 Marks

i. **Continuous & Comprehensive Evaluation (CCE):** The CCE will carry a maximum of 15 % weightage (15 marks) of total marks of a course. Before the start of the academic session in each semester, a faculty member should choose for his/her course, minimum of four of the following assessment methods with four marks each:

i. Individual Assignments
ii. Seminars/Class Room Presentations/ Quizzes
iii. Group Discussions /Class Discussion/ Group Assignments
iv. Case studies/Case lets
v. Participatory & Industry-Integrated Learning/ Filed visits
vi. Practical activities / Problem Solving Exercises
vii. Participation in Seminars/ Academic Events/Symposia, etc.
viii. Mini Projects/Capstone Projects
ix. Any other academic activity

ii. **Internal Assessment Tests (IAT):** The IAT will carry a maximum of 20 % weightage (20 marks) of total marks of a course, under this component, two tests will have to be conducted in a semester for 20 marks each and the same is to be scaled down to 10 marks each. Question paper pattern is given below.

Note: In case of 100 percent of CIE weightage courses, faculty members can choose assessments methods accordingly for the required marks as mentioned above.

Suggestive Template for IAT

Internal Assessment Test: Bachelor of Commerce (B.Com.)

Course Code: **Name of the Course:**
Duration: 1 Hours **Total Marks: 20**

SECTION-A

I. Answer any two of the following questions. Questions are asked on Remembering.

(2 x 2 = 04)

1.
2.
3.

SECTION- B

II. Answer any one of the following questions. Questions are asked on Understanding.

(05 x 1= 05)

8.
9.

SECTION- C

I. Answer any One of the following questions. Questions are asked on Understanding and Applying.

(11 x 1= 11)

11.
12.

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Note: Internal Test question papers format is prepared based on Revised Bloom's Taxonomy.

(https://www.apu.edu/live_data/files/333/blooms_taxonomy_action_verbs.pdf)

Semester End Examination (SEE):

The Semester End Examination for all the courses for which students who get registered during the semester shall be conducted. SEE of the course shall be conducted after fulfilling the minimum attendance requirement as per the University norms. The Members of the Committee also deliberated on the framework of Semester End Examination (SEE) and suggested to give autonomy to Board of Studies (BOS) of University to have their own Framework. The BOS of the University shall prepare the SEE Framework by considering the 'Revised Bloom's Taxonomy', since the courses are designed based on Outcome Based Education.

Instructions for Question Paper Setters:

1. The question paper setter shall use Revised Bloom's Taxonomy Action Verbs, since the students answers are assessed based on course outcomes. (As a part of OBE).
2. The question paper setter shall set the two/three questions from each module as per the pattern.
3. Each module can have sub-questions with option of 2 marks, 5 marks and 10 marks.
4. While setting sub-questions, question paper setters can assign the weightage of the marks as per the need/importance of the questions, but it should not exceed the maximum marks of the module.

DAVANGERE UNIVERSITY
QUESTION PAPER PATTERN W.E.F. 2021-22 ONWARDS
SEMESTER END EXAMINATIONS
B.COM. PROGRAM
Name of the Course: ……..

Time: 03 Hrs. **Max. Marks: 60**

Note: Answer any FIVE full questions, choosing one full question from each module.

Module No. 01

1.	**12 Marks**
OR	
2.	**12 Marks**

Module No. 02

3.	**12 Marks**
OR	
4.	**12 Marks**

Module No. 03

5.	**12 Marks**
OR	
6.	**12 Marks**

Module No. 04

7.	**12 Marks**
OR	
8.	**12 Marks**

Module No. 05

9.	**12 Marks**
OR	
10.	**12 Marks**

SYLLABUS FOR I SEMESTER

PAPER: 1 **TOTAL NO OF LECTURE HOURS: 50** **4HRS/WEEK**

INORGANIC CHEMISTRY

Module 1: Atomic structure **9 Hrs**

Recapitulation of dual nature of matter: Division – Germer's experiment. Time independent Schrodinger wave equation for hydrogen atoms in Cartesian coordinates (no derivation), transformation of Cartesian Coordinates into polar coordinates, significance of Ψ and Ψ^2, Eigen value and Eigen function, concept of atomic orbitals, radial and angular wave functions, probability distribution curves of 2s, 2p, 3s, 3p and 3d orbital's node and nodal surface, dependence of angular wave functions on quantum numbers, assigning quantum numbers to a given electron in an atom(up to atomic number 18), sign of angular wave function, effective nuclear charge, shielding effect, factors affecting shielding effect, Slater's rules(problems), limitations.

Module 2: Periodic properties **3 Hrs**

Recapitulation: applications of ionization enthalpy, electron gain enthalpy, Electronegativity: bond energy and its calculation, factors affecting the magnitude of bond energy. Pauling and Alfred Rochow scale of electro negativity.

Module 3: S-block elements **3 Hrs**

Ortho and Para hydrogen, differences in physical properties

Alkaline earth metals: competitive study of properties diagonal relationship between Be & Al hydration of ions, amphoteric and basic nature, electropositive character, flame coloration, oxidation potential, anomalous behavior of Be.

ORGANIC CHEMISTRY

Module 4: Importance of Organic Chemistry **2 Hrs**

Recapitulation of vital force theory, source of organic compounds, organic chemistry in everyday life. Classification of organic compounds based on structure and functional groups, IUPAC nomenclature of poly functional compounds.

Module 5: Common reagents in organic reactions **2 Hrs**

Significance of $KMnO_4$, $K_2Cr_2O_7$, OsO_4, HIO_4, lead tetra acetate, Tollen's reagent, Fehling's solution and bromine water (oxidizing agents)

$LiAlH_4$, $NaBH_4$, Sodium amalgam, zinc in HCl, Raney nickel (reducing agents), comparison of their reactivity

Module 6: Reactive intermediates **5 Hrs**

Recapitulation of hybridization of carbon homolysis, heterolysis, concept of hyperconjugation.

Reactive intermediates: formation, structure and stabilities of free radicals, carbocations and carbanions. Formation of carbenes and nitrenes. Ractions of carbocations and free radicals. Thermodynamics and Kinetics of reaction of methane with chlorine.

Module 7: Reaction mechanism **6 Hrs**

Substitution: Free radical mechanism (halogenation of ethane), electrophilic substitution: Friedel – Crafts reaction (both alkylation and acylation reactions) with mechanism, nucleophilic substitution (SN_1 – Reaction of $(CH_3)_3$ Br with water and SN_2 – reaction of CH_3Br with hydroxide ion (mechanism)

Addition: Markawnikoff's addition of HBr to unsymmetrical alkenes (2- methyl propene and 1-butane) with mechanism anti – Markawnikoff's addition of HBr to propene (kharash) effect with mechanism. Nucleophilic addition (addition of HCN to aldehydes and ketones.)

Elimination: (ter-butylbromide) and E_2 reactions (n-prophylbromide) with mechanism, saytzeff's product in elimination reactions.

Module 8: purification skills and characterization of organic compounds **5 Hrs**

Crystallization, sublimation, distillation – simple fractional, vaccum or under reduced pressure. Steam distillation. Extraction with a solvent, continuous solid, liquid extraction by soxlhlet apparatus. Estimation of amines and micro analysis using CNH analyzer. Salting out, counter current distribution, dying of organic compounds, criteria of purity (sold & liquid). (Problems to be solved)

PHYSICAL CHEMISTRY

Note: (Numerical problems should be worked out wherever necessary)

Module 9: Colligative properties **7 Hrs**

Recapitulation of expressing concentrations of solutions. Raoult's law and its limitations. Relationship between relative lowering of vapour pressure and molar mass of solute to be derived.

Osmotic pressure: molecular Sieve theory, determination of osmotic pressure by Berkley-Hartley's method, isotonic solutions, plasmolysis. Elevation in boiling point, its relation to lowering vapour pressure and molar mass to be derived, determination of molar mass of non-volatile solute by Walker-Lumsden method, depression in freezing point, its relation to lowering of vapour pressure and molar mass to be derived, determination of molar mass of solute by Beck man's method, concept of activity and activity coefficient-explanation.

Module 10: Gases **4 Hrs**

Expression for Maxwell distribution of molecular speeds (no derivation) C_p & C_v of ideal gases, relationship (derivations), effect of temperature on the distribution of molecular space. Boltzmann factor and its importance,. Types of molecular velocities and their derivation from Maxwell distribution law. Principle of equipartition of energy.

Module 11: Critical Phenomenon **4 Hrs**

Boyle point and Boyle temperature, PV isotherms of carbon dioxide (Andrews experiment), Relationship between critical constants and Vander Waal's constants (derivation). Experimental determination of critical constants (T_c, P_c and V_c), reduces equation of states and law of corresponding states.

Syllabus for Practical in Chemistry

I Semester **Practical-I** **3Hrs/Week**

Volumetric Analysis

1. Calibration of pipette, burette and standard flask
2. Preparation of standard solution of potassium biphthalate, standardization of NaOH solution and estimation of HCl or H_2SO_4
3. Preparation of standard solution of oxalic acid, standardization of $KMnO_4$ solution and estimation of Mohr's salt solution
4. Preparation of standard solution of $ZnSO_4$, standardization of EDTA solution and estimation of Mg
5. Preparation of standard solution of $ZnSO_4$, standardization of EDTA solution and estimation of hardness in water
6. Estimation of calcium via calcium oxalate method
7. Preparation of standard solution of sodium carbonate, standardization of HCl and estimation of sodium carbonate and sodium bicarbonate mixture by Warden's method
8. Preparation of standard solution of Mohr's salt, standardization of $K_2Cr_2O_7$ solution and estimation of $FeCl_3$ solution (diphenyl amine indicator)
9. Preparation of standard solution of potassium dichromate, standardization of sodium thiosulphate solution and estimation of copper in copper sulphate solution
10. Estimation of available chlorine in bleaching powder

SYLLABUS FOR SECOND SEMESTER

Paper: 2 **Total no of lecture hours: 50** **4hrs/week**

INORGANIC CHEMISTRY

Module 1: Ionic bond **3 Hrs**

Recapitulation of chemical bonding. Factors affecting lattice enthalpy, derivation off Born Lande equation. Medelung Constant (problems), importance of lattice enthalpy ionic size, charge and hydration enthalpy in explaining the solubility of ionic compounds in water and organic solvents. Fajan's rules.

Module 2: Covalent bond **12Hrs**

Potential energy internuclear distance curve for hydrogen. Electro negativity differences and variation of percentage ionic character in covalent compounds (problems) Hennay – Smith and dipole moment methods (problems).

Hybridization and VSEPR theory: Hybridization, geometry, structure and bond angle ClO_4^{2-}, CO_3^{2-}, PCl_5, ClF_3, I_3^-, IF_5, XeF_4, XeO_3, $XeOF_4$, CO_3^{2-}, PCl_5 and ClF_3.

Resonance: Resonance energy calculation, rules to write the Canonical forms, resonance structures of: CO_2, NO_3^-, SO_2, SO_3, N^{3-}, NO and NO_2

MOT: Molecular orbital structures of HCl, CO, NO and NO^+ (indicating the differences in atomic levels of hetero atoms, molecular orbital configuration,, stability bond order and magnetic properties)

Module 3: Calibration and standardization skills **5 Hrs**

Care and use of electronic balance, error in weighing, Calibration of burette and pippets. Primary and secondary standard solutions, examples, requirements. uses of robotics, advantages. Determination of COD Of polluted water using standard $K_2Cr_2O_7$ and assay of Vitamin C- using Potassium iodate, estimation of herbal compounds (ashwagandha and vasaka)

ORGANIC CHEMISTRY

Module 4: Open chain compounds **9 Hrs**

Alkanes: Nomenclature including alkyl chain, methods of preparation – Kolbe's synthesis (mechanism) Corey – House synthesis. Isomerism in alkanes (up to seven carbon atoms)

Confirmations - conformational analysis of eating and dichloroethane.

Alkenes: Common and IUPAC system of nomenclature including alkyl chain. Methods of preparation - dehydration of alcohols (mechanism). Relative stabilities of substituted alkenes. Ozonalysis of alkenes (mechanism) and its importance in detecting the position of double bond. Oxidation with $KMnO_4$, Hydroboration of alkenes

Dienes: Classification and nomenclature of dienes, synthesis of butadiene from alkanes. 1,4-dichlorobutane and 1,4 - butanediol. Addition of bromine to 1-3 butadiene (1,2 and 1,4 additional with mechanism). Diels - Alder reaction with mechanism.

Alkynes: Nomenclature (common and IUPAC system including alkyl chain). Methods of preparation: Dehydrohalogenation of vinical and germinal dihalides, synthesis of higher alkynes from terminal alkynes. Acidity of alkynes. Mechanism of addition of hydrogen halides to ethyne..

Module 5: Cyclic Compounds **6 Hrs**

Homocyclic compounds:

a) Alicyclic: Stabilities of cycloalkanes (C-3 to C-7) based on enthalpy of combustion values. Confirmation analysis of cyclohexene
b) Aromatic: Arenes and aromacity. Huckel's rule of aromacity. Orientating influence on aromatic substitution-Activating and deactivating substituents. Resonance structures off napthalene and anthracene.

Heterocyclic compounds: Classification and nomenclature, synthesis of pyrrole, and pyridine. Chemical properties of pyrrole and pyridine. Comparison of basicity and aromaticity of pyrrole and pyridine.

PHYSICAL CHEMISTRY

Note: (Numerical problems should be worked out wherever necessary)

Module 6: Chemical kinetics **6 Hrs**

Rate of reaction: Second order reaction, derivation of second order rate constants when a=b and a≠b. Relationship between half- life period and order of reactions. Methods of determining order of reactions. Vanthoff's differential method, half-life period method. Experimental determination of rate constant of saponification of ethyl acetate. Surface reactions- characteristics, chain reactions, thermal decomposition of acetaldehyde.

Theory of reaction rates: Transition state theory (derivation). Lindeman's theory of unimolecular and bimolecular reactions

Module 7: Liquid mixtures **5 Hrs**

Different types with examples, binary mixtures of completely miscible liquids with examples. Vapour pressure - composition and boiling points-composition curves for the different types.

Partially miscible liquids, Critical solution temperature. (i) Phenol- Water system, effect of impurity on miscibility temperature (ii) triethyl amine-water system (iii) Nicotine-Water system. Experimental determination of critical solution temperature of Phenol-water system.

Module 8: Surface chemistry **4 Hrs**

Introduction: Factors affecting absorption by solids from solutions. Positive and negative absorptions. Effects of dissolved substances on the surface tension of a solvent. Gibb's absorption equation (no derivation)- applications. Absorption isobars – physisorption and chemisorptions. Absorption indicators-applications, surface films on liquids (Electro kinetic phenomena).

Syllabus for Practical in Chemistry

II Semester **Practical-II** **3Hrs/Week**

Semi micro qualitative analysis of organic compounds

The following compounds may be given for the analysis:

Ures, Glucose, Aniline, Toluidine, Benzoic acid, Salicylic acid, Cresol, Benzaldehyde, Acetophenone, Benzyl alcohol, Toluene, Chlorobenzene, Nitrobenzene, Benzamide and Acetanilide.

SYLLABUS FOR III SEMESTER

PAPER: 3 TOTAL NUMBER OF LECTURE HOURS: 50 4HRS/WEEK

INORGANIC CHEMISTRY

Module 1: P-Block elements and their compounds 8 hrs

Structural aspects: Boron-BF_3 (electron acceptation property), Boranes (diborane 3-Centred-2-Electron bond), Carboranes, Borazines, Phosphazines (wade's rule).

Halogens: Basic properties of iodine (evidences), pseudo-halogens and pseudo-halides comparison with halogens.

Inter-halogen compounds: (types and examples) clathrates, ultrameranines, Maddrell's salt and Koroll's salt.

Module 2: Corrosion and its control 2 hrs

Types, mechanism of oxidation corrosion, corrosion control- cathodic protection.

Module 3: Bio-Inorganic Chemistry 5 hrs

Essential, non essential and trace elements in biological processes. Macro and Micro nutrients. Role of metal ions in biological system. Iron-function of heme and globin, coordination environment of hemoglobin. Zinc -Role of carbonic unhydrase, carboxy peptidase. Magnesium in chlorophyll. Molybdenum-role of nitrogenase.

Module 4: Analytical skills 5 hrs

Quantitative Analysis: Precession, accuracy, types of errors, average, standard and relative deviation, Q-test, t-test and F-test (problems to be solved).

Organic reagents in inorganic Quantitative analysis: Advantages and disadvantages of organic reagents in inorganic analysis, Use of Nitron, Rhodamine-B, Oxine, DMG, EDTA, Alizarin-S (structures).

ORGANIC CHEMISTRY

Module 5: Organic compounds containing halogens **4 hrs**

Alkyl Halides: Classification, stereochemistry and effects of solvent on $SN^{1,}$ SN^2, E^1 and E^2 reactions (mechanisms).

Aryl Halides: Nucleophilic substitution of aryl halides (Ex: Chlorobenzene), relative relatives of alkyl, vinyl, alkenyl, aryl and arakyl halides.

Aralkyl Halides: Reaction of side chain and aromatic ring halogenations & oxidation. (Ex. Benzyl chloride)

Module 6: Organic compounds containing Oxygen-I **5 hrs**

Alcholos: Monohydric alcholos-esterification (mechanism).

Dihydric alcohols: Preparation of glycol from alkenes, chemical reaction of vicinal glycols, oxidative cleavage (using lead tetraacetate and periodic acid), pinacol-pinacolone rearrangement (mechanism).

Trihydric alcohols: Manufacture of glycerol from Spent Lye and molasses, synthesis from propene, reaction of glycerol with Na, Oxlic acid, esterification of glycerol with fatty acids, explosives- TNG and cordite.

Module 7: Phenols **3 hrs**

Classification, acidity of phenols, resonance stabilization of phenol and phenoxide ion, effect of substitution on the acidity - electron withdrawing substituents (-NO_2.-Cl_2,-CN,-CHO and COOH), electron releasing substituents (-CH_3-OCH_3 and –NH_2).

Reactions of phenols - Claisen rearrangement, Gatterman Synthesis and Reimer-Tiemann Reactions (with $CHCl_3$) with mechanisms.

Module 8: Diazo Compounds **3 hrs**

Diazo methane: Methods of preparation by Becker et all synthesis, reactions of diazo methane -methylation of carboxylic acids, methylation of aldehydes.

Diazonium chloride: Preparation with mechanism, reactions; and constitution of benzene diazonium chloride.

PHYSICAL CHEMISTRY

Note: (Numerical problems should be worked out wherever necessary).

Module 9: Phase equillibria **4 hrs**

Gibb's phase rule: Definition and meaning of the terms, problems, differences between system in equilibrium, true and metastable equilibrium. Phase equilibrium of water, sulphur system and KI-water system. Congruent melting point and peritectic reaction. Freezing mixture- essential features and examples.

Module 10: Electrochemistry-I **9 hrs**

Recapitulation of the terms involved, Debye-Huckel theory of strong electrolytes. Relaxation and electrophoretic effects. Debye-Huckel-Onsager equation.

Transport number: Expression of transport number of ions in terms of velocity, factors influencing transport number, determination by Hitorf's method using attackable and non-attackable electrodes, relationship between ionic conductance and transport number (derivation), problems.

Principles involved in the conductrometric titration: NaOH><HCl, CH_3 COOH><NaOH, HCl+CH_3COOH ><NaOH, KCl><$AgNO_3$, advantages of conductrometric titration.

Module 11: Liquid crystals **2 hrs**

Definition, types, examples and uses. Swarm theory of liquid crystals.

Syllabus for Practical in Chemistry

III Semester **Practical-III** **3Hrs/Week**

INORGANIC QUALITATIVE ANALYSIS

Systematic Semi Micro Qualitative Analysis of Salt Mixtures for Two Acid Radicals.The following Radicals may be chosen:

Acid Radicals: CO_3^{2-}, HCO_3^-, SO_3^{2-}, Cl^-, Br^-, I^-, NO_3^-, SO_4^{2-} ,BO_3^{3-} , CH_3COO^- ,$C_2O_4^{2-}$

Basic Radicals: Pb^{2+},Bi^{3+}, Cd^{2+}, Fe^{2+},Fe^{3+}, Al^{3+}, Zn^{2+}, Mn^{2+}, Ba^{2+}, Sr^{2+},Ca^{2+},Mg^{2+}, Na^+ K^+ and NH_4^+

SYLLABUS FOR IV SEMESTER

PAPER: 4 TOTAL NUMBER OF LECTURE HOURS:50 4HRS/WEEK

INORGANIC CHEMISTRY

Module 1: Metallurgy and alloys 5hrs

Extraction of Nickel (pentlandite), Manganese (pyrolusite), Titanium (Ilmanite) and their alloys indicating their influence on the properties of steel including chromium, corbon and nickel, uranium (Pitch Blende). Purpose of making alloys. Manufacture of ferrochrome alloy.

Module 2: Industrial chemistry-I 5hrs

Glass: Manufactures by tank furnace, composition and uses of soda, flint, optical, borosilicate and safety glasses. Coloured glasses

Cement: Setting of cement.

Paint: Requisites, constituents and functions.

Propellants and explosives: Classification, characteristics and requisites, (Composition of TNT, Dynamite and RDX).

Module 3: Non-aqueous solvents 5 hrs

Coorination model of solvent, characteristics of ammonia and sulphur dioxide as solvents, advantages, comparative study of chemical reactions: Acid-Base neutralization, redox reaction metathetical reactions. Behaviour of ammonia in KNH_2, NH_4Cl, acetic acid, acetamide and sodium-electrical properties. Comparision in the behavior of H_2O and ammonia.

Module 4: Chromatographic skills 5 hrs

Introduction: ***Paper chromatography*** **–** principle, R_f value(Problems), separation of IV group basic radicals, separation of D-glucose, D-xylose and lactose; **Column chromatography**- principle and techniques, separation of methylene blue and malachite green on alumina. **Thin layer chromatography HPLC-** characteristics, principle, instrumentation, application in forensic toxicology.

ORGANIC CHEMISTRY

Module 5:Organic compounds containing oxygen - II 8 hrs

Aldehydes and Ketones: Structure and reactivity of carbonyl group, mechanism of aldol condensation, perkin's reaction, benzoin condensation, Knoevenagel condensation reactions.

Carboxylic acids: Mono and dicarboxylic acids, acidity of carboxylic acids, effect of substitutes on the acidity: ***Nature of substituent*** (+I group: formic acid, acetic acid, propanoic acid), (-I group: fluoro, chloro, bromo andiodoacetic acid), (acetic acid and benzoic acid), ***position of substituent*** (butanoic acid, 2-cholorobutanoic acid, and 3-cholorobutanoic acid), ***number of substituents*** (acetic acid, chloroacetic acid, dichloroacetic acid and trichloroacetic acid) - pK_a values tobe analysed. Effect of heat on α,β,γ – hydroxy acids.

Alcoholysis, ammonolysis, reduction. Preparation of alkyl amides, acetic anhydride and Friedel-craft's reaction.

Acid amides: Preparation from acetyl chloride and acetic anhydride,chemical stability to resonance-basic and acidic character, reactions: hydrolysis, reduction, and dehydration, reaction with nitrous acid.

Acid anhydrides: preparation from carboxylic acid and sodium salts of carboxylic acids, reactions: hydrolysis, alcoholysis, reduction and Friedel – Craft's reaction).

Module 6: Organic compounds containing nitrogen 7 hrs

Amines: Classification with examples, synthesis of amines by reduction of nitro compounds, Hoffmann's degradation method with mechanism*, Basic property of amines* – comparative study of (1)methyl amine, dimethyl amine and trimethyl amine, (2)methyl amine and aniline, p-nitro aniline and p-toluidine, (3) aniline, p-nitro aniline and p-toluidine, (4) aniline , N-methyl aniline and N,N-dimethyl aniline. Seperation of mixture of amines by Heinseberg's method.

Amino acids and proteins: Classification, methods of synthesis (pthallimide, malonic ester and strecker synthesis).

Peptides: Carbobenzoxy method of synthesis.

Proteins: Primary and secondary structures of proteins, denature of proteins.

PHYSICAL CHEMISTRY

Note: (Numerical problems should be worked out wherever necessary)

Module 7: Electrochemistry - II **10 hrs**

Recaptulation: Convention for the representation of galvanic cell (Daniel cell), *electromotive force* – definition, determination of emf by using potentiometer. *Standard cell* – definition, construction and working of Weston-Cadmium cell. *Reference electrode* – definition, construction and working of calomel electrode and glass electrode. *Liquid junction potential* –definition and significance. *Concentration cells*-definition, types.

Applications of emf measurements: Determination of pH of a solution using glass electrode, determination of solubility of sparingly soluble salt (AgCl), *potentiometric titrations* – definition, advantages,potentiometric titration of **(i)** redox reaction (FAS><$K_2Cr_2O_7$) and **(ii)** precipitation reaction ($AgNO_3$><KCl).

Batteries: primary and secondary cells, construction, working and electrode reactions of dry cells, Lead-Acid battery, *fuel cells*- construction and working of hydrogen and oxygen fuel cell.

Module 8: Solid state chemistry **5 hrs**

Definition of the terms crystal lattice, unit cell, lattice points. Laws of crystallography: 1) Law of constancy of interfacial angles, 2) Law of rationality of indices and 3) Law of symmetry.

Elements of symmetry - plane, axis and centre of symmetry, Bravais lattice, Weiss and Miller indices and calculation. Bragg's equation (X-ray diffraction) to be derived. Determination of structure of NaCl by X-ray diffraction studies. Isomorphism and its properties (preliminary aspects).

Syllabus for Practical in Chemistry

IV Semester **Practical-IV** **3Hrs/Week**

Physical Chemistry experiments (Non-instrumental)

1. (a) Determination of distribution coefficient of benzoic acid between benzene and water

   (b) Determination of distribution coefficient of Iodine between CCl_4 and water

2. Chromatographic separation of Cu^{2+}, Ni^{2+} and Fe^{2+} by paper chromatography and determination of R_f value

3. Separation of amino acids by thin layer chromatography/ column chromatography and determination of R_f value

4. Determination of density and viscosity of the given liquid using specific gravity bottle and Ostwald viscometer

5. Determination of density and surface tension of the given liquid using specific gravity bottle and Stalagmometer

6. Determination of molecular mass by Walker-Lumbsden method

7. Determination of percentage composition of a binary mixture by viscosity method

8. Determination of rate constant of decomposition of H_2O_2 catalyzed by Fe^{3+}

9. Determination of rate constant of saponification of ethyl acetate

10. Determination of percentage of electrolyte in phenol-water system by miscibility temperature method

11. Determination of transition temperature of the salt hydrate

12. Determination of critical solution temperature of phenol-water system

FIFTH SEMESTER

Total number of lecture hours: 45 **3Hrs/Week**

PAPER-V: MODERN CONCEPTS OF CHEMISTRY - I

Inorganic chemistry 15 Hrs

Module 1: d-block elements **7 Hrs**

Recapitulation: Oxidation state-minimum and maximum oxidation states, reason, anamolies, relative stabilities of various oxidation states, formation of ionic and covalent compounds on the basis of oxidation states, interpretation of acidic, basic and neutral nature of metal oxides. Formation of interstitial and non-stoichiometric compounds, formation of alloys.

Magnetic properties: Para, Dia, Ferri, Ferro and anti-ferro magnetism, origin of paramagnetism, application of magnetic properties in recording tapes, magnetic susceptibility and its experimental determination using Gouy's apparatus, calculation of magnetic moments of metal ion in complexes.

Colour of metal complexes on the basis of CFT, Standard Oxidation and Reduction-potentials-explanation, differences between 3d, 4d and 5d series.

Module 2: Industrial Chemistry: II **8 Hrs**

Electroplating: Purpose of electroplating, nature of deposit, principles of good electroplating, methods of cleaning articles, electroplating of NI, Cr, and Au.

Electroless plating- Definition, preparation of active surface, plating bath, electroless plating of copper.

Refractories: Definition, classification, pyro metric cone equitant and its values, RUL test, properties of refractories, composition and uses of silica, fireclay and zirconia bricks, Silicon carbide-manufacture, structure and uses.

Abrasives: Properties, Moh's scale of hardness, classification-examples, preparation and uses of Alundum.

Fuels: HCV and LCV. Duong's formula, problems, characteristics of a good fuel, advantages of gaseous fuels. Manufacture of synthetic petrol by Fischer-Tropsch method.

Organic Chemistry 15Hrs

Module 3: Stereochemistry of organic compounds 10 Hrs

Concepts of Isomerism: Recapitulation of optical isomerism, geometrical isomerism. Elements of symmetry-Plane of symmetry, Axis of symmetry, Centre of symmetry.

Molecular chirality: Enantiomers, diasteromers and their properties. Optical isomerism in Lactic acid and Tartaric acid. Mesocompounds. Homotopic, enantiotopic and diastereotopichydrogens. Optical activity without asymmetric carbons- Allene derivatives, Biphenyl derivatives.R & S notations for molecules having one and two asymmetric carbons(Cahn-Ingold-prelog system)

Threo and erythro enantiomers: Recemisation, resolution of racemic mixture (mechanical, chemical and bio-chemical & adsorption methods). Walden inversion, asymmetric synthesis. Optical purity (Problems to be solved)

Geometrical isomerism: Determination of configuration of geometrical isomers-Physical methods, method of cyclisation and method of conversion into compound of known configuration, E and Z notations. Geometrical isomerism of oximes-Syn-and anti-aldoximes and ketoximes. Determination of configuration of oximes, Beckmann rearrangement.

Conformational isomers: Factors affecting stability of conformations. Conformational analysis of ethane, 1,2 – dichloroethane, propane, ethylene glycol and cyclohexane. Differences between conformation and configuration.

Module 4: Active methylene compounds 5 Hrs

Acidity of active methylene compounds. Preparation and synthetic applications of diethylmalonate (mono carboxylic acids, dicarboxylic acids, keto acids, amino acids, barbituric acid). Preparation of ethyl acetoacetate by Claisen condensation with mechanism. Synthetic applications (mono carboxylic acids, α, β-unsaturated acids, ketones and 4-methyl uracil, antipyrine). Keto-enoltautomerism. Spectroscopic evidence for the existence of keto and enol forms of ethylacetoacetate).

Physical chemistry 15 Hrs

Module 5: Thermodynamics - 1 **15 Hrs**

Recapitulation: System, Surroundings, Process, Extensive and intensive properties. I law of thermodynamics

Thermodynamic-definition of C_p and C_v - Derivation of relationship between C_p and C_v.

Kirchoff's equation a) Derivation of effect of temperature on the enthalpy of reaction) Derivation of effect of pressure on the enthalpy of reaction. [Problems to be solved]. Statement of Second law of thermodynamics [Clausius & Kelvin]. Spontaneous process, Cyclic process. Heat engine.

Carnot's Cycle: Derivation of efficiency of heat engine. Statement of Carnot's theorem-Problem to be solved. Entropy – Physical significance of entropy. Second law of thermodynamics in terms of entropy. Entropy - Change during reversible and irreversible process-Entropy change in phase transition [Problems to be solved]- Derivation of entropy change in reversible and isothermal- expansion of an ideal gas a) T and V are variables b) P and T are variables - problems to be solved.

Helmoltz free energy or work function: Significance, Derivation of Gibb's Helmoltz equation and its applications. Derivation of Clausius -Clayperon equation and its applications – problems based on integrated form of Clausius -Clayperon equation.

Maxwell's thermodynamic relations - Derivation.

BSc V Sem Chemistry Laboratory syllabus

V Semester **Practical-V** **3Hrs/Week**

GRAVIMETRY

List of Experiments:

1. Estimation of Barium in barium chloride solution as barium sulphate.
2. Estimation of Sulphate as barium sulphate.
3. Estimation of Iron in iron ore solution as Ironoxide.
4. Estimation of Aluminium in potash alum as aluminium oxide.
5. Estimation of Nickel as nickel dimethyl glyoximate.
6. Estimation of Copper as cuprous thiocyanate.
7. Estimation of magnesium as oxinate using 8-hydroxy quinoline.
8. Estimation of Zinc as zinc oxide.
9. Estimation of Lead as lead chromate.
10. Electro gravimetric estimation of copper or nickel.

FIFTH SEMESTER

Total number of lecture hours: 45 **3Hrs/week**

PAPER VI A: APPLIED CHEMISTRY - I

Inorganic Chemistry 15 Hrs

Module 1: f-block elements **6 Hrs**

Lanthanides: Electronic configuration, ionic size, magnetic properties, complex formation, lanthanides contraction, cause and its consequences, separation of lanthanides by Ion-Exchange method. Uses of lanthanides and their compounds.

Actinides: Electronic configuration, colour, absorption spectra of actinide ions, comparison between lanthanides and actinides. Extraction/Production and uses of Thorium (monazite) and Plutonium (Uranium-238)

Module 2: Metallic nitrosyl complexes **5 Hrs**

Introduction, Bonding in metallic nitrosyl complexes containing NO^+ ion, NO^- ion, and NO^+ and NO^- together, their formation from NO molecule, calculation of EAN of CMA in metallic nitrosyls. IUPAC names, preparation, properties, uses and structures of nitroso ferrous sulphate and sodium nitroprosside.

Module 3: Principles of Gravimetric analysis **2 Hrs**

Steps involved in gravimetric analysis, gravimetric factor and its calculation, conditions of precipitation, co-precipitation and post precipitation, industrial applications.

Module 4: Powder metallurgy **2 Hrs**

Introduction, advantages, disadvantages and limitations, manufacturing process, applications of powder metallurgy.

Organic Chemistry 15 Hrs

Module 5: Spectroscopy of organic compounds 4 Hrs

Principles of spectroscopy, ultraviolet (uv) absorption spectroscopy-absorption laws-Beer – Lambert Law. Types of electronic transitions, concept of chromophores and auxochromes. Hypsochromic and Bathochromic shifts, effect of conjugation on uv absorption. Ex: acetone & methyl vinyl ketone, acetone & acetophenone, Cyclohexanal & Benzaldehyde.

Woodward-fieser rules for calculating absorption maximum in dienes (Problems to be solved)

Applications of UV spectroscopy-determination of configuration of geometrical isomers (cis-stilbene & trans-stilbene), determination of strength of hydrogen bonding (acetone in water & acetone in hexane). The UV spectra of acetone and 2-methyl-1, 3-butadiene.

Infrared absorption spectroscopy: 4 Hrs

Principle of IR spectroscopy. Molecular vibrations-stretching and bending modes of vibration. Intensity and position of IR bands. Finger print region. Functional group region (O-H in alcohols & phenols, C=O in aldehydes & ketones, C-N in amines & amides, C-H in aliphatic & aromatic compounds, N-H in amines and C-O in alcohols. The IR spectra of sec-butyl alcohol, phenol, 3-pentanone and benzamide.

Applications of IR spectroscopy-Study of keto-enoltautomerism, geometrical isomerism (Cis-& trans-1,2-dichlroethene), distinction between intramolecular hydrogen bonding & intermolecular hydrogen bonding.

NMR Spectroscopy: 4 Hrs

Basic principles of nuclear magnetic resonance, position of signals, Internal standards. Chemical shift. Factors influencing chemical shift- Inductive effect (CH_3F, CH_3Cl & CH_3Br to be considered), hydrogen bonding effect, anisotropic effects (Deshielding of aldehyde proton & ethylene protons, Shielding of acetylene protons). Number of signals. Splitting of the signals. Application in structural identification of simple organic molecules-1,1,2-trichloroethane,1,1-dichloroethane, p-xylene, ethanol, acetaldehyde and Benzoic acid. The NMR

spectra of propionaldehyde, isopropyl bromide 1,3-dichoropropane, ethyl bromide and toluene)

Mass Spectrometry: 3 Hrs

Basic principles, instrumentation, base peaks, molecular ion, Mclafferty rearrangement (butanal to considered). The nitrogen rule. Application mass spectrometry-the mass spectra of 1-bromopropane, toluene, 1-butanol & benazaldehyde.

Physical Chemistry 15 Hrs

Note: (Numerical problems should be worked out in S.I units only)

Module 6: Photochemistry 8 Hrs

Photochemical and thermo chemical reactions: Definition, examples and differences. Laws governing absorption of light, Lambart's law, Beer's law, Lambart-Beer's law, absorption coefficient and their significance. Molar absorption coefficient, molar extinction coefficient and their significance. Construction, working and applications (to be mentioned) of spectrophotometer.

Laws of photo-chemistry: Grotthus-Draper's law of photochemical equivalence (problems on Einstein law). Quantum yield, high and low quantum yield, reasons for the deviation (problems on quantum efficiency). Primary and Secondary process. Mechanism of photolysis of hydrogen iodide, photosynthesis of hydrogen bromide and hydrogen chloride. Fluorescence, phosphorescence, Ghemiluminescence. Bioluminescence, Photosensitization and photo-inhibitors with examples.

Module 7: Elementary Quantum Mechanics 7 Hrs

Classical mechanics-limitation, black body radiation, Plank's radiation law derivation. Postulates of quantum mechanics, derivation of Schrodinger wave equation based on the postulates of quantum mechanics. Eigen values and Eigen functions and their significance, Hamiltonian, Linear and Laplacian' operators. Schrodinger wave equation for a particle in one-dimensional box. Quantization energy and zero point energy.

Syllabus for Practical in Chemistry

V Semester **Practical-VI** **3Hrs/Week**

ORGANIC PREPARATION AND ESTIMATIONS

List of Experiments: (one preparation and Estimationshould be given)

PART-A

1. Estimation of Amino acid by formal titration method.
2. Estimation of aspirin by base hydrolysis method.
3. Estimation of Aniline
4. Estimation of Phenol.
5. Estimation of an ester by hydrolysis method.
6. Estimation of glucose by Benedict's mcthod.
7. Estimation of saponification value of coconut Oil.

PART-B

1. Preparation of acetanilide from aniline (Acetylation)
2. Preparation of Aspirin from Salicylic acid (Acetylation)
3. Bromination of acetanilide.
4. Preparation of methyl orange
5. Oxidation of toluene or benzyl alcohol or benzaldehyde to salicylic acid
6. Nitration of benzene or nitrobenzene to dinitrobenzene
7. Preparation of GrIgnard reagent (ethyl magnesium iodide}.
8. Preparation of Nylon-66.

SYLLABUS FOR CHEMISTRY ELECTIVE

FIFTH SEMESTER

Total number of lecture hours: 45 **3 hrs/week**

PAPER-VIB -CHEMISTRY ELECTIVE

Inorganic Chemistry I5hrs

Module 1: Agro chemistry- Fertilizers 5 hrs

Requisites of a good fertilizer, types. Manufacture of Urea by ammonium carbonate, ammonium sulphate by Sindri process, CAN, ammonium phosphate and superphosphate of lime. Straight, compound, mixed and complete fertilizers. Requirement of NPK fertilizers per hectare for various crops (wheat), paddy, millets, maize and pulses

Module 2: Chemical aspects of biotechnology 3hrs

Introduction, permutation, merits, favorable conditions, and its types. Manufacture of aceticacid and vitamins by permutation. Deamination.

Module 3: Organometallic compounds 7hrs

Definition, classification based on the nature of metal - carbon bond with examples (ionic, sp and multi centered bonds), structural aspects of Zeiss salt and ferrocene, methyl lithium, dimethyl beryllium and trimethyl aluminium. EAN role for metal carbonyls. Preparation structure and bonding aspects of mononuclear and polynuclear carbonyls of 3D metal series, π acceptor behavior of CO, synergiceffects (VB approach) - (MO diagram of CO for synergic effect, synergic effect to IR frequencies).

Organic Chemistry 15hrs

Module 4: Green Chemistry 8Hrs

What is Green Chemistry? Need for Green Chemistry. Goals of Green Chemistry. Twelve principles of Green Chemistry with their explanations and examples and special emphasis on the following:

• Green solvents-supercritical fluids, water as a solvent for organic reactions, ionic liquids, fluorous biphasic solvent, PEG, solventless processes.
• Selection of starting materials; avoidance of unnecessary derivatization - careful use of blocking/protecting groups.
• Energy requirements for reactions - alternative sources of energy: use of microwaves and ultrasonic energy.

Module 5: Green Synthesis **7Hrs**

1. Green Synthesis of the following compounds: adipic acid, catechol, disodium iminodiacetate (alternative to Strecker synthesis).
2. Microwave assisted reactions in water: Hofmann Elimination, methyl benzoate to benzoic acid, oxidation of toluene and alcohols: microwave assisted reactions in organic solvents: Diels-Alder reaction and Decarboxylation reaction.
3. Ultrasound assisted reactions: sonochemical Simmons-Smith Reaction (Ultrasonic alternative to Iodine).
4. Surfactants for carbon dioxide - replacing smog producing and ozone depleting solvents with CO_2 for precision cleaning and dry cleaning of garments.

Physical Chemistry **15hrs**

Note: (Problems are to solved in SI Units)

Module 6: Polymers **4Hrs**

Definition, Classification, Addition and Condensation Polymerisation –examples, degree of Polymerization, number average, weight average, average molecular weights - Problems to be solved. Determination of molar mass of polymers by Ostwald's Viscosity method. Problems based on intrinsic viscosity - molecular mass relationship.

Module 7: Functionality and its importance **8Hrs**

Criteria for synthetic polymer formation, Classification of polymerisation process. Bifunctional systems, poly-functional systems. Relationship between functionality, extent of reaction and degree of polymersation.

Module 8: Kinetics of Polymerisation **3Hrs**

Mechanism and Kinetics of step growth, ionic chain (both cationic and anionic) and Coordination polymerisation.

SIXTH SEMESTER

Total number of lecture hours: 45 hrs **3hrs/wk**

PAPER-VII MODERN CONCEPTS OF CHEMISTRY-II

INORGANIC CHEMISTRY **15hrs**

Module 1: Coordination Chemistry **10hrs**

Recapitulation: Nomenclature of dinuclear bridged complexes, chelating agents, detection of formation of complexes (colour, conductivity and P^H), 18electron rule.

Bonding in complexes: Crystal field theory, features of CFT, crystal field splitting of d-orbitals in octahedral, tetrahedral and square planar complexes, factors affecting crystal field splitting, spectrochemical series, difference between low and high spin complexes on the basis of CFT, colour of the complexes, magnetic properties in octahedral, tetrahedral and square planar complexes. Caluclation of number of unpaired electrons in complex, pairing energy and CFSE (Crystal Field Stabilization Energy). Applications of CFT and its limitations.

Stability of complexes: Kinetic v/s Thermodynamic stability (properties of CMI, legands and chelats), experimental determination of stability constant (any one method).

Applications of complexes: In metallurgy, qualitative and quantitative analysis, Cis-platin in cancer therapy, Na_2EDTA in treatment of heavy metal poising (Hg and Pb) and in photography.

Module 2: Nanomaterials **5hrs**

Introduction,definition,preparation of nanoparticles from chemical vapour condensation and gas condensation process,carbon nanotubes–electrical,vibrational,thermal and mechanical properties.Applications of carbon nanotubes.General applications of nanomaterial in medicine,electronic and communications and catalysis.

ORGANIC CHEMISTRY 15hrs

Module-3: Carbohydrates 8hrs

Monosaccharides: Classification and Nomenclature of monosaccharides (Aldotrioses, aldotetroses, aldopentoses & aldohexoses). Mechanism of osazone formation from D (+)-glucose. Conversion of glucose into fructose. Conversion of aldopentose into aldohexose. Determination of configuration D(+)-glucose and D(-)-fructose. Epimerisation (Conversion of glucose into mannose), difference between epimers and anomers. Formation of glycosides. Determination of ring size of D(+)-glucose(six-membered ring structures). Conformational structures of glucose, sucrose and maltose. Anomeric effect (Glucose as an example). Concept of mutarotation with mechanism.

Disaccharides: Elucidation of structure of maltose and sucrose. Fischer and Haworth Structures of cellobiose and lactose.

Polysaccharides: Partial structure of starch (amylose and amylopectin) and cellulose.

Module 4: Oils and Fats 3hrs

Occurrence, extraction of olis and fats. Common fatty acids, glycerides-simple & mixed. Hydrogenation of unsaturated olis. Hyrogenolysis of olis and fats. Definition, determination and significance of saponification value, iodine value and acid value. Caluclation of saponification value of triolein and tripalmitin. Manufacture of soap by hot process. Mechanism of cleansing action of soap. Synthetic detergents, superiority of detergents over soaps. Types of detergents (Cationic, anionic and non-ionic). Animal and plant waxes.

Module-5: Amino acids and proteins 4hrs

Recapitulation: Defintion and classification of amino acids.

Methods of synthesis of amino acids-Strecker's synthesis, phthalimide synthesis and malonic ester synthesis. Configuration of amino acids, acid-base properties of amino acids, isoelectric point of amino acids. Seperation of amino acids by electrophoresis. N-terminal and C terminal amino acids.

Peptides: Peptide bond. Carbobenzoxy method of synthesis of peptides. Use of di-tert-butyldicarbonate (t-BOC) and dicyclohexylcarbodiimide (DCC) in peptide synthesis.

PHYSICAL CHEMISTRY 15hrs

Note: Problems are to be solved in SI units

Module-6: Molecular Spectroscopy 12hrs

Introduction, spectrum of electromagnetic radiations, interaction of EMR with molecules, absorption and emission spectrum, quantisation of different forms of energies (rotation,vibration and electronic) in molecules.

Types of molecular spectra: Diatomic molecule as a rigid rotator, expression for moment of inertia-problem to be solved. Rotational energy and wave number of spectral lines (problems), rotational energy level diagram. Selection rules and its applications, intensitives of spectral lines, calculation of moment of inertia and bond length of diatomic molecules.

Infrared Spectroscopy: Vibrational spectra of diatomic molecules, diatomic molecule as a simple harmonic oscillator(one-dimentional). Anharmonicity, morse potential, dissociation energies. Hook's law and force constant-problems to be solved. Vibrational energy level diagram Zero point energy.

Vibration-Rotation Spectra: Energy expression (no derivation), PQR bands and vibration-rotation spectrum of a diatomic molecule.

Module-7: Radiation Chemistry 3hrs

Ion pair yield, G-value, Primary and secondary process, radiolysis of water. Dosimeter-Fricke dosimeter, ceric sulphate dosimeter. Biological effects of radiations.

Syllabus for Practical in Chemistry

VI Semester **Practical-VII** **3Hrs/Week**

Physical Chemistry experiments (Electrical and instrumental)

1. Determination of pH of acidic buffer (acetic acid-sodium hydroxide) at different concentrations and calcularion of the acid using pH meter.
2. Potentiometric titrations: (a) Mohr's salt solution >< dichromate solution
3. Conductometric titration: (a) Hydrochloric acid >< sodium hydroxide
   (b) mixture of acetic acid and Hydrochloric acid >< sodium hydroxide
4. Colorimetric titration: (a) Copper (II) using ammonia
   (b) Iron (III) using thiocyanate.
5. Determination of rate constant for the inversion of cane sugar using polarimeter
6. Determination of pKa value of acetic acid by conductometric method,
7. Determination of pKa value of dibasic acid by Potentiometric method,
8. Determination of percentage composition of binary mixture using Abbe's refractometer.
9. Determination of cell constant (0.1 N solution of KCl to be provided) and determination of equivalent conductance at infinite dilution for a strong electrolyte

SIXTH SEMESTER

Total number of lecture hours: 45 **3hrs/wk**

PAPER-VIII APPLIED CHEMISTRY-II

INORGANIC CHEMISTRY 15hrs

Module 1: Inorganic Polymers 3hrs

Silicons: Definition, types manufacture, physical properties and applications.

Flourcarbons: Definition,properties and uses, manufacture of Tefflon and its uses.

Module 2: Instrumental Methods of analysis 5hrs

Thermogravymetric analysis: Instrumentation, TG curves, factors affecting TGA, Applications-drying temperature, Curie point, analysis of alloys and absorbed gases.

Atomic absorption spectroscopy (AAS): Principle, instrumentation, hallow cathode lamp, and total consumption burner. Applications-determination of Lead in petrol and Mg in tap water.

Module 3: Water Pollution 4hrs

Definition, sources and toxicity of Pb, Cd, Hg, As, oil and pesticides. Treatment of biological and non-biological wastes, recycling and utilization of waste water.

Module 4: Acids and Bases 3hrs

Lux-Flood theory, Cady-Elsey theory and Usanovich concept of acids and bases.

Hard and soft acids and bases: Definition, classification, characteristics, Pearson's HSAB principle, limitations and applications.

ORGANIC CHEMISTRY 15hrs

Module 5: Alkaloids 4hrs

Definition, occurance & extraction of alkaloids. Elucidation of structure of nicotine, synthesis of nicotine by spath process. Elucidation of structure of

ephedrine. Nagai synthesis of ephedrine. Structure and uses of astropine, cocaine, quinine and piperine.

Module 6: Terpenes **4hrs**

Definition, classification and isolation of terpens. Isoprene rule. Structure of geraniol, limonene and zingiberene. Structural elucidation of citral. Synthesis of citral from methyl heptenone. Elucidation of structure of menthol. Kotz and Hessel synthesis of menthol. Synthesis of camphor (Haller process).

Module 7: Vitamins **3hrs**

Classication and biological importance of vitamins. Synthesis of vitamin C from D(+)Glucose, Synthesis of vitamin A. Synthesis of vitamin B_1 (Williams etal). Structure of vitamin B_2 and vitamin D.

Module 8: Harmones **2hrs**

Biological importance of harmones. Synthesis of adrenaline and thyroxin.

Module 9: Nucleic acids **2hrs**

Recapitulation: Definition of nucleosides and nucleotides. Purine and pyramidine bases.

Structure of purine and pyramidine bases. Synthesis of nucleosides (Synthesis of adenosine) and

Nucleotides (Synthesis of adenosine-5^1-Phosphate).

PHYSICAL CHEMISTRY **15hrs**

Note: Problems are to be solved in SI units

Module 10: Thermodynamics-II **6hrs**

Nernst heat theorem, standard entropy, absolute entropy, Third law of thermodynamics-statement and its limitations. Partial molar quantities, Partial molar free energy (Chemical potential), variation of chemical potential with

temperature and pressure. Gibb's Duhem equation (derivation). Duhem Margules equation,definition of fugacity, activity and activity coefficient (problems).

Module 11: Quantum mechanics 6hrs

Definition of system, assembly and ensemble-types of ensemble, occupation number, macro and micro state, statistical weight factor, configuration probability.Distinguish between classical and quantum statistical mechanics. Postulates of statistical mechanics. Derivation of Maxwell Boltzmann distribution law. Relationship between entropy and thermodynamic probability. Partition function-definition, derivation for rotational and vibrational partition function.

Expression for thermodynamic functions in terms of partition function (no derivation), internal energy, enthalpy, entropy, Helmoltz free energy, Gibb's free energy (problems).

Module-12: Molecular structure 3hrs

Additive, constitutive and additive-constitutive properties, definition with example.

Polarization, induced Polarization, orientation Polarization and molar Polarization. Clausius-Mosotti equation and its importance (no derivation).

Dipole moment-Definition, unit, explanation (BF_3, NH_3), pentaatomic molecules $SiCl_4$, CCl_4).

Differentiation between cis-trans isomers (1,2-dichloroethene).

Syllabus for Practical in Chemistry

VI Semester **Practical-VIII** **3Hrs/Week**

Analytical methids (Analytical and electro-analytical experiments)

1. Determination of total chlorine content in polluted water by iodometric methiod.
2. Determinationof carbon dioxide in water by titrimetric method.
3. Determination of acetic acid in commercial vinegar using sodium hydroxide and alkali content in antacid tablets using hydrochloric acid.
4. Determination of saponification value of ethyl acetate conductometrically.
5. Estimation of iodine present in common salt and available oxygen hydrogen peroxide
6. Separation and estimation of either Mg(II) or Fe(II) by solvent extraction
7. Determination of unknown concentration of pot. permanganate and pot. Dichromate mixture by spectrophotometric method
8. Estimation of Protein by colorimetric method
9. Estimation of Cholesterol by colorimetric method.
10. Estimation of cobalt present in chloropentamine(III)chloride complex
11. Estimation of Ni present in hexaminenickel(II) chloride complex
12. Estimation of sodium/potassium by flame photometry.
13. Estimation of ascorbic acid present in citrus fruits.

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