MALNAD COLLEGE OF ENGINEERING, HASSAN

(An Autonomous Institution Affiliated to VTU, Belgaum)

VISION

To become a Pre-eminent Institution in Engineering & Technology, offering quality and Value based Education, and Reach the Unreached

MISSION

- To establish state of the art infrastructure and provide a conducive environment for quality education.
- To enhance faculty competence and promote research.
- To produce excellent engineers emphasizing on personality.
- To fortify industry – institute interaction and collaborate with Institutes of higher learning.
- To serve the society and fulfill social obligations.

I Year B.E.: Scheme of Teaching and Credits, 2015-2016
(Common to all Branches)

ODD Semester

GROUP 1

Sl. No.	Subject Code	Subject Name	L	T	P	C
1.	**PH101**	Engineering Physics	4	0	0	**4.0**
2.	**MA102**	Engineering Mathematics -I	3	1	0	**4.0**
3.	**EE103**	Basic Electrical Engineering	3	1	2	**5.0**
4.	**MD104**	Engineering Drawing	1	1	4	**4.0**
5.	**CV105**	Engineering Mechanics	3	1	0	**4.0**
6.	**PH106**	Engineering Physics Laboratory	0	0	3	**1.5**
7.	**PE107**	Physical Education & Activities	0	0	4	**2.0**
8.	**HS001**	Professional English	1	0	1	**1.5**
		Total	**15**	**4**	**14**	**26**

GROUP 2

Sl. No.	Subject Code	Subject Name	L	T	P	C
1.	**CH101**	Engineering Chemistry	4	0	0	**4.0**
2.	**MA102**	Engineering Mathematics –I	3	1	0	**4.0**
3.	**EC103**	Basic Electronics Engineering	4	0	2	**5.0**
4.	**ME104**	Elements of Mechanical Engineering	4	0	0	**4.0**
5.	**CS105**	Computer Programming using C	4	0	0	**4.0**
6.	**CH106**	Engineering Chemistry Laboratory	0	0	3	**1.5**
7.	**CS107**	Computer Programing Laboratory	0	0	3	**1.5**
8.	**HS002**	Professional Kannada (**Audit course**)	2	0	0	**0.0**
		Total	**18**	**2**	**8**	**24**

EVEN Semester

GROUP 1

Sl. No.	Subject Code	Subject Name	L	T	P	C
1.	**CH201**	Engineering Chemistry	4	0	0	**4.0**
2.	**MA202**	Engineering Mathematics –II	3	1	0	**4.0**
3.	**EC203**	Basic Electronics Engineering	4	0	2	**5.0**
4.	**ME204**	Elements of Mechanical Engineering	4	0	0	**4.0**
5.	**CS205**	Computer Programming using C	4	0	0	**4.0**
6.	**CH206**	Engineering Chemistry Laboratory	0	0	3	**1.5**
7.	**CS207**	Computer Programing Laboratory	0	0	3	**1.5**
8.	**HS002**	Professional Kannada (**Audit course**)	2	0	0	**0.0**
		Total	**18**	**2**	**8**	**24**

GROUP 2

Sl. No.	Subject Code	Subject Name	L	T	P	C
1.	**PH201**	Engineering Physics	4	0	0	**4.0**
2.	**MA202**	Engineering Mathematics -II	3	1	0	**4.0**
3.	**EE203**	Basic Electrical Engineering	3	1	2	**5.0**
4.	**MD204**	Engineering Drawing	1	1	4	**4.0**
5.	**CV205**	Engineering Mechanics	3	1	0	**4.0**
6.	**PH206**	Engineering Physics Laboratory	0	0	3	**1.5**
7.	**PE207**	Physical Education & Activities	0	0	4	**2.0**
8.	**HS001**	Professional English	1	0	1	**1.5**
		Total	**15**	**4**	**14**	**26**

{L: Lecture Hrs./week, T:Tutorial Hrs./week, P: Practical Hrs./week, C:No. of Credits.}

Note: Students of **Group-1 (Physics Group)** are: **ME, EEE, AE, IPE** and **EIE.** Students of **Group-2 (Chemistry Group)** are: **CE, ECE, CSE** and **ISE** for the first semester and this is reversed/vice versa during the second semester of B.E. (Autonomous) program.

Engineering Physics (4 – 0 – 0) 4 Credits PH 101 /201

COURSE OBJECTIVES:

- To understand the fundamentals of Physics and its relevance to engineering.
- To understand and explore Thermal, electrical, magnetic and Dielectric properties of materials for the Engineering application.
- To study the dependence of material properties on crystal structure and size.
- To acquire the basic knowledge of Photonics and their applications.
- To develop an ability to apply relevant scientific and engineering principles to solve real world engineering problems.
- To develop an ability to interpret graphical, numerical, and textual data.

Course Contents

Part – A

Unit – 1 Dielectric properties of materials.

Dielectric constant, Polarization of dielectric materials, types of dielectric polarization, Frequency dependence of polarization, expression for internal field for one dimensional array of atoms in solids, Clausius – Mossotti equation, Dielectric loss. 6 Hrs.

Unit - 2 Lasers

Principle, production, Expression for energy density using Einstein's co-efficient, requisites of a Laser system, condition for Laser action, Principle, construction and working of Nd: YAG Laser and Semiconductor Laser. Applications – Laser welding, cutting and drilling. Measurement of atmospheric pollutants, Holography – Principle of recording and reconstruction and its application.

7 Hrs.

Part – B

Unit – 3 Crystal structure

Space Lattice, Bravais Lattice – Unit cell, Primitive cell, Lattice parameters, Seven crystal systems, directions and planes in a crystal, Miller indices expression for interplanar spacing, coordination number, atomic packing factor, Bragg's law, Determination of d – spacing / Wave length using Braggs x-ray spectrometer.

7 Hrs.

Unit – 4 Superconductivity.

Temperature dependence of resistivity in normal and super conducting materials. Meissner's effect type I and II super conductors. BCS theory, High Tc super conductors, Applications – super conducting magnets, Maglev vehicle and SQUID. 6 Hrs.

Part – C

Unit - 5 Theory of Vibrations

Free vibrations, Damped Vibrations: Expression for amplitude and discussion for over, critical and under damping. Forced Vibrations: Expression for amplitude and its variation with frequency, Amplitude resonance, related numerical problems. Ultrasonics, Non destructive materials testing using ultrasonics.

8 Hrs.

Unit – 6 optical Fibers

Propagation mechanism in optical Fibers. Different types of optical Fibers. Angle of acceptance V-number (no derivation) expression for numerical aperture. Point to point communication system. Attenuation, expression for attenuation coefficient. Advantages of optical communication over conventional communication system.

5 Hrs.

Part – D

Unit – 7 Special Theory of Relativity

Frames of references, Galilean transformations (No derivation), Postulates of special theory of relativity, Lorentz Transformations equations in one dimension (no derivation), Length contraction, time dilation, variartion of mass with velocity(no derivation), velocity addition theorem, equivalence of mass and energy.

8 Hrs.

Unit – 8 Nano Technology.

Introduction to nano science and technology. Nanomaterials, shapes of nanomaterials, different preparation routes (by sol – gel and CVD methods), carbon nano tubes, nano composites (qualitative discussion), any three applications of nano materials 5 Hrs.

Reference Books

1. Engineering Physics — R.K. Gaur and Gupta S L
2. Solid State Physics — S.O. Pillai
3. Introduction to Physics — Halliday and Resnik
4. Nanomaterials — Vishwanathan

Engineering Chemistry (4 – 0 – 0) 4 Credits CH101/201

Course Outcomes:

After Completion of this course the students are able to:

- Describe, interpret and analyze basics of chemical bonding & structure using atomic theory (PO1,PO3,PO5).
- Differentiate among the essential properties of rubber, plastics & explosives (PO1,PO3,PO5).
- Analyze water for its properties, harmful effects due to impurities (PO1,PO3,PO5)
- Examine the four major reaction types & their industrial/ environmental effects(PO3,PO4,PO8,PO10)
- Demonstrate Knowledge of redox reactions & their implications and prevention methods (PO3,PO6,PO8,PO10)

Part-A

UNIT-1 Chemical energy sources

Fuels-Definition, Classification based on the physical state and occurrence with examples, Calorific value – definition, classification - Gross and Net calorific values, units in S.I system. Characteristics of an ideal fuel. Experimental determination of calorific value of a solid fuel using Bomb Calorimeter. Numerical problems. Petroleum cracking – Definition. Types of cracking. Fluidized catalytic cracking. Reforming of petrol. Octane number & Cetane number. Knocking of petroleum. Prevention of knocking – anti knocking agents.

6hours

UNIT-2 High Polymers

Introduction, definition and classification with examples. Glass transition temperature (Tg) - definition, factors affecting Tg and significances of Tg.

Resins and plastics – Types of plastics- thermoplastics & thermosetting plastics. Compounding of resins in to plastics. Synthesis, properties and Industrial applications of polystyrene, PMMA , Polyurethane , Polycarbonate , Urea-formaldehyde resin and kevler .

Adhesives –Meaning, Preparation, properties and applications of Epoxy resins.

7Hours

Part-B

UNIT-3 Water Technology

Introduction, sources of water, impurities in water, standards of water for industrial supply, Hardness of water, Boiler feed water and boiler problems, Boiler scales and sludge's, External treatment of boiler feed water Cold Lime -Soda process, Hot Lime -Soda process, Ion exchange method. Internal treatment of water – phosphate conditioning & Calgon treatment.

Desalination – Meaning, purification of water by reverse osmosis.

Potable water – Meaning, Standards of potable water, treatment of water for town supply.

7Hours

UNIT-4 Electrochemistry

Introduction, **Electrochemical cells** – Definition, Types of electrochemical cells, Construction, working & representation of galvanic cell. Sign conventions, Single electrode potential, Standard electrode potential. E.M.F of a cell, Derivation of Nernst Equation.

Concentration cell- Definition with example, derivation of emf of concentration cell. Types of electrodes. Secondary reference electrodes –calomel electrode, silver- silver chloride electrode Ion selective electrodes- glass electrode. Determination of pH of a solution using glass electrode. Numerical problems on E, E^0, E_{cell}, E^0cell and concentration cells.

7Hours

Part-C

UNIT-5 Battery technology

Batteries- Definition, difference between battery and cell. Battery characteristics. Classification of batteries –primary & secondary batteries. Secondary batteries - construction, working and industrial applications of Ni-Cd battery .

Modern batteries: Construction, working and industrial applications of Zinc-air battery Nickel metal hydride battery and Li-MnO_2 battery.

Fuel Cells- Introduction, definition, Construction, working and industrial applications of H_2-O_2 fuel cell. Methanol-oxygen fuel cell .Differences between battery and fuel cell. 6 Hours

UNIT-6 Metal finishing

Introduction, Technological importance of plating. Significance of polarization, decomposition potential and over voltage.

Electroplating – Definition, factors affecting the nature of electro deposit-metal ion concentration, current density, complexing agents, organic additives, p^H, temperature & throwing power. Electroplating of Copper by cyanide bath method.

Electroless plating - Definition. Distinction between electroplating and electrolessplating. Advantages of electrolessplating. Electrolessplating of Nickel.

7 Hours

Part-D

UNIT-7 Corrosion Science

Corrosion- Definition. Electrochemical theory of corrosion. Types of corrosion-Differential metal Corrosion, differential aeration corrosion (pitting and water line corrosion), Factors affecting the rate of corrosion- nature of metal, anodic and cathodic areas, nature of corrosion product, p^H & temperature

Corrosion Control: Protective coatings by galvanizing, corrosion inhibitors-anodic inhibitors & cathodic inhibitors.

Cathodic protection – Sacrificial anode method and impressed current method.

6 Hours

UNIT-8 Elastomers and Explosives:

Rubber: Definition, types-natural and synthetic rubber. Preparation of natural rubber from latex, Deficiencies of Natural rubber, compounding and vulcanization of natural rubber.

Synthetic rubber- Advantages of synthetic rubber over natural rubber. Preparation, properties and industrial applications of SBR rubber, Thiokol and butyl rubber.

4 hours

Explosives:

Introduction, classification- primary & secondary explosives. Preparation, properties and industrial applications of TNT, TNG & RDX

2 hours

TEXT BOOKS

1. Engineering Chemistry by M.M.Uppal, Khanna Publishers, Sixth Edition,2001
2. A text Book of Engineering Chemistry- by Jain and Jain, Dhanapatrai Publications, New Delhi.

REFERENCE BOOKS

1. Principles of Physical Chemistry B.R.Puri, L.R.Sharma & M.S.Pathania, S.Nagin Chand &Co., 33rd Ed., 1992.
2. Text Book of Polymer Science by V.R.Gowarikar, N.V.Viswanathan and J.Sreedhar, Wiley-Eastern Ltd., 1986.
3. Industrial Chemistry by B.K.Sharma.
4. Industrial Electrochemistry, Second Edition by Derek Pletcher & Frank C. Walsh publisher: Chapman & Hall, USA, Year of publication: 1993.

Engineering Mathematics – I

Sub. Code MA102 **LTPC:4-0-0-4**
Hours / week: 4 **Total hours: 52** **Exam hours: 3**

Course outcomes (COs) (with mapping shown against the program outcomes - POs)

1. To understand base theorems in differential calculus to use it for related engineering problems. (PO-1, PO -4, PO -5)
2. To understand expansions of standard functions through Taylor series and use it in differential and integral calculus through approximations. (PO-4, PO-5, PO-8, PO-10)
3. To compute length, area, volume, etc. through single integral analytically. (PO-4, PO-5, PO-8, PO-10)
4. Learning double and triple integrals and apply it for engineering problems and also learning basics of vector differentiations. (PO-4, PO-5, PO-8, PO-10, PO-11)

COURSE CONTENTS

PART A

Unit1 **Mean Value Theorems:** Rolle's theorem. Geometrical Interpretation and examples. Lagrange's mean value theorem with proof, Cauchy's mean value theorem with proof, statement of Taylor's theorem, Taylor series and Maclaurin series for function of a single variable. **Graphs of Taylor and Maclaurin series.** (7 Hours)

Unit 2 **Polar curves:** Angle between radius vector and tangent, Angle between two polar curves. Orthogonality of curves, Pedal equations of polar curves. Derivative of arc length, related problems, Radius of curvature in Cartesian, Parametric polar & Pedal forms (without proof) with examples.

(7 hours)

PART B

Unit 3 **Partial Differentiation:** Partial derivatives, **Physical and geometrical interpretation of partial Differentiation,** Total derivatives, partial derivatives of composite function, Differentiation of an implicit function and Jacobians, illustrative examples. (6 hours)

Unit 4 **Applications of Partial Differentiation:** Taylor series for a function of two variables, maxima & minima for a function of two variables, **Applications of maxima, minima through some physics examples.** Lagrange's multiplier method, error & approximations, illustrative examples.

(6 hours)

PART C

Unit 5 **Integral Calculus:** Standard reduction formulae, Evaluation of indefinite and definite integrals, illustrative examples. Tracing of curves in Cartesian, Parametric and Polar form (standard curves only), **Improper integrals,** Beta and Gamma functions, Relation between Beta and Gamma functions, Illustrative Examples. (7 hours)

Unit 6 **Applications of Integration:** Finding area of a planar region, length of a planar curve, surface of revolution, volume of revolution and illustrative examples from engineering field. (6 hours)

PART D

Unit 7 **Multiple Integrals: Evaluation** of double integrals in Cartesian & Polar forms. Change of order of integration, Evaluation by changing to polar form. Application to find area of a planar region. Evaluation of triple integrals. Application to find volume (7 hours)

Unit 8 **Vector Differentiation –** Velocity & acceleration of a vector point function, Gradient, divergence & curl. Physical & Geometrical Interpretation **of Gradient, divergence & curl.** Solenoidal & irrotational vectors and their properties, illustrative examples from engineering field. (6 hours)

Text book:

Dr. B. S. Grewal, Higher Engineering Mathematics, Khanna Publications, 40th edition (2007)

Reference books:

1. Tom M Apostol, Calculus, Volume 1 and 2, 2nd Edition, Wiley India (Delhi) Publication.
2. Erwin Kreyezig, Advanced Engineering Mathematics, Tata McGraw Hill Publications, 8th edition (2007)
3. Advanced Engineering mathematics by RK Jain and SRK iyengar, narosa publishers, 2005, 2rd edition

EE103/EE203: Basic Electrical Engineering LTPC: (3-1-2) 5

TO BE UPLOADED SOON

EC103 / EC203 – Basic Electronics Engineering (4-0-2): 5

(Common for all I and II Semester B.E Autonomous)

Total Hours: 52

Course Outcomes (COs) {with mapping shown against the Program Outcomes -POs) At the end of the course the student will be able to:

1. Apply basic scientific and mathematical concepts to electronic circuit problems (PO1)
2. Analyze basic electronic circuits built with diodes and transistors (PO4)
3. Design simple power supplies and audio amplifiers (PO4)
4. Work effectively and efficiently in an electronic engineering team (PO7) 5. Working principles of Modulation techniques, TV, RADAR and satellite communication are studied (PO1, PO10)

PART A

Unit 1. **Semiconductor Diodes**: Introduction, PN junction diode, characteristics, Diode approximations, Rectification, HWR, FWR - Center tapped & Bridge rectifier, C filters (qualitative analysis) , Zener diodes, Zener diode as Voltage Regulator, problems.

7 Hrs

Unit 2. BJT: Introduction, Transistor operation: PNP and NPN, Transistor voltage & currents amplification, Characteristics - CB, CE, CC (Both input and output), BJT Biasing **–** Introduction, DC load line & bias point , problems.

6 Hrs

PART B

Unit 3. BJT Biasing & Amplifiers: base bias , collector to base bias, voltage divider bias, comparison of basic bias circuits, thermal stability of bias circuits,(Text 1) Classification of Amplifiers, Cascading of Amplifiers, Single stage R C Coupled Transistor Amplifier, (qualitative analysis).

7 Hrs

Unit 4. Other Devices: Introduction to FET, Working Principle, Static Characteristics of JFET, Silicon controlled rectifiers: SCR operation, SCR characteristics (exclude specifications), problems.UJT: UJT operation, characteristics, Photo Diode & Solar cell, Photo Transistor.

6 Hrs

PART C

Unit 5. **OPAMP & Oscillators:** Operational Amplifier Characteristics, Op-Amp Applications: Inverting, Non Inverting Amplifiers Adder, Subtractor, integrator & differentiator, problems. Classification of Oscillators, Basic Principle, Feedback Oscillator Concept, Hartley and Colpitts Oscillator, Wein Bridge and RC Phase Shift Oscillator, Crystal Oscillator. Note: Only Circuit description (No Mathematical Analysis), substitution problems only. **7 Hrs**

Unit 6. Digital Logic: Logic gates, Boolean Algebra, Demorgan's Theorem, Logic Circuit Implementation of Boolean Expressions, half adder, full adder, parallel adder, Clocked RS, JK, D, T flip flop.

6 Hrs

PART D

Unit 7. Communication Systems: Modulation, AM, FM, PM Modulation, Power in AM wave, Radio Transmitter, Super heterodyne Receiver, substitution problems only, Satellite Communication principle(21.9), Cellular Telephone Networks(21.12).

7 Hrs

Unit 8. Applications of electronics: Cathode Ray Tube, waveform display, Basic oscilloscope, application of CRO. TV System: introductory ideas, TV camera Tubes, interlaced Scanning,

Synchronization, Picture Tube of TV receiver, TV Channel width, colour TV, RADAR: Introduction, Radar Range Equation (No derivation), Basic Pulsed Radar set, Indicator, Uses of Radar, (Chapter 22) Note; Only descriptive analysis-Block Diagram Approach (No Mathematical Analysis).

6 Hrs

Text Books:

1. David A Bell, "Electronic Devices and Circuits", PHI, India, 4th Edition.
2. D Chattopadhyay and P C Rakshit,"Electronics Fundamentals and Applications" New Age, International (P) Limited, India, 10th Edition.

Reference Books:

1. Ramakant .A. Gayakwad "OP-AMPS & Linear Integrated circuits", PHI, New Delhi, 3rd Edition, 2004.
2. Morris Mano, "Digital Logic and Computer Design", PHI, EEE, 3rd Edition 2004.
3. Nagabhushan and Murthi Mahadeva Naik G, "Basic Electronics", Star tech publication 2010.

Laboratory Portions: (15 classes of 2 Hours each, 5 lab classes per batch of students)

The teaching faculty would be responsible for the laboratory classes also. There is no examination for this laboratory component of the course. However, records are to be evaluated and credit to be given as deemed fit by the faculty in Quiz and assignment components of CIE. There would be three batches of 20 students each in each class of 60 (say) students. Each batch of 20 students have to attend a total of five laboratory classes during the semester at the rate of once in every alternate third week.

The exact Week no. in which a given batch of students would conduct a given experiment is as per the following schedule:

Batch No.: **Expt. No.:**	**1**	**2**	**3**
1.	Week No. 01	Week No. 02	Week No. 03
2.	Week No. 04	Week No. 05	Week No. 06
3.	Week No. 07	Week No. 08	Week No. 09
4.	Week No. 10	Week No. 11	Week No. 12
5.	Week No. 13	Week No. 14	Week No. 15
Laboratory Quiz: Week No.16			

List of Experiments to be conducted:

1.*Introduction to components, study of regulated power supply, Signal generator, oscilloscope, multimeter and testing of simple components. V-I characteristics of a diode.*
2. Half wave and full wave rectifiers using semiconductor diodes.
3. FET based oscillator.
4. Single stage RC coupled amplifier using transistor
5. Op-Amp: inverting & non-inverting amplifier

Course Title: ELEMENTS OF MECHANICAL ENGINEERING

Course Code: **ME 104 / ME 204** **LTPC: (4-0-0)4**
Total Number of Hours: 52

Course Objective:

To introduce fresh entrants of all under graduate Programs the principles and fundamentals of Mechanical Engineering.

Course Outcomes:

Upon successful completion of this course, the student shall be able to understand the basic concepts of thermal, design and manufacturing aspects of Mechanical Engineering

PART-A

Unit-1 Introduction to Mechanical Engineering- Thermal, Design and Manufacturing Engineering. : Energy Conversion: Sources of Energy, Energy alternatives – Solar option, Nuclear option, Tar sand & oil shale, Tidal & wind energy, geothermal, Bio-mass and OTEC.
Boilers and Properties of steam: Formation of Steam with constant pressure, Type and properties of steam- Specific volume, Internal energy, and Dryness fraction. Simple numericals Basic principle of water tube boiler & Fire tube boiler, list & functions of boiler mountings & accessories (no construction details). **06 Hrs**
Unit-2 Steam Turbines – working Principle of Impulse & Reaction turbine.
Gas turbines cycles - working principle of Open & Closed cycle gas turbine.
Hydraulic turbines –working principle & operation of Pelton Wheel, Francis & Kaplan turbine.
I.C. Engines – terms related to I C Engines, 2-Stroke & 4 stroke petrol and diesel engine. Simple numericals on IP, BP, FP & efficiency. **07 Hrs**

PART - B

Unit-3 Motion and Power Transmission : Introduction, Rotational motion, Angular velocity rotational work and power Gears - spur gears, bevel gears, helical gears, worm gear sets, rack and pinion, speed, torque and power in gear sets, simple and compound gear trains, design application : Belt and chain drives numerical on velocity and torque ratios **07 Hrs**
Unit-4 Lubrication and Bearings: Purpose of lubrication, Types and properties of lubricants, Drop Feed and Splash lubrication, Introduction to Bush bearing and Anti friction Bearings**. Materials and Stresses-** Engineering Materials: Metals and their alloys, ceramics, polymers, composite materials. Tension and Compression, Shear, Material response, factor of safety, simple numericals.
06 Hrs

PART - C

Unit-5 Manufacturing Processes: Introduction and classification of manufacturing processes. Casting- Principles of Sand casting, Permanent Mould casting, Hot and cold camber Die- casting processes, Advantages, Limitation and Applications. Plastic processing: Compression Moulding and Injection Moulding of plastics.
06 Hrs

Unit-6 Metal Forming: Principles of Rolling, Forging, Extrusion (Direct & Indirect Extrusion) Wire Drawing. Typical examples of components produced in these processes, advantages and Limitations & Application. **Joining process**: Brief description of Electric Arc Welding, Gas Welding, Brazing and Soldering.
06 Hrs

PART - D

Unit-7 Conventional Machining: Principle of machining, Nomenclature of single point cutting tool, Straight Turning, Taper turning, and Thread cutting operations. Milling, Drilling and Grinding operations (Demonstration of working of machine tools). Non-conventional Machining- EDM, ECM and LBM. Automation of manufacturing processes-introduction, computer numerical control
08 Hrs
Unit-8 Refrigeration & Air Conditioning: Heat engine and heat pump, unit of refrigeration, Refrigeration effect, Ton of Refrigeration, C O P. **Refrigerants**- Types & properties of refrigerants. Working principle of refrigerator Vapour compression and Vapour absorption refrigerators. Introduction to Air conditioning, working principle of room / window Type air conditioning system.
06 Hrs

References:

1. Elements of Mechanical Engineering by V. K. Manglik, PHI, 2014
2. Elements of Mechanical Engineering - K P Roy, S K H Choudry, A K H Choudry, Roy Media promoters and publishers, Mumbai
3. Basic Mechanical Engineering - Basanth, Agrwal & C.M. Agrawal 2008. Wiley India Pvt. Ltd 2008
4. An Introduction to Mechanical Engineering,- Jonathan Wickert, 2nd edition, Cengage Learning 2006.

Course Title: ENGINEERING DRAWING

Course Code: **MD 104 / MD 204** **LTPC: (2-0-4)4**
Total Number of Hours: 52

Course Objective:

To introduce the students to the "universal language of Engineers" for effective communication through drafting exercises of geometrical solids.

Course outcomes:

Upon successful completion of this course, the student shall be able to:

1. understand the importance of BIS and ISO Standards in Engineering Drafting
2. graphically construct and understand the importance of mathematical curves in Engineering applications
3. visualize geometrical solids in 3D space through exercises in Orthographic Projections
4. interpret Orthographic ,Isometric and Perspective views of objects
5. develop the surfaces of geometrical solids

PART-A

Introduction: BIS conventions for Engineering drawing **01Hr**

Curves used in Engineering: Conic section – Ellipse, Parabola, Hyperbola (Concentric Circle method, Rectangle method) **03 Hrs**

Orthographic Projections: Planes of projection, Projection of points, points in different quadrants. **03 Hrs**

Projection of straight lines: Located in **First quadrant** with simple practical examples. **09 Hrs**

Projection of Planes: Located in **First quadrant** using change of position method only **06 Hrs**

Projection of solids: Located in **First quadrant** using change of position method only (**no combination of solids**). **09 Hrs**

PART - B

Development of surfaces: Development of surfaces by Parallel line method, Radial line method, Transition and intersecting surfaces. **06 Hrs**

Isometric projection: Isometric projection of simple machine parts. **06 Hrs**

Perspective projection : Visual ray and vanishing point methods for Prisms and Pyramids **06 Hrs**

Conversion of Isometric views of machine parts into Orthographic views. 03 Hrs

References:

1. Engineering Drawing & Design : Cencil Jensen, Jay D. Helsel, Dennis R. Short, Seventh Edition , Tata McgrawHill 2012
2. Engineering Drawing: N.D.Bhatt & M.Panchal .37 th Edition 1996, charotar publishing House.Gujarat
3. Engineering Drawing: K.R. Gopal Krishna, 24 th Edition 1999 Subhash publications, Bangalore.

SCHEME FOR QUESTION PAPER

Part A	1Question - Conic section 10 Points - 10 Marks 3 Question - Planes 20 Marks	2 Questions – Lines 20 Marks 4 Question - Solids 20 Marks
Part- B	5.Question – Development of Surfaces 20 Marks 7.Questionv – Perspective projections 20 marks	6.Question - Isometric projection 20 Marks 8.Question – Conversion of Isometric view into Orthographic views - 20 Marks

Note: Students have to answer any **FIVE** full questions selecting **TWO** full questions from each part.

CS105/CS205 – Computer Programming Using C (4-0-0) 4

Exam. Hours: 3 **Hrs / week: 4**
SEE: 50 **Total hrs: 52**

Course Outcomes (COs):
At the end of the course the students will be able to:

1. Describe C fundamentals, library functions and input-output functions (a,b,c)
2. Design and write programs using appropriate control structures and array (c,d)
3. Use functions, string manipulation in C and also will get acquainted with Recursion Programming (a,d,c)
4. Understand and write programs in Structures and File management(c,d)
5. Understand the basic concept of Pointers in C Programming(c,e)

PART A

1. Overview of C: History of C, Importance of C, Basic structure of C program, executing a C program, Sample Programs; **Constants, Variables, and Data types:** Characters set, C tokens, Keywords and Identifiers, Constants, Variables, Data types, Declaration of variables, Declaration of storage classes, Assigning Values to variables, Defining Symbolic Constants, Declaring a variable as constant and volatile. **6 Hrs**

2. Operators and Expressions : Arithmetic operators, Relational operators, Logical operators, Assignment operators, Increment and Decrement operators, Conditional operator, Bit wise operators, Special operators, Arithmetic expressions, Evaluation of expressions. Precedence of Arithmetic operators, Type conversions in expressions, Operator precedence and associatively. **Managing Input and Output Operation**s: Reading a character, writing a character, Formatted Input, Formatted Output, Examples.

7 Hrs

PART B

3. Decision making and Branching: Decision making with if statement, Simple if statement, The if…else statement, Nesting of if…else statements, The else … if ladder, The switch statement, The ?: operator, The Go to statement, Simple programs;

Decision making and Looping: The while statement, The do while statement, The for statement, Jumps in Loops. **6 Hrs**

4. Arrays: One-dimensional Arrays, Declaration of one-dimensional Arrays, Initialization of one-dimensional Arrays. Two-dimensional Arrays, Initializing two-dimensional Arrays, Programs on matrices, Searching and sorting. **7 Hrs**

PART C

5. Character Array and Strings: Declaring and initializing string variables, reading strings from terminal, writing strings to screen, arithmetic operation on characters, putting strings together, Simple programs comparison of two strings, string handling functions, Table of Strings, Programs on String manipulation without using built in functions.
6 Hrs

6. User-defined Functions: Need for User-defined Functions, A multi-function Program, Elements of User-defined Functions, Definition of Functions, Return Values and their Types, Function Calls, Function Declaration, Category of Functions, No Arguments and no Return Values, Arguments but no Return Values, Arguments with Return Values, No Argument but Returns a Value, Functions that Return Multiple Values, Nesting of functions and Recursion, Programs of functions and Recursion. **7 Hrs**

PART D

7. Structures and File Management: Defining a structure, Declaring a structure variable, Accessing structure members, Structure initialization, Copying and Comparing structure variables, Operations on individual members, Array of structures, Arrays within structures, structures and functions, Defining and opening file, closing a file, Input and output operations on files. **6 Hrs**

8. Pointers: Understanding pointers, Accessing the address of a variable, Declaring pointer variables, Initialization of pointer variables, Accessing a variable through its pointers, Chain of pointers, Pointer expressions, Pointers increments and scale factor, Pointers and arrays, Pointers and character strings, Arrays of pointers. **7 Hrs**

Text Books:

Balagurusamy E, Programming in ANSI C, 6th Edition, TataMcGraw Hill, 2013.

Reference Books:

1. Behrouz A. Forouzan, Richard F. Gilberg, Computer Science – A Structured Approach Using C, 3rd Edition, Cengage Learning, 2014.
2. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language", 2nd Edition, PHI, 2012.
3. Programming Techniques through C, M. G. V.Murthy, Pearson Education, 2014
4. Vikas Gupta, Computer Concepts and C Programming, Dreamtech Press/Wiley India, 2012.
5. Jacqueline Jones & Keith Harrow, Problem Solving with C, 1st Edition, Pearson, 2011

Web Reference: http://elearning.vtu.ac.in

CV105 / CV205 ENGINEERING MECHANICS (4-0-0) 4

	Course Outcomes At the end of the course the students will be able to	Correlating Program Outcome
CO1	Understand the principles of Engineering Mechanics as applied to a given force system	PO2,PO3
C02	Apply the basics to find the centroid and moment of inertia of a plane section	PO1,PO2,PO5
CO3	Apply the principles of mechanics to systems involving frictional forces	PO2,PO5

CO4	Understand the basics of dynamics as related to both kinetics and kinematics of a particle and the applications	PO1,PO2,PO4

PART – A

Unit-I Introduction : Definition of a force — Basic idealizations of mechanics like particle, continuum, rigid body — Basic principles of Mechanics — systems of forces — Units of measurements **06 Hrs.**

Unit-II Coplanar Concurrent Force System : Coplanar forces — Coplanar concurrent force — Resolution and composition of forces. Static Equilibrium of coplanar concurrent force systems **07 Hrs.**

PART – B

Unit-III Coplanar Non Concurrent Force System : Moment of a force-couple– Varignon's Theorem Composition of coplanar non-concurrent Force Systems

06 Hrs.

Unit-IV Coplanar Non Concurrent Force System (Contd..) Static equilibrium of coplanar non-concurrent Force Systems. Different types of supports. Introduction to statically determinate and indeterminate beams. Determination of support reactions for statically determinate beams subjected to various types of loads. **07 Hrs.**

PART – C

Unit-V Centroid and Centre of Gravity : Determination of the position of centroid of a plane figures by integration— Determination of the position of centroid of plane figures and built-up sections by the method of moments.

06 Hrs.

Unit-VI Second Moment of Areas : Second moment of an area, polar moment of Inertia, principal moments of inertia (concepts), Radius of gyration parallel axes and perpendicular axes theorems — Determination of moment of inertia of plane figures, composite areas and built-up sections. **07 Hrs.**

PART – D

Unit VII Friction: Types of friction, laws of static friction. Static equilibrium of coplanar force systems involving friction : wedges, ladders, belt drives etc.

07 Hrs.

Unit VIII Introduction to Dynamics: Basic definitions — types of motion, kinematics of a particle — projectiles— Definitions — Range — Time of flight. Equation for the path of a projectile — Range on an inclined plane

Newton's Laws of motion — D'Alembert's Principle and its applications — Kinetics of motion along a circular curve-super elevation. Work, power and energy. **06 Hrs**

Text Books

Beer and Johnston, Vector Mechanics for Engineers Statics and Dynamics" (In SI Units) 8th Edition - 2007 – Mc.Graw Hill Publications.

Ramamrutham S: "Text book of Applied Mechanics", Dhanpat Rai and Sons, India. 1997

Reference Books

1. Rajashekaran S, and Sankar Subramanian, G., " Engineering Mechanics – Statics and Dynamics".
2. Timoshenko and Young, "Engineering Mechanics" TMH publishing, India. Statics and Dynamics". 2006
3. S.S.Bhavikatti ' Engineer Mechanics' , New Age International, 3rd Edition.

Engineering Physics Laboratory (0-0-3) 1.5 Credits PH106 / PH206

1. Characteristics of semiconductor diode, Zener diode
2. Characteristics of a Transistor
3. Dielectric Constant (Measurement of dielectric Constant)
4. Magnetic properties (B-H Graph method)
5. Planck's Constant (Determination of Planck's constant using LED or using the principle of photoelectric effect)
6. Electrical resistivity (Four probe method)
7. Verification of Stefan's law of radiation
8. Determination of Fermi energy of a given material
9. Single cantilever: To estimate the Young's modulus of the given material
10. Diffraction grating: To determine the wave length of the Hg spectrum using spectrometer
11. Newton's rings: To measure the wavelength of the monochromatic source by forming Newton's rings.
12. Sonometer: To calculate the frequency of AC supplies using Sonometer.
13. Torsional pendulum to determine rigidity modulus.
14. Energy gap of a semiconductor
15. Measurement of small dimensions by forming Air wedge.
16. LCR series and parallel resonance.

Engineering Chemistry Laboratory (CH106/206)

LIST OF EXPERIMENTS

PART- A (Volumetric Analysis)

1. Estimation of $KMnO_4$ using and Mohr's salt crystals.
2. Determination of Total hardness of a given sample of hard water using EDTA.
3. Determination of Calcium oxide in the given sample of cement by EDTA method.
4. Determination of percentage of iron in the given sample of haematite ore solution using potassium dichromate crystals by external indicator method.
5. Determination of COD of the given industrial waste water sample.
6. Determination of percentage of copper in brass alloy using standard sodium thiosulphate.

PART- B (Instrumental Methods)

1. Determination of Pka value of weak acid using pH meter.
2. Estimation of FAS using $K_2Cr_2O_7$ by Potentiometric Method.
3. Estimation of copper using Colorimeter.
4. Estimation of HCl using standard NaOH by Conductometric method.
5. Estimation of HCl & CH3COOH using standard NaOH by Conductometric method.
6. Determination of viscosity coefficient of a given liquid using Ostwald's Viscometer.

Reference Books:

1. Vogels text book of quantitative inorganic analysis, revised by J. Bassett, R.C. Denny, G.H.Jeffery, 4th Ed.

2. Practical Engineering chemistry by Sunitha and Rathna

CS107 / CS207 – Computer Programming Laboratory (0-0-3) 1.5

Exam. Hours: 3 **Hrs / week: 3**
SEE: 50 **Total hrs: 40**
Course Outcomes (COs):
At the end of the course the students will be able to:

1. Define computer, understand the structure of computer, Operating system and basics of networking (a,c,f).
2. Design and write programs using appropriate control structures and array (a,b,c,d).
3. Write programs in C using Functions, String manipulation and Recursion programming (b,c,d,e).
4. Design and implement advance programming in Structures, File management and Pointers (d,e).

In Computer Programming Laboratory, the Lab instructor will have a session on demonstration of Personal Computer and its accessories. The Lab instructor will be demonstrating and explaining on disassembly and assembly of a Personal Computer. Students have to prepare a write-up on the same and include it in the Lab record and get evaluated by faculty in-charge.

Laboratory Session-1: Write-up Functional block diagram of Computer, CPU, Buses, Mother Board, Chip sets, Operating System & types of OS, Basics of Networking & Topology and NIC.

Laboratory Session-2: Write-up on RAM, SDRAM, FLASH memory, Hard disks, Optical media, CD-ROM/R/RW, DVDs, Flash drives, Keyboard, Mouse, Printers and Plotters. Introduction to flowchart, algorithm and pseudo code with example.

Note: These TWO Laboratory sessions are used to fill the gap between theory classes and practical sessions. Both sessions are evaluated as laboratory experiments.

PRACTICE PROGRAMS:

Following set of programs are given for execution in lab, which will be helpful in understanding the basics of programming and serves as base for execution of Exercise Programs. These programs are not considered for CIE and SEE and carries 10 marks that will be included with record marks.

Write and execute the following C Programs.

1. To find the average of n numbers.
2. To find area and circumference of a circle for the given radius.
3. To find the simple interest and compound interest for given principle amount, rate of interest and time period.
4. To find whether given number is even or odd.
5. To find biggest of three real numbers.
6. To simulate a simple calculator that performs arithmetic operations like addition, subtraction, multiplication and division for given numbers.
7. To check whether the given character is vowel or consonant.
8. To find GCD and LCM of given numbers using Euclid's algorithm.
9. To find the factorial of a given number.
10. To find the minimum and maximum number in a given Array.
11. To read a string and count the number of character.
12. To find sum of odd and even numbers for the given range m and n using functions.
13. To read and display the Employee details using structures.
14. To print the reverse and find the sum of digits for a given number using pointers
15. To create and display the contents of the file.

EXERCISE PROGRAMS:

Following set of programs are included in CIE and SEE, Students have to pick a program from lot of 18 programs in CIE and SEE.

Write and execute the following C Programs.

1. To find the roots of a quadratic equation for non-zero co-efficient**.**
2. To print the prime numbers within the given range m and n, and find the number of such occurrence.
3. Find the value of sin(X) using the series $X-X^3/3!+X^5/5!$....up to N terms and also verify using library function.
4. To read a decimal number and print its binary value.
5. To insert an element in an particular position in an array
6. To conduct a linear search for a given number in an array and also find its position.
7. To implement Bubble Sort for a given Array.
8. To find the sum and difference of two given matrices A(mxn) and B(pxq) and to print transpose of the resultant matrices.
9. To compute the product of two given matrix A(mxn) and B(pxq) and print the resultant matrix.
10. To read three Strings and print the Concatenated String without using string handling function.
11. To read a sentence and count the number of vowels and consonants in it. And also print vowels and consonants separately.
12. To check if the substring present in the given string without using library function.
13. To read N names, sort and print the same in alphabetical order.
14. To input N real numbers and store them in an Array. Using Function, conduct a binary search for a given number and print its position.
15. Using function to compute nCr and nPr for given n and r values. Use recursive function to calculate factorial.
16. To Swap Numbers in Cyclic Order Using Call by Reference.
17. To read student information (Name, USN, Semester, Total Marks) and print the information with CGPA using structures .
18. To read integers numbers from the File and write odd numbers to one File and Even numbers to another File.

Engineering Mathematics – II

Sub. Code MA202 **LTPC:4-0-0-4**
Hours / week: 4 **Total hours: 52** **Exam hours: 3**

Course outcomes (Cos) (with mapping shown against the program outcomes - POs)

1. Learning different methods for solving initial value problems through linear equations and also to apply it for mathematical modeling in physics. (PO-1, PO-3, PO-5, PO-11)
2. Skills in identifying different classes of differential equations and solving non-homogeneous equations through inverse differential operator techniques. (PO-3, PO-5, PO-10)
3. To learn standard Laplace transforms and its inverse and apply it for engineering field. (PO-3, PO-5, PO-10)
4. To apply multiple integrals for engineering related problems and adopting PDE solving techniques. (PO-2, PO-3, PO-5)

COURSE CONTENTS

PART A

Unit 1 **Differential Equations – I**: Formation of differential equations, Solution of first order first degree equations by separable method, Homogenous and Non-Homogeneous equations (reducible to homogenous form), Linear Differential equations, Bernoulli's equations. **Initial value problems.** (6 hours)

Unit 2 **Differential Equations – II**: Exact Differential equations, reducible to exact form, , orthogonal trajectories in Cartesian and polar form, . **Mathematical Modelling of simple electric circuit, Newton's law of cooling, Heat flow, Rate of decay of** (7 hours)

radio-active materials and chemical reactions and their solutions

PART B

Unit 3 **Linear Differential Equations** – Homogenous and Non -homogenous form. Solution of homogeneous differential equations. **Intial value and boundary value problems.** Solution of non- homogeneous differential equations - particular solution by inverse differential operators method for the standard forms (exponential, polynomial and trigonometric). (6 hours)

Unit 4 **Particular solution of non-homogenous equations:** Solution of non-homogeneous differential equations - particular solution by inverse differential operators method for the product of exponential, polynomial and trigonometric functions.Method of variation of parameters, Un-determined Coefficient method, Linear differential equations with variable coefficients (Cauchy's and Legendre's equations) **Application to RLC circuit problems, modeling of free and forced oscillations.** (7 hours)

PART C

Unit 5 **Laplace Transforms** – Definition, Laplace transform of standard functions, properties (without proof). LT of periodic functions, LT of unit-step function and unit impulse function. Illustrative examples from engineering field. (7 hours)

Unit 6 **Inverse Laplace Transforms** – Definition and general properties, convolution theorem with proof and problems. Application of LT to solve initial value problems in engineering and solutions of simultaneous differential equations. (6 hours)

PART D

Unit 7 **Vector integration** : Evaluation of Line integrals, surface integrals and volume integrals, illustrative examples. Statement of Green's theorem, Stoke's theorem and Gauss Divergence theorem, Illustrative examples including verification of the theorems. (7 hours)

Unit 8 **Partial Differential Equation:** Formation of PDE by Eliminating arbitrary constants/arbitrary functions, Solution of a PDE by direct integration method. Application of PDE- Introduction, Solution of one dimensional Wave equation, one dimensional Heat flow Equation and two dimensional Laplace's equation by the Method of separation of variables.

(6 hours)

Text book:

Dr. B. S. Grewal, Higher Engineering Mathematics, Khanna Publications, 40th edition (2007)

Reference books:

1. Tom M Apostol, Calculus, Volume 1 and 2, 2nd Edition, Wiley India (Delhi) Publication
2. Erwin Kreyezig, Advanced Engineering Mathematics, Tata McGraw Hill Publications, 8th edition (2007)
3. Advanced Engineering mathematics by RK Jain and SRK iyengar, narosa publishers, 2005, 2rd edition

PE107/PE207: Physical Education Activity LTPC: (0-0-4)2

This is a special course based on some specified activities.

- The students of first year B.E. shall take this course in the prescribed semester (either I semester or II semester).
- They shall indicate the choice of activities given below (Minimum three and Maximum five, ex: A1, A5, A7 etc.) during registration in the order of their preference.
- The student shall be assigned with an activity by the Dean Student Welfare in consultation with the Physical Education Director keeping in view the available resources.
- The students shall be divided into two groups say A & B, so that group A shall do activities on Monday and Tuesday and group B on Wednesday and Thursday from 4.45 to 5.45 PM.

Activities:

Code	Activity
A1	VOLLEY BALL
A2	KHO-KHO
A3	BASKET BALL
A4	KABADDI
A5	FOOT BALL
A6	HAND BALL
A7	BALL BADMITTON
A8	SHUTTLE BADMITON
A9	TABLE TENNIS
A10	HOCKEY
A11	ATHLETICS
A12	THROW BALL
A13	YOGA
A14	SSA
A15	For differently abled

Criteria for award of grades (Attendance + Performance in activity)

Grade	Minimum attendance for award of grade (%)	Performance in Activity
S	90	Assessed by the faculty in charge and the Physical Education director
A	85	Assessed by the faculty in charge and the Physical Education director
B/C/D/E	75	These students shall be screened and assessed by the committee consisting of Dean student welfare, Physical Education director, Dr. C.V. Venkatesh, Dr. K.A. Venugopal and Mrs. Sumana Jayaprakash before grades are awarded.
A student shall repeat the course if the attendance is less than 75 %.		

HS001: Professional English LTPC (1-0-1-1.5)

Course Outcomes

At the end of this course the student will be able to

1. Recognize and perceive the forms and meanings of the parts of speech, subject verb agreement, verbs and tenses. (PO8)
2. Understand and demonstrate effectively the listening, speaking and reading skills for academic and professional purpose. (PO1, PO7, PO10)
3. Develop sentence structure and vocabulary building for reported speech. (PO7)
4. Inculcate reading habits and gain effective reading skills (PO4, PO9)

PART A

UNIT-1

Listening: Listening during casual chats, face to face encounters, etiquette for telephone talks and messages, viewing and enjoying TV and radio programs, understanding formal lectures, seminars and conferences, active listening through various activities. **06 Hrs.**

UNIT-2

Speaking: Expressing and communicating thoughts, ideas and observations, two ways of communication: Face to face conversation and Telephonic conversation, Acquiring competencies for choice of words, pronunciation, grammar and vocabulary, Participation in group discussions, group activities, playing games, role-plays, mock interviews and solving problems in worksheets, etc. **06 Hrs.**

PART B

UNIT-3 & 4

Reading: Reading as a receptive skill in written form to improve upon the other skills, Reading skill for improvement of comprehension, reading materials to be prescribed and provided.

09 Hrs.

PART C

UNIT- 5 & 6

Writing: Writing as productive skill representing speech in graphical form, developing and presenting thoughts in structured ways, improvement of writing skills through various activities and worksheets.

09 Hrs.

PART D

UNIT- 7

Grammar: Grammar as a set of structural rules to govern composition of sentences, phrases, and words, study of grammar rules, parts of speech, adjectives, adverbs, common phrases, sentence structuring, paragraph writing, note taking, etc. **05 Hrs.**

UNIT- 8

Vocabulary: Use of words in common vocabulary, learning through various games and activities. **04 Hrs.**

Evaluation: *CIE–Details will be given by the Course Faculty; and SEE (50 Marks)*

Text Books: *Details will be given by the Course Faculty*

Reference Books: *Details will be given by the Course Faculty*

HS002	Professional Kannada (**Audit course**)	2	0	0	**0.0**

PROFESSIONAL KANNADA (Audit Course)

KANNADA KALI (For Non-Karnataka Students)

Lesson 1 : Introducing each other-12 : Personal Pronouns, Possessive forms, Interrogative words.

Lesson 2 : Introducing each other-2 : Personal Pronouns, Possessive forms, Yes / No Type Interrogation

Lesson 3 : About Ramayana, Possessive forms of Nouns, Dubitive Question, Relative Nouns

Lesson 4 : Enquiring about room, Predicative Forms Locative Case.

Lesson 5 : Enquiring about room, Predictive Forms, Locative Case

Lesson 6 : Vegetable market : Dative case, Basic Numerals

Lesson 7 : Plan to go for a picnic : Imperative, Permissive, Hortative.

Lesson 8 : Conversation between Doctor and the patient : potential forms, accusative case

Lesson 9 : Conservation between Doctor and the patient : Potential forms accusative case

Lesson 10 : Doctors advise to patient

Lesson 11 : Plan to go for a movie : Comparative, Non-Pastense, Instrumental and Ablative Case

Lesson 12 : About Brindavan Garden : Past tense negation

Lesson 13 : Routine Activities of Student

Lesson 14 : Telephone conservation : Past and Present Perfect past Continuous and their negation

Lesson 15 : Halbid, Belur : Relative Participle, Negation and Participle Nouns

Lesson 16 : Discussing about examination and further plan : conditional and negati9ve conditions

Lesson 17 : Karnataka (Lesson for Reading)

Lesson 18 : Kannada Bhaashe (Lesson for Reading)

Lesson 19 : Mana Taruve Sangati Alla (Lesson for Reading)

Lesson 20 : Beku Bedagalu (Lesson for Reading)

Text Book :

Lingadevaru Halemane, "Kannada Kali", Prasaranga, Kannada University, Hampi, 2002

HS002	Professional Kannada (**Audit course**)	2	0	0	**0.0**

ಕನ್ನಡ ಮನಸು

(Karnataka Students)

1. ಶ್ರಾವಣ (ಕವನ) ದ.ರಾ. ಬೇಂದ್ರೆ
2. ಡಾ॥ ವಿಶ್ವೇಶ್ವರಯ್ಯ ವ್ಯಕ್ತಿ ಮತ್ತು ಐತಿಹ್ಯ (ವ್ಯಕ್ತಿಚಿತ್ರ), ಎ.ಎನ್. ಮೂರ್ತಿರಾವ್
3. ದೋಣಿ ಹರಿಗೋಲುಗಳಲ್ಲಿ (ಪ್ರವಾಸ ಕಥನ) ಶಿವರಾಮ ಕಾಂತ
4. ಅಣ್ಣಪ್ಪನ ರೇಷ್ಮೆ ಕಾಯಿಲೆ (ಪ್ರಬಂಧ) ಕುವೆಂಪು
5. ನಮ್ಮ ಎಮ್ಮೆಗೆ ಮಾತು ತಿಳಿಯುವುದೇ ? ವಿನೋದ) ಗೊರೂರು ರಾಮಸ್ವಾಮಿ ಅಯ್ಯಂಗಾರ್
6. ಆನೆಹಳ್ಳದಲ್ಲಿ ಹುಡುಗಿಯರು (ವಿಜ್ಞಾನ ಲೇಖನ) ಬಿ.ಜೆ.ಎಲ್.ಸ್ವಾಮಿ
7. ಬೆಡ್ ನಂ. ಏಳು (ಕತೆ) ತ್ರಿವೇಣಿ
8. ರೊಟ್ಟಿ ಮತ್ತು ಕೋವಿ (ಕವನ) ಸು.ರಂ. ಏಕ್ಕುಂಡಿ
9. ಗುಬ್ಬಚ್ಚಿಯ ಗೂಡು (ಅಂಕಣ ಬರಹ) ಪಿ.ಲಂಕೇಶ್
10. ಚೀಂಕ್ರ ಮೇಸ್ತ್ರಿ ಮತ್ತು ಅರಿಸ್ಟಾಟಲ್ (ಪರಿಸರ ಲೇಖನ) ಕೆ.ಪಿ. ಪೂರ್ಣಚಂದ್ರ ತೇಜಸ್ವಿ
11. ಗಾಂಧಿ (ಕತೆ) ಬೆಸಗರಹಳ್ಳಿ ರಾಮಣ್ಣ
12. ಬೆಲ್ಜಿಯ ಹಾಡು (ಕವನ) ಸಿದ್ದಲಿಂಗಯ್ಯ
13. ಎಲ್ಲ ಹುಡುಗಿಯರ ಕನಸು (ಕವನ) ಸವಿತ ನಾಗಭೂಷಣ
14. ನೀರು (ಕತೆ) ಬಸವರಾಜ ಕುಕ್ಕರಹಳ್ಳಿ
15. ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿಯ ಒಂದು ಚಿತ್ರ (ಪರಿಚಯ ಲೇಖನ) ರಹಮತ್ ತರೀಕೆರೆ
16. ವೃತ್ತಿ ಶಿಕ್ಷಣದಲ್ಲಿ ಕನ್ನಡ ಮಾಧ್ಯಮ (ತಂತ್ರಜ್ಞಾನ ಬರಹ) ಎಸ್.ಸುಂದರ್
17. ಕೊಣವೇಗೌಡ (ಕಾವ್ಯ) ಜಾನಪದ

ಪಠ್ಯ ಪುಸ್ತಕ :

"ಕನ್ನಡ ಮನಸ್ಸು" ಪ್ರಸಾರಾಂಗ, ಕನ್ನಡ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಹಂಪಿ 2002