Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat)

SCHEME OF STUDIES & EXAMINATIONS
B.Tech. 1st YEAR (SEMESTER – I) (Common for all branches)
Credit Based Scheme w.e.f. 2012-13

S. No.	Course No.	Course Title	Teaching Schedule L	T	P	Marks of Class work	Examination Marks Theory	Practical	Total	Credit	Duration of Exam
1	HUM101B	COMMUNICATIVE ENGLISH	3	1		25	75	-	100	4	3
2	MATH101B	MATHEMATICS-I	3	1		25	75	-	100	4	3
3	PHY101B	ENGINEERING PHYSICS-I	3	1		25	75	-	100	4	3
4	ME101B	MANUFACTURING PROCESSES **(Gr-A)**	3	1		25	75	-	100	4	3
		OR									
	CH101 B	ENGINEERING CHEMISTRY (**Gr-B)**	3	1		25	75				
5	EE101B	PRINCIPLES OF ELECTRICAL ENGINEERING **(Gr-A)**	3	1		25	75	-	100	4	3
		OR									
	CSE101B	INTRODUCTION TO COMPUTERS & PROGRAMMING (**Gr-B)**	3	1		25	75	-	100		
6	ME103B	ENGINEERING GRAPHICS & DRAWING **(Gr-A)**	1	-	4	40	-	60	100	3	3
		OR									
	ME105B	ELEMENTS OF MECHANICAL ENGINEERING (**Gr-B)**	3	1	-	25	75		100	4	
7	PHY103B	PHYSICS LAB-I	-	-	2	20		30	50	1	3
8	ME 107B	WORKSHOP PRACTICE**(Gr-A)**	-	-	4	40		60	100	2	3
		OR									
	CH103B	CHEMISTRY LAB (**Gr-B)**	-	-	2	20		30	50	1	
9	EE103B	PRINCIPLES OF ELECTRICAL ENGINEERING LAB **(Gr-A)**	-	-	2	20		30	50	1	3
		OR									
	CSE103B	COMPUTER PROGRAMMING LAB (**Gr-B)**	-	-	2	20		30	50	1	
10	ME109B	ELEMENTS OF MECHANICAL ENGINEERINGLAB (**Gr-B)**	-	-	2	20		30	50	1	3
Total		**Gr-A**	**16**	**5**	**12**	**245**	**375**	**180**	**800**	**27**	
		Gr-B	**18**	**6**	**8**	**230**	**450**	**120**	**800**	**28**	

Note:

Every student has to participate in the sports activities. Minimum one hour is fixed for sports activities either in the morning or evening. Weightage of sports is given in General Proficiency and Ethics Syllabus.

The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator is prohibited in the examination.

Electronics gadgets including Cellular phones are not allowed in the examination.

All the branches are to be divided in to Group-A and Group-B as per the suitability of the Institute/College so that there is equitable distribution of teaching load in odd and even semesters.

HUM 101B COMMUNICATIVE ENGLISH
B. Tech. Semester - I (Common for all Branches)

L	T	P	Credits			
				Class Work	:	25 Marks
3	1	--	4	Examination	:	75 Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

Objective

The course aims at developing the desired language (English) skills of students of engineering and technology so that they become proficient in communication to excel in their professional lives. The course has been designed so as to enhance their linguistic and communicative competence.

Course Content

UNIT I

Communicative Grammar:

23 Spotting the errors pertaining to tenses, conditional sentences, Concord – grammatical concord, notional concord and the principle of proximity b/w subject and verb

24 Voice, Reported Speech.

UNIT II

Langauge through Literature:

Linguistic Reading of the following texts

23 'Kabuliwallah' by Rabindranath Tagore*

24 'Am I Blue?' by Alice Walker*

25 'If You are Wrong, Admit It' by Dale Carnegie*

26 'Engine Trouble' by R.K. Narayan*

The prescribed texts will be used as case studies for various components of the syllabus.
* the Source is given in the list of Texts Books given below.

UNIT III

Group Communication:

23 Communication: concept, Process and Barriers
24 Communicating using Standard Pronunciation with the help of IPA
25 Formal Speaking with peers (e.g. discussion, talks on current issues in a class)

23 Writing official letters on issues concerning students and social life

24 Writing small reports on scientific issues, IT issues, University fests/programmes

C) E-mail writing and writing for web

UNIT IV

Communicative Creativity:

23 Comprehension: Extracting, interpreting, summarizing, reviewing and analyzing the prescribed texts.

24 Composition: Developing themes and situations through role play activities or dialogue writing.

TEXT BOOKS

23 Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech & Jan Svartvik. *A Comprehensive Grammar of the English Language*. London: Longman, 1989

24 Communicative English for Engineers and Professionals by Nitin Bhatnagar & Mamta Bhatnagar New Delhi: Pearson / Longman

25 Crystal, David. Rediscover Grammar. London: Longman/Pearson, 1988.

26 *Tagore, Rabinder. "Kabuliwallah" , *Famous Indian Stories*. Ed. M.G.Narsimha Murthy .Mumbai: Orient Blackswan, 2009. (Web source: www.angelfire.com)

27 * Walker, Alice. "Am I Blue" , *An Anthology of Short Stories* . Ed. Usha Bande .New Delhi: OUP , 2004. (Web source- www.old.li.scru.edu)

28 *Narayanan .K.R. "Engine Trouble", *Contemporary English Prose* .Ed. K.P.K.Menon. New York: OUP,1976. (Web Source- www.scribd.com)

29 *Carnegie, Dale. "If you are wrong admit it", *An Anthology of Modern Prose*. Ed Manmohan K.Bhatnagar.Delhi :Macmillan India Ltd,2006.

SUGGESTED READING

23 Pink, M.A. and S.E. Thomas. *English Grammar, Composition and Correspondence.* Delhi: S. Chand and Sons

24 McRae, John and Roy Boardman. *Reading Between the Lines.* Delh: Foundation Books (Cambridge University Press)

25 Sharma, Sangeeta and Binod Mishra. *Communication Skills for Engineers and scientists*. Delhi: PHI, 2009

26 Fitikides, T.J. *Common Mistakes in English*. Essex: Pearson Education, 1936, 6th edition 2000.

SCHEME OF END SEMESTER EXAMINATION (MAJOR TEST)

Theory

23 The duration of the exam will be 3 hours.

24 The Question Paper for this theory course shall have seven questions in all covering all the units of the syllabus..

23 The student is required to attempt all the seven questions.

24 Questions No. 1 based on Unit I is of **15** marks. It may be in the form of 'Do as directed: trace the error, choose the correct alternative, supply the correct alternative/s, change the voice, convert the speech from direct to indirect or vice-versa'.

25 Question no 2 and 3 based on prescribed texts in Unit II. Question no 2 of **10 m**arks is to evaluate the comprehension of the text through short answer questions or a long answer question to assess the students' reading comprehension, interpretative and analytical abilities. Question no 3 of **15** marks will judge the linguistic aspect of the text such as using a particular word in its various syntactic forms like noun, adjective, verb etc.; matching the lists of words and their explanation; providing opposite/similar meanings and other grammar components prescribed in Unit I of the syllabus.

26 Question no 4 based on Unit III is of **10** marks. It may be in the form of transcription of words given, describe an event, classmate, discuss an issue etc.

27 Question no 5 based on Unit III is of **10** marks. It requires the student to frame either a small report on a topic given or write the given official letter, or e-mail a message.

28 Question no 6 based on unit IV is of **10** marks. It evaluates the Comprehension and Interpretation of the texts prescribed in Unit II. The vocabulary, general understanding and interpretation of the content may be evaluated in the form of question answer exercise, culling out important points, suggesting a suitable topic/title, summarising and interpreting.

29 Question No. 7 based on unit IV is of **5** marks. It requires the student to develop a hypothetical situation in a dialogue form, or to develop an outline, key expression, for role play activity.

MATH 101B MATHEMATICS - I
B. Tech. Semester - I (Common for all Branches)

L	T	P	Credits			
3	1	--	4	Class Work	:	25 Marks
				Examination	:	75 Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT-I

Infinite series : Convergence and divergence, Comparison, D' Alembert's ratio, Integral, Raabe's, Logrithmic and Cauchy root tests, Alternating series, Absolute and conditional convergence.

Applications of Differentiation : Taylor's and Maclaurin's series, Asymptotes, Curvature Asymptotes.

UNIT-II

Partial Differentiation & its Applications : Functions of two or more variables; partial derivatives, Total differential and differentiability, Derivatives of composite and implicit functions, Jacobians, Higher order partial derivatives.

Homogeneous functions, Euler's theorem, Taylor's series for functions of two variables (without proof), maxima-minima of function of two variables, Lagrange's method of undetermined multipliers, Differentiation under integral sign.

UNIT-III

Applications of Single & Multiple Integration : Applications of single integration to find volume of solids and surface area of solids of revolution. Double integral, change of order of integration, Double integral in polar coordinates, Applications of double integral to find area enclosed by plane curves and volume of solids of revolution.

Triple integral, volume of solids, change of variables, Beta and gamma functions and relationship between them.

UNIT-IV

Vector Calculus : Differentiation of vectors, scalar and vector point functions Gradient of a scalar field and directional derivative, divergence and curl of a vector field and their physical interpretations.

Integration of vectors, line integral, surface integral, volume integral, Green, Stoke's and Gauss theorems (without proof) and their simple applications.

TEXT BOOKS :

23 Advanced Engineering Mathematics : F. Kreyszig.
24 Higher Engineering Mathematics : B.S. Grewal.

REFERENCE BOOKS :

23 Engineering Mathematics Part-I : S.S. Sastry.

24 Differential and Integral Calculus : Piskunov.
25 Advanced Engineering Mathematics : R.K. Jain and S.R.K.Iyengar

23 Advanced Engg. Mathematics : Michael D. Greenberg

Note:

23 In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

24 The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed

PHY 101B ENGINEERING PHYSICS - I
B. Tech. Semester - I (Common for all Branches)

L	T	P	Credits			
3	1	--	4	Class Work	:	25 Marks
				Examination	:	75 Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT-I

PHYSICAL OPTICS:

Interference: Division of wave front-Fresnel's Biprism, Division of amplitude – Newton's rings, Michelson interferometer, applications.

Diffraction : Difference between Fraunhofer and Fresnel diffraction, Fraunhofer diffraction through a slit, Plane transmission grating and its spectra, dispersive and resolving diffraction powers.

Polarization : Polarised and unpolarized light, double refraction, Nicol prism, quarter and half wave plates, Plane, Elliptically & circularly polarised light, Polarimetry: Biquartz and Laurent's half-shade polarimeters.

UNIT-II

LASER & FIBRE OPTICS: Introduction, Spontaneous and stimulated emissions, Laser action, characteristics of laser beam, Ruby laser, He-Ne, Nd-Yag and semiconductor lasers, applications of laser.

Introduction, Propagation of light in fibres, Types of fiber (pulse & continuous), numerical aperture, Modes of propagation in optical fibre, application of optical fibre.

ACOUSTIC OF BUILDINGS: Introduction, Reverberation, Sabine's formula for reverberation time, Absorption coefficient and its measurements, factors affecting the architectural acoustics and their remedy, Sound absorbing materials.

UNIT-III

TRANSMISSION OF HEAT AND THERMAL RADIATION

Modes of transmission of heat, Thermal conductivity, Rectilinear flow of heat through a rod, Radial flow of heat through a spherical shell, determination of Thermal conductivity of good and bad conductors.

Black body, Emissive and Absorptive Powers, Wein's Displacement Law, Kirchhoff's Law, Stefan's Law, Determination of Stefan's Constant.

UNIT-IV

NUCLEAR & ELEMENTARY IDEA OF PARTICLE PHYSICS

Outline of interaction of charged particles and of Gamma-rays with matter. Counters: Gas filled counters (Ionization Chamber, Proportional Counter and G M Counter).

Detector: Scintillation detector, Semiconductor detectors (p-n junction detector), Biological effects of nuclear radiation.

Introduction to elementary particles, Interaction in particle physics: strong, electromagnetic,

weak and gravitational. .

TEXT BOOKS :

1. A text book of Optics – Brij Lal and Subramanyam
23 Perspectives of Modern Physics - Arthur Beiser (TMH)
24 Modern Engineering Physics – A.S. Vasudeva (S. Chand)
25 Engineering Physics by R.K. Gaur and S.L. Gupta
26 Engineering Physics by H.K Malik and A.K. Singh (Tata McGraw Hill).
23 Engineering Physics by S.P. Taneja (Chand Pub.)

REFERENCE BOOKS:

1.. Physics Vol-I & II – Resnick & Halliday (Wiley Eastern)
23 Heat and Thermodynamics – M.N. Saha & B.N. Srivastava
24 Nuclear Physics Principles and Applications by John Lilley(Wiley-India).

Note:

23 In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
24 The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed

MANUFACTURING

ME 101B PROCESSES

B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits			
3	1	--	4	Class Work	:	25 Marks
				Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT-I

Introduction: Introduction to Manufacturing Processes and their Classification , automation in manufacturing**,** Industrial Safety; Introduction, Types of Accidents, Causes and Common Sources of Accidents, Methods of Safety, Electric Safety Measures, First Aid.

Plant Layout, Principles of Plant Layout, Objectives of Layout, Types of Plant and shop layouts an their Advantages.

UNIT-II

Engineering Materials: General Properties and Applications of Engineering Materials, Mild Steel, Medium Carbon Steel, High Carbon Steel, High Speed Steel and Cast Iron, Non-Ferrous Materials, Shop's Tools Materials, Super Alloys or High Temperature Materials

Foundry: Introduction to Casting Processes, Basic Steps in Casting Process, Pattern, Types of Patterns, Pattern allowances, Risers, Runners, Gates, Molding Sand and its composition, Sand Preparation, Molding Methods, Core Sands and Core Making, Core Assembly, Mold Assembly, Melting (Cupola) and Pouring, Fettling, Casting Defects and Remedies. Testing of Castings

UNIT-III

Cold Working (Sheet Metal Work): Sheet Metal Operations, Measuring, Layout Marking, Shearing, Punching, Blanking, Piercing, Forming, Bending and Joining - Advantages and Limitations. Hot Working Processes: Introduction to Hot Working, Principles of Hot Working Processes, Forging, Rolling, Extrusion, Wire Drawing.

Introduction to Machine Tools: Specifications and Uses of commonly used Machine Tools in a Workshop such as Lathe, Shaper, Planer, Milling, Drilling, Slotter, Introduction to Metal Cutting. Nomenclature of a Single Points Cutting Tool and Tool Wear, Mechanics of Chips Formation, Type of Chips, Use of Coolants in machining.

UNIT-IV

Welding: Introduction to Welding, Classification of Welding Processes, Gas Welding: Oxy-Acetylene Welding, Resistance Welding; Spot and Seam Welding, Arc Welding: Metal Arc, TIG & MIG Welding, Welding Defects and Remedies, Soldering & Brazing, Comparisons

among Welding, Brazing and Soldering

Surface Finishing Processes, Introduction to Heat Treatment Processes, Estimating o

Manufacturing Cost

Text Books:

23 Workshop Technology Vol. I & II - Hazra & Chaudhary, Asian Book Comp., New Delhi.
24 Process and Materials of Manufacture -- Lindberg, R.A. Prentice Hall of India,New Delhi.
25 Principles of Manufacturing Materials and Processes - Campbell, J.S.- McGraw- Hill.

Reference Books:

23 Manufacturing Science - Amitabha Ghosh & Ashok Kumar Malik, - East-West Press.
24 Manufacturing Process and Systems - Ostwald, Munoz , John Wiley.
25 Workshop Technology, Vol. 1, 2 & 3 – Chapman, WAJ, Edward Arnold.

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed

CH 101B ENGINEERING CHEMISTRY
B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits			
3	1	--	4	Class Work	:	25 Marks
				Examination	:	75 Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT-I

Thermodynamics –Second law, concept of entropy ,entropy change for ideal gas, free energy and work functions, free energy change ,chemical potential, Gibb's Helmholtz equation, Clausius – Clapeyron equation. Related numerical problems with above topics.

Phase-rule- Terminology, Derivation of Gibb's Phase Rule equation ,One component system(water system), Two components systems, system with Eutectic point (Pb-Ag), system with congruent melting point (Zn-Mg), system with incongruent melting point (Na-K), Applications of above systems. Elementary idea of Zone refining and Zone levelling

UNIT-II

Water and its treatment- Hardness of water and its determination, units of hardness, alkalinity of water and its determination, related numerical problems ,water softening, Ion-exchange process, mixed bed demineralisation, desalination of water by using different methods.

Corrosion and its prevention: Galvanic & concentration cell, dry and wet corrosion, Electrochemical theory of corrosion, Galvanic corrosion, Pitting corrosion , differential aeration corrosion, water line corrosion, stress corrosion, factor effecting corrosion, Preventing measures, electroless Plating of Ni and Cu.

UNIT-III

Polymers and Polymerization: Organic polymers, polymerisation, various types of polymerisation, effect of structure on properties of polymers, preparation properties and technical applications of thermoplastics (PE, PVC, PVA, Teflon), thermosets (PF, UF & MF) and elastomers (Synthetic Rubber including SBR, Buna-S, Buna-N, Thiokol & Polyurethanes) , Inorganic polymers (general properties) , Glass transition temperature, silicones

Composite Materials & their application: optical fibres, Fullerenes ,organic electronic material ,composite materials & their classification, constituents of composites, role of interface in composite performance and durability, fiber – Reinforced composite, advantage and applications of composites.

UNIT-IV

Lubricants and fuels: Friction, mechanism of lubrication, classification and properties of lubricants and selection of Lubricants, Definition and classification of fuel, Calorific value and

methods of its determination.

Analytical methods: Thermal methods; Principle, method and application of TGA,DTA & DSC, interaction of E.M radiation with a molecule and origin of spectrum, Vibrational & electronic spectra (Experimental details are excluded), spectrophotometry, , conductometeric titrations, elementary discussion on Flame-photometery.

TEXT/ REFERENCE BOOKS:

Physical Chemistry, P.W. Atkins (ELBS, Oxford Press).

Physical Chemistry, W.J. Moore (Orient-Longman).

Instrumental methods of Chemical Analysis, MERITT & WILLARD (East-West Press).

Chemistry in Engineering & Tech., Vol.I& II, Rajaram, Kuriacose (TMH)

5.Engineering Chemistry ,ShashiChawla (DhanpatRai and co.)

Engineering Chemistry, P.C. Jain, Monica Jain (DhanpatRai& Co.).

Engeenring chemistry ,S.S Dara (S.chand&co.)

Note:

In the semester examination, the Examiners will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

101BPRINCIPLES OF ELECTRICAL ENGINEERING B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits			
3	1	--	4	Class Work	:	25 Marks
				Examination	:	75 Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT-1

D.C. Circuit Analysis: Basic concepts of electric circuits, Ohm's Law, Independent energy sources, Dependent energy sources, passive elements, circuit properties, Kirchoff's laws, applications of Kirchoff's laws, Nodal and Loop methods of Analysis, , Superposition Theorem, Thevenin's Theorem, Norton's Theorem, Reciprocity Theorem, Maximum Power Transfer Theorem, Millman's Theorem, Star-Delta or delta-star transformation, Applications of network theorems P-spice for DC circuit analysis.

UNIT-2

A.C. Circuits: Sinusoidal signal, Phasors, polar & rectangular, exponential & trigonometric representations, Resistance, Inductance & Capacitance components, behavior of these components in A.C. circuits, Phasor relationship for circuit elements, Impedance & Admittance, instantaneous & peak values, average and RMS values, active power, reactive power, apparent power, power factor, complex power, behavior of AC series , parallel circuits, RL, RC & RLC A.C. circuits (series and parallel), Resonance-series and parallel R-L-C Circuits, Q-factor, cut-off frequencies & bandwidth.

UNIT-3

Three Phase Circuits: Phase and line voltages and currents, balanced star and delta circuits, power equation, measurement of power by two wattmeter method.

Measuring Instruments: Principle, Construction & working of moving coil type voltmeter & ammeter, moving iron type voltmeter & ammeter, Electrodynamic type wattmeter, single-phase induction type energy meter.

UNIT-4

Transformers: Ampere's law, Mutual Inductance, Construction, Working principle and phasor diagrams of Single-phase Transformer, Emf equation, Equivalent circuit, testing, efficiency and regulation of single-phase transformer, Auto transformer.

Rotating Machines: Construction and working principle of dc motor and generator and its characteristics. Construction and working principle of 3-phase Induction machines & 3-phase synchronous machines, torque-speed characteristics.

TEXT BOOKS:

Basic Electrical Engg (2nd Edition) : Kothari & Nagarath, TMH

Electrical Technology (Vol-I): B.L Theraja & A K Theraja, S.Chand

Fundamental of electrical Engineering, Rajendra Prasad, PHI, Edition 2005.

Basic Electrical Engineering, V.N Mittle & Arvind Mittal, TMH, Second Edition

Basic Electrical Engineering, S.N. Singh, PHI

REFERENCE BOOKS:

1. Electrical Engineering Fundamentals: Deltoro, PHI

2. Basic Electrical Engineering (TMH WBUT Series), Abhijit Chakrabarti & Sudipta Nath, TMH

Basic Electrical Engineering, T.K. Nagsarkar & M.S. Sukhija, Oxford
Introduction to Electrical Engineering, M.S. Naidu & S, Kamakshaiah, TMH
Basic Electrical Engineering, J.J. Cathey & S.A Nasar, TMH, Second Edition.

Note: In the semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

CSE 101B INTRODUCTION TO COMPUTERS AND PROGRAMMING

B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits			
				Class Work	**:**	**25 Marks**
3	**1**	**--**	**4**	**Examination**	**:**	**75 Marks**
				Total	**:**	**100 Marks**
				Duration of Examination	**:**	**3 Hours**

UNIT-I

An introduction of Computer System: Anatomy of a digital Computer, Different Units of Computer
System, Classification of Computer Systems, Radix Number systems. Binary codes: BCD, Gray,
EBCDIC, ASCII

Operating System: Operating System Concepts, Operating System services, Types of Operating Systems.
Introduction to PC Operating Systems: Unix/Linux, DOS, Windows.

UNIT-II

Programming Languages and algorithms: Machine, Assembly and High Level Language; Assembler, Linker, Loader, Compiler, Interpreter, debuggers, Programming fundamentals: problem definition, algorithms, flowcharts and their symbols

Computer Networks: Basic concepts of Computer Networks, Working of Internet and its Major
features. Network Topologies: Bus, Star, Ring, Hybrid, Tree, Complete, Irregular; Types of Networks:
LAN, MAN and WAN.
Electronic Mail: advantages and disadvantages, e-mail addresses, message components, message composition, mailer features, E-mail inner workings, E-mail management, Newsgroups, mailing lists, chat rooms.

UNIT-III

Basics of 'C' Language

C Fundamentals, Basic data types, local and external variables and scope, formatted input/ output, expressions, selection statements, loops and their applications; arrays, functions, recursive functions, pointers and arrays. Strings literals, arrays of strings; applications, Structures, Unions and Enumerations.

UNIT-IV

Advanced Features of 'C' Language

preprocessor directives, macro definition, conditional compilation, storage classes, type's qualifiers, Low level programming (Bitwise operators, Bit fields in structures, other low level techniques), error handling, file operations(low level/high level).

BOOKS

The C Programming Language by Dennis M Ritchie, Brian W. Kernigham, 1988, PHI.
Fundamentals of Computing and C Programming, R. B. Patel, Khanna Publications, 2010, New Delhi.
Computer Fundamentals and Programming in C, Reema Theraja, Oxford

Information technology, Dennis P. Curtin, Kim Foley, Kunal Sen, Cathleen Morin, 1998, TMH
Theory and problem of programming with C, Byron C Gottfried, TMH

Using Computers and Information by Jack B. Rochester, 1996, Que Education & Training.
C Programming – A modern approach by K.N. King, 1996, WW Norton & Co.

Note:

- In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
- The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed

ME 103 B ENGINEERING GRAPHICS AND DRAWING
B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits			
1	--	4	3	Class Work	:	40 Marks
				Examination	:	60Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT I

Basics of Engineering Graphics and Drawing – Drawing Papers, Minidrafter, Pencils. Drawing Paper Layout, Title Block, Types of Lines, Lettering, Dimensioning, types of Projections; First and Third Angle systems of Orthographic Projections. Projection of Points in different Quadrants.

Projections of Straight Lines – Contained by both Reference Planes, Contained by one and inclined to other Reference Plane, Contained by one and Parallel to other Reference Plane, Parallel to both Reference Plane, Perpendicular to one of the Reference Planes, Inclined to one Plane but Parallel to the other Reference Planes, Inclined to both the Reference Planes, True Length of a Line and its Inclination with Reference Planes, Traces of a Line.

UNIT II

Projections of Planes – Parallel to one Reference Plane, Inclined to one Plane but Perpendicular to the other, Inclined to both Reference Planes.

Projections of Polyhedral Solids and Solids of Revolution- in simple positions with axis perpendicular to a Reference Plane, with axis parallel to both Reference Planes, with axis parallel to one Reference Plane and inclined to the other Reference Plane, Projections of sections of Prisms, Pyramids, Cylinders and Cones. True Shape of Sections of Solids.

UNIT III

Development - Development of Surfaces of various Solids objects.

Free Hand Sketching - Orthographic Views from Isometric, Views of Simple Machine Components such as Brackets, Bearing Blocks, Guiding Blocks and Simple Couplings and Pipe Joints.

UNIT IV

Isometric Projections - Introduction, Isometric Scale, Isometric Views and Drawing of various Plane and Solids objects. Perspective drawing and oblique view.

graphic Drawings - Screw Threads, Bolts, Nuts and Washers, Bolted, Riveted and Welded Joints

Text Books:

Engineering Drawing: MB Shah and BC Rana, Pearsons

Engineering Graphics and Drafting: P.S. Gill, S.K. Kataria and Sons.

Reference Books:

A Text Book of Engineering Drawing: RK Dhawan, S Chand & Company

Engineering Drawing Plane and Solid Geometry : N.D. Bhatt, Charotar Publishing House.

Note:

For class work, the students shall be assigned to prepare at least ten drawing sheets covering all units and each topic of the syllabus.

For practical examination, the examiner will set a question paper containing total eight questions, two questions from each unit covering each topic of the syllabus; students are required to attempt five questions at least one from each unit.

ME 105 B ELEMENTS OF MECHANICAL ENGINEERING

B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits			
3	1	--	4	Class Work	:	25 Marks
				Examination	:	75Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

UNIT-I

Thermodynamics- Elementary definitions in thermodynamics, fundamentals of first and

2nd law of thermodynamic- concept of internal energy, enthalpy and entropy, heat pump and refrigerator, elementary numerical problems.

Properties of Steam & Boilers: properties of steam, use of steam tables and mollier diagram, measurement of dryness fraction of steam, Carnot and Rankin cycle, elementary numerical problems. Classification of boilers, Comparison of water and fire tube boilers mounting and accessories with their functions, Constructional and operational details of Cochran and Babcock and Wilcox boilers, elementary numerical problems.

Steam Turbines and Condensers: Classification of turbines and their working principles, Types of condensers and their uses.

UNIT-II

I.C. Engines and Gas Turbines: Introduction, Classification, Constructional details and working of two-stroke and four-stroke diesel and petrol engines, Efficiency of Otto & Diesel cycles , Working principle of gas turbine, elementary numerical problems.

Refrigeration and air conditioning- rating of refrigeration machine, coefficient of performance, simple vapor compression cycle, fundamentals of air conditioning, use of Psychrometric charts.

UNIT-III

Water Turbines and Pumps : Introduction, Classification, Construction details and working principle of Pelton, Francis and Kaplan turbines, Classification of water pumps and construction detail & working principle of centrifugal pump.

Simple Lifting Machines: Definition of machine, Velocity ratio, Mechanical advantage, Efficiency, Laws of machines, Reversibility of machine, Wheel and axle, Differential pulley block, Single, double and triple start worm and worm wheel, Single and double purchase winch crabs, Simple and compound screw jacks, elementary numerical problems.

UNIT-IV

Introduction to Power transmission and Devices: Belt drive, Rope drive, Chain drive, Types of gear and Gear train, Types and function of clutches, Types and function of brakes.

Stresses and Strains: Introduction, Concept & types of Stresses and strains, Poison's ratio, stresses and strains in simple and compound bars under axial loading, Stress-strain diagrams, Hooks law, Elastic constants & their relationships. Concept of shear force and bending moments in beams, elementary numerical problems.

TEXT BOOKS:

Hydraulic and Fluid Mechanics – Modi and Seth, Pub. – Standard Book House, New Delhi
Engineering Thermodynamics – C.P. Arora, Pub. - TMH, New Delhi
Thermal Engineering – A.S. Sarad, Pub. - Satya Prakashan, New Delhi.
Engineering Mechanics – K.L. Kumar, Pub. - TMH, New Delhi.
Theory of Machines – S.S. Rattan, Pub. – TMH, New Delhi.

REFERENCE BOOKS:

Strength of Materials – Popov, Pub. - PHI, New Delhi.
Hydraulic Machines – Jagdish Lal, Pub.- Metropolitan, Allahbad.
Thermal Science and Engineering – D.S. Kumar, Pub. – Kateria & Sons, New Delhi.

Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.
The use of scientific calculator will be allowed in the examination. However, programmable calculator and cellular phone will not be allowed

PHY 103B PHYSICS LAB - I
B. Tech. Semester - I (Common for all Branches)

L	T	P	Credits			
--	--	2	1	Class Work	:	20Marks
				Examination	:	30Marks
				Total	:	50 Marks
				Duration of Examination	:	3 Hours

Note: Students will be required to perform 10 experiments in a semester.

LIST OF EXPERIMENTS

To find the wavelength of sodium light by using Newton's rings experimental setup.
To find the wavelength of sodium light by Fresnel's biprism experimental setup
To find the wavelength of various colours of white light with the help of a plane transmission diffraction grating.
To find the refractive index and Cauchy's constants of a prism by using spectrometer.
To find the wavelength of sodium light by using Michelson interferometer.
To find the resolving power of a telescope.
To find the pitch of a screw using He-Ne laser.
To find the specific rotation of sugar solution by using a polarimeter.
To compare the capacitances of two capacitors by De'sauty bridge.
To find the flashing and quenching potentials of Argon and also to find the capacitance of unknown capacitor.
To study the photo conducting cell and hence to verify the inverse square law.
To find the temperature co-efficient of resistance by using platinum resistance thermometer and Callender and Griffith bridge.
To find the frequency of A.C. mains by using sonometer.
To find the velocity of ultrasonic waves in non-conducting medium by piezo-electric method.
To determine the value of Stefan’s constant.
To find the coefficient of thermal conductivity of a good conductor by Searle’s method.
To determine the coefficient of thermal conductivity of a bad conductor by Lee and Charlton method.

RECOMMENDED BOOKS :

Advanced Practical Physics – B.L. Worshnop and H.T. Flint (KPH)
Practical Physics – S.L.Gupta & V.Kumar (Pragati Prakashan).
Advanced Practical Physics Vol.I & II – Chauhan & Singh (Pragati Prakashan).

ME 107B WORKSHOP PRACTICE
B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits			
--	--	4	2	Class Work	:	40 Marks
				Examination	:	60Marks
				Total	:	100 Marks
				Duration of Examination	:	3 Hours

LIST OF EXPERIMENTS / JOBS

To study different types of measuring tools/instruments used in metrology and determine least counts of vernier calipers, micrometers and vernier height gauges.

To study different types of machine tools (lathe, shaper, planer, slotter, milling, drilling machines).

To prepare a job on a lathe involving facing, outside turning, taper turning, step turning, radius making and parting-off.

To study different types of fitting tools and marking tools used in fitting practice.

To prepare lay out on a metal sheet by making and prepare rectangular tray, pipe shaped components e.g. funnel.

To prepare joints for welding suitable for butt welding and lap welding.

To study various types of carpentry tools and prepare simple types of at least two wooden joints.

To prepare simple engineering components/ shapes by forging.

To prepare mold and core assembly, to put metal in the mold and fettle the casting.

To prepare horizontal surface/ vertical surface/ curved surface/ slots or V-grooves on a shaper/ planner.

To prepare a job involving side and face milling on a milling machine.

To study of CNC lathe, CNC Milling and EDM Machines.

Note: 1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.

At least 8 experiments/ jobs should be performed / prepared from the above list, remaining two may either be performed/ prepared from the above list or designed and set as per the scope of the syllabus of Manufacturing Processes.

CH 103B **CHEMISTRY LAB.**

B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits			
--	-	2 -	1	**Class Work**	:	**20 Marks**
				Examination	:	**30Marks**
				Total	:	**50 Marks**
				Duration of Examination	:	**3 Hours**

LIST OF EXPERIMENTS

Determination of Ca++ and Mg++ hardness of water sample using EDTA solution.

Determination of alkalinity of water sample.

Determination of dissolved oxygen (DO) in the given water sample.

To find the melting and eutectic point for a two component system by using method of cooling curve.

Determination of viscosity of lubricant by red wood viscometer(No. 1 & No. 2).

0 To determine Flash point & Fire point of an oil by Pensky-Marten's flash point apparatus and by Abel's closed cup apparatus..

0 To prepare Phenol-formaldehyde and urea- formaldehyde resin.
1 To find out saponification No. of an oil..
2 Determination of concentration of $KMnO_4$ solution spectrophotometerically.
3 Determination of strength of HCl solution by titrating it against NaOH solution conductometrically.
4 To determine amount of sodium and potassium in a given water sample by flame photometer
5 Estimation of total iron in an iron alloy.

Suggested Books:

A Text book on Experiments and Calculation –Engineering Chemistry by S.S.Dara, S.Chand & Company Ltd.

Essential of Experimental Engineering chemistry, Shashi Chawla, Dhanpat Rai Publishing Co.

Theory & Practice Applied Chemistry – O.P.Virmani, A.K. Narula(New Age).

Note:

The student will be required to perform 10 experiments/exercises from the above list and any other two experiments designed by the department based on the theory course (course code101B Course Name Chemistry)

The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator are prohibited in the examination.

Electronic gadgets including Cellular phones are not allowed in the examination.

103B PRINCIPLES OF ELECTRICAL ENGINEERING LAB

B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits			
--	--	2	1	Class Work	:	20 Marks
				Examination	:	30Marks
				Total	:	50 Marks
				Duration of Examination	:	3 Hours

LIST OF EXPERIMENTS

To verify KCL and KVL.

To verify Thevenin’s & Norton's Theorems.

To verify maximum power transfer theorem in D.C. Circuit.

To verify reciprocity theorem.

To verify Superposition theorem.

To study frequency response of a series R-L-C circuit and determine resonant frequency & Q-factor for various Values of R, L, C.

To study frequency response of a parallel R-L-C circuit and determine resonant frequency & Q - Factor for various values of R, L, C.

To perform direct load test of a transformer and plot efficiency Vs load characteristic.

To perform direct load test of a D.C. shunt generator and plot load voltage Vs load current curve.

To study various type of meters.

11. .Measurement of power by three voltmeters / three ammeters method.

Measurement of power in a three phase system by two watt meter method.

Note:

At least 10 experiments are to be performed by students in the semester.

At least 8 experiments should be performed from the above list; remaining two experiments may either be performed from the above list or designed and set by the Dept. as per the scope of the syllabus of EE101B.

CSE 103B COMPUTER PROGRAMMING LAB

B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits			
--	--	2	1	Class Work	:	20 Marks
				Examination	:	30Marks
				Total	:	50 Marks
				Duration of Examination	:	3 Hours

LIST OF PRACTICAL PROBLEMS

Write a program to find the largest of three numbers. (if-then-else)

Write a program to find the largest number out of ten numbers (for-statement)

Write a program to find the average mail height & average female heights in the class (input is in form of sex code, height).

Write a program to find roots of quadratic equation using functions and switch statements.

Write a program using arrays to find the largest and second largest no. out of given 50 nos.

Write a program to multiply two matrices.

Write a program to sort numbers using the Quicksort Algorithm.

Represent a deck of playing cards using arrays.

Write a program to check that the input string is a palindrome or not.

Write a program to read a string and write it in reverse order.

Write a program to concatenate two strings.

Write a program which manipulates structures (write, read, and update records).

Write a program which creates a file and writes into it supplied input.

Write a program which manipulates structures into files (write, read, and update records).

Note: At least 5 to 10 more exercises to be given by the teacher concerned

ME 109 B ELEMENTS OF MECHANICAL ENGINEERING LAB.
B. Tech. Semester – I/II (Common for all Branches)

L	T	P	Credits			
--	--	2	1	Class Work	:	20 Marks
				Examination	:	30Marks
				Total	:	50 Marks
				Duration of Examination	:	3 Hours

LIST OF EXPERIMENTS

To study Cochran & Babcock & Wilcox boilers.

To study the working & function of mountings & accessories in boilers.

To study 2-Stroke & 4-Stroke diesel engines.

To study 2-Stroke & 4-Stroke petrol engines.

To calculate the V.R., M.A. & efficiency of single, double & triple start worm & worm wheel.

To calculate the V.R., M.A. & efficiency of single & double purchase winch crabs.

To draw the SF & BM diagrams of a simply supported beam with concentrated loads.

To study the simple & compound screw jacks and find their MA, VR & efficiency.

To study the constructional features & working of Pelton Turbine.

To prepare stress-strain diagram for mild steel & cast iron specimens under tension and compression respectively on a Universal testing machine.

Note: 1. Total ten experiments are to be performed in the Semester.

At least eight experiments should be performed from the above list. Remaining three experiments should be performed as designed & set as per the scope of the syllabus of ME – 101: Elements of Mechanical Engineering.

4.