DR. K N MODI UNIVERSITY, NEWAI
STUDENT EVALUATION SYSTEM

Examination Process

Continuous Assessment

All courses undertaken by students are evaluated during the semester using internal system of continuous assessment. The students are evaluated on class /tutorial participation, assignment work, lab work, class tests, mid-term tests, quizzes and end semester examinations, which contribute to the final grade awarded for the subject. Students will be notified at the commencement of each courses about the evaluation methods being used for the courses and weightages given to the different assignments and evaluated activities.

In order to make the evaluation system as similar and transparent with any of the globally reputed educational institutions like N.I.Ts, I.I.Ts etc. the Dr. K. N. Modi University Academic Council has adopted the grading practices. Here marks obtained in the continuous assessment and end semester examination are added together and a 10-point grading system will be used to award the student with on overall letter grade for the course (subject).

Distribution of Marks

(i) Courses without Practical Components

(a)	Attendance Class participation, Class Tests, Quizzes, Projects, Seminar etc. - 10 Marks	40
(b)	Two Assignments of 5 marks each (for each subject) - 10 Marks	
(c)	Midterm Test I - 10 Marks	
(d)	Midterm Test II - 10 Marks	
(e)	End –Term Examination - 60 Marks	60 Marks
	Total :	**100**

(ii)Courses with Practical Components only

Internal Practical Examination and Continuous Progress-	50
End –Term Examination (Practical) -	50
Total :	**100**

Letter Grading System

Final evaluation of course is carried out on a TEN POINT grading system. Performance Grade and Grade Points are as shown below:

Table 1

Marks	Grade Value	Grade	Description
91 to 100	10	AA	Out Standing
81 to 90	9	A+	Excellent
71 to 80	8	A	Very Good
61 to 70	7	B+	Good
51 to 60	6	B	Above Average
41 to 50	5	C	Satisfactory
Less than 41	0	F	Exposed
Absent in the University Final Examination	0	I	Incomplete

***Note**: In order to convert the SGPA and CGPA into percentile, multiply the same with the Conversion factor of 10.*

A student who earns a minimum of 5 grade Point (C grade) in a course (subject) is declared to have successfully completed the course, and is deemed to have earned the credits assigned to that course. A course successfully completed cannot be repeated.

A student should have appeared for the end semester examination of the prescribed course of study (mere appearance in the continuous assessment test is not sufficient) to be eligible for the award of the degree in the course.

If a student is eligible for but-fails to appeared in the end semester examination, he/she will be awarded an „I grade (in complete) on the grade sheet. For all practical purposes an I Grade is treated as an F.

If a student is not eligible to appear in the end semester examination owing to his/her not fulfilling the minimum attendance requirements, he may be permitted to re-register for those courses in which he/she had attendance shortage, at the next available opportunity.

Grade Point Average (SGPA) &Cumulative Grade Point Average (CGPA)

Each course grade will be converted into a specific number of points associated with the

grade as mentioned in above Table 1. Here points are weighted with the number of credits assigned to a course. The Grade Point Average (GPA) is the weighted average of grade points awarded to a student. The Grade Point Average for each semester will be calculated only for those students who have passed all the courses of that semester. The weighted average of GPA‟s of all semester that the student has completed at any point of time is the Cumulative Grade Point Average (CGPA) at that point of time.

CGPA up to any semester will be calculated only for those students who have passed all the courses up to that semester.

A student of student has to earn minimum of 244 credits to gets his B. Tech. Degree on completion of eight semesters.

Calculation of SGPA and CGPA:

Example:

Table 2

Courses	**Credits**	**Letter Grade**	**Grade Value**	**Credit Value**	**Grade Points**
Mathematics	3	B+	7	3x7	21
Chemistry	3	A	8	3x8	24
Physics	3	A+	9	3x9	27
Language Lab	2	A	8	2x8	16
TOTAL	11			TOTAL	88

In this case GPA = $\frac{\text{Total Grade Points}}{\text{Credits}} = \frac{88}{11} = \mathbf{8.0}$

Suppose the GPAS in two successive semesters are 7.0 and 8.0 with 26 and 24 respective course credits, then the

CGPA = $\frac{7x26+8x24}{26+24} = \frac{374}{50} = 7.48$

After the results are declared, grade cards will be issued to each student which will contain the list of courses for that semester and the grades obtained by the student, as well as GPA of that semester. However, a conversion factor of “10”, will be included, enabling students

and future employers for transforming CGPA into percentage of marks at par with the existing practices of I.I.Ts, N.I.Ts and A.I.C.T.E.

Minimum Eligibility Requirements in Dr. K. N. Modi University for proceeding to the next academic year of study.

A First year Student of Dr. K. N. Modi University satisfying the below mentioned requirements is eligible to study in the 3rd Semester of next academic year."Pass with Minimum C Grade in Four Theory Papers & Pass in Four Laboratory Papers in the I & II Semester (Combined)"

A Second year Student of Dr. K. N.Modi University satisfying the below mentioned requirements is eligible to study in the Vth Semester of the next academic year.

"Pass with Minimum C Grade in Four Theory Papers & Pass in Four Laboratory Papers in the IIIrd & IV Semester (Combined)"

A Third year Student of Dr. K. N. Modi University satisfying the below mentioned requirements is eligible to study in the VIIth Semester of the next academic year.

"Pass with Minimum C Grade in Four Theory Papers & Pass in Four Laboratory Papers in the Vth& VI Semester (Combined)"

Proficiencies:

Extra-curricular activities as listed below will be offered to students of all programs. These activities will run in both semesters and evaluated. Activities will be graded as outstanding / Excellent / Very Good / Good / Above Average / Satisfactory / Exposed / Incomplete. The extracurricular activities are sports, cultural:

1.	Tennis	2.	Athletics	3.	Table Tennis
4.	Badminton	5.	Gymnastics	6.	Chess
7.	Throw Ball	8.	Gardening	9.	Organization & Management
10.	Football	11.	Electronics	12.	Fine Arts & Paintings
13.	Cricket	14.	Social Service Club	15.	Rovers & Rangers
16.	Volleyball	17.	Music and Dramatics	18.	Model and Sculptures
19.	Basketball	20.	Debate	21.	Equestrian Race
22.	Kho - Kho	23.	Robotics	24.	Yoga & Meditation
25.	Art & Photography Club	26.	Cultural Club	27.	Any other activity with prior approval of the President.

Guideline for submission of assignment

A. Assignments (Theory)

Following are the guidelines of assignments, their evaluation.

Assignment means a set of work, tasks and/or numerical problems given to the student, on the basis of topics recently covered in the class as homework to be solved and submitted, within the time frame given by the faculty and the examination cell. Each assignment should require 5 – 6 hours work to be done by the student. The Date of Submission (DOS) duly announced on the Date of Allotment (DOA) to the student and duly mentioned in the Academic Calendar.

1. In a multiple-section course, the preparation, duplication and distribution is the responsibility of the *Course Coordinator.*
    a. Allotment of an assignment should be made in the academic calendar of the semester. The Date of Submission (DOS) of an assignment should be the *tutorial* in the prescribed week wherever applicable. Where tutorials are not scheduled, submission should be in the first lecture of the subsequent week.
2. Assignment should NOT have any descriptive questions (that can be directly copied from a book or from the internet). However, in those course(s) where only descriptive problems are feasible, prior approval for the same is to be sought from the President in writing mentioning the justification for the same.
3. The effective teaching for semester is generally of 14 weeks. The minimum number of assignments to be given throughout the semester is two. No assignment should be due in the last week of the semester.
4. The assignment is to be submitted on or before the Date of Submission (DOS) as announced.
5. The evaluation of numerical assignment will be done through a test based on the assignment. The test would comprise of one of the questions from the assignment to be solved in the class. The following process may be adopted for the purpose:
    a) Ask students to bring the assignment sheets to the class (along with calculators, if required).
    b) Take 60 sheets of A4 sheets. On each sheet write the roll number of a student and the question number from the assignment that he/she has to solve. Different question for adjacent students. Make student sit roll-number-wise, so that no two adjacent students are given the same problem.
    c) Give student just sufficient time to solve the problem assuming that they have done the assignment at home.
    d) Make sure they have submitted the assignment before the start of the test and that they are not copying.
6. Marks to be awarded in these assignment-quizzes only if the assignment is submitted in time.
7. For non-numeric assignments the rest could have questions based on the assignment. Make sure that there are multiple shuffled sets for these tests to prevent copying. The comments on the assignments are mandatory. The marks are to be allotted to submission and test *separately*.

8. Minimal time to be given to the students to attempt the said tests because they should not require any thinking for solving these as they have already solved these problems earlier.
9. The evaluated assignments/tests are to be shown to the student (as done in scrutiny of the End Term Examination answer sheets) and are to be retained by the instructor. The evaluated assignments/test should be retained till the next assignment is evaluated. This is to permit checking by designated authority at any instance.
10. The assignment-based tests should be given on the Date of Assignment (DOS). Only the students who have submitted the assignment on time should be allowed to take the test, otherwise, the student should be awarded ZERO marks for the same.
11. This procedure is to be announced and explained to the students in the very first class. The importance of timely submission of assignments should be explained.
12. No deviation from this policy is permitted except with a written prior approval from the president.

B. Laboratory Assessments

Following are the guidelines for the conduct and evaluation of practical in all courses with laboratory components:

1. A practical is where a student is taken to a laboratory and is asked to perform a set of task on the given computer, equipment or on a setup comprising of devices or components. This includes on-the spot conduct of an activity to derive desired results and to report the findings.
2. A student will have to maintain record of the experiments performed in the labs in the bound lab notebook.
3. The lab notebook should be maintained in the format of a lab journal, where (in general) the aim of the experiment, the observations, calculations, results ad discussions are reported. These should not have any description like „method" etc, unless the method itself is the aim of the experiment. Error analysis forms an essential part of the lab journal.
4. Each lab work performed is to be verified by the respective teachers in the next class.
5. A student will be evaluated on every experiment/lab performed. The components of practical assessment are to be re-defined, notified to the student and to be strictly adhered to.

The records of the students attendance in the lab is to be maintained. The lab file record is evaluated for 10 marks and the attendance weightage will be again 10 Marks.

SYLLABUS

(BACHELOR OF TECHNOLOGY)

DR. K. N. MODI UNIVERSITY

Study and Evaluation Scheme (Year-I Semester-1st)
B.Tech (Common to all branches)Effective from session 2016-17

S. No.	Sub Code	Subject Name	Period			Evaluation Scheme			Credit
						Continuous Assessment	Final Exam	Total	
			L	T	P				
1	01BT111	Engineering Mathematics - I	3	1	0	40	60	100	4
2	01BT112	Engineering Physics-I	3	1	0	40	60	100	4
3	01BT113	Engineering Chemistry	3	1	0	40	60	100	4
4	01BT107	Professional Communication	3	1	0	40	60	100	4
5	01BT110	Basic Electrical Engineering	3	1	0	40	60	100	4
LAB									
1	01BP112	Engineering Physics Lab	0	0	2	50	50	100	1
2	01BP113	Engineering Chemistry Lab	0	0	2	50	50	100	1
3	01BP114	Workshop Practice	0	0	3	50	50	100	1
4	01BP110	Basic Electrical Engineering Lab	0	0	2	50	50	100	1
5	01BP1010	Seamless Learning	0	0	4			100	1
6	01BP1011	Co-Curricular Activities	0	0	4			100	1
		Total	**15**	**5**	**17**			1100	**26**

DR. K. N. MODI UNIVERSITY

Study and Evaluation Scheme (Year-I Semester- 2nd)
B.Tech (Common to all branches)Effective from session 2016-17

S. No.	Sub Code	Subject Name	Period			Evaluation Scheme			Credit
			L	T	P	Continuous Assessment	Final Exam	Total	
1	01BT211	Engineering Mathematics - II	3	1	0	40	60	100	4
2	01BT212	Engineering Physics-II	3	1	0	40	60	100	4
3	01BT213	Elements of Mechanical Engineering	3	1	0	40	60	100	4
4	01BT210	Computer System & Programming in C	3	1	0	40	60	100	4
5	01BT203	Basic Electronics	3	1	0	40	60	100	4
LAB									
1	01BP216	Computer Programming Lab	0	0	2	50	50	100	1
2	01BP215	Computer Aided Engineering Graphics	0	0	3	50	50	100	1
3	01BP213	Elements of Mechanical Engineering Lab	0	0	2	50	50	100	1
4	01BP214	Professional Communication Lab	0	0	2	50	50	100	1
5	01BP2010	Seamless Learning	0	0	4			100	1
6	01BP2011	Co-Curricular Activities	0	0	4			100	1
		Total	**15**	**5**	**17**			1100	**26**

Year-I Semester-I

Engineering Mathematics - I (01BT111)

Course Objective:
The main objectives of this course are to train the students to read and write mathematical Poofs; to develop the students' mathematical problem solving skills; and to familiarize the students with Standard concepts in mathematics.

Unit-1: Differential Calculus–I
Successive Differentiation Leibnitz‟s theorem, Limit, Continuity and Differentiability of functions of several variables, Partial derivatives, Euler‟s theorem for homogeneous functions, Total derivatives, Change of variables , Curve tracing :Cartesian and Polar coordinates.

Unit-2: Differential Calculus-II
Taylor‟s and Maclaurin‟s Theorem, Expansion of function of several variables, Jacobian, Approximation of errors, Extrema of functions of several variables, Lagrange‟s method of multipliers (Simple applications).

Unit-3:MatrixAlgebra
Types of Matrices, Inverse of a matrix by elementary transformations, Rank of a matrix (Echelon & Normal form), Linear dependence, Consistency of linear system of equations and their solution, Characteristic equation, Eigenvalues and Eigenvectors, Cayley-Hamilton Theorem, Diagonalization , Complex and Unitary Matrices and its properties .

Unit-4:MultipleIntegrals
Double and triple integrals, Change of order of integration, Change of variables, Application of integration to lengths, Surface areas and Volumes–Cartesian and Polar co-ordinates. Beta and Gamma functions, Dirichlet‟s integral and its applications.

Unit-5:Vector Calculus
Point function, Gradient, Divergence and Curl of a vector and their physical interpretations, Vector identities, Tangent and Normal, Directional derivatives. Line, Surface and Volume integrals, Applications of Green‟s, Stoke‟s and Gauss divergence theorems (without proof).

Text Books:

1. E. Kreyszig :Advanced Engineering Mathematics-Volume-I, John Wiley& Sons
2. B. V. Ramana , Higher Engineering Mathematics, Tata McGraw- Hill Publishing Company Ltd.
3. R.K.Jain& S.R.K. Iyenger, Advance Engineering Mathematics, Narosa Publishing House.

Reference Books:

1. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers.
2. Peter V. O‟ Neil, Advanced Engineering Mathematics, Thomas (Cengage) Learning.
3. Thomas & Finley, Calculus, Narosa Publishing House
4. Rukman gadachari, Engineering Mathematics – I, Pearson Education.

Engineering Physics-I (01BT112)

Course Objective:
The main objectives of this course are to educate students to think and participate deeply, creatively, and analytically in emerging areas of engineering technology. Educate students in the basics of instrumentation, design of laboratory techniques, measurement, data acquisition, interpretation, and analysis.

Unit–I: Relativistic Mechanics

Inertial & non-inertial frames, Galilean transformations, Michelson-Morley experiment , Einstein‟s postulates, Lorentz transformation equations, Length contraction & Time dilation, Relativistic addition of velocities; Variation of mass with velocity, Mass energy equivalence, Concept of rest mass of photon.

Unit–II: Modern Physics

Black body radiation spectrum, Weins law and Rayleigh-Jeans law, Assumption of quantum theory of radiation, Planck‟s law. Wave-particle duality, de-Broglie matter waves, Bohr‟s quantization rule, Phase and Group velocities, Davisson-Germer experiment, Heisenberg uncertainty principle and its applications, Wave function and its significance, Schrödinger‟s wave equation (Time dependent and time independent)– particle in one dimensional potential box, Eigen values and Eigen function.

Unit–III: Wave Optics

Interference: Coherent sources, Interference in thin films (parallel and wedge shaped film), Newton‟s rings and its applications..

Diffraction: Single, double and N-Slit Diffraction , Diffraction grating, Grating spectra, dispersive power ,Rayleigh‟s criterion and resolving power of grating.

Unit–IV: Polarization and Laser

Polarization: Phenomena of double refraction, Nicol prism, Production and analysis of plane, circular and elliptical polarized light, Retardation Plate. Optical Activity, Fresnel‟s theory, Specific rotation.

Laser: Spontaneous and stimulated emission of radiation, population inversion, Einstein‟s Coefficients, Concept of 3 and 4 level Laser, Construction and working of Ruby, He-Ne lasers and laser applications.

Unit–V: Fiber Optics and Holography

Fiber Optics: Fundamental ideas about optical fiber, Propagation mechanism, Acceptance angle and cone, Numerical aperture, Single and Multi Mode Fibers. Dispersion and Attenuation.

Holography: Basic Principle of Holography, Construction and reconstruction of Image on hologram and applications of holography.

Reference Books:

1. Concepts of Modern Physics –Aurthur Beiser (Mc-Graw Hill)
2. Introduction to Special theory of - Robert Resnick - Wielly
3. Optical Fibre & Laser - Anuradha De. (New Age)
4. Optics –Aloy Ghatak(Tata McGraw Hill Education Private Ltd. New Delhi)
5. Optics - Brijlal& Subramanian (S. Chand)
6. Applied Physics for Engineers- Neeraj Mehta (PHI Learning, New Delhi)

ENGINEERING CHEMISTRY (01BT113)

Course Objective:

The main objectives of this course are to analyze atomic and molecular structure in terms of wave functions, charge densities and energy level diagrams. Characterized the structures of diatomic and polyatomic in terms of molecular orbitals and relate intermolecular forces to the structure of liquids.

UNIT-I Molecular orbit al theory and its applications to homo-nuclear diatomic molecules. Band theory of solids. Liquid crystals and its applications. Point defects in Solids. Structure and applications of Graphite and Fullerenes. Concepts of nano-materials and its applications

UNIT-II Polymers: Basic concepts of polymer-blend sand composites. Conducting and biodegradable polymers. Preparations and applications of some industrially important polymers (Buna N, Buna S, Neoprene, Nylon6, Nylon6, 6,Terylene). General methods of synthesis of organometallic compound (Grignard Reagent) and their applications in polymerization

UNIT-III Electrochemistry: Galvanic cell, electrode potential, Lead storage battery. Corrosion, causes and its prevention. Setting and hardening of cement, applications of cement. Plaster of paris. Lubricants- Classification, mechanism and applications..

UNIT- IV Hardness of water. Disadvantage of hard water. Boiler troubles, Techniques for water softening; Lime-soda, Zeolite, Ion exchange resin, Reverse osmosis. Phase Rule and its application to water system.

UNIT- -V Fuels; Classification of fuels. Analysis of Coal. Determination of Calorific values (bomb calorimeter & Dulong‟s method). Biogas. Elementary ideas and simple applications of UV, Visible, IR and H^1NMR spectral Techniques

Textbook

1. Chemistry for Engineers, by S. Vairam and Suba Ramesh; Wiley India Reference Books Textbook of Engineering Chemistry by Dr. Gopal Krishna Bhatt, Acme Publishers
2. Chemistry (9th ed), by Raymond Chang, Tata McGraw-Hill
3. Chemistry Concepts and Applications by Steven S. Zumdahl; Cengage Learning
4. Engineering Chemistry, Wiley India
5. Engineering Chemistry Author: AbhijitMallick, Viva Books
6. Text Book of Engineering Chemistry by Harsh Malhotra; Sonali Publications
7. Concise Inorganic Chemistry by J.D. Lee; Wiley India
8. Organic Chemistry (6 ed) by Morrison & Boyd; Pearson Education.

Professional Communication (01BT107)

Course Objective:
The aim of the course is to provide high level professional communication skills to the students. It will help the students to increase the ability to work within and across diverse and converging media environments.

Unit-1 Fundamentalsof Communications

Technical Communication: features: Distinction between General And Technical Communication; Language as a tool of communications; Levels of communication: Interpersonal, Organizational, Mass communication; The flow of communication: Downward, Upward, Lateral/Horizontal (Peer group) : Importance of technical communication; Barriers to Communication

Unit-II Written Communication

Words and Phrases: Word formation, Synonyms and Antonyms; Homophones; Select vocabulary of about 500-1000 New words; correct Usage: all Parts of Speech; Modals; Concord; Articles; Infinitives; Transformation of sentences; Requisites f Sentence Construction: Paragraph Development: Techniques and Methods- Inductive, Deductive, Spatial , Linear, Chronological etc.

Unit-III Business Communication

Principles, Sales & Credit letters; Claim and Adjustment Letters; Job application and Resumes. Reports: Types; Significance; Structure, Style & Writing of Reports. Technical Proposal; Parts; Types; Writing of Proposal; Significance.Negotiation & Business Presentation skills.

Unit-IV Presentation Strategies and Listening Skills.

Defining Purpose; Audience & Local; Organizing Contents; Preparing Outline; Audio-visual Aids; Nuances of Delivery; Body Language; Dimensions of Speech: Syllable;

Accent; Pitch; Rhythm; Intonation; Paralinguistic features of voice; Listening Skills: Active Listening, Passive Listening. methods for improving Listening Skills.

Unit-V Value-Based Text Readings

Following essays form the suggested text book with emphasis on Mechanics of writing. (i) Humanistic and Scientific Approaches to Human Activity by Moody E. Prior (ii) The Language of Literature and Science by A. Huxley (iii) Man and Nature by J.Bronowski (iv) The Social Function of Literature by Ian Watt (v) Science and Survival by Barry Commoner (vi) The Mother of the Sciences by A.J.Bahm.

Text Book

1. Improve Your Writing ed. V.N.Arora and Laxmi Chandra, Oxford Univ. Press, 2001, New Delhi.
2. Technical Communication: A Practical Approach: Madhu Rani and SeemaVerma- Acme Learning, New Delhi-2011 3. Technical Communication- Principles and Practices by Meenakshi Raman &Sangeeta Sharma, Oxford Univ. Press,2007, New Delhi.

Reference Books

1. Communication Skills for Engineers and Scientists, Sangeeta Sharma et.al. PHI Learning Pvt.Ltd,2011, New Delhi.
2. Business Correspondence and Report Writing by Prof. R.C.Sharma& Krishna Mohan, Tata McGraw Hill & Co.Ltd.,2001, New Delhi.
3. Word Power Made Easy by Norman Lewis, W.R.Goyal Pub. &Distributors, 2009,Delhi.
4. Developing Communication Skills by Krishna Mohan, MecraBannerji- Macmillan India Ltd. 1990, Delhi.
5. Manual of Practical Communication by L.U.B.Pandey: A.I.T.B.S. Publications India Ltd.; Krishan Nagar, 2013, Delhi.
6. English Grammar and Usage by R.P.Sinha, Oxford University Press, 2005, New Delhi.
7. Spoken English- A manual of Speech and Phonetics by R.K.Bansal&J.B.Harrison, Orient Blackswan, 2013, New Delhi.
8. Business English by Ken Taylor, Orient Blackswan, 2011, New Delhi.

Basic Electrical Engineering (01BT110)

Course Objective:
To teach students and make them understand about electrical quantities, Measuring Equipment‟s
used in industries as well as in houses.

Unit-I: Electrical Circuit Analysis:
Introduction, Circuit Concepts: Concepts of network, Active and passive elements, Voltage and current sources, Concept of linearity and linear network, Unilateral and bilateral elements, Source transformation, Kirchhoff‟s laws, Loop and nodal methods of analysis, Star-delta transformation,

AC fundamentals: Sinusoidal, square and triangular waveforms – Average and effective values, Form and peak factors, Concept of phasors, phasor representation of sinusoidally varying voltage and current.

Unit-II: Steady-State Analysis of Single Phase AC Circuits:
Analysis of series and parallel RLC Circuits, Concept of Resonance in series & parallel circuits, bandwidth and quality factor; Apparent, active & reactive powers, Power factor, Concept of power factor improvement and its improvement (Simple numerical problems)

Network theorems (AC & DC with independent sources): Superposition theorem, Thevenin‟s theorem, Norton‟s theorem, Maximum Power Transfer theorem (Simple numerical problems

Unit-III: Three Phase AC Circuits:
Three phase system-its necessity and advantages, Star and delta connections, Balanced supply and balanced load, Line and phase voltage/current relations, Three-phase power and its measurement (simple numerical problems).

Measuring Instruments: Types of instruments, Construction and working principles of PMMC and moving iron type voltmeters & ammeters, Single phase dynamometer wattmeter, Use of shunts and multipliers (Simple numerical problems on shunts and multipliers)

Unit-IV: Magnetic Circuit:

Magnetic Circuit: Magnetic circuit concepts, analogy between electric & magnetic circuits, B-H curve, Hysteresis and eddy current losses, Magnetic circuit calculations (Series & Parallel).

Single Phase Transformer: Principle of operation, Construction, EMF equation, Equivalent circuit, Power losses, Efficiency (Simple numerical problems), Introduction to auto transformer

Unit-V: Electrical Machines:

DC machines: Principle & Construction, Types, EMF equation of generator and torque equation of motor, applications of DC motors (simple numerical problems)

Three Phase Induction Motor: Principle & Construction, Types, Slip-torque characteristics, Applications (Numerical problems related to slip only)

Single Phase Induction motor: Principle of operation and introduction to methods of starting, applications.

Three Phase Synchronous Machines: Principle of operation of alternator and synchronous motor and their applications.

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Text Books:

1. "Principles of Electrical Engineering", V. Del Toro,; Prentice Hall International
2. "Basic Electrical Engineering", D P Kothari, I.J. Nagarath; Tata McGraw Hill
3. "Basic Electrical Engineering", S N Singh; Prentice Hall International
4. "Fundamentals of Electrical Engineering", B Dwivedi, A Tripathi; Wiley India
5. "Basic Electrical Engineering", KuldeepSahay, New Age International Publishers

Reference Books:

1. "Electrical and Electronics Technology", Edward Hughes; Pearson
2. "Engineering Circuit Analysis", W.H. Hayt & J.E. Kimerly; McGraw Hill
3. "Basic Electrical Engineering", C L Wadhwa; New Age International
4. "Basic Electrical Engineering", T.K. Nagsarkar, M.S. Shukhija; Oxford University Press

ENGINEERING PHYSICS LAB (01BP112)

List of Experiments- Any ten experiments, at least four from each group.

Group -A

1. To determine the wavelength of monochromatic light by Newton‟s ring.
2. To determine the wavelength of monochromatic light with the help of Fresnel‟s biprism.
3. To determine the focal length of two lenses by nodal slide and locate the position of cardinal points.
4. To determine the specific rotation of cane sugar solution using polarimeter.
5. To determine the wavelength of spectral lines using plane transmission grating.
6. To study the polarization of light by simple reflection using laser.
7. Measurement of Wavelength of a laser (He- Ne) light using single slit diffraction.

Group – B

8. To determine the specific resistance of a given wire using Carey Foster‟s bridge.
9. To study the variation of magnetic field along the axis of current carrying - Circular coil and then to estimate the radius of the coil.
10. To verify Stefan‟s Law by electrical method.
11. To calibrate the given ammeter and voltmeter by potentiometer.
12. To study the Hall effect and determine Hall coefficient, carrier density and - mobility of a given semiconductor using Hall effect set up.
13. To determine the energy band gap of a given semiconductor material.
14 To determine E.C.E. of copper using Tangent or Helmholtz galvanometer.
15. To draw hysteresis curve of a given sample of ferromagnetic material and from - this to determine magnetic susceptibility and permeability of the given specimen.
16. To determine the ballistic constant of a ballistic galvanometer.
17. To determine the coefficient of viscosity of a liquid.
18. Measurement of fiber attenuation and aperture of fiber.
19. High resistance by leakage method.
20. Magnetic Susceptibility of paramagnetic solution.

ENGINEERING CHEMISTRY LAB (01BP113)

LIST OF EXPERIMENT

1. Determination of alkalinity in the given water sample.
2. Determination of temporary and permanent hardness in water sample using EDTA ..
3. Determination of available chlorine in bleaching powder.
4. Determination of chloride content in water sample.
5. Determination of iron content in the given solution by Mohr‟s method.
6. pH- metric titration.
7. Viscosity of an addition polymer like polyester by viscometer.
8. Determination of iron concentration in sample of water by colorimetric method. The method involves the use of KCN as a chelating agent and the measurements are carried out at 480nm.
9. Element detection and functional group identification in organic compounds.
10. Preparation of Bakelite and Urea formaldehyde resin.

Note: Institute can replace two experiments from the aforesaid experiments as per

WORKSHOP PRACTICE (01BP114)

1. Carpentry Shop:
1. Study of tools & operations and carpentry joints. 2. Simple exercise using jack plane. 3. To prepare half-lap corner joint, mortise & tennon joints. 4. Simple exercise on woodworking lathe.

2. Fitting (Bench Working) Shop:
1. Study of tools & operations 2. Simple exercises involving fitting work. 3. Make perfect male- female joint. 4. Simple exercises involving drilling/tapping/dieing.

3. Black Smithy Shop:
1. Study of tools & operations 2. Simple exercises based on black smithy operations such as upsetting, drawing down, punching, bending, fullering & swaging.

4. Welding Shop:
1.Study of tools & operations of Gas welding & Arc welding 2. Simple butt and Lap welded joints. 3. Oxy-acetylene flame cutting.

5. Sheet-metal Shop:
1. Study of tools & operations. 2. Making Funnel complete with „soldering".
3. Fabrication of tool-box, tray, electric panel box etc.

6. Machine Shop:
1. Study of Single point cutting tool, machine tools and operations. 2. Plane turning. 3. Step turning 4. Taper turning. 5. Threading

7. Foundry Shop:
1. Study of tools & operations 2. Pattern making. 3. Mould making with the use of a core. 4. Casting

Basic Electrical Engineering Lab (01BP110)

Note: A minimum of **10** experiments from the following should be performed

1. Verification of Kirchhoff‟s laws
2. Verification of (i) Superposition theorem (ii) Thevenin‟s Theorem (iii) Maximum Power Transfer Theorem.
3. Measurement of power and power factor in a single phase ac series inductive circuit and study improvement of power factor using capacitor
4. Study of phenomenon of resonance in RLC series circuit and obtain resonant frequency.
5. Measurement of power in 3- phase circuit by two wattmeter method and determination of its power factor.
6. Determination of parameters of ac single phase series RLC circuit
7. Determination of (i) Voltage ratio (ii) polarity and (iii) efficiency by load test of a single phase transformer
8. To study speed control of dc shunt motor using (i) armature voltage control (ii) field flux control.
9. Determination of efficiency of a dc shunt motor by load test.
10. To study running and speed reversal of a three phase induction motor and record speed in both directions.
11. To measure energy by a single phase energy meter and determine error.
12. To study P-N diode characteristics
13. To study full wave and half wave rectifier circuits with and without capacitor and determine ripple factors.
14. To study various logic gates (TTL)
15. To study Operational Amplifier as Adder and Subtractor.
16. To study transistor as a switch

Year-I Semester-II

Engineering Mathematics - II (01BT211)

Course Objective:
The main objectives of this course are to train the students to read and write mathematical proofs; to develop the students' mathematical problem solving skills; and to familiarize the students with standard concepts in mathematics.

Unit-1: Differential Equations Linear differential equations of nth order with constant coefficients, Complementary function and Particular integral, Simultaneous linear differential equations, Solution of second order differential equations by changing dependent & independent variables, Normal form, Method of variation of parameters, Applications to engineering problems (without derivation).

Unit-2: Series Solution and Special Functions Series solution of second order ordinary differential equations with variable coefficient (Frobenius method), Bessel and Legendre equations and their series solutions, Properties of Bessel function and Legendre polynomials.

Unit-3: Laplace Transform Laplace transform, Existence theorem, Laplace transforms of derivatives and integrals, Initial and final value theorems, Unit step function, Dirac- delta function, Laplace transform of periodic function, Inverse Laplace transform, Convolution theorem, Application to solve simple linear and simultaneous differential equations.

Unit-4: Fourier Series and Partial Differential Equations Periodic functions, Fourier series of period 2π, Euler‟s Formulae, Functions having arbitrary periods, Change of interval, Even and odd functions, Half range sine and cosine series, Harmonic analysis. Solution of first order partial differential equations by Lagrange‟s method, Solution of second order linear partial differential equations with constant coefficients.

Unit-5: Applications of Partial Differential Equations Classification of second order partial differential equations, Method of separation of variables for solving partial differential equations, Solution of one and two dimensional wave and heat conduction equations, Laplace equation in two dimension, Equation of transmission lines.

Text Books:

1. E. Kreyszig, : Advanced Engineering Mathematics, Volume-II, John Wiley &Sons
2. B. V. Ramana, Higher Engineering Mathematics, Tata McGraw- Hill Publishing Company Ltd.
3. R.K.Jain& S.R.K. Iyenger, Advance Engineering Mathematics, Narosa Publishing House.

Reference Books:

1. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers.
2. Peter V. O‟ Neil, Advanced Engineering Mathematics, Thomas (Cengage) Learning.
3. Chandrika Prasad, Advanced Mathematics for Engineers, Prasad Mudranalaya
4. A. C. Srivastava & P. K. Srivastava, Engineering Mathematics, Vol. – II, PHI Learning Pvt. Ltd.
5. Rukmangadachari, Engineering Mathematics – II, Pearson Education.

Basic Electronics (01BT203)

Course Objective:
Electronics Industry is called the backbone of IT industry also Electronic Equipment is used everywhere irrespective of the type of industry. Hence the course is designed to make students fundamentally clear about the basics.

UNIT-I PN junction diode**: Introduction of Semiconductor Materials** Semiconductor Diode: Depletion layer, V-I characteristics, ideal and practical, diode resistance, capacitance, Diode Equivalent Circuits, Transition and Diffusion Capacitance, Zener Diodes breakdown mechanism (Zener and avalanche)

Diode; Application Series , Parallel and Series, Parallel Diode Configuration, Half and Full Wave rectification, Clippers, Clampers, Zener diode as shunt regulator, Voltage-Multiplier Circuits.

Special Purpose two terminal Devices; Light-Emitting Diodes, Varactor (Varicap) Diodes, Tunnel Diodes, Liquid-Crystal Displays.

UNIT-II Bipolar Junction Transistor; Transistor Construction, Operation, Amplification action. Common Base, Common Emitter, Common Collector Configuration.

DC Biasing BJTs ;Operating Point, Fixed-Bias, Emitter Bias, Voltage-Divider Bias Configuration. Collector Feedback, Emitter-Follower Configuration. Bias Stabilization. CE,CB,CC amplifiers and analysis of single stage CE amplifier.

Field Effect Transistor; Construction and Characteristic of JFETs. Transfer Characteristic. CS,CD,CG amplifier and analysis of CS amplifier MOSFET (Depletion and Enhancement)Type, Transfer Characteristic,

UNIT-III Operational Amplifiers : Introduction and Block diagram of Op Amp, Ideal & Practical characteristics of Op Amp, Differential amplifier circuits, Practical Op- Amp Circuits (Inverting Amplifier, Non inverting Amplifier, Unity Gain Amplifier, Summing Amplifier, Integrator,

Differentiator). **OPAMP Parameters: Input offset voltage, Output offset voltage, Input biased current, Input offset current** Differential and Common-Mode Operation

UNIT-IV Electronic Instrumentation and Measurements: Digital Voltmeter : Introduction, RAMP Techniques Digital Multimeters: Introduction Oscilloscope: Introduction, Basic Principle, CRT , Block Diagram of Oscilloscope, Simple CRO, Measurement of voltage, current phase and frequency using CRO, **Introduction of Digital Storage Oscilloscope and Comparison of DSO with Analog Oscilloscope.**

UNIT-V Fundamentals of Communication Engineering: Elements of a Communication System, Need of Modulation, Electromagnetic spectrum and typical applications. Basics of Signal Representation and Analysis, **Introduction of various analog modulation techniques**, Fundamentals of amplitude modulation, Modulation and Demodulation Techniques of AM.

Text Books

1. Robert L. Boylestad & Louis Nashelsky "Electronic Devices and Circuit Theory" , Tenth Edition, Pearson Education, 2013
2. H S Kalsi, "Electronics Instrumentation," Third Edition, TMH Publication 2012 6
3. George Kennedy, "Electronic Communication System", Fifth Edition , TMH Publication, 2012

Reference Books

1. Devid A. Bell " Electronics Devices and Circuits", 5th Edition, OXFORD University Press 2008
2. Jacob Millman/ Christos C. Halkias/ SatyabrataJit "Electronics Devices and Circuits", 3rd Edition , TMH 2008

Computer System & Programming in C (01BT210)

Course Objective: The Objective of-C language is a simple computer language designed to enable sophisticated programming language. C is a powerful, flexible language that provides fast program execution and imposes few constraints on the programmer. It allows low level access to information and commands while still retaining the portability and syntax of a high level language(C) is defined as a small but powerful set of extensions to the standard ANSI C language. Its additions to C are mostly based on Smalltalk, one of the first object-oriented programming languages.

UNIT-I

Basics of Computer: Introduction to digital computer, basic operations of computer, functionalcomponents of computer, Classification of computers.

Introduction to operating system: [DOS, Windows, Linux and Android] purpose, function, services andtypes.

Number system: Binary, octal and hexadecimal number systems, their mutual conversions, Binaryarithmetic.

Basics of programming: Approaches to Problem Solving, Concept of algorithm and flow charts, Types ofcomputer languages: - Machine Language, Assembly Language and High Level Language, Concept of Assembler, Compiler, Loader and Linker.

UNIT-II

Standard I/O in C, Fundamental data types- Character type, integer, short, long, unsigned, single and double floating point, Storage classes- automatic, register, static and external**,** Operators and expression using numeric and relational operators, mixed operands, type conversion, logical operators, bit operations, assignment operator, operator precedence and associativity.

Fundamentals of C programming: Structure of C program**,** writing and executing the first C program,components of C language. Standard I/O in C.

UNIT-III

Conditional program execution: Applying if and switch statements, nesting if and else, use of break anddefault with switch**,** program loops and iterations: use of while, do while and for loops, multiple loop variables, use of break and continue statements.

Functions: Introduction, types of functions, functions with array, passing values to functions, recursivefunctions.

Unit-IV

Arrays: Array notation and representation, manipulating array elements, using multi dimensional arrays. Structure, union, enumerated data types.

Unit-V

Pointers: Introduction, declaration, applicationsFile handling**,** standard C preprocessors**,** defining and calling macros, conditional compilation, passing values to the compiler.

Reference book

1. Let Us C – Yashwant Kanetkar.9 edition

Complete reference

1. McGraw-Hill Osborne Media

Engineering Physics- II (01BT212)

Course Objectives

This course stresses the creation of physical models for real systems. Applications of a basic description of the properties of elastic media given. The methods required to predict the performance of physical or engineering systems are demonstrated using examples drawn from various fields of science and engineering with emphasis on mechanics and nano physics.

Unit –I Crystal Structures and X-ray Diffraction: Space lattice, basis, Unit cell, Lattice parameter, Seven crystal systems and Fourteen Bravais lattices, Crystal-System Structure, Packing factor (cubic, body and face), Crystal structure of NaCl and diamond, Lattice planes and Miller Indices, Reciprocal Lattice, Diffraction of X-rays by crystal, Laue‟s experiment, Bragg‟s Law, Bragg‟s spectrometer.

Unit - II Dielectric and Magnetic Properties of Materials; Dielectric Properties, Dielectric constant and Polarization of dielectric materials, Types of Polarization (Polarizability). Equation of internal fields in liquid and solid (One- Dimensional), Claussius Mussoti-Equation, Frequency dependence of dielectric constant, Dielectric Losses, Important applications of dielectric material Magnetic Properties: Magnetization, Origin of magnetic moment, Dia, para and ferro magnetism, Langevin‟s theory for diamagnetic material, Phenomena of hysteresis and its applications.

Unit – III Electromagnetic Theory Displacement Current, Equation of continuity, Maxwell‟s Equations (Integral and Differential Forms), Poynting theorem and Poynting vectors, EM - Wave equation and its propagation characteristics in free space, non-conducting and in conducting media, Skin depth.

Unit – IV Band Theory of Solids - Free electron Theory, Formation of bands in Solids, Classification of solids on band theory, Density of states, Fermi-Dirac distribution, Concept of effective mass, Charge carrier density (electrons and holes), Conductivity of semiconductors, carrier concentrations Fermi energy, Position of Fermi level in intrinsic and in extrinsic semiconductors. Temperature dependence of conductivity in semiconductors.

UNIT – V Physics of some technologically important Materials- **Superconductors:** Temperature dependence of resistivity in superconducting materials, Effect of magnetic field (Meissner effect), Temperature dependence of critical field, London equations,

Josephson theory, persistent currents, Type I and Type II superconductors, BCS theory (Qualitative), High temperature superconductors and Applications of Super-conductors.

Nano-Materials: Basic principle of nano science and technology, structure, properties and uses of Fullerene, Carbon nanotubes Single and double walled nanotubes, synthesis of nanotubes, Properties and Applications of nanotubes.

Text Book & Reference books:

1. Concept of Modern Physics - by Beiser (Tata Mc-Graw Hill)
2. Solid State Physics - by C. Kittel, 7th edition (Wiley Eastern)
3. Materials Science and Engineering - by V. Raghavan (Prentice- Hall India)
4. Solid State Physics - by S.O. Pillai, 5th edition (New Age International)
5. Introduction to Electrodynamics - by David J. Griffith (PH I)
6. Applied Physics for Engineers- Neeraj Mehta (PHI Learning, New Delhi)

Elements of Mechanical Engineering (01BT213)

Course Objective:
The main objectives of this course areto develop the ability to analyze any staticproblem in a simple and logical manner, and to apply to its solution afew well-understood basic principles of Physics**.**

UNIT –I

Engineering Materials: Engineering Materials: Types and applications of Ferrous & Nonferrous metals, Timber, Abrasive material, silica, ceramics, glass, graphite, diamond, plastic and polymer
Manufacturing Processes: Molding and casting, forging, rolling, welding- arc welding-gas welding, sheet metal forming (fundamentals and simple descriptions only)
Machine Tools: Simple description of general purpose machines like lathe, shaping machines, drilling machines, grinding machines and milling machines, Basic concepts of CNC, DNC, CIM and CAD/CAM

UNIT –II
Laws of Thermodynamics: First Law of Thermodynamics, Second Law of Thermodynamics, Clausius statement and Kelvin-Plank statement Equivalence of Kelvin-Plank statement and Clausius statement Perpectual Motion Machine I & II Concept of Reversibility & reversible cycle. Entropy as a property, Clausius inequality, principle of increase of Entropy
Heat Engines: Heat Engine cycle and Heat Engine, working substances, Classification of heat engines, Description and thermal efficiency of Carnot; Rankine; Otto cycle and Diesel

cycles

UNIT -III

IC ENGINES: Classification, I.C. Engines parts, 2 Stroke and 4 stroke Petrol engines, 4 stroke diesel engines. P-V diagrams of Otto and Diesel cycles. Problems on indicated power, brake power, indicated thermal efficiency, brake thermal efficiency, mechanical efficiency, and specific fuel consumption, [numerical on IC Engines] **Steam Formation and Properties:** Classification of boilers, Lancashire boiler, Babcock and Wilcox boiler, boiler mountings and accessories, wet steam, saturated and superheated steam, specific volume, enthalpy and internal energy use of Steam tables, Rankine cycle.

UNIT -IV

Introduction: Introduction to Engineering mechanics and its classification. Laws of mechanics. Physical quantities –units and dimensions **Force System:** Force, Classification & Representation, Force as a Vector, Parallelogram Law, Lami‟s theorem, Method of Resolution and Principle of Transmissibility of forces. Moment of a force, Couple, Vector representation, , Varignon‟s theorem, Resolution of a force into a force and a couple. Resultant of coplanar force system. Equilibrium of coplanar force system, Free body diagrams, Determination of reactions. **Friction :**Introduction, Wet and Dry friction, Theory of Dry friction, Angle of friction, Angle of Repose, Cone of friction, Coulomb‟s laws of friction– Contact friction problems – ladder friction, Wedge friction – Screw friction.

UNIT- V

Structural Analysis: Plane Truss, Difference between truss and frame, Perfect and imperfect truss, Assumptions and Analysis of Plane Truss , Method of joints, Method of section, Zero force members

Center of Gravity and Centroid: Determination of centroid by integration, Centroid of composite bodies. **Moment of Inertia:** Moment of inertia of area, Perpendicular axis theorem and Polar moment of Inertia, Parallel axis theorem, Moment of inertia of simple areas by integration, Moment of Inertia of Composite Areas. **Mass Moment of Inertia**: Moment of Inertia of masses, Mass moment of inertia of simple bodies by integration.

Reference Books:

1. Engineering Thermodynamics by Jones and Dugans, PHI Learning Pvt. Ltd.
2. Thermodynamics: An Engineering Approach, Yunus A. Cengel (Author), Michael A. Boles (Author).
3. Engineering Thermodynamics by P.K.Nag, Tata Mc Graw Hill Pub.
4. Thermal Engineering By R.K. Rajput, Laxmi Publication.
5. Engineering Thermodynamics by C.P. Arora.
6. Engineering Mechanics By S. S. Bhavikatti, K. G. Rajashekarappa New age International
7. Textbook of Engineering Mechanics by R. S. Khurmi Southgate Publishers
8. Engineering Mechanics by R K Bansal Laxmi Publications

9. Production Technology By Hmt, Hmt, H M T Bangalor
10. Elements of Workshop Technology by Hajra Choudhary Media Promotor Engineering Mechanics,Vela Murali,Oxford publications.

Computer Programming Lab (01BP216)

1. WAP that accepts the marks of 5 subjects and finds the sum and percentage marks obtained by the student.
2. WAP that calculates the Simple Interest and Compound Interest. The Principal , Amount, Rate of Interest and Time are entered through the keyboard.
3. WAP to calculate the area and circumference of a circle.
4. WAP that accepts the temperature in Centigrade and converts into Fahrenheit using the formula C/5=(F-32)/9.
5. WAP that swaps values of two variables using a third variable.
6. WAP that checks whether the two numbers entered by the user are equal or not.
7. WAP to find the greatest of three numbers.
8. WAP that finds whether a given number is even or odd.
9. WAP that tells whether a given year is a leap year or not.
10. WAP that accepts marks of five subjects and finds percentage and prints grades according to the following criteria:

    a) Between 90-100%----------Print „A"
    b) 80-90%----------Print „B"
    c) 60-80%----------Print „C"
    d) Below 60%----------Print „D"

11. WAP that takes two operands and one operator from the user and perform the operation and prints the result by using Switch statement.
12. WAP to print the sum of all numbers up to a given number.
13. WAP to find the factorial of a given number.
14. WAP to print sum of even and odd numbers from 1 to N numbers.
15. WAP to print the Fibonacci series.
16. WAP to check whether the entered number is prime or not.
17. WAP to find the sum of digits of the entered number.
18. WAP to find the reverse of a number.
19. WAP to print Armstrong numbers from 1 to 100.
20. WAP to convert binary number into decimal number and vice versa.
21. WAP that simply takes elements of the array from the user and finds the sum of these elements.
22. WAP that inputs two arrays and saves sum of corresponding elements of these

arrays in a third array and prints them.

23. WAP to find the minimum and maximum element of the array. WAP to search an element in a array using Linear Search.
24. WAP to sort the elements of the array in ascending order using Bubble Sort technique.
25. WAP to add and multiply two matrices of order nxn.
26. WAP that finds the sum of diagonal elements of amxn matrix.
27. WAP to implement strlen (), strcat (),strcpy () using the concept of Function
28. Define a structure data type TRAIN_INFO. The type contain
    a. *Train No.: integer*
       type Train name:
       string
       i. Departure Time: aggregate type TIME
       ii. Arrival Time : aggregate type TIME
       iii. Start station: string
       iv. End station : string

    The structure type Time contains two integer members: hour and minute. Maintain a train timetable and implement the following operations:

    b. List all the trains (sorted according to train number) that depart from a particular section.
    c. List all the trains that depart from a particular station at a particular time.
    d. List all he trains that depart from a particular station within the next one hour of a given time.
    e. List all the trains between a pair of start station and end station.
29. WAP to swap two elements using the concept of pointers.
30. WAP to compare the contents of two files and determine whether they are same or not.
31. WAP to check whether a given word exists in a file or not. If yes then find the number of times it occurs.

Computer Aided Engineering Graphics (01BP215)

Introduction; Drawing Instruments and their uses, BIS conventions, Lettering, Dimensioning line conventions and free hand practicing, AUTO CAD, layout of the software, standard tool bar/menus and description of most commonly used tool bars, navigational tools. Co-ordinate system and reference planes. Definitions of HP, VP, RPP & LPP.Creation of 2D/3D environment. Selection of drawing size and scale. Commands and creation of Lines, Co-ordinate points, axes, poly-lines, square, rectangle, polygons, splines, circles, ellipse, text, move, copy, off-set, mirror, rotate, trim, extend, break, chamfer, fillet, curves, constraints.

Orthographic Projections; Introduction, Definitions - Planes of projection, reference line and

conventions employed, Projections of points in all the four quadrants, Projections of straight lines (located in First quadrant/first angle only), True and apparent lengths, True and apparent inclinations to reference planes.

Orthographic Projections of Plane Surfaces; (First Angle Projection Only) Introduction, Definitions–projections of plane surfaces–triangle, square, rectangle, rhombus, pentagon, hexagon and circle, planes in different positions by change of position method only.

Projections of Solids; (First Angle Projection Only) Introduction, Definitions – Projections of right regular tetrahedron, hexahedron (cube), prisms, pyramids, cylinders and cones in different positions. 2-Sheets

Sections And Development of Lateral Surfaces of Solids;

Introduction, Section planes, Sections, Section views, Sectional views, Apparent shapes and True shapes of Sections of right regular prisms, pyramids, cylinders and cones resting with base on HP. 1

Isometric Projection;

(Using Isometric Scale Only) Introduction, Isometric scale, Isometric projection of simple plane figures, Isometric projection of tetrahedron, hexahedron(cube), right regular prisms, pyramids, cylinders, cones, spheres, cut spheres. 1-Sheet

Text Books:

1. Engineering Drawing - N.D. Bhatt & V.M. Panchal, 48th edition, 2005-Charotar Publishing House, Gujarat.
2. Computer Aided Engineering Drawing - S. Trymbaka Murthy, -I.K. International Publishing House Pvt. Ltd., New Delhi, 3rd revised edition- 2006.

Reference Books:

1. Engineering Graphics - K.R. Gopalakrishna, 32nd edition, 2005- Subash Publishers Bangalore.
2. Fundamentals of Engineering Drawing with an Introduction to Interactive Computer Graphics for Design and Production-Luzadder Warren J., Duff John M., Eastern Economy Edition, 2005-Prentice-Hall of India Pvt. Ltd., New Delhi.
3. Engineering Drawing – M.B. Shah, B.C.Rana, 2ndEdition,2

Elements of Mechanical Engineering Lab (01BP213)

Note: Minimum of 5 experiments to be conducted from each module

Module 1:

1. To study about various types of Mounting and Accessories of Boilers
2. To study about Babcock and Wilcox boiler and Cochran boiler.

3. To study about 2 stroke diesel and petrol engine
4. To study about 4 stroke diesel and petrol engine
5. To study the vapour compression Refrigeration System and determination of its C.O.P
6. To study the functioning of Window Room Air Conditioner.

Module 2:

7. To study the equilibrium of a body under three forces and verify the same with parallelogram law of force.
8. To study the equilibrium of a body subjected to more than three numbers of forces and verify the same with polygon law of force.
9. To determine the coefficient of friction of a flat inclined surface.
10. Friction experiment on screw-jack.
11. Worm & worm-wheel experiment for lifting loads
12. To find the percentage error between observed and calculated values of force in the members of a truss.

Professional Communication Lab (01BP214)

1. Group Discussion: Practical based on Accurate and Current Grammatical Patterns.
2. Conversational Skills for Interviews under suitable Professional Communication Lab conditions with emphasis on Kinesics.
3. Communication Skills for Seminars/Conferences/Workshops with emphasis on Paralinguistics/ Kinesics.
4. Presentation Skills for Technical Paper/Project Reports/ Professional Reports based on proper Stress and Intonation Mechanics.
5. Official/Public Speaking based on suitable Rhythmic Patterns.
6. Theme- Presentation/ Key-Note Presentation based on correct argumentation methodologies.
7. Individual Speech Delivery/Conferences with skills to defend Interjections/Quizzes.
8. Argumentative Skills/Role Play Presentation with Stress and Intonation.
9. Comprehension Skills based on Reading and Listening Practicals on a model Audio-Visual Usage.

Reference Books:

1. Bansal R.K. & Harrison: Phonetics in English, Orient Longman, New Delhi.
2. Sethi&Dhamija: A Course in Phonetics and Spoken English, Prentice Hall, New Delhi.
3. L.U.B.Pandey&R.P.Singh, A Manual of Practical Communication, A.I.T.B.S. Pub. India Ltd. Krishan Nagar, Delhi.
4. Joans Daniel, English Pronouncing Dictionary, Cambridge Univ. Press.