



**VELTECH MULTI TECH Dr. RANGARAJAN Dr. SAKUNTHALA ENGINEERING  
COLLEGE**

**Accredited by NBA, New Delhi**

An ISO 9001:2008 Certified Institution

(Owned by Vel Trust 1997)

Approved by AICTE, New Delhi **NBA Accredited & Affiliated to Anna University**  
Chennai-25



**SYLLABUS  
WEEKLY SCHEDULE**

**SEMESTER I**

**2013- 2014**

**I YEAR COMMAN TO ALL B.E/B.TECH**

**IV YEAR COURSE**

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**VELTECH MULTITECH Dr.RANGARAJAN Dr.SAKUNTHALA ENGG. COLLEGE  
DEPARTMENT OF BIOMEDICAL ENGINEERING**

**WEEKLY SCHEDULE**

**SEM : I                      YEAR : I  
ACADEMIC YEAR: 2013– 2014**

S.No	WEEKS	DATE	
		FROM	TO
1	WEEK1	12.08.2013	17.08.2013
2	WEEK2	19.08.2013	24.08.2013
3	WEEK3	26.08.2013	31.08.2013
4	WEEK4	02.09.2013	07.09.2013
5	WEEK5	09.09.2013	14.09.2013
6	WEEK6	16.09.2013	21.09.2013
7	WEEK7	23.09.2013	28.09.2013
8	WEEK8	30.09.2013	05.10.2013
9	WEEK9	07.10.2013	12.10.2013
10	WEEK10	14.10.2013	19.10.2013
11	WEEK11	21.10.2013	26.10.2013
12	WEEK12	28.10.2013	02.11.2013
13	WEEK13	04.11.2013	09.11.2013
14	WEEK14	11.11.2013	16.11.2013
15	WEEK15	18.11.2013	23.11.2013
16	WEEK16	25.11.2013	30.11.2013
17	WEEK17	02.12.2013	07.12.2013
18	WEEK18	09.12.2013	14.12.2013

## **TEST SCHEDULE**

### **UNIT TEST - I**

<b>Sl. NO</b>	<b>DATE</b>	<b>SUB.CODE</b>	<b>SUBJECT</b>
<b>1</b>	29.08.2013	HS6151	Technical English - I
<b>2</b>	30.08.2013	MA6151	Mathematics - I
<b>3</b>	31.08.2013	PH6151	Engineering Physics - I
<b>4</b>	02.09.2013	CY6151	Engineering Chemistry - I
<b>5</b>	03.09.2013	GE6151	Computer Programming
<b>6</b>	04.09.2013	GE6152	Engineering Graphics

### **UNIT TEST - II**

<b>Sl. NO</b>	<b>DATE</b>	<b>SUB.CODE</b>	<b>SUBJECT</b>
<b>1</b>	19.09.2013	HS6151	Technical English - I
<b>2</b>	20.09.2013	MA6151	Mathematics - I
<b>3</b>	21.09.2013	PH6151	Engineering Physics - I
<b>4</b>	23.09.2013	CY6151	Engineering Chemistry - I
<b>5</b>	24.09.2013	GE6151	Computer Programming
<b>6</b>	25.09.2013	GE6152	Engineering Graphics

### UNIT TEST - III

Sl. NO	DATE	SUB.CODE	SUBJECT
1	08.10.2013	HS6151	Technical English - I
2	09.10.2013	MA6151	Mathematics - I
3	10.10.2013	PH6151	Engineering Physics - I
4	11.10.2013	CY6151	Engineering Chemistry - I
5	12.10.2013	GE6151	Computer Programming
6	14.10.2013	GE6152	Engineering Graphics

### UNIT TEST - IV

Sl. NO	DATE	SUB.CODE	SUBJECT
1	29.10.2013	HS6151	Technical English - I
2	30.10.2013	MA6151	Mathematics - I
3	31.10.2013	PH6151	Engineering Physics - I
4	01.11.2013	CY6151	Engineering Chemistry - I
5	04.11.2013	GE6151	Computer Programming
6	05.11.2013	GE6152	Engineering Graphics

## MODEL EXAM

Sl. NO	DATE	SUB.CODE	SUBJECT
1	04.12.2013	HS6151	Technical English - I
2	05.12.2013	MA6151	Mathematics - I
3	06.12.2013	PH6151	Engineering Physics - I
4	07.12.2013	CY6151	Engineering Chemistry - I
5	09.12.2013	GE6151	Computer Programming
6	10.12.2013	GE6152	Engineering Graphics

### HS6151

### TECHNICAL ENGLISH – I

#### UNIT I

**WEEK-1** Listening - Introducing learners to GIE - Types of listening - Listening to audio (verbal & sounds); Speaking - Speaking about one's place, important festivals etc. – Introducing oneself, one's family /friend; Reading - Skimming a reading passage – Scanning for specific information - Note-making; Writing - Free writing on any given topic (My favorite place / Hobbies / School life, etc.) – Sentence completion - Autobiographical writing (writing about one's leisure time activities, hometown, etc.)

**WEEK-2** Grammar - Prepositions - Reference words - Wh-questions - Tenses (Simple); Vocabulary – Word formation - Word expansion (root words / etymology); E-materials - Interactive exercises for Grammar & Vocabulary - Reading comprehension exercises - Listening to audio files and answering questions.

#### WEEK-3- UNIT TEST-1

#### UNIT II

**WEEK-4** Listening - Listening and responding to video lectures / talks; Speaking - Describing a simple process (filling a form, etc.) - Asking and answering questions - Telephone skills – Telephone etiquette; Reading – Critical reading - Finding key information in a given text - Sifting facts from opinions; Writing - Biographical writing (place, people) - Process descriptions (general/specific)

**WEEK-5** Definitions - Recommendations – Instructions; Grammar - Use of imperatives - Subject-verb agreement; Vocabulary - Compound words - Word Association (connotation); E-materials - Interactive exercises for Grammar and Vocabulary - Listening exercises with sample telephone conversations / lectures – Picture-based activities

## **WEEK-6 UNIT TEST-2**

### **UNIT III**

**WEEK-7** Listening - Listening to specific task - focused audio tracks; Speaking - Role-play – Simulation - Group interaction - Speaking in formal situations (teachers, officials, foreigners); Reading – Reading and interpreting visual material; Writing - Jumbled sentences - Coherence and cohesion in writing - Channel conversion (flowchart into process)

**WEEK-8** Types of paragraph (cause and effect / compare and contrast / narrative / analytical) - Informal writing (letter/e-mail/blogs) - Paraphrasing; Grammar - Tenses (Past) - Use of sequence words - Adjectives; Vocabulary - Different forms and uses of words, Cause and effect words; E-materials - Interactive exercises for Grammar and Vocabulary - Excerpts from films related to the theme and follow up exercises - Pictures of flow charts and tables for interpretations

## **WEEK-9 UNIT TEST-3**

### **UNIT IV**

**WEEK-10** Listening - Watching videos / documentaries and responding to questions based on them; Speaking - Responding to questions - Different forms of interviews - Speaking at different types of interviews; Reading - Making inference from the reading passage - Predicting the content of a reading passage; Writing - Interpreting visual materials (line graphs, pie charts etc.)

**WEEK11** Essay writing – Different types of essays; Grammar - Adverbs – Tenses – future time reference; Vocabulary - Single word substitutes - Use of abbreviations and acronyms; E-materials - Interactive exercises for Grammar and Vocabulary -Sample interviews - film scenes - dialogue writing.

## **WEEK-12 UNIT TEST-4**

## **WEEK-13 &14 UNITS-I to UNIT-IV REVISION**

### **UNIT V**

**WEEK-15** Listening - Listening to different accents, Listening to Speeches/Presentations, Listening to broadcast and telecast from Radio and TV; Speaking - Giving impromptu talks, Making presentations on given topics; Reading - Email communication - Reading the attachment files having a poem/joke/proverb - Sending their responses through email; Writing

**WEEK-16** Creative writing, Poster making; Grammar – Direct and indirect speech; Vocabulary - Lexical items (fixed / semi fixed expressions); E-materials - Interactive exercises for Grammar and Vocabulary - Sending emails with attachment – Audio / video excerpts of different accents - Interpreting posters

## **WEEK-17 MODEL EXAM THEORY**

## **WEEK-18 MODEL EXAM PRACTICAL EXAMINATION**

### **TEXT BOOK:**

1. Department of English, Anna University. Mindscapes: English for Technologists and Engineers. Orient Blackswan, Chennai. 2012
2. Dhanavel, S.P. English and Communication Skills for Students of Science and Engineering. Orient Blackswan, Chennai. 2011

### **REFERENCES:**

1. Raman, Meenakshi & Sangeetha Sharma. Technical Communication: Principles and Practice. Oxford University Press, New Delhi. 2011
2. Regional Institute of English. English for Engineers. Cambridge University Press, New Delhi. 2006
3. Rizvi, Ashraf. M. Effective Technical Communication. Tata McGraw-Hill, New Delhi. 2005
4. Rutherford, Andrea. J Basic Communication Skills for Technology. Pearson, New Delhi. 2001
5. Viswamohan, Aysha. English for Technical Communication. Tata McGraw-Hill, New Delhi. 2008

## **MA6151 MATHEMATICS – I**

### **UNIT I MATRICES**

**WEEK-1** Eigen values and Eigenvectors of a real matrix – Characteristic equation – Properties of Eigen values and eigenvectors – Statement and applications of Cayley-Hamilton Theorem

**WEEK-2** Diagonalization of matrices – Reduction of a quadratic form to canonical form by orthogonal transformation – Nature of quadratic forms

### **WEEK-3- UNIT TEST-1**

### **UNIT II SEQUENCES AND SERIES**

**WEEK-4** Sequences: Definition and examples – Series: Types and Convergence – Series of positive terms – Tests of convergence: Comparison test, Integral test and D’Alembert’s ratio test

**WEEK-5** Alternating series –Leibnitz’s test – Series of positive and negative terms – Absolute and conditional convergence

### **WEEK-6- UNIT TEST-2**

### **UNIT III APPLICATIONS OF DIFFERENTIAL CALCULUS**

**WEEK-7** Curvature in Cartesian co-ordinates – Centre and radius of curvature – Circle of curvature

**WEEK-8** Evolutes – Envelopes - Evolute as envelope of normals



## **WEEK-9- UNIT TEST-3**

### **UNIT IV DIFFERENTIAL CALCULUS OF SEVERAL VARIABLES**

**WEEK-10** Limits and Continuity – Partial derivatives – Total derivative – Differentiation of implicit functions – Jacobian and properties

**WEEK-11** Taylor’s series for functions of two variables – Maxima and minima of functions of two variables – Lagrange’s method of undetermined multipliers

## **WEEK-12- UNIT TEST-4**

### **WEEK-13 &14 UNITS-I to UNIT-IV REVISION**

### **UNIT V MULTIPLE INTEGRALS**

**WEEK-15** Double integrals in cartesian and polar coordinates – Change of order of integration – Area enclosed by plane curves

**WEEK -16** Change of variables in double integrals – Area of a curved surface - Triple integrals– Volume of Solids.

### **WEEK-17 MODEL EXAM THEORY**

### **WEEK-18 MODEL EXAM PRACTICAL EXAMINATION**

#### **TEXT BOOK:**

1. Bali N. P and Manish Goyal, “A Text book of Engineering Mathematics”, Eighth Edition, Laxmi Publications Pvt Ltd., (2011).
2. Grewal. B.S, “Higher Engineering Mathematics”, 41<sup>st</sup> Edition, Khanna Publications, Delhi, (2011).

#### **REFERENCES:**

1. Dass, H.K., and Er. Rajnish Verma,” Higher Engineering Mathematics”, S. Chand Private Ltd.,(2011).
2. Glyn James, “Advanced Modern Engineering Mathematics”, 3rd Edition, Pearson Education, (2012).
3. Peter V. O’Neil,” Advanced Engineering Mathematics”, 7th Edition, Cengage learning, (2012).
4. Ramana B.V, “Higher Engineering Mathematics”, Tata McGraw Hill Publishing Company, New Delhi, (2008).

## **PH6151 ENGINEERING PHYSICS – I**

### **UNIT I CRYSTAL PHYSICS**

**WEEK-1** Lattice – Unit cell – Bravais lattice – Lattice planes – Miller indices – d spacing in cubic lattice – Calculation of number of atoms per unit cell – Atomic radius – Coordination number – Packing factor for SC, BCC, FCC and HCP structures

**WEEK-2** Diamond and graphite structures (qualitative treatment)- Crystal growth techniques –solution, melt (Bridgman and Czochralski) and vapour growth techniques (qualitative)

### **WEEK-3 UNIT TEST-1**

#### **UNIT II PROPERTIES OF MATTER AND THERMAL PHYSICS**

**WEEK-4** Elasticity- Hooke's law - Relationship between three moduli of elasticity (qualitative) – stress -strain diagram – Poisson's ratio –Factors affecting elasticity –Bending moment – Depression of a cantilever

**WEEK 5** –Young's modulus by uniform bending- I-shaped girders Modes of heat transfer-thermal conductivity- Newton's law of cooling - Linear heat flow – Lee's disc method – Radial heat flow – Rubber tube method – conduction through compound media (series and parallel)

### **WEEK-6 UNIT TEST-2**

#### **UNIT III QUANTUM PHYSICS**

**WEEK-7** Black body radiation – Planck's theory (derivation) – Deduction of Wien's displacement law and Rayleigh – Jeans' Law from Planck's theory – Compton effect. Theory and experimental verification – Properties of Matter waves – G.P Thomson experiment - Schrödinger's wave equation

**WEEK-8** Time independent and time dependent equations – Physical significance of wave function – Particle in a one dimensional box - Electron microscope - Scanning electron microscope - Transmission electron microscope

### **WEEK-9 UNIT TEST-3**

#### **UNIT IV ACOUSTICS AND ULTRASONICS**

**WEEK-10** Classification of Sound- decibel- Weber–Fechner law – Sabine's formula-derivation using growth and decay method – Absorption Coefficient and its determination – factors affecting acoustics of buildings and their remedies.

**WEEK-11** Production of ultrasonics by magnetostriction and piezoelectric methods - acoustic grating -Non Destructive Testing – pulse echo system through transmission and reflection modes - A,B and C – scan displays, Medical applications - Sonogram

## **WEEK-10 UNIT TEST-4**

## **WEEK-13 &14 UNITS-I to UNIT-IV REVISION**

### **UNIT V PHOTONICS AND FIBRE OPTICS**

**WEEK-15** Spontaneous and stimulated emission- Population inversion -Einstein's A and B coefficients - derivation. Types of lasers – Nd:YAG, CO<sub>2</sub> , Semiconductor lasers (homojunction & heterojunction)- Industrial and Medical Applications.

**WEEK-16** Principle and propagation of light in optical fibres – Numerical aperture and Acceptance angle – Types of optical fibres (material, refractive index, mode) – attenuation, dispersion, bending - Fibre Optical Communication system (Block diagram) - Active and passive fibre sensors- Endoscope.

### **WEEK-17 MODEL EXAM THEORY**

### **WEEK-18 MODEL EXAM PRACTICAL EXAMINATION**

#### **TEXT BOOKS:**

1. Arumugam M. Engineering Physics. Anuradha publishers, 2010
2. Gaur R.K. and Gupta S.L. Engineering Physics. Dhanpat Rai publishers, 2009

#### **REFERENCES:**

1. Searls and Zemansky. University Physics, 2009
2. Mani P. Engineering Physics I. Dhanam Publications, 2011
3. Marikani A. Engineering Physics. PHI Learning Pvt., India, 2009
4. Palanisamy P.K. Engineering Physics. SCITECH Publications, 2011
5. Rajagopal K. Engineering Physics. PHI, New Delhi, 2011
6. Senthilkumar G. Engineering Physics I. VRB Publishers, 2011

## **CY6151 ENGINEERING CHEMISTRY – I**

### **UNIT I POLYMER CHEMISTRY**

**WEEK-1** Introduction: Classification of polymers – Natural and synthetic; Thermoplastic and Thermosetting. Functionality – Degree of polymerization. Types and mechanism of polymerization: Addition (Free Radical, cationic and anionic); condensation and copolymerization. Properties of polymers: T<sub>g</sub>

**WEEK-2** Tacticity, Molecular weight – weight average, number average and polydispersity index. Techniques of polymerization: Bulk, emulsion, solution and suspension. Preparation, properties and uses of Nylon 6, 6, and Epoxy resin.

## **WEEK-3 UNIT TEST-1**

### **UNIT II CHEMICAL THERMODYNAMICS**

**WEEK-4** Terminology of thermodynamics - Second law: Entropy - entropy change for an ideal gas, reversible and irreversible processes; entropy of phase transitions; Clausius inequality. Free energy and work function: Helmholtz and Gibbs free energy functions (problems)

**WEEK-5** Criteria of spontaneity; Gibbs-Helmholtz equation (problems); Clausius-Clapeyron equation; Maxwell relations – Van't Hoff isotherm and isochore (problems).

## **WEEK-6 UNIT TEST-2**

### **UNIT III PHOTOCHEMISTRY AND SPECTROSCOPY**

**WEEK-7** Photochemistry: Laws of photochemistry - Grotthuss-Draper law, Stark-Einstein law and Lambert-Beer Law. Quantum efficiency – determination- Photo processes - Internal Conversion, Inter-system crossing, Fluorescence, Phosphorescence, Chemiluminescence and Photo-sensitization

**WEEK-8** Spectroscopy: Electromagnetic spectrum - Absorption of radiation – Electronic, Vibrational and rotational transitions. UV-visible and IR spectroscopy – principles, instrumentation (Block diagram only)

## **WEEK-9 UNIT TEST-3**

### **UNIT IV PHASE RULE AND ALLOYS**

**WEEK-10** Phase rule: Introduction, definition of terms with examples, One Component System- water system - Reduced phase rule - Two Component Systems- classification – lead-silver system, zinc-magnesium system. Alloys: Introduction

**WEEK-11** Definition- Properties of alloys- Significance of alloying, Functions and effect of alloying elements- Ferrous alloys- Nichrome and Stainless steel – heat treatment of steel; Non-ferrous alloys – brass and bronze.

## **WEEK-12 UNIT TEST-4**

### **WEEK-13 & 14 UNITS-I to UNIT-IV REVISION**

## **UNIT V NANOCHEMISTRY**

**WEEK-15** Basics - distinction between molecules, nanoparticles and bulk materials; size-dependent properties. nanoparticles: nano cluster, nano rod, nanotube(CNT) and nanowire

**WEEK-16** Synthesis: precipitation, thermolysis, hydrothermal, solvothermal, electrodeposition, chemical vapour deposition, laser ablation; Properties and applications

## **WEEK-17 MODEL EXAM THEORY**

## **WEEK-18 MODEL EXAM PRACTICAL EXAMINATION**

### **TEXT BOOKS:**

1. Jain P.C. and Monica Jain, "Engineering Chemistry", Dhanpat Rai Publishing Company (P) Ltd., New Delhi, 2010
2. Kannan P., Ravikrishnan A., "Engineering Chemistry", Sri Krishna Hi-tech Publishing Company Pvt. Ltd. Chennai, 2009

### **REFERENCES**

1. Dara S.S, Umare S.S, "Engineering Chemistry", S. Chand & Company Ltd., New Delhi 2010
2. Sivasankar B., "Engineering Chemistry", Tata McGraw-Hill Publishing Company, Ltd., New Delhi, 2008.
3. Gowariker V.R. , Viswanathan N.V. and JayadevSreedhar, "Polymer Science", New Age International P (Ltd.), Chennai, 2006.
4. Ozin G. A. and Arsenault A. C., "Nanochemistry: A Chemical Approach to Nanomaterials", RSC Publishing, 2005.

## **GE6151 COMPUTER PROGRAMMING**

### **UNIT I INTRODUCTION**

**WEEK-1** Generation and Classification of Computers- Basic Organization of a Computer – Number System – Binary – Decimal

**WEEK-2** Conversion – Problems. Need for logical analysis and thinking – Algorithm – Pseudo code – Flow Chart.

### **WEEK-3 UNIT TEST-1**

### **UNIT II C PROGRAMMING BASICS**

**WEEK-4** Problem formulation – Problem Solving - Introduction to 'C' programming – fundamentals – structure of a 'C' program – compilation and linking processes – Constants, Variables – Data Types – Expressions using operators in 'C'

**WEEK-5** Managing Input and Output operations – Decision Making and Branching – Looping statements – solving simple scientific and statistical problems

### **WEEK-6 UNIT TEST-2**

#### **UNIT III ARRAYS AND STRINGS**

**WEEK-7** Arrays – Initialization – Declaration – One dimensional and Two dimensional arrays

**WEEK-8** String- String operations – String Arrays. Simple programs- sorting- searching – matrix operations

### **WEEK-9 UNIT TEST-3**

#### **UNIT IV FUNCTIONS AND POINTERS**

**WEEK-10** Function – definition of function – Declaration of function – Pass by value – Pass by reference

**WEEK-11** Recursion – Pointers - Definition – Initialization – Pointers arithmetic – Pointers and arrays- Example Problems.

### **WEEK-12 UNIT TEST-4**

### **WEEK-13 &14 UNITS-I to UNIT-IV REVISION**

#### **UNIT V STRUCTURES AND UNIONS**

**WEEK-15** Introduction – need for structure data type – structure definition – Structure declaration

**WEEK-16** Structure within a structure - Union - Programs using structures and Unions – Storage classes, Pre-processor directives.

### **WEEK-17 MODEL EXAM THEORY**

### **WEEK-18 MODEL EXAM PRACTICAL EXAMINATION**

#### **TEXTBOOKS:**

1. Anita Goel and Ajay Mittal, “Computer Fundamentals and Programming in C”, Dorling Kindersley (India) Pvt. Ltd., Pearson Education in South Asia, 2011.

2. Pradip Dey, Manas Ghosh, “Fundamentals of Computing and Programming in C”, First Edition, Oxford University Press, 2009
3. Yashavant P. Kanetkar. “ Let Us C”, BPB Publications, 2011.

**REFERENCES:**

1. Byron S Gottfried, “Programming with C”, Schaum’s Outlines, Second Edition, Tata McGraw-Hill, 2006.
2. Dromey R.G., “How to Solve it by Computer”, Pearson Education, Fourth Reprint, 2007.
3. Kernighan,B.W and Ritchie,D.M, “The C Programming language”, Second Edition, Pearson Education, 2006.

**GE6152 ENGINEERING GRAPHICS**

**UNIT I PLANE CURVES AND FREE HAND SKETCHING**

**WEEK-1** Basic Geometrical constructions, Curves used in engineering practices: Conics – Construction of ellipse, parabola and hyperbola by eccentricity method – Construction of cycloid – construction of involutes of square and circle – Drawing of tangents and normal to the above curves, Scales: Construction of Diagonal and Vernier scales.

**WEEK-2** Visualization concepts and Free Hand sketching: Visualization principles – Representation of Three Dimensional objects – Layout of views- Free hand sketching of multiple views from pictorial views of objects

**WEEK-3 UNIT TEST-1**

**UNIT II PROJECTION OF POINTS, LINES AND PLANE SURFACES**

**WEEK-4** Orthographic projection- principles-Principal planes-First angle projection-projection of points. Projection of straight lines (only First angle projections) inclined to both the principal planes

**WEEK-5** Determination of true lengths and true inclinations by rotating line method and traces Projection of planes (polygonal and circular surfaces) inclined to both the principal planes by rotating object method.

**WEEK-6 UNIT TEST-2**

**UNIT III PROJECTION OF SOLIDS**

**WEEK-7** Projection of simple solids like prisms, pyramids, cylinder, cone and truncated solids

**WEEK-8** When the axis is inclined to one of the principal planes by rotating object method

and auxiliary plane method.

### **WEEK-9 UNIT TEST-3**

#### **UNIT IV PROJECTION OF SECTIONED SOLIDS AND DEVELOPMENT OF SURFACES**

**WEEK-10** Sectioning of above solids in simple vertical position when the cutting plane is inclined to the one of the principal planes and perpendicular to the other – obtaining true shape of section

**WEEK-11** Development of lateral surfaces of simple and sectioned solids – Prisms, pyramids cylinders and cones. Development of lateral surfaces of solids with cut-outs and holes

### **WEEK-12 UNIT TEST-4**

### **WEEK-13 &14 UNITS-I to UNIT-IV REVISION**

#### **UNIT V ISOMETRIC AND PERSPECTIVE PROJECTIONS**

**WEEK-15** Principles of isometric projection – isometric scale –Isometric projections of simple solids and truncated solids - Prisms, pyramids, cylinders, cones- combination of two solid objects in simple vertical positions and miscellaneous problems

**WEEK-16** Perspective projection of simple solids-Prisms, pyramids and cylinders by visual ray method.

#### **COMPUTER AIDED DRAFTING (Demonstration Only)**

Introduction to drafting packages and demonstration of their use

### **WEEK-17 MODEL EXAM THEORY**

### **WEEK-18 MODEL EXAM PRACTICAL EXAMINATION**

#### **TEXT BOOKS:**

1. Bhatt N.D. and Panchal V.M., “Engineering Drawing”, Charotar Publishing House, 50<sup>th</sup> Edition, 2010.

#### **REFERENCES:**

1. Gopalakrishna K.R., “Engineering Drawing” (Vol. I&II combined), Subhas Stores, Bangalore, 2007.
2. Luzzader, Warren.J. and Duff,John M., “Fundamentals of Engineering Drawing with an introduction to Interactive Computer Graphics for Design and Production,



- Eastern Economy Edition, Prentice Hall of India Pvt. Ltd, New Delhi, 2005.
3. Shah M.B., and Rana B.C., "Engineering Drawing", Pearson, 2<sup>nd</sup> Edition, 2009.
  4. Venugopal K. and Prabhu Raja V., "Engineering Graphics", New Age International (P) Limited, 2008.
  5. Natrajan K.V., "A text book of Engineering Graphics", Dhanalakshmi Publishers, Chennai, 2009.
  6. Basant Agarwal and Agarwal C.M., "Engineering Drawing", Tata McGraw Hill Publishing Company Limited, New Delhi, 2008.

## **GE6161      COMPUTER PRACTICES LABORATORY**

### **LIST OF EXPERIMENTS:**

1. Search, generate, manipulate data using MS office/ Open Office
2. Presentation and Visualization – graphs, charts, 2D, 3D
3. Problem formulation, Problem Solving and Flowcharts
4. C Programming using Simple statements and expressions
5. Scientific problem solving using decision making and looping.
6. Simple programming for one dimensional and two dimensional arrays.
7. Solving problems using String functions
8. Programs with user defined functions – Includes Parameter Passing
9. Program using Recursive Function and conversion from given program to flow chart.
10. Program using structures and unions

## **GE6162      ENGINEERING PRACTICES LABORATORY**

### **GROUP A (CIVIL & MECHANICAL)**

#### **I      CIVIL ENGINEERING PRACTICE**

**9**

##### **Buildings:**

- (a) Study of plumbing and carpentry components of residential and industrial Buildings. Safety aspects

##### **Plumbing Works:**

- (a) Study of pipeline joints, its location and functions: valves, taps, couplings, unions, Reducers, elbows in household fittings
- (b) Study of pipe connections requirements for pumps and turbines.
- (c) Preparation of plumbing line sketches for water supply and sewage works.
- (d) Hands-on-exercise: Basic pipe connections – Mixed pipe material connection – Pipe connections with different joining components.
- (e) Demonstration of plumbing requirements of high-rise buildings.

**Carpentry using Power Tools only:**

- (a) Study of the joints in roofs, doors, windows and furniture.
- (b) Hands-on-exercise: Wood work, joints by sawing, planing and cutting.

**II MECHANICAL ENGINEERING PRACTICE****Welding:**

- (a) Preparation of arc welding of butt joints, lap joints and tee joints.
- (b) Gas welding practice

**Basic Machining:**

- (a) Simple Turning and Taper turning
- (b) Drilling Practice

**Sheet Metal Work:**

- (a) Forming & Bending:
- (b) Model making – Trays, funnels, etc.
- (c) Different type of joints.

**Machine assembly practice:**

- (a) Study of centrifugal pump
- (b) Study of air conditioner

**Demonstration on:**

- (a) Smithy operations, upsetting, swaging, setting down and bending.  
Example – Exercise – Production of hexagonal headed bolt.
- (b) Foundry operations like mould preparation for gear and step cone pulley.
- (c) Fitting – Exercises – Preparation of square fitting and vee – fitting models.

**GROUP B (ELECTRICAL & ELECTRONICS)****III ELECTRICAL ENGINEERING PRACTICE**

1. Residential house wiring using switches, fuse, indicator, lamp and energy meter.
2. Fluorescent lamp wiring.
3. Stair case wiring
4. Measurement of electrical quantities – voltage, current, power & power factor in RLC circuit.
5. Measurement of energy using single phase energy meter.
6. Measurement of resistance to earth of an electrical equipment.

**IV ELECTRONICS ENGINEERING PRACTICE**

1. Study of Electronic components and equipments – Resistor, color coding measurement of AC signal parameter (peak-peak, RMS period, frequency) using CR
2. Study of logic gates AND, OR, EOR and NOT
3. Generation of Clock Signal
4. Soldering practice – Components Devices and Circuits – Using general purpose PCB
5. Measurement of ripple factor of HWR and FWR

## **GE6163 PHYSICS AND CHEMISTRY LABORATORY – I**

### **PHYSICS LABORATORY – I**

#### **LIST OF EXPERIMENTS (Any FIVE Experiments)**

- 1 (a) Determination of Wavelength, and particle size using Laser  
(b) Determination of acceptance angle in an optical fiber.
2. Determination of velocity of sound and compressibility of liquid – Ultrasonic interferometer.
3. Determination of wavelength of mercury spectrum – spectrometer grating
4. Determination of thermal conductivity of a bad conductor – Lee’s Disc method.
5. Determination of Young’s modulus by Non uniform bending method
6. Determination of specific resistance of a given coil of wire – Carey Foster’s Bridge

### **CHEMISTRY LABORATORY – I**

#### **LIST OF EXPERIMENTS (Any FIVE Experiments)**

- 1 Determination of DO content of water sample by Winkler’s method.
- 2 Determination of chloride content of water sample by argentometric method
- 3 Determination of strength of given hydrochloric acid using pH meter
- 4 Determination of strength of acids in a mixture using conductivity meter
- 5 Estimation of iron content of the water sample using spectrophotometer (1,10- phenanthroline / thiocyanate method)
- 6 Determination of molecular weight of polyvinylalcohol using Ostwald viscometer
- 7 Conductometric titration of strong acid vs strong base