

**ANNA UNIVERSITY TIRUCHIRAPPALLI  
TIRUCHIRAPPALLI 620 024**

**Syllabus**

**Common to all B.E. / B.Tech. Degree Programmes**

**SEMESTER II**

**HS1151 - TECHNICAL ENGLISH II**

**L T P  
3 1 0**

**UNIT I FOCUS ON LANGUAGE: VOCABULARY 9+3**

Technical Vocabulary – Synonyms and antonyms - Different grammatical forms of the same word – Numerical adjectives – Articles – Conjunctions and prepositions – Conjunctions used in adverbial phrases and clauses – Abbreviations and acronyms – Foreign words and phrases.

**UNIT II FOCUS ON LANGUAGE: GRAMMAR 9+3**

Phrases and structures indicating use and purpose – Cause and effect expressions – Using connectives – Imperative and ‘should’ – Yes/ No question forms – Reported speech – Relative clauses – Adverbial clauses of time, place and manner .

**UNIT III READING 9+3**

Intensive reading and predicting content – Meanings in context - Reading and interpretation – Critical reading – Creative and critical thinking – Note-making.

**UNIT IV WRITING 9+3**

Paragraph development - Process description – Descriptive writing - Writing analytical paragraphs – Recommendations – Instructions – Checklists - Letter of application – content, format – Writing an essay – Proposals – Report Writing – Types, format, structure, data collection, content, form.

**UNIT V LISTENING AND SPEAKING 9+3**

Non-verbal communication – Listening – Stress and intonation - Correlating verbal and non-verbal communication – Speaking in group discussions – Discussion of problems and solutions – Oral instructions.

**L: 45 T: 15 Total: 60**

## **TEXT BOOK**

1. Meenakshi Raman and Sangeeta Sharma, 'Technical Communication: English Skills for Engineers', New Delhi: Oxford University Press, 2008.

## **REFERENCES**

1. Department of Humanities & Social Sciences, Anna University, 'English for Engineers and Technologists' Combined Edition (Volumes 1 & 2), Chennai: Orient Longman Pvt. Ltd., 2006. Themes 1 – 4 (Resources, Energy, Computer, Transport) .
2. Andrea, J. Rutherford, 'Basic Communication Skills for Technology', Second Edition, Pearson Education, 2007.

## MA1151 - MATHEMATICS II

**L T P**  
**3 1 0**

### **UNIT I LAPLACE TRANSFORMS 9+3**

Transforms of elementary functions – Basic properties – Transforms of derivatives and integrals – Initial and final value theorems – Inverse Laplace transforms – Convolution theorem – Solution of Ordinary Differential Equations with constant coefficients using Laplace transforms – Transform of periodic functions – Solution of integral equations.

### **UNIT II VECTOR CALCULUS 9+3**

Gradient, Divergence and Curl – Directional derivative – Irrotational and Solenoidal vector fields – Vector integration – Problem solving using Green’s theorem, Gauss divergence theorem and Stoke’s theorem – Simple applications and verifications.

### **UNIT III ANALYTIC FUNCTIONS 9+3**

Necessary and Sufficient conditions (without proof) – Cauchy-Riemann equations – Properties of analytic functions – Harmonic conjugate – Construction of Analytic functions – Conformal mapping:  $w = z+a$ ,  $az$ ,  $1/z$ ,  $Z^2$  and bilinear transformation.

### **UNIT IV MULTIPLE INTEGRALS 9+3**

Double integration – Cartesian and Polar Co-ordinates – Change of order of integration – Area as a double integral – Change of variables between Cartesian and Polar Co-ordinates – Triple integration – Volume as a triple integral.

### **UNIT V COMPLEX INTEGRATION 9+3**

Problems solving using Cauchy’s integral theorem and integral formula – Taylor’s and Laurent’s expansions – Residues – Cauchy’s residue theorem – Contour integration over unit circle – Semicircular contours with no pole on real axis.

**L: 45 T: 15 Total: 60**

### **TEXT BOOK**

1. Grewal, B.S., “Higher Engineering Mathematics”, Thirty eighth Edition, Khanna Publishers, New Delhi, 2005.
2. Venkataraman. M. K., “Engineering Mathematics”, Volume I and II Revised enlarged Fourth Edition, The National Publishing Company, Chennai, 2004.

### **REFERENCES**

1. Glyn James., “Advanced Modern Engineering Mathematics”, Third Edition, Pearson Education Ltd, New Delhi, 2004.
2. Veerarajan. T., “Engineering Mathematics (for first year)”, Fourth Edition, Tata McGraw – Hill Publishing Company Limited, New Delhi, 2005.
3. Bali N. P and Manish Goyal, “ Text book of Engineering Mathematics”, Third edition, Laxmi Publications(p) Ltd., 2008.

## HS1152 - ENGINEERING PHYSICS II

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		8

### UNIT I CONDUCTING MATERIALS

Conductors – classical free electron theory of metals – Electrical and thermal conductivity – Wiedemann – Franz law – Lorentz number – Draw backs of classical theory – Quantum theory – Fermi distribution function – Effect of temperature on Fermi Function – Density of energy states – carrier concentration in metals.

### UNIT II SEMICONDUCTING MATERIALS

9

Intrinsic semiconductor – carrier concentration derivation – Fermi level – Variation of Fermi level with temperature – electrical conductivity – band gap determination – extrinsic semiconductors – carrier concentration in n-type and p-type semiconductor (Qualitative) – variation of Fermi level with temperature and impurity concentration – compound semiconductors – Hall effect – Determination of Hall coefficient – Applications.

### UNIT III MAGNETIC AND SUPERCONDUCTING MATERIALS

10

Origin of magnetic moment – Bohr magneton – Dia and para magnetism – Ferro magnetism – Domain theory – Hysteresis – soft and hard magnetic materials – anti – ferromagnetic materials – Ferrites – applications – magnetic recording and readout – storage of magnetic data – tapes, floppy and magnetic disc drives.

Superconductivity : properties - Types of super conductors – BCS theory of superconductivity (Qualitative) - High T<sub>c</sub> superconductors – Applications of superconductors – Josephson Effect – Josephson Junction -SQUID, Cryotron, Magnetic levitation.

### UNIT IV DIELECTRIC MATERIALS

9

Electrical susceptibility – dielectric constant – electronic, ionic, orientational and space charge polarization – frequency and temperature dependence of polarisation – internal field – Clausius – Mosotti relation (derivation) – dielectric loss – dielectric breakdown – uses of dielectric materials (capacitor and transformer) – Ferroelectricity and applications.

### UNIT V MODERN ENGINEERING MATERIALS

9

Metallic glasses: preparation, properties and applications.

Shape memory alloys (SMA): Characteristics, properties of NiTi alloy, application, advantages and disadvantages of SMA

Nanomaterials: synthesis –plasma arcing – pulsed laser deposition - chemical vapour deposition – sol-gel – electrodeposition – ball milling - properties of nanoparticles and applications.

Carbon nanotubes: structure, properties and applications.

**Total: 45**

## **TEXT BOOKS**

1. Charles Kittel ‘ Introduction to Solid State Physics’, John Wiley & sons, 7<sup>th</sup> Edition, Singapore (2007)
2. Charles P. Poole and Frank J.Owren, ‘Introduction to Nanotechnology’, Wiley India(2007) (for Unit V).

## **REFERENCES**

1. Chitra Shadrach and Sivakumar Vadivelu, ‘Engineering Physics’, Pearson Education, New Delhi, (2007).
2. M. Arumugam, ‘Materials Science’ Anuradha publications, Kumbakonam, (2006).
3. Palanisamy P.K, ‘Materials science’, Scitech publications(India) Pvt. LTd., Chennai, 2<sup>nd</sup> Edition (2007).
4. Rajendran, V, and Marikani A, ‘Materials science’ TMH publications, (2004) New Delhi.
5. Jayakumar, S. ‘Materials science’, R.K. Publishers, Coimbatore, (2008).

## HS1153 - ENGINEERING CHEMISTRY II

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		9

### UNIT I ENGINEERING MATERIALS

Abrasives - Natural abrasives (quartz, corundum, emery, garnet, diamond) - Synthetic abrasives (silicon carbide and boron carbide) -- Refractories -classification (acidic, basic and neutral refractories) - Properties (refractoriness, refractoriness under load, dimensional stability, porosity, thermal spalling) - Manufacture of alumina, magnesite and zirconia bricks -- Lubricants - Mechanism of lubrication, Liquid lubricants - Properties (viscosity index, flash and fire points, cloud and pour points, oiliness) - Solid lubricants - Graphite and Molybdenum disulphide.

### UNIT II CORROSION AND PROTECTIVE COATINGS 9

Chemical and Electrochemical corrosion - Galvanic corrosion - Differential aeration corrosion -- Corrosion control - Sacrificial anode and Impressed current cathodic methods - Corrosion inhibitors; Protective coatings - Paints - constituents and functions -- Metallic coatings - Electroplating (Au) and Electroless (Ni) plating - Surface conversion coating and Hot dipping.

### UNIT III HIGH POLYMERS 9

Polymers - Definition -- Polymerization - Addition and Condensation polymerization -- Free radical polymerization mechanism -- Preparation, properties and uses of PVC, Teflon, Polystyrene, Polycarbonate, Polyurethane, Nylon-6,6, PET, Bakelite and Epoxy resins -- Rubber - Vulcanization of rubber - Synthetic rubbers (butyl rubber and SBR) -- Compounding of plastics - Injection moulding - Compression moulding.

### UNIT IV FUELS AND COMBUSTION 9

Coal - Proximate and Ultimate analysis -- Metallurgical coke - Manufacture by Otto-Hoffman oven's -- Petroleum processing and fractions -- Cracking - Catalytic cracking methods -- Synthetic petrol - Bergius and Fischer-Tropsch method -- Knocking -- Octane number and Cetane number -- Gaseous fuels - Water gas, Producer gas, CNG and LPG; Combustion -- Calorific values - Types -- Theoretical calculation of calorific values (simple problem) -- Calculation of minimum requirement of air (simple problem) -- Flue gas analysis - Orsat's apparatus.

### UNIT V CHEM-INFORMATICS 9

Definition - coordinate - Bonds - Bond length - Bond angles - Torsional angles -- Chemical structure -- Conformation -- Representation of structural information -- Linear format - SMILEYS notation -- MOL format -- PDB format -- Storage of structural data in a data base -- Canonical structure -- Similarity search -- Sub structure search - Structural keys - Finger print - Application of chem-informatics in drugs designing.

**Total: 45**

## **TEXTBOOKS**

1. P. C.Jain and Monika Jain, "Engineering Chemistry", 15<sup>th</sup> Edition, Dhanpat Rai Publishing Company (P) Ltd., New Delhi, 2007.
2. Andrew Leach, "Molecular Modeling concept and Application", 2<sup>nd</sup> Edition, Pearson Edn., Ltd., ESSEX, England, 2001.

## **REFERENCES**

1. J. C. Kuriakose and J. Rajaram, "Chemistry in Engineering and Technology", Vol.1 & 2, Tata Mcgraw Hill Publishing Company, New Delhi, 1996.
2. B. K. Sharma, "Engineering Chemistry", Krishna Prakasam Media (P) Ltd., Meerut, 2001.
3. B. Sivasankar "Engineering Chemistry" Tata McGraw-Hill Publishing Co. Ltd, New Delhi, 2008.



## **TEXT BOOK**

1. Irving H. Shames, “Engineering Mechanics – Statics and Dynamics”, 4<sup>th</sup> Edition – Pearson Education Asia Pvt. Ltd., (2003).
2. M.V Seshagiri Rao and D Rama Durgaiyah, ‘ Engineering Mechanics’ University Press 2005 .

## **REFERENCES**

1. Beer, F.P and Johnson Jr. E.R. “Vector Mechanics for Engineers”, Vol. 1 Statics and Vol. 2 Dynamics, McGraw-Hill International Edition, (1997).
2. Hibbeler, R.C., “Engineering Mechanics”, Vol. 1 Statics, Vol. 2 Dynamics, Pearson Education Asia Pvt. Ltd., (2000).
3. K V Natarajan, ‘Engineering Mechanics’, Dhanalakshmi Publishers, Chennai 2006 .
4. Palanichamy, M.S., Nagam, S., “Engineering Mechanics – Statics & Dynamics”, Tata McGraw-Hill, (2001).
5. Ashok Gupta, “Interactive Engineering Mechanics – Statics – A Virtual Tutor (CDROM)”, Pearson Education Asia Pvt., Ltd., (2002).

**EE1151 - CIRCUIT THEORY**  
**(Common to EEE, EIE and ICE Branches)**

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**9 + 3**

**UNIT I        BASIC CIRCUITS ANALYSIS**

Ohm's Law – Kirchoffs laws – DC and AC Circuits – Resistors in series and parallel circuits – Mesh current and node voltage method of analysis for D.C and A.C. circuits.

**UNIT II        NETWORK REDUCTION AND NETWORK THEOREMS FOR DC AND AC CIRCUITS** **9 + 3**

Network reduction: voltage and current division, source transformation – star delta conversion. Thevenin's and Norton's Theorem – Superposition Theorem – Maximum power transfer theorem – Reciprocity Theorem.

**UNIT III        RESONANCE AND COUPLED CIRCUITS** **9 + 3**

Series and parallel resonance – their frequency response – Quality factor and Bandwidth - Self and mutual inductance – Coefficient of coupling – Tuned circuits – Single tuned circuits.

**UNIT IV        TRANSIENT RESPONSE OF DC AND AC CIRCUITS** **9 + 3**

Transient response of RL, RC and RLC Circuits using Laplace transform for DC input and A.C. with sinusoidal input.

**UNIT V        ANALYSING THREE PHASE CIRCUITS** **9 + 3**

Three phase balanced / unbalanced voltage sources – analysis of three phase 3-wire and 4-wire circuits with star and delta connected loads, balanced & unbalanced – phasor diagram of voltages and currents – power and power factor measurements in three phase circuits.

**L: 45 T: 15 Total: 60**

**TEXT BOOKS**

1. William H. Hayt Jr, Jack E. Kemmerly and Steven M. Durbin, "Engineering Circuits Analysis", TMH publishers, 6<sup>th</sup> edition, New Delhi, (2002).
2. Sudhakar A and Shyam Mohan SP, "Circuits and Network Analysis and Synthesis", Tata McGraw Hill, (2007).

**REFERENCES**

1. Paranjothi SR, "Electric Circuits Analysis," New Age International Ltd., New Delhi, (1996).
2. Joseph A. Edminister, Mahmood Nahri, "Electric circuits", Schaum's series, Tata McGraw-Hill, New Delhi (2001).
3. Chakrabati A, "Circuits Theory (Analysis and synthesis), Dhanpath Rai & Sons, New Delhi, (1999).
4. Charles K. Alexander, Mathew N.O. Sadik, "Fundamentals of Electric Circuits", Second Edition, McGraw Hill, (2003).

## **EE1152 - ELECTRIC CIRCUITS AND ELECTRON DEVICES**

**(For ECE, CSE, IT and Biomedical Engineering Branches)**

	<b>L</b>	<b>T</b>	<b>P</b>
<b>UNIT I      CIRCUIT ANALYSIS TECHNIQUES</b>	<b>3</b>	<b>1</b>	<b>0</b>
			<b>9 + 3</b>
<p>Kirchoff's current and voltage laws – series and parallel connection of independent sources – R, L and C – Network Theorems – Thevenin, Superposition, Norton, Maximum power transfer and duality – Star-Delta conversion.</p>			
<b>UNIT II      TRANSIENT RESPONSE AND RESONANCE IN RLC CIRCUITS</b>			<b>9 + 3</b>
<p>Basic RL, RC and RLC circuits and their responses to pulse and sinusoidal inputs – frequency response – Parallel and series resonances – Q factor – single tuned and double tuned circuits.</p>			
<b>UNIT III      SEMICONDUCTOR DIODES</b>			<b>9 + 3</b>
<p>Review of intrinsic &amp; extrinsic semiconductors – Theory of PN junction diode – Energy band structure – current equation – space charge and diffusion capacitances – effect of temperature and breakdown mechanism – Zener diode and its characteristics.</p>			
<b>UNIT IV      TRANSISTORS</b>			<b>9 + 3</b>
<p>Principle of operation of PNP and NPN transistors – study of CE, CB and CC configurations and comparison of their characteristics – Breakdown in transistors – operation and comparison of N-Channel and P-Channel JFET – drain current equation – MOSFET – Enhancement and depletion types – structure and operation – comparison of BJT with MOSFET – thermal effect on MOSFET.</p>			
<b>UNIT V      SPECIAL SEMICONDUCTOR DEVICES (Qualitative Treatment only)</b>			<b>9+3</b>
<p>Tunnel diodes – PIN diode, varactor diode – SCR characteristics and two transistor equivalent model – UJT – Diac and Triac – Laser, CCD, Photodiode, Phototransistor, Photoconductive and Photovoltaic cells – LED, LCD.</p>			

**L: 45 T: 15 Total: 60**

## **TEXT BOOKS**

1. Robert T. Paynter, "Introducing Electronics Devices and Circuits", Pearson Education, 7<sup>th</sup> Edition, (2006).
2. Joseph A. Edminister, Mahmood, Nahri, "Electric Circuits" Schaum's Series, TMH, (2001).

## **REFERENCES**

1. David A. Bell, "Electronic Devices and Circuits", Oxford University Press, 5<sup>th</sup> Edition, (2008).
2. S. Salivahanan, N. Suresh kumar and A. Vallavanraj, "Electronic Devices and Circuits", 2<sup>nd</sup> Edition, (2008).
3. William H. Hayt, J.V. Jack, E. Kemmeby and Steven M. Durbin, "Engineering Circuit Analysis", TMH, 6<sup>th</sup> Edition, 2002.
4. J. Millman & Halkins, Satyabranta Jit, "Electronic Devices & Circuits", TMH, 2<sup>nd</sup> Edition, 2008.

## EE1153 - BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to branches under Civil, Mechanical and Technology Faculties)

	L	T	P
<b>UNIT I      ELECTRICAL CIRCUITS &amp; MEASUREMENTS</b>	<b>4</b>	<b>0</b>	<b>0</b>
			<b>12</b>
<p>Ohm's Law – Kirchoff's Laws – Steady State Solution of DC Circuits – Introduction to AC Circuits – Waveforms and RMS Value – Power and Power factor – Single Phase and Three Phase Balanced Circuits.</p> <p>Operating Principles of Moving Coil and Moving Iron Instruments (Ammeters and Voltmeters), Dynamometer type Watt meters and Energy meters.</p>			
<b>UNIT II      ELECTRICAL MACHINES</b>			<b>12</b>
<p>Construction, Principle of Operation, Basic Equations and Applications of DC Generators, DC Motors, Single Phase Transformer, single phase induction Motor.</p>			
<b>UNIT III     SEMICONDUCTOR DEVICES AND APPLICATIONS</b>			<b>12</b>
<p>Characteristics of PN Junction Diode – Zener Effect – Zener Diode and its Characteristics – Half wave and Full wave Rectifiers – Voltage Regulation.</p> <p>Bipolar Junction Transistor – CB, CE, CC Configurations and Characteristics – Elementary Treatment of Small Signal Amplifier.</p>			
<b>UNIT IV     DIGITAL ELECTRONICS</b>			<b>12</b>
<p>Binary Number System – Logic Gates – Boolean Algebra – Half and Full Adders – Flip-Flops – Registers and Counters – A/D and D/A Conversion (single concepts).</p>			
<b>UNIT V      FUNDAMENTALS OF COMMUNICATION ENGINEERING</b>			<b>12</b>
<p>Types of Signals: Analog and Digital Signals – Modulation and Demodulation: Principles of Amplitude and Frequency Modulations.</p> <p>Communication Systems: Radio, TV, Fax, Microwave, Satellite and Optical Fibre (Block Diagram Approach only).</p>			
			<b>Total: 60</b>

## **TEXT BOOKS**

1. Mittle V.N., “Basic Electrical Engineering”, TMH Edition, New Delhi, 1990.
2. Sedha, R.S., “Applied Electronics” S. Chand & Co., 2006.

## **REFERENCES**

1. Muthusubramanian R, Salivahanan S and Muraleedharan K A, “Basic Electrical, Electronics and Computer Engineering”, TMH, Second Edition, (2006).
2. Nagsarkar T K and Sukhija M S, “Basics of Electrical Engineering”, Oxford press (2005).
3. Mehta V K, “Principles of Electronics”, S.Chand & Company Ltd, (1994).
4. Mahmood Nahvi and Joseph A. Edminister, “Electric Circuits”, Schaum’ Outline Series, McGraw Hill, (2002).
5. Premkumar N, “Basic Electrical Engineering”, Anuradha Publishers, (2003).



## REFERENCES

- 1 Shanmugam G and Palanichamy M S, “Basic Civil and Mechanical Engineering”, TMH Publishing Co., New Delhi, (1996).
- 2 Ramamrutham. S, “Basic Civil Engineering”, Dhanpat Rai Publishing Co. (P) Ltd. (1999).
- 3 Seetharaman S. “Basic Civil Engineering”, Anuradha Agencies, (2005).
- 4 Venugopal K and Prahu Raja V, “Basic Mechanical Engineering”, Anuradha Publishers, Kumbakonam, (2000).
- 5 Shantha Kumar S R J., “Basic Mechanical Engineering”, Hi-tech Publications, Mayiladuthurai, (2000).

## CS1151 - COMPUTER PRACTICE LABORATORY II

L	T	P
0	1	2

- Basic commands in UNIX.
- Working with Files
  - Files and File types.
  - Sorting the contents of a File.
  - Counting the number of words in a File.
- Working with Directories.
- UNIX Editor.
- Pipes.
- Simple Filters.
- Command line parameters with simple UNIX commands.
- Shell Programming Fundamentals
  - Shell variables.
  - Conditional statements.
  - Testing and Loops.
  - Simple shell programs.
  - Grep and Sed commands.
  - Awk filter.
  - Security commands.
- UNIX C
  - Simple C programs to simulate the basic UNIX commands (Fork, Signal).
  - File handling .

### **HARDWARE/SOFTWARE REQUIREMENTS FOR A BATCH OF 30 STUDENTS**

#### **Hardware**

- 1 UNIX Clone Server.
- 33 Nodes (thin client or PCs).
- Printer - 3Nos.

#### **Software**

- OS-UNIX clone (33 user license or License free Linux).
- Compiler - C .

**T: 15 P: 30 Total: 45**

## HS1154 - PHYSICS AND CHEMISTRY LABORATORY II

### PHYSICS LABORATORY II

<b>L</b>	<b>T</b>	<b>P</b>
<b>0</b>	<b>0</b>	<b>3</b>

#### LIST OF EXPERIMENTS

1. Determination of Young's modulus of the material – Non uniform bending.
2. Determination of Band Gap of a semiconductor material.
3. Determination of Specific resistance of a given coil of wire – Carey Foster Bridge.
4. Determination of Viscosity of liquid – Poiseuille's method.
5. Spectrometer Dispersive power of a prism.
6. Determination of Young's modulus of the material – Uniform bending.
7. Torsional pendulum – Determination of Rigidity modulus.

### CHEMISTRY LABORATORY II

<b>L</b>	<b>T</b>	<b>P</b>
<b>0</b>	<b>0</b>	<b>3</b>

#### LIST OF EXPERIMENTS

1. Conductometric Titration (Simple acid base).
2. Conductometric Titration (Mixture of weak and strong acids).
3. Conductometric Titration using  $\text{BaCl}_2$  vs  $\text{Na}_2\text{SO}_4$ .
4. Potentiometric Titration ( $\text{Fe}^{2+}$  /  $\text{KMnO}_4$  or  $\text{K}_2\text{Cr}_2\text{O}_7$ ).
5. pH Titration (acid & base).
6. Determination of water of crystallization of a crystalline salt (Copper sulphate).
7. Estimation of Ferric iron by spectrophotometry.

- **A minimum of FIVE experiments shall be offered.**
- **Laboratory classes on alternate weeks for Physics and Chemistry.**
- **The lab examinations will be held only in the second semester.**

**ME1151 - COMPUTER AIDED DRAFTING AND MODELING LABORATORY**  
**(For All Non-Circuit Branches)**

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**List of Exercises using software capable of Drafting and Modeling**

1. Study of capabilities of software for Drafting and Modeling – Coordinate systems (absolute, relative, polar, etc.) – Creation of simple figures like polygon and general multi-line figures.
2. Drawing of a Title Block with necessary text and projection symbol.
3. Drawing of curves like parabola, spiral, involute using B-spline or cubic spline.
4. Drawing of front view and top view of simple solids like prism, pyramid, cylinder, cone, etc, and dimensioning.
5. Drawing front view, top view and side view of objects from the given pictorial views (eg. V-block, Base of a mixie, Simple stool, Objects with hole and curves).
6. Drawing of a plan of residential building ( Two bed rooms, kitchen, hall, etc.,).
7. Drawing of a simple steel truss.
8. Drawing sectional views of prism, pyramid, cylinder, cone, etc,
9. Drawing isometric projection of simple objects.
10. Creation of 3-D models of simple objects and obtaining 2-D multi-view drawings from 3-D model.

**Note: Plotting of drawings must be made for each exercise and attached to the records written by students.**

**List of Equipments for a batch of 30 students:**

1. Pentium IV computer or better hardware, with suitable graphics facility - 30 No.
2. Licensed software for Drafting and Modeling. – 30 Licenses.
3. Laser Printer or Plotter to print / plot drawings – 2 No.

**EE1154 - ELECTRICAL CIRCUITS LABORATORY**  
**(Common to EEE, EIE and ICE Branches)**

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**LIST OF EXPERIMENTS**

1. Verification of Ohm's laws and Kirchoff's laws.
2. Verification of Thevenin's and Norton's Theorem.
3. Verification of Superposition Theorem.
4. Verification of Maximum power transfer theorem.
5. Verification of Reciprocity theorem.
6. Measurement of Self inductance of a coil.
7. Verification of Mesh and Nodal analysis.
8. Transient response of RL and RC circuits for DC input.
9. Frequency response of Series and Parallel resonance circuits.
10. Frequency response of Single tuned coupled circuits.

**Total: 45**

**EE1155 - CIRCUITS AND DEVICES LABORATORY**  
**(For ECE, CSE, IT and Bio-Medical Engineering Branches)**

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1. Verification of KVL and KCL.
2. Verification of Thevenin's and Norton's Theorems.
3. Verification of Superposition Theorem.
4. Verification of Maximum power transfer and reciprocity theorems.
5. Frequency response of Series and Parallel resonance circuits.
6. Characteristics of PN and Zener diode.
7. Characteristics of CE configuration.
8. Characteristics of CB configuration.
9. Characteristics of UJT and SCR.
10. Characteristics of JFET and MOSFET.
11. Characteristics of Diac and Triac.
12. Characteristics of Photodiode and Phototransistor.

**Total: 45**

## **LIST OF BRANCHES UNDER VARIOUS FACULTIES**

### **NON – CIRCUIT BRANCHES**

#### **I Faculty of Civil Engineering**

1. B.E. Civil Engineering.

#### **II Faculty of Mechanical Engineering**

1. B.E. Aeronautical Engineering .
2. B.E. Automobile Engineering.
3. B.E. Marine Engineering.
4. B.E. Mechanical Engineering.
5. B.E. Production Engineering.

#### **III Faculty of Technology**

1. B.Tech. Chemical Engineering.
2. B.Tech. Biotechnology.
3. B.Tech. Polymer Technology .
4. B.Tech. Textile Technology.
5. B.Tech. Textile Technology (Fashion Technology).
6. B.Tech. Petroleum Engineering .
7. B.Tech. Rubber and Plastics Technology.

### **CIRCUIT BRANCHES**

#### **I Faculty of Electrical Engineering**

1. B.E. Electrical and Electronics Engineering.
2. B.E. Electronics and Instrumentation Engineering.
3. B.E. Instrumentation and Control Engineering.

#### **II Faculty of Information and Communication Engineering**

1. B.E. Computer Science and Engineering.
2. B.E. Electronics and Communication Engineering.
3. B.E. Bio Medical Engineering.
4. B.Tech. Information Technology.