DEVI AHILYA VISHWAVIDYALAYA, INDORE

FACULTY OF ENGINEERING

SCHEME OF EXAMINATION
&
COURSE OF CONTENTS

BE I Year Programme
(Common to All Branches)

INSTITUTE OF ENGINEERING & TECHNOLOGY
(www.iet.dauniv.ac.in)

Scheme for B.E. All Semester Examination effective from July 2006

DEVI AHILYA VISHWAVIDYALAYA, INDORE
INSTITUTE OF ENGINEERING & TECHNOLOGY

SCHEMES OF EXAMINATION FOR BE I PROGRAMME
(Subject to Revision)

B. E. I YEAR (Common to all branches)

SCHEMES OF EXAMINATION FOR BE I YEAR
SEMESTER A/B[1]

Sr No	Sub-Code	Subject	L	T	P	Th Max	Th Min	CW Max	CW Min	Pr Max	Pr Min	SW Max	SW Min	Total
1	1AM001	Applied Mathematics-I [2]	4	-	-	100	35	50	25	---	---	---	---	150
2	1AC052	Chemistry & Environment Science	4	-	2	100	35	50	25	50	25	50	25	250
3	1ME053	Elements of Mechanical Engg	4	-	2	100	35	50	25	50	25	50	25	250
4	1ET054	Basic Electronics	4	-	2	100	35	50	25	50	25	50	25	250
5	1SS055	Technical English	4	-	-	100	35	50	25	---	---	---	---	150
6	1ME056	Workshop Practice	-	-	4	---	---	---	---	75	38	75	38	150
		Total				500		250		225		225		1200

Semester B/A[1]

Sr No	Sub-Code	Subject	L	T	P	Th Max	Th Min	CW Max	CW Min	Pr Max	Pr Min	SW Max	SW Min	Total
1	1AM051	Applied Mathematics-II [3]	4	-	-	100	35	50	25	---	---	---	---	150
2	1AP002	Applied Physics	4	-	2	100	35	50	25	50	25	50	25	250
3	1ME003	Engineering Drawing	2	-	4	100	35	50	25	50	25	50	25	250
4	1EI004	Electrical Engineering	4	-	2	100	35	50	25	50	25	50	25	250
5	1CO005	Computer Programming	4	-	2	100	35	50	25	50	25	50	25	250
6	1SS006	Humanities	2	-	-	---	---	50	25	---	---	---	---	50
		Total				500		300		200		200		1200

(Semester A + Semester B)   Grand Total: 2400

[1] Semester A for three sections and Semester B for other three sections for the teaching load balancing.
[2] *Applied Mathematics-I* shall be taught in Semester A to all six sections.
[3] *Applied Mathematics-II* shall be taught in Semester B to all six sections.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE I Year (Common to all branches) Semester					
Subject Code & Name	**Instructions Hours per Week**			**Marks**					
1AM001 **Applied Mathematics-I**	L	T	P		TH	CW	SW	PR	Total
	4	-	-	Max	100	50	-	-	150
Duration of Theory Paper: 3 Hours				Min	35	25	-	-	60

Course Objectives: To introduce the mathematical concepts of calculus for solving engineering problems that shall be used in various branches of engineering.

Prerequisite(s): nil

COURSE OF CONTENTS

Unit-I
Differential Calculus: Expansion of functions by Taylor's and Maclaurin's Theorem; Indeterminate forms; Tangents and Normals.
Application: Curvature in Cartesian and Polar Coordinates; Asymptotes; Envelopes; Evolutes and Involutes.

Unit-II
Integral Calculus: Integration of Irrational and Transcendental Functions; Reduction Formulae; Integral as the limit of a Sum; Definite Integral and Properties.
Application: Area; Length of Curve; Volume; Surface of Revolution; Theorem of Pappus and Guldin.

Unit-III
Advanced Differential Calculus: Function of Several Variables; Partial Differentiation; Jacobians; Taylor's Series of Two Variables.
Application: Maxima and Minima of Function of Two and More Variables; Lagrange's Method of Undetermined Multipliers.

Unit-IV
Advanced Integral Calculus: Multiple integrals: Double and Triple Integration; Change of Order of Integration.
Application: Area; Volume; Centre of Gravity; Moment of Inertia.

Unit-V
Vector Calculus-I: Differentiation of a Vector; Gradient; Divergence and Curl.
Vector Calculus-II: Integration of a Vector Function; Gauss's, Green's and Stoke's Theorems.

BOOKS RECOMMENDED
[1] E Mendelson, G J Hademenos, F Ayres, *Schaum's Easy Outline: Calculus*, McGraw-Hill, 2000.
[2] R C Wrede, M Spiegel, *Schaum's Outline of Advanced Calculus*, 2/e, McGraw-Hill, 2002.
[3] B.S.Grewal, *Engineering Mathematics*, 39/e, Khanna Publishers, 2006.
[4] S S Sastry, *Engineering Mathematics, Vol I & II*, 3/e, Prentice Hall, 2004.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE I Year (Common to all branches) Semester					
Subject Code & Name	Instructions Hours per Week			Marks					
1AP002 Applied Physics	L	T	P		TH	CW	SW	PR	Total
	4	-	2	Max	100	50	50	50	250
Duration of Theory Paper: 3 Hours				Min	35	25	25	25	110

Course Objectives: To introduce the fundamental concepts of physics that are useful in solving problems of engineering especially for semiconductors, optics, electromagnetism and quantum mechanics.

Prerequisite(s): nil

COURSE OF CONTENTS

Unit-I
Optics-I: Interference of Light Waves: Methods-Division of Wave front and Division of Amplitude, Young's double slit experiment, Thin film, Newton's Ring experiment; Diffraction of Light Waves: Fresnel's & Fraunhoffer diffraction, Zone plate, Single slit experiment, Diffraction at Circular aperture, Plane transmission Grating.

Unit-II
Optics-II: Polarization of Light Waves, Double refraction, Nicol Prism, Half Wave & Quarter Wave plates, Circularly & elliptically polarized light, Polarimeter; LASER: Stimulated & spontaneous emission, Population Inversion, Optical Resonator, Einstein's coefficients, He-Ne Laser, Ruby Laser, Semiconductor Laser; Optical Fiber: types of Fibers, Acceptance angle, Numerical aperture, V-Number, Propagation of Light through Fibers, Applications.

Unit-III
Crystal Structure and Semiconductors: Seven crystal systems, Bravais Lattice, Symmetry & properties of Simple crystal structure, Miller's Indices; Semiconductors: Band theory of Semiconductors, Intrinsic & extrinsic semiconductors, Fermi level , pn junction diode, LED, Zener diode, npn & pnp Transistors .

Unit-IV
Electromagnetism: Continuity equation for Charge & Current, Inconsistency of Ampere's law for time varying field, Concept of Displacement current, Maxwell's equations; Wave equations for E & H, Propagation of one dimensional electromagnetic waves in dielectric medium, Energy density in electromagnetic field, Poynting Vector.

Unit-V
Quantum Physics: Plank's law, Compton's effect, Concept of Matter Waves, Devison & Germer's experiment, Phase velocity & Group velocity, Heisenberg's Uncertainty Principle; Schrodinger's Wave Equation, Interpretation of Wave function Ψ, Time dependent & Time Independent equations, Schrodinger's Wave equation for a free particle in a box.

BOOKS RECOMMENDED:
[1] R Feyaman, *Feyaman Lectures on Physics,* 2/e, Narosa Publication, 1998
[2] D Halliday and R Resnick, *Physics Vol-II,* Wiley Eastern, 1993
[3] H White, *Modern Physics*: Van Nostrand; 15/ e
[4] D P Khandelwal, *Optics and Atomic Physics.*
[5] R K Gaur & S L Gupta, *Engineering Physics,* Dhanpat Rai & Sons, 2006
[6] A S Vasudev, *Modern Engineering Physics,* 4/e, S.Chand & Co, 2007

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE I Year (Common to all branches) Semester					
Subject Code & Name	Instructions Hours per Week			Marks					
1ME003 Engineering Drawing	L	T	P		TH	CW	SW	PR	Total
	2	-	4	Max	100	50	50	50	250
Duration of Theory Paper: 3 Hours				Min	35	25	25	25	110

Course Objectives: To understand the concepts of imagining, envisioning and visualizing the objects & machine parts and drawing them with the instruments & tools.

Prerequisite(s): nil

COURSE OF CONTENTS

Unit-I
Basics: Introduction; Need of Engineering Drawing for Engineers, Introduction & Classification of Engineering Drawings, Drawing Instruments and their uses, Indian Standards for Drawing; Geometrical Construction: Basic Geometrical Constructions, Terms used in Geometrical Constructions; Conventions: Lines, Materials, Common Features, Various Machine Parts; Technical Lettering: Drawing Sheet Layout, Dimensioning.
Engineering Scales: Introduction – Engineering Scales, Graphical scale, Representative Fraction, Types of scales – Plain, Diagonal, Comparative, Vernier and Scale of Chords.
Engineering Curves: Loci of Points – Locus as circle, Straight lines, and Perpendicular bisector; Conic Section: Ellipse, Parabola, Hyperbola; Cycloid Curves: Cycloid, Epi-cycloids, Hypo-cycloid; Involutes Curves: Involutes of Circle and Polygons; Spirals Curves – Archimedean's, Logarithmic or Equiangular: Normal and Tangent to above curves.

Unit -II
Planes: Projection of Points & Straight Lines.
Projection of Planes.

Unit-III
Projections: Orthographic Projections: First & Third Angle Projections, Conventions used Orthographic Projection of Simple Solids, Conversion of 3-D View to Orthographic Views; Isometric Projection– Simple Solids, Isometric view, Conversion of Orthographic to Isometric View; Introduction to Oblique Projection and Perspective Projections.
Practice of Computer Aided Drawings using AutoCAD.

Unit-IV
Solids: Projection of Solids.
Section of Solids & Development of Surfaces.

Unit-V
Machine parts: Interpenetration of Solids.
Cone, Cylinder, Prism & Pyramids; Freehand Sketching of Machine Parts – Simple Nuts and Bolts, Keys, Cotters, Pins, Screw Threads, Riveted joints, Welded joints, Assembly of Simple Machine Parts.

NOTE: Drawing Sheets (10 Approximately) as above, Sketch Book & AutoCAD Drawings containing problems based on above shall be maintained and submitted at the time of practical examination.

BOOKS RECOMMENDED:
[1]   P S Gill, *Engineering Drawing,* 12/e, S. K. Kataria & Sons, Reprint-2007.
[2]   N D Bhatt, *Engineering Drawing*, 47/e, Charoter Publishing House, Reprint-2007.
[3]   P S Gill, *Machine Drawing*, 17/e, S. K. Kataria & Sons, Reprint-2007.
[4]   N D Bhatt, *Machine Drawing*, 24/e, Charoter Publishing House, Reprint-2007.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE I Year (Common to all branches) Semester						
Subject Code & Name	Instructions Hours per Week			Marks						
1EI004 Electrical Engineering	L	T	P		TH	CW	SW	PR	Total	
	4	-	2	Max	100	50	50	50	250	
Duration of Theory Paper: 3 Hours				Min	35	25	25	25	110	

Course Objectives: To understand the concepts and practical ideas of AC/DC circuits, Electromagnetic Circuits, Transformers and Electric Machines those are basic to all the engineering streams.

Prerequisite(s): nil

COURSE OF CONTENTS

Unit-I
AC circuits: Generation of EMF, Phasor Quantities, RMS, Average, Form Factor, Peak Factor Etc, Phasor Diagrams; Single Phase AC Circuits: R, L, C And Combinations, Resonance, Q-Factor, Bandwidth; Three Phase AC Circuits: Generation, EMF, Phase Sequence, Analysis of Star and Delta Connections, and Power Measurement In Single Phase& Three Phase Circuit.

Unit-II
Circuit analysis tools: Kirchoff's laws, Analysis of DC and AC circuits, Thevenin's theorem, Norton's theorem, Max power transfer theorem, Superposition theorem, and Source transformation .

Unit-III
Magnetic Circuits: Electromagnetism, Magnetic flux, Magnetic flux density, Intensity of magnetization, B-H curves, hysteresis and eddy current losses, Magnetic circuit calculations, laws of Electro-magnetic induction, Magnetic induction, Lifting power of an electromagnet.

Unit-IV
Transformer: Construction, principle, ideal transformer, EMF equations, Analysis of transformer on no load and load conditions, Equivalent resistance and reactance, voltage regulations, transformer losses Transformer testing, transformer efficiency, Types of transformer, Cooling methods, Auto transformer.

Unit-V
Rotating electric Machines: Construction, working principles, EMF equations, Characteristics, Torque equations of DC machines (generators & motors), 3-phase synchronous and induction motor, single phase induction motor.

BOOKS RECOMMENDED:
[1] V Del Toro, *Electrical Engineering Fundamentals*, 2/e, PHI, 2000.
[2] D P Kothari, I J Nagrath, *Basic Electrical Engineering*, 2/e, Tata McGraw Hill, 2002 (Fifth Reprint 2003).
[3] A Sudhakar, *Network Theory*, 2/e, Tata McGraw Hill, 2004
[4] P S Bimbhara, *Electrical Machinery*, 7/e, Khanna Publishers, New Delhi, 2006.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE I Year (Common to all branches) Semester					
Subject Code & Name	Instructions Hours per Week			Marks					
1CO005 Computer Programming	L	T	P		TH	CW	SW	PR	Total
	4	-	2	Max	100	50	50	50	250
Duration of Theory Paper: 3 Hours				Min	35	25	25	25	110

Course Objectives: To understand the concepts of problem solving on computers and to learn the programming concepts & practices that are useful in engineering domain.

Prerequisite(s): nil

COURSE OF CONTENTS

Unit-I
Introduction: Block Diagram of Computer; Problem-Solving Basics; Algorithms; Flowcharts; Classification of Programming Languages.

Unit-II
C++ Programming: Data Representation- Fundamental Types, Variables & Constants; Expressions- Numeric, Assignments; Input/Output; Control Structures- Repetition Statements, Selective Statements; Programming with Libraries.

Unit-III
Arrays Functions And Pointers: Single and Multidimensional Array- Declaration and Usage, Function- Declaration & Usage; Parameter Passing and Scope Rules; Pointer Declaration and Usage; File Handling in C++.

Unit-IV
Classes And Objects: Declaration, Constructor and Destructor; Access Functions; Structures,; Pointers to Objects; String Handling using Classes.

Unit-V
Advance C++ Features: Operator Overloading; Inheritance; Polymorphism.

BOOKS RECOMMENDED:
[1] H Schildt, *The Complete Reference*, 4/e, Tata McGraw Hill, 2006.
[2] BJarne Stroustrup, *The C++ Programming Language*, 3/e Addision Wesely, 2000.
[3] Ravichandran, *Programming with C++*, 2/e, Tata McGraw Hill, 2007
[4] G Droomey G, *How to Solve it by Computer*, 1/e, Prentice Halll, 2001.
[5] D Gries, *Programming Methodology*, Springer Verlog, 1978.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE I Year (Common to all branches) Semester					
Subject Code & Name	Instructions Hours per Week			Marks					
1SS006	L	T	P		TH	CW	SW	PR	Total
Humanities	2	-	-	Max	-	50	-	-	50
Duration of Theory Paper: 3 Hours				Min	-	25	-	-	25

Course Objectives: To learn the human values and ethical values that are essential for an engineer to practise in the day to day life during the field work while working with the society.

Prerequisite(s): nil

COURSE OF CONTENTS

Unit-I
Role of Humanities in Engineering: Engineering Ethics: Basics of Ethics; Professional Engineer; Professional Engineering Bodies; Code of Ethics.

Unit-II
Engineers and Society: Society and Its Features; Social Institutions; Social Stratification and Change; Cross-cultural Issues;

Unit-III
Engineering & Environment: Environment Basics; Natural Resources; Ecology and Horticulture.

Unit-IV
Government & Engineers: Political parties; Types & Forms of Government; Government Artifacts; NGOs.

Unit-V
e-Society & Knowledge Society; Digital Government (e-Governance); Digital Divide.

BOOKS RECOMMENDED:
[1] D J Kemper, *Introduction to Engineering Profession*, 2/e, Suanders Publication, 1998.
[2] A S Chauhan , *A Text Book of Social Science* Jain Brothers 9/e,2008
[3] R C Agrawal, *Principle of Political Science,*

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE I Year (Common to all branches) Semester						
Subject Code & Name	Instructions Hours per Week			Marks						
1AM051 **Applied Mathematics-II**	L	T	P		TH	CW	SW	PR	Total	
	4	-	-	Max	100	50	-	-	150	
Duration of Theory Paper: 3 Hours				Min	35	25	-	-	60	

Course Objectives: To introduce the mathematical concepts of Matrix Algebra, Probability, and Differential Equation for solving engineering problems that shall be used in various branches of engineering.

Prerequisite(s): nil

COURSE OF CONTENTS

Unit-I
Matrix Algebra: Review of Matrices; Elementary Operations on Rows and Columns; Matrix Inversion by Partitioning and Crout's Method; Normal Form; Linear Dependence.
Applications: Rank; Application of Rank Theory in Solving System of Linear Equations; Linear Transformation; Orthogonal, Unitary and Hermitian Matrices; Characteristic Equation; Eigen- Values and Eigen-Vectors; Caley-Hamilton Theorem; Quadratic and Linear forms.

Unit-II
Probability: Review of Probability; Additive and Multiplicative Laws; Conditional Probability, Baye's Theorem.
Statistics: Binomial, Poisson and Normal Probability Distributions, Method of Least Squares and Curve Fitting.

Unit-III

First Order Ordinary Differential Equation: Differential Equations of First Order and First Degree; Exact Differential Equation; Equations Solvable for X and Y; Clairaut's Form.
Higher Order Ordinary Differential Equation: Linear Differential Equations with Constant & Variable Coefficients; Simultaneous Differential Equations; Application to Simple Problems.

Unit-IV
First Order Partial Differential Equations: Formation of Partial Differential Equations; Partial Differential Equations of First Order and First Degree i.e. Pp +Qq=R.
Higher Order Partial Differential Equations: Linear Homogenous Partial Differential Equations of nth Order with Constant Coefficients; Method of Separation of Variables & Their Simple Applications.

Unit-V
Fourier series: Periodic functions, Dirichlet conditions, Expansion of function in Fourier series.
Half Range Fourier series: Half range sine and cosine series, Change of interval.

BOOKS RECOMMENDED:
[1] G Paria, *Matrix and Tensors*, 2/e, Scholar Publication, 2004.
[2] *Matrix Operations*, Schaum's Outlines
[3] *Probability & Statistics*, 2/e, Schaum's Outlines, 2004
[4] *Differential Equations,* Schaum's Outlines, 2/e, TMH, 2005.
[5] *Partial Differential Equations,* Schaum's Outlines
[6] *Fourier Analyssi,* Schaum's outlines, 1/e, TMH, 2005
[7] G Paria, *Ordinary Differential Equations with Laplace Transform*, 3/e, Scholar Publications, 1998
[8] G Paria, *Partial Differential Equations and Complex Variable*, 2/e, Scholar Publications, 1998

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE I Year (Common to all branches) Semester						
Subject Code & Name	Instructions Hours per Week			Marks						
1AC052	L	T	P		TH	CW	SW	PR	Total	
Chemistry & Environmental Science	4	-	2	Max	100	50	50	50	250	
Duration of Theory Paper: 3 Hours				Min	35	25	25	25	110	

Course Objectives: To understand and learn the concepts of engineering chemistry along with the need and requirements of environment and to become aware of the changing environment.

Prerequisite(s): nil

COURSE OF CONTENTS

Unit-I
Water: Sources; Impurities; Hardness- Its Expression & Determination; Boiler Troubles & Their Causes; Industrial Water Requirement; Treatment of Water for Industrial Purpose; De-Ionization of Water; Alkalinity in Water; Numerical Problems on Water Analysis & Water Softening Processes.

Unit-II
Engineering Materials: Introduction, Classification & Requirement of Engineering Materials.
Polymers: Chemistry of Polymer Materials & Their Diversification; Types of Polymerization & their Brief Account; Examples of Polymers; Cement, Glass And Refractory: Different Types; Composition; Properties & Uses.

Unit-III
Lubricants: Introduction; Types of Lubricants & Principle of Lubrication, Properties & Tests of Lubricants; Greases; Graphite; Cooling Liquids & Cutting Fluid.

Unit-IV
Instrumental Techniques In Chemical Analysis: Introduction; Infrared; Ultraviolet; Nuclear Magnetic Resonance Spectro-photometry; Calorimetry; Lamberts & Beer's Law, Chromatography.

Unit-V
Environmental Science: Components of Environment & Their Interactions; Natural Resources; Ecosystem; Impacts of Development of Environment; Environment Protection Act; Concept of ISO 14000; Pollution & Its Types; Description of Air, Water; Land & Noise Pollution; Chemical Toxicology & Its Effects; Control Measures; Global Warming; Depletion of Ozone Layer; Acid Rains, Eutrophication; Pollution Case Studies.

BOOKS RECOMMENDED:
[1] P C Jain & Monica Jain, *Engineering Chemistry*, 16/e, Dhanpat Rai Publications, 2007.
[2] J C Kuriacose & J Rajaram, *Engineering Chemistry,* Tata McGraw-HillCo, New Delhi, 2004.
[3] B Joseph, *Environmental Studies: Core Engineering Series*, Tata McGraw Hill,
[4] A K De, *Environmental Chemistry*, 2/e, New Age International, 2005.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE I Year (Common to all branches) Semester					
Subject Code & Name	Instructions Hours per Week			Marks					
1ME053	L	T	P		TH	CW	SW	PR	Total
Elements of Mechanical Engineering	4	-	2	Max	100	50	50	50	250
Duration of Theory Paper: 3 Hours				Min	35	25	25	25	110

Course Objectives: To understand and learn the basic aspects of mechanical engineering in terms of thermal engineering (steam and hot air) and production engineering (metal casting, welding and machine elements) that are essentials in all engineering streams.

Prerequisite(s): nil

COURSE OF CONTENTS

Unit-I
Fundamentals of Thermodynamics: Properties and processes, Heat and work, Zeroth law of thermodynamics; Enthalpy and internal energy of gases, First law applied to flow processes, Simple analysis of first law applied to a closed and open systems.

Unit-II
Properties of Steam: Properties, Wet, Dry and Super heated steam; Enthalpy and Internal energy of steam, Critical point and Triple point, Property table, Measurement of Dryness fraction of steam.

Unit-III
Gas Power Cycle: Air standard cycles: Otto cycle, Diesel cycle and Dual cycle; Calculation of efficiency and state points for the cycles; Deviation from theoretical cycles; Effects of variable specific heat and dissociation.

Unit-IV
Metal Casting: Introduction, Advantages, Limitation and applications of metal casting, Pattern making, moulding materials and moulding processes, Cores, Elements of gating, Systems, Melting and pouring of metals, Solidification and cooling of castings; casting processes-: Sand casting, Expandable mould casting and Permanent mould casting, Casting cleaning and finishing, Casting defects.

Unit-V
Welding and Machining: Fundamentals of welding weld ability, Types of welded joints, Classification and overview of welding process, Arc welding processes, Oxy Acetylene gas welding processes, Resistance and solid state welding processes, Weld quality and safety, Barging & soldering; Fundamental of metal machining, introduction of turning and related operations, Drilling and hole machining, Milling and shaping, Construction features of lathe, Radial drilling machine & shaper , Cutting tools type and materials.

BOOKS REOMMENDED:
[1] P K Nag, *Engineering Thermodynamics*, 3/e, Tata McGraw-Hill, 2005.
[2] R K Rajput, *Thermal Engineering,*, 2/e, S.K.Kataria & Sons, 2006.
[3] Hajra & Chaudhary, *Work Shop Technology*, Vol. 1 & 2, 13/e, Media Promoters & Pub, 2004.
[4] P N Rao, *Manufacturing Technology*, Tata McGraw Hill, 2006.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE I Year (Common to all branches) Semester					
Subject Code & Name	Instructions Hours per Week			Marks					
1ET054 Basic Electronics Duration of Theory Paper: 3 Hours	L	T	P		TH	CW	SW	PR	Total
	4	-	2	Max	100	50	50	50	250
				Min	35	25	25	25	110

Course Objectives: To introduce the basic concepts of electronics along with the understanding of working fundamental circuit devises such as diode, transistors and logic gates.

Prerequisite(s): nil

COURSE OF CONTENTS

Unit-I
Structure & properties of conductors, semiconductors & insulators. Transport phenomenon in semiconductors, Mechanism of current flow in semiconductors, Hall Effect, Mobility, Conductivity equation, Junction- Diode Characteristics, Current Components V-I Characteristics, load line Concept, piecewise linear diode model

Unit-II
Characteristics, applications like Clippers, Clampers, Comparators, Voltage Doublers, Samplers, Rectifiers, Peak Detectors, Various types of diodes, their application & V-I Characteristics:- Zener, Avalanche, Photodiode, Tunnel, LED, PIN, Schottky, Seven Segment display, Varacter diode.

Unit-III
The Junction transistors, BJT current Components, Transistor as an amplifier Transistor Construction, Potential Profile in NPN & PNP Structures, Eber's Moll Model, CB,CE & CC Configuration, Static & Dynamic Characteristics, Transistor ratings, Photo transistor, Transistor Biasing & thermal Stabilization, Transistor as a Switch.

Unit-IV
Introduction to JFET, JFET operation and volt-ampere characteristics, transfer characteristics, introduction to MOSFET (depletion type and enhancement type), operation and characteristics of MOSFETS, FET biasing, FET small signal model, JFET CD and CG configuration

Unit-V
Binary number, Digital systems, Boolean algebra, logic gates, logic functions, realization of logic gates by electronic devices, Positive and negative logic, representation of binary numbers, half adder, full adder, flip-flop synchronous and asynchronous circuit, counters registers, memories.

BOOKS RECOMMENDED:
[1] Milliman & Halkies,, *Integrated Electronics,* TMH, 2007.
[2] R Boylested, *Electronics Devices & Circuits,* 9/e, Prentice Hall, 2006.
[3] A Motorshed, *Electronics Devices & Circuit,* Prentice Hall, 2006
[4] Malvino, *Electronics Principles, ,* 7/e, TMH, 2007.
[5] P Malvino, *Digital Electronics,* TMH pub.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE I Year (Common to all branches) Semester					
Subject Code & Name	Instructions Hours per Week			Marks					
1SS055 Technical English	L	T	P		TH	CW	SW	PR	Total
	4	-	-	Max	100	50	-	-	150
Duration of Theory Paper: 3 Hours				Min	35	25	-	-	60

Course Objectives: To develop the English communication skills in terms of reading, writing and understanding of engineering terms with the improved technical English and to be able to express the technical ideas.

Prerequisite(s): nil

COURSE OF CONTENTS

Unit-I
Basic of Technical Communication: Concept and Process of Communication; Forms of Communication: Verbal and Non-Verbal; Technology-Enabled Communication; Barriers to Communication; Essentials of Effective Communication; Nature and Dimensions of Technical Communication; Identifying & Defining Audiences for Technical Communication; Types of Communication ranked by importance to Engineering Practice; Language tasks performed by Technical Professionals.

Unit-II
Professional Correspondence: Qualities of Professionals Correspondence: Goodwill Techniques; Types of Correspondence: Letters, Memos, Transmittal Correspondence, E-Mail.
Letters: Elements of a Letter: Essential and Optional; Basic Letter Formats; Planning, Organizing, and Writing Business Letters; Types of Business Letters: Positive Letters/Good-News and Goodwill Messages, Negative Letters/Bad-News Messages, Direct Requests, Letters of Inquiry, Sales Letters, Complaint Letters, Letters of Transmittal.
Memos: Components of a Memo; Organization, Development, Language and Tone of a Memo; Memo Formats; Types of Memos: Status Memos, Negative Memos, Personal Memos, Memos of Transmittal.
Employment Communication: Writing Job Application Letters; Designing Resumes; Organization Approaches to Letters of Application and Resumes; Follow-Up Correspondence.

Unit-III
Technical Writing: Purpose and Characteristics of Technical Writing; Technical Writing Process; Technical Writing Style; Formatting Technical Documents for Function and Effectiveness; Some Forms of Technical Writing: Technical Descriptions, Summaries, Instructions, Technical Proposals, User Manuals.
Communicating Through Reports: Essentials of Good Report Writing; Classification of Reports; Planning, Organizing, and Writing the Report: Report Formats: Formal and Informal (Short and Long); Structure and Formatting of Short Informal Reports and Memo Reports.
Technical Reports: Structures of a Technical Report; Techniques that help the Process of Writing Technical Reports; Editing and Revising Technical Reports for Style and Usage, for Grammar and Punctuation; Some Common Informal Technical Reports: Progress Reports, Lab Reports, Feasibility Reports, Incident Reports, Problem-Solving Reports, Reports Identifying Cause-and-Effect Relationship.

Unit-IV
Reading Comprehension: Reading Styles for Technical Professionals; Skimming a Passage to abstract relevant ideas and information; Skimming Memos. Letters and Reports, Rewriting a 'Receptive Passage' as a 'Skim Passage'; Scanning a Passage for specific information; INFERENTIAL COMPREHENSION: Understanding Logical Relationships (Cause-Effect, Rule-Illustration, Data-Conclusion.); Inferring meanings of words, Phrases; and sentences in context; Judging the Tone of the Passage and Identifying the Attitude of the Writer; Précis Writing/Reformulating/Summarizing: Restating in a shortened form the main ideas of a given Passage; Summarizing a Passage for various purposes and for particulars audiences; Reducing or Selectively Rewriting a Passage for a specific purpose.

Unit-V

English for Technical Communication: Vocabulary Extension: Word Usage; Related Forms; Foreign Roots, Prefixes and Suffixes that form Technical Words; Conversational Expressions, Formal And Informal Expressions for Scientific and Technical Communication; Antonyms and Synonyms; Frequently Confused, Misused and Misspelled Words; Transitional Words and Phrases; Choosing Appropriate Words that Communicate.

The Most Commonly Used Grammatical Items in Technical: Major Tense Distinctions; Articles; Modal Verbs: Connectives; Relative Clauses; Noun/Nominal Compounds.

Mechanics and Punctuation: Abbreviations; Capitalisation; Number Usage; Sentence Punctuation; Word and Phrase Punctuation.

Common Grammatical and Stylistic Errors In Professional Communication: Structural Ambiguity: Agreement between Subject and Verb: Agreement between Pronoun and Antecedent; Faulty or Vague Pronoun Reference: Sentence Fragments; Fused Sentences and Comma Splices; Misplaced/Dangling Modifiers; Parallelism; Embedding sentences within sentences; Wordiness; Inappropriate Jargon.

BOOKS RECOMMENDED:

[1] T N Huckin & L A Olsen, *Technical Writing and Professional Communication,* McGraw-Hill, Inc.

[2] S J Gerson & S M Gerson, Technical Writing, 3/e, Pearson Education Asia, 2002.

[3] A Esenberg, *A Begineer's Guide to Technical Communication*, McGraw-Hill,

[4] S E Pauley and D G Riordan, *Technical Report Writing Today*, Houghton Miffin Company

[5] A J Rutherford, *Basic Communication Skills for Technology*, Pearson Education Asia

[6] R V Lesikar, J D Perrit, Jr., & ME Flately, *Lesikar's Basic Business Communication*

[7] C L Bovee, J V Thill & B Schatzman, *Business Communication Today,* 7/e, Pearson Education, 2002

[8] S Ober, *Contemporary Business Communication*, Houghton Mifflin Company, 5/e, Wiley-Dreamtech, 2005.

[9] R C Sharma and K Mohan, *Business Correspondence and Report Writing*, Tata McGraw-Hill, 2002

[10] G Leech & J Svartvik, *A Communicative Grammar of English*, Longman Group UK Ltd, Pearson Education 2002

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE I Year (Common to all branches) Semester					
Subject Code & Name	Instructions Hours per Week			Marks					
1ME056 Workshop Practice	L	T	P		TH	CW	SW	PR	Total
	-	-	4	Max	-	-	75	75	150
Duration of Theory Paper: Only practical examination.				Min	-	-	38	38	76

Course Objectives: To develop the basic working skills with engineering tools & machines along with the practical understanding of engineering materials, processes and manufacturing.

Prerequisite(s): nil

COURSE OF CONTENTS

Introduction of and practice work on the following trade shops, processes, tools, material and their application in manufacturing:
1. Smithy
2. Fitting
3. Carpentry
4. Welding
5. Foundry
6. Machine shop
7. Plumbing Shop

BOOKS RECOMMENDED:
[1] W A J Chapman, *Workshop Technology, Vol-I/II*, Elsevier Butterworth Heinenman, 5/e,
[2] S.K.Hajra Choudhury, *Elements of Workshop Technology*, Media Promoters of Publishers