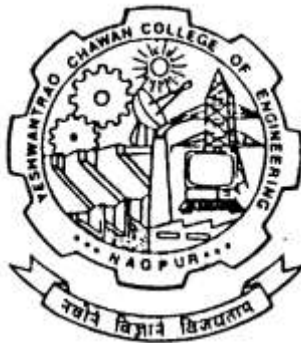


Nagar Yuwak Shikshan Sanstha's
Yeshwantrao Chavan College of Engineering
(An Autonomous Institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)
Hingna Road, Wanadongri, Nagpur - 441 110





**Under Graduation (B.E.)
SoE & Syllabus 2014
1 & 2 Semester**

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING
FIRST YEAR B.E.
SCHEME OF EXAMINATION 2014
wef 2017-18

Sl. No.	CODE NO.	Subject	CONTACT HOURS				Credits	% Weightage				ESE Duration Hrs.
			L	T	P	Total		MSE - I	MSE - II	TA	ESE	
SEMESTER I Group A												
1	GE1101	Engineering Mathematics I	3	1	0	4	4	15	15	10	60	3
2	GE1105	Engineering Physics	4	0	0	4	4	15	15	10	60	3
3	GE1106	Engineering Physics Lab	0	0	2	2	1			40	60	
4	GE1107	Communications Skills	3	0	0	3	3	15	15	10	60	3
5	CV1101	Engineering Mechanics	3	1	0	4	4	15	15	10	60	3
6	CV1102	Engineering Mechanics Lab	0	0	2	2	1			40	60	
7	EE1101	Basic Electronics	3	1	0	4	4	15	15	10	60	3
8	IT1101	Introduction to Computer Programing	3	1	0	4	4	15	15	10	60	3
9	IT1102	Introduction to Computer Programing Lab	0	0	2	2	1			100		1
Total			19	4	6	29	26					

SEMESTER I Group B												
1	GE1102	Engineering Mathematics II	3	1	0	4	4	15	15	10	60	3
2	GE1103	Engineering Chemistry	4	0	0	4	4	15	15	10	60	3
3	GE1104	Engineering Chemistry Lab	0	0	2	2	1			40	60	
4	GE1108	Social Sciences	3	0	0	3	3	15	15	10	60	3
5	EL1101	Electrical Engineering	3	1	0	4	4	15	15	10	60	3
6	EL1102	Electrical Engineering Lab	0	0	2	2	1			40	60	
7	ME1101	Engineering Graphics	1	0	0	1	1	15	15	10	60	3
8	ME1102	Engineering Graphics Lab	0	0	4	4	2			100		
9	ME1103	Workshop Practice	0	0	2	2	1			40	60	
Total			14	2	10	26	21					

Chairperson		Date of Release	May 2017	Applicable for
Dean (Acad. Matt.)		Version	1.01	AY 2017-18 Onwards

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING
FIRST YEAR B.E.
SCHEME OF EXAMINATION 2014
wef 2017-18


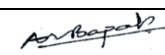
Sl. No.	CODE NO.	Subject	CONTACT HOURS				Credits	% Weightage				ESE Duration Hrs.
			L	T	P	Total		MSE - I	MSE - II	TA	ESE	

SEMESTER II Group A

1	GE1102	Engineering Mathematics II	3	1	0	4	4	15	15	10	60	3
2	GE1103	Engineering Chemistry	4	0	0	4	4	15	15	10	60	3
3	GE1104	Engineering Chemistry Lab	0	0	2	2	1			40	60	
4	GE1108	Social Sciences	3	0	0	3	3	15	15	10	60	3
5	EL1101	Electrical Engineering	3	1	0	4	4	15	15	10	60	3
6	EL1102	Electrical Engineering Lab	0	0	2	2	1			40	60	
7	ME1101	Engineering Graphics	1	0	0	1	1	15	15	10	60	3
8	ME1102	Engineering Graphics Lab	0	0	4	4	2			100		
9	ME1103	Workshop Practice	0	0	2	2	1			40	60	
Total			14	2	10	26	21					

SEMESTER II Group B

1	GE1101	Engineering Mathematics I	3	1	0	4	4	15	15	10	60	3
2	GE1105	Engineering Physics	4	0	0	4	4	15	15	10	60	3
3	GE1106	Engineering Physics Lab	0	0	2	2	1			40	60	
4	GE1107	Communications Skills	3	0	0	3	3	15	15	10	60	3
5	CV1101	Engineering Mechanics	3	1	0	4	4	15	15	10	60	3
6	CV1102	Engineering Mechanics Lab	0	0	2	2	1			40	60	
7	EE1101	Basic Electronics	3	1	0	4	4	15	15	10	60	3
8	IT1101	Introduction to Computer Programing	3	1	0	4	4	15	15	10	60	3
9	IT1102	Introduction to Computer Programing Lab	0	0	2	2	1			100		1
Total			19	4	6	29	26					

Chairperson		Date of Release	May 2017	Applicable for
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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

B.E. SoE and Syllabus 2014-15

First Year (1st Semester & 2nd Semester)

GE1101	Engineering Mathematics-I				L=3	T=1	P=0	Credits=4
Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration		
	15	15	10	60	100	3 Hrs		

Objective	Outcome
<ul style="list-style-type: none"> The goal of this paper is to introduce fundamental concepts of calculus, vector calculus and multiple integrals. 	<ul style="list-style-type: none"> With the completion of this syllabus students will be familiar with differential equations and their methods of solutions and vector calculus with simple applications and essential concepts of multiple integrals and use these mathematical techniques in variety of technical, business, industry optimization problems.

Unit I: Differential Calculus (a,e)

Successive differentiation; Taylor's and Maclaurin's series for one variable; Indeterminate forms; Curvature and radius of curvature of plane curves (excluding Newton's Method), Circle of curvature.

(7 hours)

Unit II: Partial Differentiation (a,k)

Functions of several variables; First and higher order derivatives; Euler's theorem; Chain rule and total differential coefficient; Implicit functions; Jacobians; Taylor's and Maclaurin's series for two variables; Maxima and minima of functions of two variables; Lagrange's method of undetermined multipliers.

(8 hours)

Unit III: Integral Calculus (a,h,k)

Beta and gamma functions; Differentiation of a definite integral; Tracing of curves (Cartesian and Polar Curves); Rectifications of simple curves; Quadrature: volume and surface of solids of revolution (Cartesian, polar and parametric forms);

(7 hours)

Unit IV: Multiple integrals and their Applications (a,e,h)

Elementary double integrals; Change of variable (simple transformations) and Jacobian of transformations; Change of order of integration (Cartesian and polar); Applications to find mass, area, volume and centre of gravity (Cartesian and polar forms); Elementary triple integrals.

(7 hours)

Unit V: Vector Calculus (a,e,h)

Scalar point functions; Vector point functions; Quadruple product of vectors. Vector differentiation; Gradient, Divergence and Curl; Directional derivatives with their physical interpretation; Solenoidal and irrotational motions; vector fields.

(8 hours)

Unit VI : Vector Integration & Application

Vector integration: Line, surface and volume integrals; Statement without proof of Stokes' theorem, Gauss' divergence theorem and Green's theorem; Simple applications of these theorems.



(8 hours)

Text Books

1. Engineering Mathematics - by H.K. Dass, 11th revised edition, 2003, S.Chand, Delhi.
2. Advanced Engineering Mathematics - by H.K. Dass, 8th Ed, 2007, S.Chand, Delhi.
3. Engineering Mathematics by Dr. B.S. Grewal

Reference Books

- 1.G B Thomas and R L Finney: Calculus and Analytical Geometry, 9th ed, Addison-Wesley, 1999.
- 2.Calculus-by Michael Spivak and Tom Apostol (Vols I and II)

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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

B.E. SoE and Syllabus 2014-15

First Year (1st Semester & 2nd Semester)

GE1102	Engineering Mathematics-II	L=3	T=1	P=0	Credits=4
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

Objective	Outcomes
<ul style="list-style-type: none"> The objective of this paper is to study differential equations and their methods of solution and complex variables with simple applications and to introduce the essential concepts of probability and statistics. 	<ul style="list-style-type: none"> With the completion of this syllabus students will be in positions to solve the differential equations and their methods of solutions and complex variables with simple applications and essential concepts of probability and statistics and use these mathematical techniques in variety of technical, business, industry optimization problems.

Unit I: Differential Equations – I [a,e]

First order first degree differential equations: Linear, reducible to linear and exact differential equations (excluding the case of integrating factor); Higher order differential equations with constant coefficients up to method of variation of parameters.

(7 hours)

Unit II: Differential Equations – II [a,e]

Cauchy's and Legendre's homogeneous differential equations; Simultaneous differential equations; Differential equations of the type $d^2y/dx^2 = f(x)$ and $d^2y/dx^2 = f(y)$; Applications of differential equations to electrical circuits, kinematics and vibrations (only up to second order).

(8 hours)

Unit III: Complex Numbers [a,e]

Cartesian and polar forms of complex numbers; Separation of real and imaginary part. Geometrical representation of fundamental operations on complex numbers; De Moivre's theorem; Hyperbolic functions and their inverse; Logarithm of a complex number.

(8 hours)

UNIT IV: Complex Variables

[a,e]

Analytic function, Cauchy-Riemann conditions, conjugate functions, singularities, Cauchy's integral theorem & integral formula (statement only), Power series, Taylor's and Laurent's Theorem (statement only) Residue theorem, contour integration.

(8 hours)

UNIT V: Probability [a,k]

Theory of probability: Axioms and Models, Conditional probability, Baye's Rule with examples, Random variables expectation & variance, Binomial, Poisson, normal distributions skewness & kurtosis.

(7 hours)

Unit VI: Statistics [a,e]

Fitting of straight line, $y = a + bx$, a parabola $y = a + bx + cx^2$ and exponential curves by method of least squares; Lines of regression and correlation ; Rank correlation.



(7 hours)

Text Books

- 1.Engineering Mathematics - by H.K. Dass, 11th revised edition, 2003, S.Chand, Delhi.
- 2.Advanced Engineering Mathematics - by H.K. Dass, 8th Ed, 2007, S.Chand, Delhi.

Reference Books

1. A First course in probability by Sheldon Ross, Sixth Edition, Pearson Education.
2. Probability and Statistics – By Murray R.Spiegel, Schaum's Outline Series, 3rd Edition, TATA Mc-Graw - Hills.

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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

B.E. SoE and Syllabus 2014-15

First Year (1st Semester & 2nd Semester)

GE1103	Engineering Chemistry	L=4	T=0	P=0	CREDITS = 4
EVALUATION SCHEME					
MSE – I	MSE – II	TA	ESE	TOTAL	ESE DURATION
15	15	10	60	100	3 Hours

<u>Objectives</u>	<u>Outcomes</u>
<ul style="list-style-type: none"> To impart intensive and extensive knowledge of the subject enriching students to understand the role of Chemistry in the field of engineering. To develop analytical capabilities of students in characterizing, transforming and using materials in engineering. To inculcate habit of scientific reasoning to do the task rationally. 	<ul style="list-style-type: none"> the significance of quality of water for industry and drinking and the techniques like membrane technology ; social awareness about conservation and proper utilization of natural resources like water, fuel and use of cleaner technology. fascinating developments in battery technology which has opened new vistas in engineering field technological applications of engineering. Materials.

Unit I Water Conditioning (10 hrs)

Industrial

Specifications of water for industries (paper, textile, beverages and power generation), types of hardness; softening of water by lime-soda process, Zeolite process, De-mineralization process (principle, advantages and limitations). Numerical based on lime-soda and Zeolite process.

Boiler troubles, sequestration (carbonate, phosphate and calgon)

Domestic

Domestic water-as per IS 10500 (14 parameters) ; Effect of nitrate, fluoride, arsenic and lead in drinking water, sterilization of drinking water by chlorination, UV and ozonisation.

Membrane process (Reverse osmosis) used in water and waste water treatment.

Unit-II Electrochemistry, Battery Technology and Green Chemistry (8 hrs.)

Electrochemistry

Basic electrochemistry, half cell potentials, Nernst's equation, Faraday's laws for electrodeposition,.

Battery Technology:

Classification of batteries: Primary, Secondary- Electricity storage density, power density, energy efficiency, cycle life, shelf life

Rechargeable alkaline storage batteries, Ni-Cd, Ni-metal hydride.

Lithium ion batteries and H₂-O₂ Fuel cell.

Green chemistry

Introduction, goals, significance, industrial applications, carbon credits.

Unit III Corrosion (8 hrs)

Introduction to corrosion, electrochemical and galvanic series,

Types of corrosion:- Chemical and electrochemical corrosion. Mechanisms of electrochemical corrosion, Factors influencing corrosion. Differential aeration theory of corrosion,

Forms of corrosion: Pitting corrosion, Intergranular corrosion, Stress corrosion, Waterline and Microbial corrosion.

Corrosion prevention: Design and material selection, Cathodic and anodic protection, Modifying the environment; Protective surface coatings- tinning, galvanizing and powder coating, metal cladding and electroplating.



Unit IV Lubricants & Cement (8 hrs.)

Lubricants

Introduction, mechanism, Classification of lubricants: Solid, liquid, semisolid, gaseous and synthetic; Solid lubricant-Graphite

Liquid lubricants, properties of liquid lubricants & significance-Viscosity and viscosity index., Flash and fire point, Cloud and pour point, Aniline point, acid value, saponification number, Steam Emulsion Number.

Greases as Semisolid lubricants - Consistency test and drop point test.

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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

B.E. SoE and Syllabus 2014-15

First Year (1st Semester & 2nd Semester)

Criteria for selection of lubricants : IC engines, gears, refrigeration, transformer, steam turbines, delicate instruments.

Synthetic lubricants-dibasic acid esters, silicate esters, silicones

Cement

Portland cement: Manufacture, role of microscopic constituents.

Properties-setting and hardening, heat of hydration and soundness

Types of cement -Rapid hardening, High alumina, Blended cement-Portland Pozzolana cement; Ready-mix concrete, Grading of cement, Ferro-cement

Unit V Fuels (10 hrs)

Calorific value, HCV, LCV, Determination of calorific value of fuels by Bomb and Boy's calorimeter.

Solid fuels: Significance of Proximate and Ultimate analysis

Liquid fuels: Fractional distillation of crude oil, Catalytic cracking and its advantages, Knocking in Internal combustion petrol and diesel engines, Octane and Cetane number, Knocking and its relationship with structure of fuels, Doping agents, Aviation fuel, Rocket propellants, Bio-diesel.

Gaseous fuels: CNG.

Simple numericals on combustion calculations.

Unit VI Introduction to Advanced Materials (8 hrs)

New materials

Nanomaterials: Definition of nanomaterials, nano scale. Carbon nano tubes: Different Types of CNT ; applications of nanomaterials in medicine, environment and electronics. Threats of Nanomaterials.

Shape memory alloys: Definition, Properties, general applications. Specific properties and applications of Nitinol.

Composite materials: Introduction , Classification and their industrial applications.

Advanced Polymeric materials

Biodegradable polymers. Conducting polymers- types of doping, Polyacetylene and Polyaniline, Liquid crystals and liquid crystal polymers (thermotropic and lyotropic),phases of thermotropic polymers: nematic,smectic,cholesteric; advantages, disadvantages and applications.

Books recommended

Text Books



1. A Text book of Engineering Chemistry by S S. Dara; S.Chand & Co New Delhi. Eleventh Edition.
2. Engineering Chemistry by Jain & Jain; Dhanpat Rai & sons New Delhi. Sixteenth Edition.

Practical book

1. A text book on experiments and calculations in engineering Chemistry by S.S .Dara ; S. Chand & Co.

Reference Books

- 1) Water treatment for industrial and other use by Eskel Nordell, Rein hold Publishing Corporation, New York
- 2) Chemistry in Engineering by Lloyd A.Munro, Prentice-hall, Inc Nj
- 3) Applied chemistry for engineers by T.S.Gyngell
- 4) Water treatment by F.I. Bilane , Mir publisher
- 5) Fundamentals of corrosion by Michael Henthorne, Chemical Engineering
- 6) Corrosion Engineering by Mars G. Fontana and Norbert D. Green Mc Graw Hill Book Co. Tokyo
- 7) Engineering Chemistry B.K.Sharma Krishna Prakashan media private LTD.
- 8) Chemistry of Advanced Materials CNR Rao RSC Publications
- 9) Engineering Chemistry(Vol. 1&2) by Rajaram and Kuriakose
- 10) Engineering Chemistry by R.V.Gadag, A.Nityananda Shetty ; I K International Publishing House New Delhi First Edition
- 11) A Text book of Engineering Chemistry by Shashi Chawla; Dhanpat Rai & sons, New Delhi
- 12) A textbook of polymer science Fred. Billmeyer Jr. Wiley India Third edition
- 13) Chemistry of Engineering Materials, by Rober B Leigeou Mc Graw-Hill Book Company, Inc New York
- 14) Fuels and Combustion by Amir Circar, Orient Longmans Publication
- 15) Laboratory manual by Dr. Sudha Rani Dhanpat Rai publication New Delhi.

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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

B.E. SoE and Syllabus 2014-15

First Year (1st Semester & 2nd Semester)

GE1104	Engineering Chemistry Lab	L=0	T=0	P=2	Credits=1
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	--	--	40	60	100	--

Total 10 experiments are to be performed (4 each from Phase I and Phase II and two demonstration experiments)

Objectives	Outcomes
<ul style="list-style-type: none"> To develop analytical ability To integrate chemistry fundamentals with practical applications. 	<ul style="list-style-type: none"> By the end of the course students should be able to carry out chemical analysis of water, assess the quality of water and to carry out the estimation of various metal ions. Budding engineers should be able to carry out and understand the significance of material testing.

List of Experiments-Phase I



- Determination of total hardness of water sample.
- Determination of alkalinity present in the water sample.
- Determination of available chlorine in bleaching powder
- Determination of copper by iodometric titration
- Estimation of Nickel.
- Determination of COD of water sample.
- Estimation of metal ions by colorimeter / spectrophotometer

List of Experiments-Phase II

- 1) Determination of viscosity by Redwood Viscometer I or II
- 2) Determination of cation exchange capacity of an ion exchange resin
- 3) Determination of molecular weight of a polymer.
- 4) Oil Testing for Flash Point / Cloud Point/Pour Point/Aniline Point
- 5) Proximate analysis of coal.

Demonstration:

- 1) Determination of pH of water sample by pH meter
- 2) Determination of conductivity of water sample by conductometer.
- 3) Synthesis of urea formaldehyde resin.

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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

B.E. SoE and Syllabus 2014-15

First Year (1st Semester & 2nd Semester)

GE1105	Engineering Physics	L=4	T=0	P=0	CREDITS = 4
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

<u>Objectives</u>	<u>Outcomes</u>
<ul style="list-style-type: none"> To understand fundamental principles of engineering physics specifically concern to quantum physics, Ultrasonics, wave optics, electron ballistics, semiconductor, Laser, optical fiber and their engineering applications. To provide problem solving experience and learning of concepts through it in engineering physics, in both the classroom and the laboratory learning environment. 	<ul style="list-style-type: none"> Acquire fundamental understanding of concepts specifically concern to quantum physics, wave optics, electron ballistics and ultrasonics, semiconductors, Laser, Fiber Optics and their engineering applications. Develop the ability to recognize the appropriate physics that applies to experiments based on the Engineering Physics. To develop a systematic, logical approach to problem – solving that can be applied to problems in physics and to problems in general. the significance of material testing.

Unit-I : Quantum Physics (08)

Matter waves , Application to Bohrs orbits, Wave packet , Heisenberg Uncertainty Principle , Wave function . Schrodinger Equation(Time dependent and time independent), Applications in Engineering : Particle in an infinite potential well, .(Numericals on matter waves , U .P, Infinite pot well Eigen fn(all) and Eigen values,wavelengths).

Unit-II : Semiconductor Physics (08)

Formation of energy bands ; Classification of solids based on EB ,EB diagram of Si andGe. ; Intrinsic semiconductor ,P, N type semiconductor and their EB diagram , Brief idea of direct and indirect semiconductor materials ; law of mass action ; Fermi function , Fermi level , Graph of f(E) Vs E at different temperatures ; Symmetric nature of f (E) , Derivation $E_F = E_g/2$ in pure semiconductor and , Expression $n/N = \exp(-E_g/kT)$; Dependence of fermi level in pure, P and N type semiconductor on temperature and concentration of impurity diagrametically .Drift velocity, mobility , current density ,conductivity and expressions in pure, N,P type semiconductor , diffusion current , drift current ; Hall effect . (Numericals on $n/N = \exp(-E_g/2kT)$, law of mass action, Conductivity(pure,N, P semiconductor ,Hall effect)



Unit-III : Ultrasonics and Wave optics (04+05)

Ultrasonic waves ; Generation of ultrasonic waves by Piezoelectric and Magnetostriction method ; Detection of ultrasonic waves, by thermal, Piezoelectric and Kunds tube method. Applications of piezoelectric materials ,; Propertiesof ultrasonic waves , Few engineering applications of ultrasonic waves as detection of flaws and cavities in metals ,depth of the sea, SONAR ; Determination of velocity of Ultrasonic waves (acoustic grating).

Interferencein thin films : Background of Interference in parallel sided thin film ,Wedge shaped film , derivation of β and applications as thickness of thin sheet or diameter, of thin wire testing of optical flatness . Newtons rings, Derivation of expression of diameters of dark and bright rings , applications as determination of λ of light , and refractive index of transparent liquids; Antireflecting coating and its application. (Numeicals on freq. and velocity of ultrasonic waves ,wedge shaped film, Newtons rings, antireflecting coating)

Unit-IV: Laser (07)

Temporal and spatial coherence ,Derivation of $L_c = \lambda^2/\Delta\lambda$.Laser, comparison with conventional light, Three process . Obtaining conditions to get laser light , Population Inversion and Optical resonance cavity , Physical components of laser , Pumping schemes in laser, Ruby laser, He-Ne laser . semiconductor laser , Characteristics of laser , Few engineering applications of laser / Applications of laser in Industry .(Numericals on $L_c . \tau$, $L_c = \lambda^2/\Delta\lambda$, $dv = c/2\mu L$, $N_2/N_1 \exp(- hu/kT)$)

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First Year (1st Semester & 2nd Semester)

Unit-V : Electron Ballistics (08)



Motion in electric and magnetic field ,Cross field configuration; Bethes law ; Electrostatic lens , CRO, CRT ,Block diagram, Synchronisation, Display of waveforms ,Application of CRO as amplitude ,frequency by calibration and lissajous method and phase determination . Expression of resultant lissajous pattern and discusion of special cases .(Numericals on Electric, Magnetic field , Bethes law . CRO:Amp, Freq and Phase), Different display Devices .

Unit-VI: Fiber optics (08)

Optical Fiber ,. Structure , Propogation of light through fiber, Derivation of expression of acceptance angle and NA, fractional refractive index change and relation with NA ,Classification of fiber based on material , modes and R I profile , Expression V number and number of modes , Attenuation(and Dispersion(three types) .Application of O F as a temperature sensor , pollution detector, liquid level detector .(Numericals on , θ_0 , NA, Φ_c , Δ , V number, Number of modes , Attenuation), fiber optic communication

Text books and Reference Books Recommended :

1. A concise book of Engineering Physics by S A Band and S A Fadnavis
2. A text Book of Engineering Physics by Avadhanulu and kshirsagar
3. Electronic devices and Circuits by John Allison
4. Introduction to Modern optics by Ajoy Ghatak
5. Physics Part I & II by Resnick and Haliday
6. Concepts of Modern Physics by Arthur Beiser
7. Solid state physics by Pillai
8. Solid State Physics by Palanswamy

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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

B.E. SoE and Syllabus 2014-15

First Year (1st Semester & 2nd Semester)



GE1106	Engineering Physics Lab	L=0	T=0	P=2	Credits=1
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	--	--	40	60	100	--

<u>Objectives</u>	<u>Outcomes</u>
<ul style="list-style-type: none"> To understand and strengthen the theoretical concepts by thorough experimentation. To learn the proper methods and techniques utilized in gathering experimental data. To become familiar with the proper use of some basic measuring instruments commonly found in physics laboratories. To learn how to analyze data and then reach scientific conclusions based on this analysis. To learn how effectively communicate experimental results in standard scientific way. 	<p>By the end of course students will be able to</p> <ul style="list-style-type: none"> Perform experiments based on syllabus adopting the proper methodology. Derive a scientific conclusion on the basis of experimental data.

Minimum ten experiments to be performed from the list as given below. [a,b]

1. A study of cubic space lattices and atomic packing in solids.
2. Determination of amplitude and frequency of sinusoidal signal using C.R.O.
3. Determination of phase angle between sinusoidal signals using C.R.O.
4. Determination of wavelength of sodium light using Fresnel's Biprism
5. Determination of principle refractive indices of a birefringent crystal.
6. Determination of radius of curvature of Plano convex lens using Newton's rings.
7. Determination of R.I. of liquid using Newton's rings.
8. Determination of thickness of thin paper using air wedge
9. Illustration of quantum tunneling using tunnel diode.
10. Demonstration of wave nature of electron.
11. Determination of Band gap in a semiconductor by four probe method.
12. Determination of Band gap in a semiconductor using reverse biased p-n diode .
13. Determination of activation energy of a thermister.
14. Determination of Hall coefficient and density of charge carriers using Hall effect.
15. Dependence of Hall coefficient on temperature.
16. Determination of wavelength of laser light using plane transmission grating.
17. To measure the divergence of laser beam or beam spot size.
18. Determination of Numerical aperture and Acceptance angle of an optical fiber.
19. Measurement of attenuation in optical fiber.
20. Effect of temperature on conductivity of various materials.
21. Verification of Joule's Law

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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

B.E. SoE and Syllabus 2014-15

First Year (1st Semester & 2nd Semester)

GE1107	Communication Skills	L=3	T=0	P=0	CREDITS = 3
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

<u>Objectives</u>	<u>Outcomes</u>
<ul style="list-style-type: none"> The objective of the syllabus is to enrich lives of student's across various verticals in their career. To introduce the basic concepts of language, different strategies of technical communication skills and four fold skills. To prepare students to stretch beyond their comfort zones in order to become leaders in the industry. To develop student's new management skills, express themselves with confidence and clarity , contribute more productively and above all become a good team members. 	<ul style="list-style-type: none"> By the end of this course students will be able to face challenges in communication, primarily in technical and will achieve commendable style in writing and speaking. Student will be able to eliminate road blocks that hinder their ability to communicate effectively. It will also help them to express with more clarity and Confidence. Will be able to communicate effectively using simple, concise and direct language.

Unit I :- (g ,i,f)

- Basics of technical communication – process, language as a tool, levels , flows , networks of communication and importance of communication.
- Barriers to communication – definition of noise , five steps to evoke the desire response and classification of barriers(intrapersonal , interpersonal and organizational barriers)

(8 Hrs.)

Unit II:- (g ,i,f)

- Effective Presentations – defining purpose, analyzing audience and locale, organizing contents ,preparing outline, visual aids ,understanding nuances of delivery (Kinesics, Proxemics, Paralinguistics & Chronemics)
- Listening skills – introduction, types traits of good listening, active verses passive listening and implications of effective listening.

(8 Hrs.)

Unit III :- (g , i)



- Interview Skills – Introduction ,objectives and different types on bases on objective & nature and on the bases of contribution
- Job Interviews – Expectations , preparation, answering and questioning techniques ,overcoming nervousness ,Process of interview , follow- up and ten Success and failure factors.
- Telephonic interview - Types , preparation and guidelines.
- Reading skills – introduction , purposes , reading rates, reasons for poor comprehension ,improving skills, and techniques for good reading comprehension

(8 Hrs.)

Unit IV :- (g ,i ,f,d,j)

- Group Communication – Purposes ,types and difference between group and team
- Group discussion – Organizational and GD as a part of selection process
- Meetings – Purposes , preparation and procedure
- Conferences – significance ,planning & preparation and procedure

(8 Hrs.)

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B.E. SoE and Syllabus 2014-15

First Year (1st Semester & 2nd Semester)

Unit V:- (g ,i,b ,f)

- Report – Objectives, characteristics ,types, importance ,formats and different prewriting aspects
- Memos – Definition, classification, purpose, style and structure and layout.

(7 Hrs.)

Unit VI:- (g ,i ,f)

- Technical proposals – Definition, purposes, types, characteristics style & appearance and elements of structure.
- Business letters – significance , purpose , structure , standard element , additional element, layout , writing resume and principles of letters.



(7 Hrs.)

Text Books:-

- 1) Raman & Sharma, "Technical Communication", Oxford University Press.

Reference Books :-

- 1) Kaul Asha, "Effective Business Communications", Prentice Hall India.
- 2) Kerry Patterson, Josph Grenny, Ron McMillan & Al Switzler Crucial conversation
- 3) Barbara & Allan Pease, Body Language
- 4) Mark Goulston,. Just Listen

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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

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First Year (1st Semester & 2nd Semester)

GE1108	Social Science			L=3	T=0	P=0	CREDITS = 3
Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration	
	15	15	10	60	100	3 Hrs	

Objective	Outcome
The objective of the syllabus is to meet some of the basic requirement pertaining towards the awareness of social science, as well as to make them aware of the political, economical and social causes and consequences of industrialization and urbanization during the late 19 th and early 20 th centuries. The syllabus also aims to broaden up the intellectual outlook, understanding of moral, ethical and social values and an improved ability to communicate.	With the completion of this syllabus students will be familiar with political, economical and social causes and consequences of industrialization and urbanization during the 20 th and early 21 st centuries as well as, well known about our/world culture and civilization. Similarly, broaden up the intellectual outlook, understanding of moral, ethical & social values and improved ability to communicate.

Unit I: (d,e,f) : Basic Social Sciences

- Meaning, Scope and General Utility of Social Sciences to Engineers.
- Applied Humanities and Social Engineering.
- Society, its type, characteristics.

(8 Hrs.)

Unit II: (d,j,h) : Civilization

- Development of human Civilization with specific reference to monumental studies of engineering skill
- Ancient Indian Civilization.-
 - a) Indus Valley Civilization.
 - b) Vedic Civilization.
 - c) Indian Art & architecture.

(8 Hrs.)

Unit III: (e,f,i) : Applied Social Sciences

- Industrial Psychology- Meaning, Scope & Importance
- Industrial Sociology – Meaning, Scope, Importance. & Impact of Industrialization on society.
- Industrial Fatigue of Workers.
- Selection, Training & Motivation of Workers.

(8 Hrs.)

Unit IV: (f,j) : Sociology & Culture

- Social structure and Social system & its problems.
- Socialization and Social Stratification
- Social Control and Social Change
- Culture – Types, Characteristic, Merits, Demerits & some related terms of culture.

(8 Hrs.)



Unit V: (d,e,f) : Industrial Engineering And Management

- Concept of Industrial democracy.
- Work Organization. : Power, Authority and Status System, Formal and Informal Organization.
- Relationship between Engineering & environment.

(7 Hrs.)

Unit VI: (e,j) : Industrial Management

- Health and Safety of Workers.
- Industrial Peace and Industrial Unrest.
- Labour Turn Over.
- Union Labour Organization.
- Discipline in Industry.

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First Year (1st Semester & 2nd Semester)



(7 Hrs.)

Text Books:-

- 1) S. Shabbir, A.M. Sheikh, Jaya, Dwadashiwar, A New Look into Social Science, S. Chand & Company Ltd. New Delhi.
- 2) Khanna OP, Industrial Engineering & Management, Dhanpat Rai Publication, New Delhi.

Reference Book :

- Sociology : Principal of Sociology with an introduction to social thought.
By C.M.Shankar Rao, Publication : S Chand, New Delhi.
- Social problems in India ; Chronical Publication, New Delhi

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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

B.E. SoE and Syllabus 2014-15

First Year (1st Semester & 2nd Semester)

CV1101	Engineering Mechanics	L=3	T=1	P=0	CREDITS = 4
EVALUATION SCHEME					
MSE – I	MSE – II	TA	ESE	TOTAL	ESE DURATION
15	15	10	60	100	3 hours

COURSE OBJECTIVE	COURSE OUTCOMES
<ul style="list-style-type: none"> To provide a fundamental understanding of static concepts commonly used in analysis and design of engineered structures and prepare for advanced education in related fields. To develop the skills for analyses of simple statically determinate structures such as beam and pinned jointed trusses subjected to various loading and support conditions. To understand the engineering properties of surface area of composite figure like centroid, moment of inertia, product of inertia, etc. To understand the equilibrium of a particle and a rigid body by applying the principle of virtual work. To determine simple dynamic variables and solve simple dynamic problems involving kinetics, energy and momentum. 	<ul style="list-style-type: none"> An ability to identify, formulate, and solve engineering problems by applying principles of equilibrium and free-body diagrams An ability to utilize knowledge and skill in analysis and modelling of simple, statically determinate structures. An ability to determine the centroid, center of gravity and moments of inertia of simple geometric shapes and understand the physical applications of these properties. An ability to apply fundamental concepts of kinematics and kinetics of particles to the analysis of simple, practical problems.
Mapped Program Outcomes: a, b, e, k, l, m	

Unit I: Plane Force System

Resultant: Fundamental concepts, system of forces, laws of mechanics, principle of transmissibility of forces, Resolution and Resultant of a 2 Dimensional force system, Moment of force, Principle of moment, Couple, Equivalent force couple system.
 Equilibrium: Free body diagrams, Conditions of equilibrium, types of supports, types of beams, types of loads, Application to 2D force system.

Unit II: Spatial Force System

Resultant: Vector Algebra, Resolution and Resultant of a 3 Dimensional force system, Moment of force (about point and about an axis), Couple, Equivalent force couple system.
 Equilibrium: Conditions of equilibrium, Application to 3D force system.

Unit III: Friction and Trusses

Friction: Definitions of friction, Coulomb's laws of friction, plane friction, belt friction.
 Trusses: Definitions, assumptions, types, condition of determinacy of Truss, Analysis of truss by method of joints

Unit IV: Properties of Surfaces



Centroid: Introduction, First Moment of Area, Problem on Centroid of composite sections.
 Area Moment of Inertia: Introduction, Second Moment of Area, Radius of Gyration, Transfer Theorem, Polar Moment of Inertia. Product of Inertia, Moment of Inertia and Product of Inertia with respect to inclined axes, Principal Moments of Inertia.

Unit V: Virtual Work Method and Kinetics of Particle

Virtual Work Method: Introduction, Principle of virtual work, Application to beam and frame.
 Kinetics of Particle: D' Alembert's principle, Force Inertia Method, Translation of bodies and interconnected particles.

Unit VI: Work Energy and Impulse Momentum Method

Work Energy Method: Introduction, Work Energy principle, Conservation of energy and problems on connected bodies.
 Impulse Momentum Method: Definitions, Principle of conservation of momentum, elastic impact of two bodies, coefficient of restitution, application of impulse momentum method.

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
First Year (1st Semester & 2nd Semester)

Text Books:-

1. Beer F.P. and Johnston E.R; Vector Mechanics for Engineers, 9th edition Tata McGraw Hill Publication, New Delhi. 2007
2. Nelson A., Engineering Mechanics (Statics and Dynamics), ed 2009, Tata Mc-Grew Hill Education Pvt Ltd, New Delhi, 2009
3. Dubey N.H., Engineering Mechanics (Statics and Dynamics) first edition 2013, Tata Mc-Graw Hill Education Pvt Ltd, New Delhi, 2013

Reference Books:-

1. Timoshenko S, Young D.H and Rao J.V, Engineering Mechanics, McGraw Hill Publication, New Delhi, 2007
2. Bhattacharyya B., Engineering Mechanics, Oxford University Press, New Delhi, 2008
3. Hibbeler R.C, Engineering Mechanics (Statics and Dynamics), Pearson Publication, Singapore, 2000
4. Shames I.H. and Rao J.V., Engineering Mechanics (Statics and Dynamics), First Edition, Pearson Publication, New Delhi, 2003
5. Singer F.L, Engineering Mechanics (Statics and Dynamics), Harper and Rowe publication, New Delhi, 1994

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B.E. SoE and Syllabus 2014-15

First Year (1st Semester & 2nd Semester)



CV1102	Engineering Mechanics Lab	L=0	T=0	P=2	CREDITS = 1
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	--	--	40	60	100	--

COURSE OBJECTIVES	COURSE OUTCOMES
<ul style="list-style-type: none"> Ability to utilize scalar and vector analytical techniques for analyzing forces in statically determinate structures. Ability to apply fundamental concepts of kinematics and kinetics of particles to the analysis of simple, practical problems. Ability to solve Equations of motion, work and energy for rigid bodies; impulse and momentum for rigid bodies; To understand the principles and functions of various practical mechanisms and devices, such as Single purchase crab, differential axel and wheel, fly wheel Ability to do analysis of the dynamics of the given machine components and determine their behaviors accordingly. Ability to Successfully enter a profession that involves Engineering Mechanics skills or pursue graduate/professional education. 	<ul style="list-style-type: none"> Knowledge of science and engineering fundamentals In-depth technical competence in at least one engineering discipline: Statics and Dynamics Ability to use appropriate techniques and resources Ability to undertake problem identification, formulation and solution Ability to communicate effectively with the engineering team and with the community at large Ability to manage information and documentation Understanding of professional and ethical responsibilities and commitment to them Capacity for creativity and innovation Capacity for lifelong learning and professional development Professional attitudes General knowledge about the place of engineering in society
<p>Mapped Program Outcomes: a,b,d,f,g</p>	

Minimum Ten practicals to be performed from the list as below:

1. To determine support reactions for a Simply Supported Beam experimentally, analytically and graphically.
2. To determine the coefficient of Coil friction
3. To determine the forces in the members of a Jib Crane.
4. To determine acceleration due to gravity using Compound Pendulum.
5. To determine the moment of inertia of a Fly Wheel.
6. To determine Law of machine & efficiency of Differential axel & Wheel.
7. To determine the forces in members of a Shear Leg apparatus.
8. To determine Law of machine & efficiency of Single Purchase Crab.
9. To determine the coefficient of friction between two surface.
10. To determine Law of machine & efficiency of Double Purchase Crab.
11. To verify the Law of motion using Fletcher's Trolley.
12. To determine forces in the members of a truss and compare the same graphically.
13. To find Moment of Inertia and Product of Inertia by Mohr's circle method.
14. To verify law of Polygon of forces.

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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

B.E. SoE and Syllabus 2014-15

First Year (1st Semester & 2nd Semester)

EE1101	Basic Electronics	L= 3	T = 1	P = 0	Credits = 4
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

Objectives	Outcomes
<ul style="list-style-type: none"> To expose all the engineering students to basic principles of Electronics. To bridge different branches of engineering enabling new inter-disciplinary areas to grow. To enlighten students to experiment with basic electronic circuits to enable them to understand its basic application of electronics in day to day life. 	<ul style="list-style-type: none"> Students will be familiar with all number systems and codes and will be able to solve numericals on same. Students will understand the concepts of combinational & sequential circuits and will be able to design the same. Students will understand the functions & characteristics of Semiconductor Devices. Students will understand the types of amplifier & their mathematical equations.
Mapped Program Outcomes: a, b, c, d, e, i	

Unit I:

Number Systems and Codes

Number System & their conversions, Codes- BCD code, Excess-3 Code, Gray Code & ASCII Code, BCD arithmetic, Binary Arithmetic operations. **{a,b,e,i}**

(7 Hours)

Unit II:

Digital Principles

Binary Number representation- Sign-magnitude Numbers, 1's & 2's Complement, 2's Complement Arithmetic. The Basic Gates, Universal Logic Gates, Exclusive Gates, Boolean Laws & Algebras, Demorgans theorem, Sum of Product & Product of Sum. **{a,b,e,i}**

(7 Hours)

Unit III : Logic Design

Combinational Logic- Introduction to logic minimization using K-map (limited upto 3-variable only), Half & Full Adder, Half & Full Subtractor, Data Processing units- Multiplexer, Demultiplexer, Decoders & Encoders. Sequential Circuits – Introduction to Flip flops, register & counters. **{a,b,e,i}**

(7 Hours)

Unit IV:

Diodes & its applications

Characteristics of materials based on Energy band theory, Intrinsic and extrinsic semiconductors, P-N junction diodes, Biasing & Characteristics of diodes. Diode Circuits - Half wave rectifier, full wave rectifier, bridge rectifier, clippers & clampers, filter Circuit. Special Purpose Diodes - Zener diode, LED. **{a,b,c,d,e,i}**

(7 Hours)

Unit V : BJT & its application

Introduction to BJT- NPN and PNP, biasing, Configuration & modes of operation, Characteristics & Applications of BJT. Concepts of amplifiers, Introduction to SCR, Introduction to MOSFET. **{a,b,c,e,i}**



(7 Hours)

Unit VI: Operational Amplifiers

Introduction to feedback, gain equation for feedback, Introduction to Op-Amp, Inverting and Non-Inverting Amplifier, Linear Op-Amp Circuits, Differential Amplifiers, Summing Amplifier, Difference amplifier, Integrator, Differentiator. **a,b,c,e,i}**

(7 Hours)

1. "Basic Electronics", by Soumitra Kumar Mandal, 1st edition, Tata McGraw Hill Education Private Limited, Published in 2013.
2. "A textbook of Electronics", by S.L. Kakani, K.C. Bhandari. 3rd edition, New Age International Publishers, 2008.

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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

B.E. SoE and Syllabus 2014-15

First Year (1st Semester & 2nd Semester)

EL1101	Electrical Engineering	L= 3	T = 1	P = 0	Credits = 4
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

Objectives	Outcomes
<ul style="list-style-type: none"> To impart knowledge of basics in Electrical Engineering. To understand the applications of Electrical Engineering. 	<ul style="list-style-type: none"> Students will be able to understand the basic concepts of Electrical engineering & their applications in the field of engineering.
Mapped Program Outcomes a,b,d,e,i PEO- 1,2	

Unit I : D. C. Circuits

Brief Introduction and concept of Electrical Circuits, Active and Passive Elements, Equivalent Resistance, Series/Parallel, star/delta and delta/star transformation, power in dc circuits.
Electrical energy sources, Kirchoff's Laws, mesh and nodal analysis, Superposition Principle.

Magnetic Circuits : Concept of magnetic flux, magnetomotive force, magnetic field intensity, magnetic circuit, permeability of free space, relative permeability, reluctance, permeance, laws governing magnetic circuits, comparison between electric and magnetic circuits, B-H curve, leakage flux, core losses.



Unit II : Single Phase a.c. Circuits : Generation of an alternating voltage, emf equation, concept of phase and phase difference, instantaneous, average and effective values by analytical method, form factor, peak factor for sinusoidal waveform, phasor diagram, Solution of R, L, C Series, Parallel, Series/Parallel circuits with phasor diagrams, power factor, active power, reactive power and apparent power in a.c. circuit, concept of resonance in series and parallel a.c. circuits.

Unit III : Three Phase a.c. Circuits : Single phase and poly phase system, advantages of three phase system, Three phase AC generation, phase sequence, Delta and Star Connections, Line and Phase Quantities, Phasor Diagram, Solution of Three Phase Balanced Circuits, active, reactive, and apparent power.
Measuring Instruments : Introduction to Electrical Measuring Instruments (indicating, recording, integrating instrument, principle of operation of instrument moving coil, moving iron, electro-dynamometer, induction)

Unit IV : Single Phase Transformer: Concept of Mutual Inductance, Construction, Theory and operation of Single Phase Transformer, emf equation, equivalent circuits, voltage regulation, losses in transformer, efficiency, classification of transformers, Concept of open and short circuit tests, Elementary problems on efficiency and regulation, Introduction of CT & PT.

Unit V : D. C. Machines: Principle of DC generator, construction, emf equation, types of generators and elementary discussion on their characteristics.
Principle of DC Motor, comparison of motor and generator, significance of back emf, voltage equation and torque equation of motor, type of motors and their characteristics, application of motors, need of starter, speed control of D.C. motor, losses and efficiency (only theoretical treatment is expected).

Unit VI : Three Phase Induction Motor : Classification of a.c. motors, general principle of induction motor and its construction, Basic idea of revolving field, starting torque, condition for maximum starting torque, torque under running conditions, maximum torque under running conditions, torque slip characteristics. (Only qualitative treatment)
Single Phase Induction Motor : Magnetic field produced by single phase and two phase a.c. supply, double field revolving theory, making single phase motor self starting, types of single phase induction motor, principle of working of capacitor start induction motor.
Application of Electrical Motors in domestic sector (e.g. mixer, ceiling fan, water pump motor etc.).

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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

B.E. SoE and Syllabus 2014-15



First Year (1st Semester & 2nd Semester)

Text Books:-

- 1) " Basic Electrical Engineering", T. K. Nagsarkar and M. S. Sukhija, Oxford Higher Education, 1st Edition, 2005.
- 2) " Basic Electrical Engineering" , V. N. Mittle and A. K. Mittal , The McGraw Hill Companies, New Delhi, 2nd Edition,2006.

Reference Books:-

1. "Basic Electrical Engineering ", I J Nagrath and D. P. Kothari , McGraw Hill, New Delhi, 2nd Edition, 2002.
2. " Electrical Engineering Fundamentals" Vincent Del Toro, Prentice Hall India, New Delhi, 2nd Ed, 2001

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First Year (1st Semester & 2nd Semester)

EL1102	Electrical Engineering Lab	L=0	T=0	P=2	CREDITS = 1
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	--	--	40	60	100	--



Minimum Ten Nos of experiments to be done from the following list

LIST OF EXPERIMENTS :

1. To verify Kirchoff's laws.
2. To verify Superposition Theorem
3. To determine Self and Mutual Inductances of a coupled circuit
4. To plot magnetization curve for a magnetic material
5. To study R-L-C series circuit
6. To study R-L-C parallel circuit.
7. To study balanced three phase star connected load
8. To study balanced three phase delta connected load
9. To calculate Transformation Ratio, Efficiency and Regulation of single phase Transformer by direct loading
10. To study starting and reversal of three phase squirrel cage induction motor.
11. To draw single line diagram of power flow in electrical system.
12. To study protective devices(Fuse, MCB, ELCB).
13. To study electrical earthing

Reference Book:

“ A text Book of Laboratory Courses in Electrical Engineering”, S. G. Tarnekar, P. K. Kharbanda and S. B. Bodkhe, S. Chand , New Delhi, .

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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

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First Year (1st Semester & 2nd Semester)

IT1101	INTRODUCTION TO COMPUTER PROGRAMMING	L=3	T=1	P=0	CREDITS = 4
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

Objectives	Outcomes
<ul style="list-style-type: none"> To facilitate the students in using Computer effectively as a programmable device. To provide basic knowledge of programming language to the students for developing software projects related to the applications/research in the respective disciplines 	<ul style="list-style-type: none"> Understand the basics of computers and its various components. Understand the basic building blocks of programming languages. Differentiate between an algorithm and a program. Develop programs using different control statements. To apply the concepts of functions to write programs based on structure and union and Files
MAPPING OF COs WITH POs & PSOs: a, b, c,e,k,l	

Unit I: Introduction to Computers

Fundamentals of Computers: Basic Structure of a Computer, Input /Output Devices, Memories, Hardware, Software, System Software, Application Software, Applications of Computers, Types of Computers, Programming Languages, Types of Errors in Programming, Algorithms and Flowcharts.

(06)

Unit II: C language preliminaries and decision control structures

Character set, variables and identifiers, built in data types, Arithmetic operators and expressions, constants and literals, simple assignment statements, library functions, basic input/output statements, relational and logical operators, precedence of operators, logical expressions, pointer variables, Compilation, linking and loading concept, write straight line programs, Decision control structures: if, if - else and nested if-else statements, goto statement, conditional operator, switch-case control structure Statement, simple C programs based on these control structures

(08)

Unit III: Loop control structures

While, do while and for loops, break and continue statement. Simple C programs based on these loop structures. Identifying test cases and performing test runs, good programming practices – indentation, comments, writing time and space efficient programs.

(06)

Unit IV: Concepts of Functions , Pointer and Modular Programming

Concept of functions, function prototypes, formal parameters, actual parameters, return types, function call: call by value and call by reference, C programs using functions, Recursive functions, comparing recursion against iteration, Concepts of pointers, C programs using recursive functions, Modular programming.

(07)

Unit V: One and Two dimensional arrays, strings

Concept of array as a data structure. One dimensional array: array manipulation, insertion, deletion of an element searching techniques: Linear and binary search, sorting techniques: Bubble, insertion and selection sort. C Programs based on different applications of arrays.

Two dimensional array: programs for basic matrix operations-addition, multiplication and transpose, Array as function arguments, Arrays and pointers.

Introduction to strings, string handling functions. Programs based on Strings.



(08)

Unit VI: Structures, Concept of files, File handling and preprocessor directives

Introduction to structures and Union, Array of Structures, Programs based on Structures Concept of files, Different types of files, file opening in various modes, Command Line Arguments, Program based on Files.

Concept of preprocessor directives and macros, testing and debugging a program, program documentation.

(07)

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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

B.E. SoE and Syllabus 2014-15



First Year (1st Semester & 2nd Semester)

Text Books:

- 1.J.B.W.Kernighan & D.M.Ritchie," The C Programming Language", Prentice Hall
- 2.E. Balguruswamy ,"Programming in ANSI C"
- 3.K.R.Venugopal & S.R. Prasad, "Mastering C", TMH,2007.

Reference Books:

1. Jeri R. Hanly, Elliot B. Koffman, "Problem Solving And Program Design In C" , 5th Edition, Pearson Education
2. Byron Gottfried," Programming with C", Schaum;s Outline Series
3. R. G. Dromey," How to solve it by computers", Prentice Hall India

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First Year (1st Semester & 2nd Semester)

IT1102	Introduction to Computer Programming Lab	L=0	T=0	P=2	Credits=1
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	--	--	100		100	--

List of Practical

Sr. No.	Topic	No of practical
1.	Introduction to operating system and editor	02
2.	Writing simple C programs	01
3.	Writing programs based on control structures	02
4.	Writing programs based on loops	02
5.	One dimensional arrays and pointers	02
6.	Two dimensional arrays	01
7.	Program on user defined data types using structures and type def statement	01
8.	Functions	02
9.	String handling using functions	01
10.	File Handling	01

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First Year (1st Semester & 2nd Semester)

ME1101	Engineering Graphics	L=1	T=0	P=0	CREDITS=1
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

Objective	Outcome
The objective of learning Engineering Graphics is to make the students aware of how an industry communicates technical information. An engineer need to have three skills, he must be able to imagine, draw clearly and rapidly and to read the drawings drawn by others. Engineering Graphics aims in teaching the principles of accuracy and clarity while presenting the information necessary to produced products. It also develops the imagination skills that are essential while creation of successful design.	<ul style="list-style-type: none"> The imagination skills of students are being developed. Students are able to read, write and communicate engineering drawings. Students are aware about the standards followed in industry. Students are able to draw the projections of points, lines, planes, solids, section of solids and development of lateral surfaces, orthographic, isometric, missing lines, missing views and intersection of solids.

Unit I:

Introduction to AutoCAD [a, b, f]
Basic Commands.

Unit II:

Theory of Projections [a, b, f]

Theory of orthographic projection, techniques, first and third angle projections and multi view drawing from pictorial views. Theory of isometric projection, oblique drawing and its construction. Need of primary and secondary auxiliary views. Identification and drawing of missing line(s), views in orthographic projections.

Unit III:

Spatial Geometry [a, c, e]

Projection of points, lines, application of lines, true lengths, inclinations, shortest distance and planes.

Unit IV:

Geometrical Solids and Sections [a, e, g]

Construction of right, regular and oblique solids. Section planes and its sectional views.

Unit V:

Development of Surfaces [a, c, d]

Radial line, parallel line and reverse development.

Unit VI:

Intersection of Surfaces [a, e, f]



Intersection between line - plane, plane - plane, line - solid and solid - solid.

Text Books:

1. D.M. Kulkarni and A. Sarkar, Engineering Graphics with AutoCAD, Prentice Hall India, New Delhi, 2009.

Reference Books:

- 1) N.D. Bhatt and V. M. Panchal, Elementary Engineering Drawing, 49th Edition, Charotar Publisher, 2011.
- 2) Dhananjay Jolhe, Engineering Drawing, TMH, New Delhi, 2008.
- 3) N.D. Bhatt and V. M. Panchal, Machine Drawing, 43rd Edition, Charotar Publisher, 2001.

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B.E. SoE and Syllabus 2014-15

First Year (1st Semester & 2nd Semester)

ME1102	Engineering Graphics Lab	L=0	T=0	P=4	Credits=2
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	--	--	100	-	100	--



Unit	Learning Objectives	Topics to be covered	Practical Classes
1	Introduction to AutoCAD	Basic commands	8
2	Theory of Projections	Theory, techniques, first and third angle projections, Multi view drawing from pictorial views. Theory of isometric and oblique drawing, construction of isometric and oblique from orthographic. Need, primary and secondary auxiliary views, true shapes. Identification and drawing of missing line(s) and view in orthographic projections	20
3	Spatial geometry	Projection of points; lines, true lengths, inclinations, shortest distance; planes	8
4	Geometrical solids and sections	Construction of right, regular, oblique solids; section planes and sectional view.	8
5	Development of surfaces	Radial line, parallel line; reverse development.	6
6	Intersection of surfaces	Intersections between: line-plane, plane-plane, line-solid, solid-solid	6

Text Book:

- 1) D.M. Kulkarni and A. Sarkar., Engineering Graphics with AutoCAD, Prentice Hall India, New Delhi, 2009.

Reference Book:

- 1) N. D. Bhatt & V. M. Panchal., Engineering Drawing, Charotar Publisher, 2007.
- 2) Dhanjay A Jolhe, Engineering Drawing, Tata-Mcgraw hill, 2008.

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First Year (1st Semester & 2nd Semester)

ME1103	Workshop Practice	L=0	T=0	P=2	Credits=1
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	--	--	40	60	100	--

Objectives:

This course is an entry level course for all B.E. students. The course will provide an overview of the techniques and applications of basic manufacturing processes required to produce a finished product from raw materials.

1. Carpentry: [a b i]

[2 Jobs]

Identifying some common types of timber and their engineering applications, Names and uses of carpenters tools, various types of wood working joints and their applications.

2. Smithy: [a b i]

[1 Job]

Use of various tools and equipments in smithy shops. Demonstration of various operations and their applications. Operations of the smithy hearth and various other hand and power forging equipments.

3. Fitting: [a b i]

[1 Job]

Use of Fitting tools, equipments and measuring instruments, Practice in the method of marking and the use of measuring instruments, Chipping, filing, drilling, Tapping, scraping operations.

4. Welding: [a b i]

[1 Job]

Name and uses of gas and electric welding, tools and equipments gas and electric welding, operation practice.



Hand Tools: Use and handling of common hand tools.

Text Books Recommended

1. Workshop Technology Volume I by S K Hajra Choudhary and A K Chaoudhary. Media Promoters and Publishers, Mumbai.

Reference Books

1. Sero Kalpakjian and Steven Schmid, "Manufacturing Processes for Engineering Materials", Pearson Education, 2004.
2. E. Paul Degarmo et al., "Materials and Processes in Manufacturing", PHI, Eighth Edition, 2004.

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