



**SCHEME OF EXAMINATION
&
DETAILED SYLLABUS**

BACHELOR OF ENGINEERING

Civil Engineering

B.E (C.E)

First Year

2013-14



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B.E.101 ENGINEERING CHEMISTRY

Subject Code	Subject Name	Credits	Maximum marks Allotted				Duration of Exam.		
			Theory		Practical		Total	Theory	Practical
			Major	Sessional.	End Sem	Lab Work			
BE-101	Chemistry	4(2-1-1)	70	30	25	25	150	3hr	2hr

Pattern: The question paper will consist of six questions. Question no. 1 will have 10 objective type questions of 10 marks, covering entire syllabus. Objective questions should have right mix of questions to test the logic, problem solving skill and reasoning. Each objective question should have four choices to pick up from. Remaining five questions will carry 12 marks each, one from each of the five units of the syllabus and may have internal choice. These five questions will have two parts A & B, preferably one theoretical and other numerical/short notes. Questions should test the concepts, knowledge and application. Candidates are required to answer all the questions.

COURSE OBJECTIVE:

The objective of this foundational course is to develop general familiarity and understanding with the following areas in chemistry: inorganic, organic, physical chemistry, electrochemistry, photo chemistry and Thermo chemistry. The course also intended to make students work effectively and safely in the laboratory working environment. Last portion of curriculum addresses critical thinking and numerically analysing the chemical problems.

UNIT-I

WATER AND ITS INDUSTRIAL APPLICATIONS : Sources, Impurities, Hardness & its units, Industrial water characteristics, softening of water by various methods (External & Internal treatment), Boiler trouble causes, effect & remedies, Characteristics of municipal water & its treatment, Numerical problems based on softening methods.

UNIT-II

FUELS & COMBUSTION: Fossil fuels & classification, Calorific value, Determination of calorific value by Bomb calorimeter Proximate and Ultimate analysis of coal and their significance, calorific value Computation based on ultimate analysis data, Carbonization, Manufacturing of coke & recovery of by-products. Cracking of higher Hydrocarbons &

mechanism of cracking, Knocking, relationship between' knocking & structure of hydrocarbon, improvement of anti-knocking characteristics of IC engine fuels, Diesel engine fuels, Cetane number, combustion and it related numerical problems.

UNIT-III

A. LUBRICANTS: Introduction, Mechanism of lubrication, Classification of lubricants, Properties and Testing of lubricating oils, Numerical problems based on testing methods.

B. CEMENT & REFRACTORIES: Manufacture , IS-code, Setting and hardening of cement, Refractory : Introduction, classification and properties of refractories .

UNIT-IV

HIGHPOLYMER: Introduction, types and classification of polymerization, Reaction Mechanism, Natural & Synthetic Rubber; Vulcanization of Rubber, Preparation, Properties & uses of the following- Polythene, PVC, PMA, PMMA, Teflon, Poly acrylonitrile, PVA, Nylon, Nylon 6:6, Terylene, Phenol formaldehyde, Urea -Formaldehyde Resin, Glyptal, Silicone Resin, Polyurethanes; Butyl Rubber, Neoprene, Buna N, Buna S. Flow sheet manufacturing diagram of Nylon 6:6 & Decoran.

UNIT-V

A. INSTRUMENTAL TECHNIQUES IN CHEMICAL ANALYSIS : Introduction, Principle, Instrumentation and applications of IR, NMR,UV, Visible, Gas Chromatography, Lambert's and Beer's Law.

B. WATER ANALYSIS TECHNIQUES : Alkalinity, hardness (Complexo-metric), Chloride, Free chlorine, DO, BOD and COD, Numerical problems based on above techniques.

Course Outcomes:

1. Develop innovative methods to produce soft water for industrial use and potable water at cheaper cost.
2. Substitute metals with conducting polymers and also produce cheaper biodegradable polymers to reduce environmental pollution.
3. Design economically and new methods of synthesis nano materials.
4. Apply their knowledge for protection of different metals from corrosion .
5. Have the knowledge of converting solar energy into most needy electrical energy efficiently and economically to reduce the environmental pollution.

REFERENCE BOOKS:

- Chemistry for Environmental Engineering - Sawyer, McCarty and Parkin - McGraw Hill, International.
- Engineering Chemistry- B.K. Sharma, Krishna Publication.
- A Text Book of Engineering Chemistry - S. S. Dara & A.K. Singh, S. Chand Publication.
- Applied Chemistry- Theory and Practice, O.P. Viramani, A.K. Narula, New Age Pub.
- Polymer Science - Ghosh, Tata McGraw Hill.

ENGINEERING CHEMISTRY PRACTICAL

1. WATER TESTING

- (i) Determination of Total hardness by Complex metric titration method.
- (ii) Determination of mixed alkalinity
 - (a) OH⁻ & CO₃⁻
 - (b) CO₃⁻ & HCO₃⁻
- (iii) Chloride ion estimation by Argent metric method.

2. FUELS & LUBRICANT TESTING

- (i) Flash & fire points determination by
 - (a) Pensky Martin Apparatus,
 - (b) Abel's Apparatus,
 - (c) Cleveland's open cup Apparatus.
 - (d) Calorific value by bomb calorimeter
- (ii) Viscosity and Viscosity index determination by
 - (a) Redwood viscometer No. 1
 - (b) Redwood viscometer No. 2
- (iii) Proximate analysis of coal
 - (a) Moisture content
 - (b) Ash content
 - (c) Volatile matter content
 - (d) Carbon residue
- (iv) Steam emulsification No & Anline point determination
- (v) Cloud and Pour point determination of lubricating oil

3. ALLOY ANALYSIS

(i) Determination of percentage of Fe in an iron alloy by redox titration using N-Phenyl anthracitic acid as internal indicator.

(ii) Determination of Cu and or Cr in alloys by Iodometric Titration.

B.E.102 MATHEMATICS I

Subject Code	Subject Name	Credits	Maximum marks Allotted				Duration of Exam.		
			Theory		Practical		Total	Theory	Practical
			Major	Sessional.	End Sem	Lab Work			
BE-102	Mathematics-I	4(2-1-1)	70	30	-	-	100	3hr	2hr

Pattern: The question paper will consist of six questions. Question no. 1 will have 10 objective type questions of 10 marks, covering entire syllabus. Objective questions should have right mix of questions to test the logic, problem solving skill and reasoning. Each objective question should have four choices to pick up from. Remaining five questions will carry 12 marks each, one from each of the five units of the syllabus and may have internal choice. These five questions will have two parts A & B, preferably one theoretical and other numerical/short notes. Questions should test the concepts, knowledge and application. Candidates are required to answer all the questions.

COURSE OBJECTIVE:

The objective of this foundational course is to review mathematical concepts already learnt in higher secondary. This course will also introduce fundamentals of mathematical functions, derivatives and aspects of calculus to students.

UNIT I

DIFFERENTIAL CALCULUS :

Expansion of functions by Maclaurin's and Taylor's theorem. Partial differentiation, Euler's theorem and its application in approximation and errors, Maxima and Minima of function of two variables, Curvature : Radius of curvature, centre of curvature.

UNIT II

INTEGRAL CALCULUS :

Definite Integrals : Definite Integrals as a limit of a sum , its application in Summation of series, Beta and Gamma Functions , Double and Triple Integrals, Change of Order of Integration, Area, Volume and Surfaces using double and triple Integral.

UNIT III

DIFFERENTIAL EQUATIONS :

Solution of Ordinary Differential Equation of first order and first degree for Exact differential Equations, Solution of Ordinary Differential Equation of first order and higher degree (solvable for p , x and y , Clairaut's Equation), Linear Differential Equations with Constant Coefficients, Cauchy's Homogeneous differential Equation, Simultaneous differential Equations, Method of Variation of Parameters.

UNIT IV

MATRICES :

Rank, Solution of Simultaneous equation by elementary transformation, Consistency of System of Simultaneous Linear Equation, Eigen Values and Eigen Vectors, Cayley-Hamilton Theorem and its Application to find the inverse

UNIT – V

Algebra of Logic, Boolean Algebra, Principle of Duality, Basic Theorems, Boolean Expressions and Functions. Elementary Concept of Fuzzy Logic. Graph Theory : Graphs, Subgraphs, Degree and Distance, Tree, cycles and Network.

COURSE OUTCOMES

- Apply mathematical concepts and principles to perform computations.
- Apply mathematics to solve problems.
- Create, use and analyze graphical representations of mathematical relationships.
- Communicate mathematical knowledge and understanding.
- Apply technology tools to solve problems

REFERENCES:

- Advance Engg. Mathematics. - By Ramana, Tata McGraw hill.
- Higher Engineering Mathematics - By BS Grewal, Khanna Publication
- Advance Engineering Mathematics - By D.G.Guffy
- Engineering Mathematics - By S S Sastri. P.H.I.
- Mathematics for Engineers - By S. Arumungam, SCITECH Publication
- Advanced Engineering Mathematics - By Erwin Kreyszig, Wiley India

B.E.103 COMMUNICATION SKILLS

Subject Code	Subject Name	Credits	Maximum marks Allotted					Duration of Exam.	
			Theory		Practical		Total	Theory	Practical
			Major	Sessional.	End Sem	Lab Work			
BE-103	Communication skills*	4(2-1-1)	-	-	-	100	100	-	-

***Pattern: There will be no examination and credits will be awarded only on the basis of internal assessment.**

COURSE OBJECTIVE:

The objective of this course is to help students to acquire reading and writing skills in a self-learning mode.

UNIT I

LANGUAGES AND SKILLS OF COMMUNICATION:

Linguistic techniques, Modern usages, Reading comprehension, English phonetic symbols/sings, Oral presentation, Audition Communication, Processes of Communication, Verbal and Non-Verbal Communication, Barriers to Communication.

UNIT II

APPLICATION OF LINGUISTIC ABILITY

Writing of definitions of Engineering terms, Objects, Processes and Principles (Listening) Topics of General Interest, Reproduction from business, daily life, travel, health, buying and selling, company structure, systems etc.

UNIT III

LETTERWRITING:

Applications, Enquiry, Calling quotations, Tenders, Order and Complaint.

UNIT IV

Precise Writing, Noting and drafting, Technical Description of simple engineering objects and processes (writing), Report writing, precise writing, Note writing, Slogan writing comment, Speech advertising.

UNIT V

Writing Technical reports of the type of observation report, Survey report, Report of trouble, Laboratory Report and Project Report on the subjects of engineering. (Speaking) Vocabulary, Presentations, Demonstrations, Conversation - Telephone media, socializing, cultural events, debates, speech.

BE 103 COMMUNICATIVE LANGUAGE LAB

COURSE OBJECTIVE :

The language lab focuses on the production and practice of sounds of English through audio - visual aids and Computer software. It intends to enable the students to speak English correctly with confidence and intends to help them to overcome their inhibitions and self-consciousness while speaking in English.

Topics to be covered in the Language laboratory sessions :

1. Basic Grammar & Vocabulary (Synonyms /Antonyms, Analogies, sentence completion, correctly spelt words, idioms, proverbs, common errors).
2. phonetic symbols and pronunciation.
3. Listening skills (Including Listening Comprehension)3
4. Reading Skills (Including Reading Comprehension)
5. Writing Skills (Including structuring resume and cover letter)
6. Speaking Skills
7. Body Language
8. Oral Presentation: Preparation and delivery using audio - visual aids with stress n body language and voice modulation (Topic to be selected by the teacher.) Final Assessment Should be based on Assignment, presentation and interview.

COURSE OUTCOMES

1. Demonstrate critical and innovative thinking.
2. Display competence in oral, written, and visual communication.
3. Apply communication theories.
4. Show an understanding of opportunities in the field of communication.
5. Use current technology related to the communication field.
6. Respond effectively to cultural communication differences.
7. Communicate ethically.
8. Demonstrate positive group communication exchanges.

REFERENCE BOOKS :•

Business Correspondence and Report Writing - By Sharma; TMH.

- Living English Structure - By W.S. Allen; Longmans.
- English Grammar - By Ehrlich, Schaum Series; TMH.
- Spoken English for India - By R.K. Bansal and IB Harrison Orient Longman.
- New International Business English - By Joans and Alexander; OUP.
- Effective Technical Communication - By Rizvi; TMH.

B.E.106 WORK SHOP PRACTICE

Subject Code	Subject Name	Credits	Maximum marks Allotted				Duration of Exam.		
			Theory		Practical		Total	Theory	Practical
			Major	Sessional.	End Sem	Lab Work			
BE-106	Work Shop Practice	3(1-0-2)	-	50	-	50	100	-	-

COURSE OBJECTIVE

- To develop general machining skills in the students.
- To develop a skill in dignity of labour, precision, safety at work place, team working and development of right attitude.

UNIT I

Introduction:

Manufacturing Processes and its Classification, Casting, Machining, Plastic deformation and metal forming, Joining Processes, Heat treatment process, Assembly process. Powder Metallurgy, introduction to computers in manufacturing.

Black Smithy Shop,

Use of various smithy tools. Forging operations: Upsetting, Drawing down, Fullering, Swaging, Cutting down, Forge welding, Punching and drafting.

Suggested Jobs : Forging of chisel., forging of Screw Driver

UNIT II

Carpentry Shop:

Timber : Type, Qualities of timber disease, Timber grains, Structure of timber, Timber, Timber seasoning, Timber preservation .Wood Working tools: Wood working machinery, joints & joinery. Various operations of planning using various carpentry planes sawing & marking of various carpentry joints.

Suggested Jobs :Name Plate ,Any of the Carpentry joint like mortise or tennon joint.

UNIT III

Fitting Shop:

Study and use of Measuring instruments, Engineer steel rule, Surface gauges caliper, Height gauges, feeler gauges, micro meter. Different types of files, File cuts, File grades, Use of surface plate, Surface gauges drilling tapping Fitting operations: Chipping filling, Drilling and tapping. Suggested

Jobs : Preparation of job piece by making use of filling, sawing and chipping , drilling and tapping operations.

UNIT IV

Foundry:

Pattern Making: Study of Pattern materials, pattern allowances and types of patterns.

Core box and core print, .Use and care of tools used for making wooden patterns.

Moulding:

Properties of good mould & Core sand, Composition of Green , Dry and Loam sand.

Methods used to prepare simple green and bench and pit mould dry sand bench mould using single piece and split patterns.

UNIT V

Welding:

Study and use of tools used for Brazing, Soldering, Gas & Arc welding. Preparing Lap & Butt joints using gas and arc welding methods, Study of TIG & MIG welding processes.

Safety precautions.

COURSE OUTCOMES

- Ability to design and model different prototypes in the carpentry trade
- Ability to design and model various basic prototypes in the trade of fitting
- Ability to design and model various basic prototypes in the trade of Welding

REFERENCE BOOKS:

1. Bawa HS; Workshop Practice, TMH
2. Rao PN; Manufacturing Technology- Vol. 18s 2, TMH
3. John KC; Mechanical workshop practice;- PHI
4. Hazara Choudhary; Workshop Practices - Vol. I & II.
5. Jain. R.K. Production Technology

B.E.201 ENGINEERING PHYSICS

Subject Code	Subject Name	Credits	Maximum marks Allotted				Duration of Exam.		
			Theory		Practical		Total	Theory	Practical
			Major	Sessional.	End Sem	Lab Work			
BE-201	Engineering Physics	4(2-1-1)	70	30	25	25	150	3hrs	2hrs

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UNIT I

Quantum Physics:

Group and particle velocities & their relationship. Uncertainty principle with elementary proof and applications (determination of position of a particle by a microscope, non-existence of electron in nucleus, diffraction of an electron beam by a single slit). Compton scattering. Wave function and its properties, energy and momentum operators, time dependent and time independent Schrodinger wave equation. Application of time independent Schrodinger wave equation to particle trapped in a one dimensional square potential well (derivation of energy eigen values and wave function)

UNIT II

Wave Optics:

Interference: Fresnel's biprism, Interference in thin films (due to reflected and transmitted light), interference from a wedge shaped thin film, Newton's rings and Michelson's interferometer experiments and their applications. Diffraction at single slit, double slit and n-slits (diffraction grating). Resolving power of grating and prism. Concept of polarized light, Brewster's laws, Double refraction, Nicol prism, quarter & half wave plate.

UNIT III

Nuclear Physics:

Nuclear liquid drop model (semi empirical mass formula), nuclear shell model, Linear Particle acceleratos: Cyclotron, general description of Synchrotron, Synchrocyclotron, and Betatron. Geiger-Muller Counter, Motion of charged particles in crossed electric and magnetic fields. Uses of Bainbridge and Auston mass Spectrographs.

UNITIV

Solid State Physics:

Qualitative discussion of Kronig Penny model (no derivation), Effective mass, Fermi-Dirac statistical distribution function, Fermi level for Intrinsic and Extrinsic Semiconductors, Zener diode, tunnel diode, photodiode, solar-cells, Hall effect. Superconductivity: Meissner effect, Type I and Type II superconductors, Di-electric polarization, Complex permittivity, dielectric losses

UNITV

Laser and Fiber Optics:

Laser: Stimulated and spontaneous processes, Einstein's A & B Coefficients, transition probabilities, active medium, population inversion, pumping, Optical resonators, characteristics of laser beam. Coherence, directionality and divergence. Principles and working of Ruby, Nd:YAG, He-Ne & Carbon dioxide Lasers with energy level diagram.. Fundamental idea about optical fiber, types of fibers, acceptance angle & cone, numerical aperture, V-number, propagation of light through step index fiber (Ray theory) pulse dispersion, attenuation, losses & various uses. Applications of lasers and optical fibers.

COURSE OUTCOMES

- Analyse the intensity variation of light due to Polarization, interference and diffraction
- Explain working principle of lasers
- Explain fundamentals of quantum mechanics and apply to one dimensional motion of particles
- Calculate Q-value of nuclear reactions and describe particle detectors and accelerators

REFERENCE BOOKS:

1. Optics By Ghatak, TMH
2. Engineering Physics By V. S. Yadava, TMH
3. Optics By Brijlal and Subhraminayan.
4. Engineering physics By M.N. Avadhanulu and. S. Chand & Co.(2004)
5. Atomic and Nuclear physics By Brijlal and Subraminiyan.
6. Concepts of Modern Physics By Beiser, TMH

7. Solid State Physics By Kittel ,Wiley India
8. Fundamentals of Physics By Halliday, Wiley India

LIST OF SUGGESTIVE CORE EXPERIMENTS: 7.

Biprism, Newton's Rings, Michelsons Interferometer.

8. Resolving Powers -Telescope, Microscope, and Grating.

9. G.M. Counter

10. Spectrometers-R.L, Wavelength, using prism and grating

11. Optical polarization based experiments: Brewster's angle, polarimeter etc.

12. Measurements by LASER-Directionality, Numerical aperture, Distance etc.

13. Uses of Potentiometers and Bridges (Electrical)..

14. Experiments connected with diodes and transistor.

15. Measurement of energy band gap of semiconductor.

16. To study Hall effect.

17. Solar cell.

18. To find the width of a single slit by a He-Ne Laser.

19. To determine the numerical aperture (NA) of an Optical Fibre.

20. To determine Planck's constant.

21. Other conceptual experiments related to theory syllabus.

B.E.202 ENERGY, ENVIRONMENT, ECOLOGY & SOCIETY

Subject Code	Subject Name	Credits	Maximum marks Allotted					Duration of Exam.	
			Theory		Practical		Total	Theory	Practical
			Major	Sessional.	End Sem	Lab Work			
BE-202	Environment, Ecology & Sustainability	4(2-1-1)	70	30	25	25	150	3hrs	2hrs

UNIT I

Energy Sources of Energy: Renewable & Non Renewable, Fossil fuel, coal, oil, Gas, Geothermal, Hydrogen, Solar, Wind, hydal, nuclear sources.

UNIT II

Ecosystem Segments of Environment: Atmosphere, hydrosphere, Lithosphere, biosphere. Cycles in Ecosystem - Water, Carbon, Nitrogen. Biodiversity: Threats and conservation, Food Chain.

UNIT III

Air Pollution & Sound Pollution:

Air Pollution: Air pollutants, classification, (Primary & secondary Pollutants) Adverse effects of pollutants. Causes of Air pollution chemical, photochemical, Greenhouse effect, ozone layer depletion, acid Rain.

Sound Pollution:

Causes, controlling measures, measurement of sound pollution (deciblage), Industrial and Non - industrial.

UNIT IV

Water Pollution Water Pollution: Pollutants in water, adverse effects. Treatment of Domestic & Industrial water effluent. Soil Pollution - Soil Profile, Pollutants in soil, their adverse effects, controlling measures.

UNIT V

Society & Ethics: Impact of waste on society. Solid waste management (Nuclear, Thermal, Plastic, medical, Agriculture, domestic and e-waste). Ethics and moral values, ethical situations, objectives of ethics and its study. Preliminary studies regarding Environmental Protection Acts, Environmental Impact Assessment.

REFERENCES:

1. Harris, CE, Prichard MS, Rabin's MJ, "Engineering Ethics"; Cengage Pub.
2. Rana SVS ; "Essentials of Ecology and Environment"; PHI Pub.
3. Raynold, GW "Ethics in information Technology"; Cengage.
4. Svakumar; Energy Environment & Ethics in society; TMH
5. AK De "Environmental Chemistry"; New Age Int. Publ.
6. BK Sharma, "Environmental Chemistry" ; Goel Publ. House.
7. Bala Krishnamoorthy; "Environmental management"; PHI
8. Gerard Kiely, "Environmental Engineering" ; TMH
9. Miller GT JR; living in the Environment Thomson/cengage
10. Cunningham WP and MA; principles of Environment Sc; TMH

B.E.204 BASIC CIVIL ENGINEERING & ENGINEERING MECHANICS

UNIT I

Building Materials & Construction:

Stones, bricks, cement, lime, timber-types, properties, test & uses, laboratory tests
concrete and mortar Materials: Workability, Strength properties of Concrete, Nominal
proportion of Concrete preparation of concrete, compaction, curing.

Elements of Building Construction, Foundations conventional spread footings, RCC
footings, brick masonry walls, plastering and pointing, floors, roofs, Doors, windows,
lintels, staircases - types and their suitability.

UNIT II

Surveying & Positioning:

Introduction to surveying Instruments - levels, theodolites, plane tables and related
devices.

Electronic surveying instruments etc. Measurement of distances - conventional and
EDM methods, measurement of directions by different methods, measurement of
elevations by different methods. Reciprocal leveling.

UNIT III

Mapping & Sensing:

Mapping details and contouring, Profile Cross sectioning and measurement of areas,
volumes, application of measurements in quantity computations, Survey stations,
Introduction of remote sensing and its applications.

Engineering Mechanics.

UNIT IV

Forces and Equilibrium:

Graphical and Analytical Treatment of Concurrent and nonconcurrent Co-planar
forces, free Diagram, Force Diagram and Bow's notations, Application of Equilibrium
Concepts: Analysis of plane Trusses: Method of joints, Method of Sections. Frictional
force in equilibrium problems.

UNIT V

Centre of Gravity and moment of Inertia:

Centroid and Centre of Gravity, Moment Inertia of Area and Mass, Radius of Gyration,
Introduction to product of Inertia and Principle Axes.

Support Reactions, Shear force and bending moment Diagram for Cantilever & simply

supported beam with concentrated, distributed load and Couple.

REFERENCE BOOKS:

1. S. Ramamrutam & R.Narayanan; Basic Civil Engineering, Dhanpat Rai Pub.
2. Prasad I.B., Applied Mechanics, Khanna Publication.
3. Punmia, B.C., Surveying, Standard book depot.
4. Shesha Prakash and Mogaveer; Elements of Civil Engg & Engg. Mechanics; PHI
5. S.P, Timoshenko, Mechanics of structure, East West press Pvt.Ltd.
6. Surveying by Duggal - Tata McGraw Hill New Delhi.
7. Building Construction by S.C. Rangwala- Charotar publications House, Anand.
8. Building Construction by Grucharan Singh- Standard Book House, New Delhi
9. Global Positioning System Principles and application- Gopi, TMH
10. R.C. Hibbler - Engineering Mechanics: Statics & Dynamics.
11. A. Boresi & Schmidt- Engineering Mechines- statics dynamics, Thomson' Books
12. R.K. Rajput, Engineering Mechanics S.Chand & Co.

LIST OF SUGGESTIVE CORE EXPERIMENTS:

Students are expected to perform minimum ten experiments from the list suggested below by preferably selecting experiments from each unit of syllabus.

1. To perform traverse surveying with prismatic compass, check for local attraction and determine corrected bearings and to balance the traverse by Bowditch's rule.
2. To perform leveling exercise by height of instrument of Rise and fall method.
3. To measure horizontal and vertical angles in the field by using Theodolite.
4. To determine (a) normal consistency (b) Initial and Final Setting time of a cement Sample.
5. To determine the workability of fresh concrete of given proportions by slump test or compaction factor test.
6. To determine the Compressive Strength of brick .
7. To determine particle size distribution and fineness modulus of course and fine Aggregate.
8. To verify the law of Triangle of forces and Lami's theorem.
9. To verify the law of parallelogram of forces.
10. To verify law of polygon of forces

11. To find the support reactions of a given truss and verify analytically.
12. To determine support reaction and shear force at a given section of a simply Supported beam and verify in analytically using parallel beam apparatus.
13. To determine the moment of inertia of fly wheel by falling weight method.
14. To verify bending moment at a given section of a simply supported beam.

B.E.206 COMMUNICATIVE LANGUAGE

COURSE OBJECTIVE:

This course intends to impart practical training in the use of English Language for Communicative purposes and aims to develop students' personality through Language Lab.

Topics to be covered in the Language laboratory sessions:

1. Introducing oneself, family, social roles, personal image design, building relationships, body language, concept of time and space.
2. Public Speaking and oral skills with emphasis on conversational practice, Role plays, extempore speech, JAM (Just a minute sessions), describing objects and situations, giving directions, debate, telephonic etiquette.
3. Reading Comprehension: Intensive reading skills, rapid reading, and reading aloud (Reading material to be selected by the teacher).
4. Translation from English to Hindi and vice versa.
5. Oral Presentation: preparation and delivery (Topic to be selected by the teacher.)

Assessment Criterion:

Oral Presentation - 10

Assignment - 20

Viva Voice - 20