VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
(Private Un-aided Non-minority Autonomous Institution)
ACCREDITED BY NAAC WITH 'A++' GRADE
IBRAHIMBAGH, HYDERABAD-31

Approved by A.I.C.T.E., New Delhi and
Affiliated to Osmania University, Hyderabad-07

**Sponsored by
VASAVI ACADEMY OF EDUCATION
Hyderabad**

**SYLLABUS BOOK FOR
B.E (CIVIL) I and II SEMESTER
UNDER CBCS WITH EFFECT FROM 2022–2023
(For the students admitted in 2022-23)**

**DEPARTMENT OF CIVIL ENGINEERING
+91-40-23146010, 23146011
Fax: +91-40-23146090
Website:** www.vce.ac.in

DEPARTMENT MISSION

"To strive for excellence in order to make the students better citizens with technical knowledge andsocial awareness"

DEPARTMENT VISION

"To impart knowledge in the latest technologies to the students of civil engineering to fulfil the growing needs of the society."

Institution Vision

"Striving for a symbiosis of technological excellence and human values."

Institution Mission

"To arm young brains with competitive technology and nurture holistic development of the individuals for a better tomorrow."

Department Vision

To strive for excellence in order to make the students better citizens with technical knowledge and social awareness

Department Mission

To impart knowledge in the latest technologies to the students of civil engineering to fulfil the growing needs of the society.

Program Educational Objectives (PEOs):

1. To provide a better understanding of basic sciences and fundamentals of civil engineering.

2. To develop competence in latest technologies to serve the industry or pursue higher studies.

3. To inculcate professionalism with effective communication skills and ethical values.

Program Outcomes (POs)

Engineering Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

1. Understand various concepts of basic engineering sciences and mathematics to learn advanced concepts of Civil Engineering and apply them to practical problems.

2. Apply principles of various specializations of Civil engineering including structural engineering, transportation engineering, environmental engineering, water resources engineering and Geotechnical engineering to tackle engineering problems.

3. Acquire knowledge of ethical practices, communication skills, technical report writing skills and collaborative effort leading to lifelong learning.

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
DEPARTMENT OF CIVIL ENGINEERING
SCHEME OF INSTRUCTION AND EXAMINATION (R-22)
B.E. – (CIVIL ENGINEERING) I-SEMESTER ACADEMIC YEAR 2022 - 2023
(Students Admitted in 2022-23)

Course Code	Name of the Course	Scheme of Instruction Hours per Week			Duration in Hrs	Scheme of Examination Maximum Marks		Credits
		L	T	P/D		SEE	CIE	
THEORY								
U22HS010EH	Human Values and Professional Ethics-I	1	-	-	2	40	30	1
U22BS110MA	Calculus	3	-	-	3	60	40	3
U22BS020CH	Applied Chemistry	3	-	-	3	60	40	3
U22ES010CE	Basic Engineering Mechanics	3	-	-	3	60	40	3
U22ES120CE	Engineering Drawing – I	1	-	2	3	60	40	2
U22ES110EE	Basic Electrical Engineering for Civil Engineers	2	-	-	3	60	40	2
U22MC010CE	Environmental Science	2	-	-	3	60	40	-
PRACTICALS								
U22BS011CH	Chemistry Lab	-	-	2	3	50	30	1
U22ES111ME	Engineering Workshop-I	-	-	2	3	50	30	1
U22ES111EE	Basic Electrical Engineering Lab for Civil Engineers	-	-	2	3	50	30	1
Total		15	-	8		550	360	17
Grand Total		23				910		
Note: The left over hours are to be allotted to Sports / Library / Mentor Interaction /CC / RC / TC / PDC based on the requirement.								

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
DEPARTMENT OF CIVIL ENGINEERING

SCHEME OF INSTRUCTION AND EXAMINATION (R-22)
B.E. – (CIVIL ENGINEERING) I-SEMESTER ACADEMIC YEAR 2022 - 2023
(Students Admitted in 2022-23)

INTERDISCIPLINARY COURSES OFFERED BY CIVIL ENGINEERING

Course Code	Name of the Course	Scheme of Instruction			Scheme of Examination			
		Hours per Week			Duration in Hrs	Maximum Marks		Credits
		L	T	P/D		SEE	CIE	
Theory (Common to CSE & IT)								
U22ES030CE	Basic Engineering Drawing	1	-	2	3	60	40	2
Theory (Common to EEE, ECE& Mech.)								
U22MC010CE	Environmental Science	2	-	-	3	60	40	-
Theory (Common to CSE, ECE, EEE, & Mech.)								
U22ES010CE	Basic Engineering Mechanics	3	-	-	3	60	40	3
Theory (Mech.)								
U22ES120CE	Engineering Drawing – I	1	-	2	3	60	40	2

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS),
IBRAHIMBAGH, HYDERABAD-500031**

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES
HUMAN VALUES AND PFOFESSIONAL ETHICS-1
(Common to all branches)

SYLLABUS FOR I- SEMESTERS

L: T: P (Hrs/Week):1:0:0	SEE Marks: 40	Course Code:U22HS020EH
Credits:1	CIE Marks: 30	Duration of SEE: 2 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	At the end of the course, students will be able to:
1. Get a holistic perspective of value- based education. 2. Grasp the meaning of basic human aspirations vis-a-vis the professional aspirations 3. Understand professionalism in harmony with self and society. 4. Develop ethical human conduct and professional competence. 5. Enrich their interactions with the world around, both professional and personal.	1. Understand the significance of value inputs in a classroom and start applying them in their life and profession 2. Distinguish between Personal and Professional life goals–constantly evolving into better human beings and professionals. 3. Work out the strategy to actualize a harmonious environment wherever they work. 4. Distinguish between ethical and unethical practices, and start implementing ethical practices. 5. Apply ethics and values and in their personal and professional interactions.

UNIT-1 HARMONY WITH SELF AND FAMILY: Understanding and living in harmony at various levels-with self, family, society and nature and the Ethical and moral values**:** which include self-sufficiency, self-determination, self-advocacy, self-competence, self-direction, self-efficacys, self-regulation, self-reliance, and self-responsibility. This also includes Family values involving all the ideas of how you want to live your family life, and they are often passed down from previous generations.
 1.1 Self-Values and Ethics
 1.2 Family – Values and Ethics
 1.3 Flipped class room

UNIT-2 PROFESSIONAL VALUES AND BEHAVIOUR: At the level of individual: as socially and ecologically responsible engineers and technologists. Team Work:Developing Credibility and building trust by having open and truthful communication. This includes recognizing the value of time and respecting time of self and others.
2.1 Professional Ethics – Individual
2.2 Professional Ethics – Team
2.3 Flipped class room

UNIT-3 SOCIAL VALUES: Values of service, social justice, dignity and worth of the personImportance of human relationships, integrity, and competence.
31. Social Values
3.2 Importance of relationship
3.3 Flipped class room

UNIT -4 SPIRITUAL VALUES: Developing individual practice and has to do with having a sense of peace and purpose. Spiritual values, namely, benevolence, charity, dignity, forbearance, hope, humility, kindness, love, modesty, peace, perseverance, piety, repentance, righteous, sacredness, sincerity, steadfastness, striving, trusting, truthfulness, unity, and wisdom.
4.1Spiritual Values
4.2 Mindful Vs Mindfull
4.3 Flipped class room

MODE of DELIVERY

Questionnaires	Discussions
Quizzes	Skits
Case-studies	Short Movies/documentaries
Observations and practice	Team tasks and individual tasks
Home and classroom assignments	Research based tasks
	Viva

Relevant Websites, CD's and Documentaries
Learning Resources:
1. https://plato.stanford.edu/
2. learn.talentsprint.com

The break-up of CIE: Internal Tests + Assignments + Quizzes
1 No. of Internal Tests : 1 Max. Marks for each Internal Test : 20
2 No. of Assignments   : 2 Max. Marks for each Assignment   : 5
3 No. of Quizzes   : 2 Max. Marks for each Quiz Test   : 5

Duration of Internal Tests   : 90 Minutes

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERBAD-500031

DEPARTMENT OF MATHEMATICS
CALCULUS
(Common to All Branches)

SYLLABUS FOR B.E. I-SEMESTER

Instruction : 3+1	SEE Marks : 60	Course Code: U22BS110MA
Credits : 3	CIE Marks:40	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to:	At the end of the course students should be able to:
1. Identify convergence of infinite series using various tests. 2. Understand The concepts of curvature, radius of curvature, evolutes and to expand functions using Taylor's series. 3. Acquire knowledge of partial derivatives, and expand functions using Taylor's series functions of two real variables and, maxima-minima. 4. Study the concepts of vector differentiation, Gradient, Divergence and Curl. 5. Learn how to evaluate double and triple integrals, using change of order of integration and apply vector integration to transformation theorems	1. Apply an appropriate test to check the nature of the infinite series. 2. Compute radius of curvature, evolute of a given curve and also to expand given function using Taylor's series. 3. Expand the given function in terms of Taylor's series and find Maxima and minima of functions of several variables also using Lagrange's method of multipliers. 4. Use gradient to evaluate directional derivatives and conservative vector field. 5. Apply concepts of multiple integrals to evaluate area and volume and vector integration to transformation.

UNIT-I:INFINITE SERIES: Definition of Sequences- Series – Convergence and Divergence- Series of positive terms-Geometric series- p-series test - Comparison tests - D'Alemberts Ratio Test – Cauchy's root test - Alternating Series – Leibnitz test – Absolute and Conditional convergence.

UNIT- II: DIFFERENTIAL CALCULUS: Taylor's Series – Maclaurin's Series- Curvature- Radius of Curvature – Centre of Curvature –Evolutes. (Cartesian and Parametric co-ordinates)

UNIT –III: MULTIVARIABLE CALCULUS: Limits- Continuity -Partial Derivatives-Higher Order Partial Derivatives-Total Derivates - Derivatives of Composite and implicit functions - Taylor's series of functions of two variables - Maxima and Minima of functions of two variables without and with constraints - Lagrange's Method of multipliers.

UNIT – IV: VECTOR DIFFERENTIAL CALCULUS: Scalar and Vector point functions -Vector Differentiation-Level Surfaces-Gradient of a scalar point function- Normal to a level surface- Directional Derivative – Divergence and Curl of a Vector field-Conservative vector field.

UNIT–V:MULTIPLE INTEGRALS: Double and Triple integrals (Cartesian) - Change of order of integration (Cartesian Coordinates)- Jacobian's-Change of the Variables(Cartesian to polar Coordinates)- Line integrals-Green's Theorem

Learning Resources:
1. Advanced Engineering Mathematics   8th Edition by Erwin Kreyszig , John Wiley & Sons.
2. Differential Calculus by Shanti Narayan S. Chand & Co
3. Vector Calculus – Schaum's outline series.
4. http://mathworld.wolfram.com/topics
5. http://www.nptel.ac.in/course.php

The break-up of CIE: Internal Tests   + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests   :   90 Minutes

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD-31

DEPARTMENT OF CHEMISTRY
APPLIED CHEMISTRY

SYLLABUS FOR B.E. I-SEMESTER

L : T : P(Hrs./week):3 : 0 : 0	SEE Marks:60	Course Code: U22BS120CH
Credits: 3	CIE Marks:40	Duration of SEE: 3 Hrs

COURSE OBJECTIVES:	COURSE OUTCOMES
The course will enable the students to:	**At the end of the course students should be able to:**
1. Study types of conductance, variation of electrode potential and EMF and to acquaint with applications of Galvanic Cell. 2. Classify and compare various types of batteries and fuel cells. 3. Get acquainted with different types of polymers and their applications. 4. Emphasize upon the quantity and quality of fossil fuels and need for bio- diesel 5. Describe the requirements of water for domestic and industrial uses and the behavior of composition of heterogeneous equilibrium systems	1. Construct a galvanic cell and calculate its EMF and pH wherever applicable. 2. Describe the construction, functioning and applications of the selected primary, secondary batteries and fuel cells. 3. Classify the polymers and discuss the synthesis and applications of few polymers. 4. Rate the fuels and suggest methods for enhancement of the quality of fuels for the required output. 5. Suggest appropriate treatment methods of water to make it fit for domestic and industrial applications and apply the principle of phase rule to heterogeneous equilibria.

UNIT-I: ELECTROCHEMISTRY : Introduction, conductance, types of conductance – specific, equivalent, molar conductance and their interrelationship- numericals. Principle and applications of conductometric titrations – strong acid *vs* strong base, week acid *vs* strong base and mixture of acids *vs* strong base.

Cells – electrolytic and electrochemical cells. IUPAC convention of cell notation, cell reaction, concept of electrode potential, electro motive force (EMF). Electrochemical series – applications, Nernst equation-derivation, applications and numericals. Types of electrodes- construction and working of calomel electrode (CE), quinhydrone electrode and glass electrode (GE). Determination of pH using glass electrode and quinhydrone electrode. Principle and Applications of potentiometry – acid base and redox reaction $(Fe(II)$ Vs $KMnO_4)$.

UNIT-II: BATTERY TECHNOLOGY : Introduction- definition of cell and battery – Types of cells (reversible and irreversible cells). Battery characteristics: free energy change, electromotive force of battery, power density, energy density – numericals.

Primary batteries: Construction and electrochemistry of $Zn-Ag_2O$ battery and lithium-V_2O_5 battery.

Secondary batteries: Construction and working of lead-acid storage cell and lithium ion battery – advantages, limitations and applications.

Fuel cells: Concept, types of fuel cells and merits. Construction, working and applications of methanol-oxygen fuel cell and phosphoric acid fuel cell.

UNIT-III: POLYMER CHEMISTRY: Introduction, degree of polymerization, functionality of monomers and its effect on the structure of polymers. Classification of polymers – a) homo and co-polymers; b) homo chain and hetero chain polymers; c) plastics, elastomers, fibers and resins.

Types of Polymerizations – Addition and condensation polymerization.

Glass transition temperature (Tg), factors affecting Tg.

Molecular weight – number average and weight average molecular weight, numericals.

Plastics: Thermo plastics and thermosets – preparation, properties and applications of a) Aramid (Kevlar); and b) Poly styrene(PS).

Elastomers: Natural rubber – structure – chemistry of vulcanization and advantages.

Artificial rubbers: Preparation, properties and uses of Buna-S and Buna-N.

Biodegradable polymers: Concept, preparation and uses of ploy lactic acid.

UNIT-IV-CHEMICAL FUELS: Fuels: Introduction, classification, requisites of a good fuel. Calorific value (CV)-HCV and LCV. Calculation of CV using Dulong's formula, numericals. Chemistry of combustion - numericals on weight- volume and weight-weight methods.

Solid Fuels: Coal: Proximate and ultimate analysis of coal and their significance.

Liquid Fuels: Composition and CV of gasoline, cracking: Fixed bed catalytic cracking method. Knocking and its significance, octane number, enhancement of quality of gasoline by reforming and anti- knock agents. Leaded and unleaded petrol, power alcohol. Catalytic converters and their role in reducing the toxicity of automobile exhaust emissions. Composition and CV of diesel oil, cetane number.

Bio-diesel: Source, chemistry of transesterification and advantages of bio diesel.

UNIT-V: WATER TECHNOLOGY AND PHASE RULE : Hardness of water – types. Calculation of degree of hardness of water-numericals. Determination of hardness of water by EDTA method numericals. Alkalinity of water and its determination-Numericals. Boiler troubles – scales and sludges formation and prevention – Calgon conditioning. Desalination of water by Reverse Osmosis. Specifications of potable water. Water treatment for drinking purpose sterilization by chlorination – concept of Break Point Chlorination.

Phase rule – Explanation of terms involved, one component system: Water system, condensed phase rule, two component systems: Lead-Silver (Pb-Ag) system, Eutectics and their applications in safety fuses and solders.

Learning Resources:
1. P. C. Jain, M Jain Engineering Chemistry, Dhanapathi Rai and sons (16th edition), New Delhi.
2. Sashi Chawla, Text book of Engineering Chemistry, Dhanapathi Rai &sons, New Delhi.
3. O. G. PALANNA, Engineering Chemistry, TMH Edition.
4. Wiley Engineering chemistry, Wiley India Pvt. Ltd., II edition.
5. Chemistry in engineering and technology by J. C. Kuriacose and Rajaram.
6. University chemistry, by B. H. Mahan
7. Engineering Chemistry (NPTEL Web-book), by B. L. Tembe, Kamaluddin and M. S. Krishnan
8. Physical Chemistry, by P. W. Atkins

9. S.S. Dara, S Chand and sons, Engineering Chemistry, New Delhi.
10. Puri, Sharma and Pathania Principles of physical chemistry, Vishal Publishing Co.
11. NPTEL Polymer Chemistry Course, D. Dhara, IIT Kharagpur.
12. Polymer chemistry by Gowariker.

The break-up of CIE: Internal Tests   + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests   :   90 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CIVIL ENGINEERING
BASIC ENGINEERING MECHANICS
(Common to Civil, CSE, ECE, EEE & Mechanical Engineering)

SYLLABUS FOR B.E. I SEMESTER

L : T : P(Hrs./week):3 : 0 : 0	SEE Marks:60	Course Code: U22ES010CE
Credits: 3	CIE Marks:40	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	At the end of the course, students will be able to:
1. Explain the resolution of a system of forces (coplanar, spatial, concurrent, non-concurrent) and compute their resultant. 2. Solve particle equilibrium problem using equation of equilibrium 3. Determine forces in the members of a truss 4. Perform analysis of bodies lying on rough surfaces. 5. Locate the centroid of a body and also compute the area moment of inertia of standard and composite sections.	1. Determine resultant of forces acting on a body. 2. Analyse equilibrium of a body subjected to a system of forces. 3. Perform analysis of trusses using method of joints and method of sections. 4. Solve problem of bodies subjected to friction. 5. Find the location of centroid and calculate moment of inertia and polar moment of inertia of a given section.

UNIT-I: Force Systems: Rectangular components, moment, couple and resultant of two dimensional and three dimensional force systems.

UNIT-II: Equilibrium of Force Systems: Free body diagram, Equations of equilibrium, Equilibrium of planar and spatial system.

UNIT-III: Determinate Trusses: Analysis of plane trusses like Warren girder, Pratt truss, Fink truss etc using method of joints and method of sections.

UNIT-IV: Friction: Laws of friction. Application to simple systems,

Connected systems and belt friction, Wedge friction.

UNIT-V: Centroid and Moment of Inertia: Centroids of lines, areas and volumes, Moment of inertia of areas, Composite areas, Polar moment of inertia, Radius of gyration.

Learning Resources:
1. Singer F.L "Engineering Mechanics", Harper & Collins, Singapore, 3rd Edition 2011.
2. Timoshenko S.P and Young D.H "Engineering Mechanics", McGraw Hill International Edition, 2017
3. Andrew Pytel., JaanKiusalaas., "Engineering Mechanics", Cengage Learning, 2014.
4. Beer F.P & Johnston E.R Jr. "VectorMechanics for Engineers", TMH, 2019.
5. Hibbeler R.C, "Engineering Mechanics", Pearson Education, 2017.
6. Tayal A.K., "Engineering Mechanics – Statics & Dynamics", Umesh Publications, 2011.
7. Basudeb Bhattacharyya., "Engineering Mechanics", Oxford University Press, 2014.
8. Meriam. J. L. and Kraige L.G., "Engineering Mechanics", Volume-I Statics, John Wiley & Sons, 2017.
9. NPTEL Course (www.nptel.ac.in)
10. Virtual labs (www.vlab.co.in)

The break-up of CIE: Internal Tests + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests   :   90 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CIVIL ENGINEERING
ENGINEERING DRAWING-I
(Common to Civil & Mechanical Engineering)

SYLLABUS FOR B.E. I-SEMESTER

L : T : P (Hrs./week):1:0 :2	SEE Marks:60	Course Code: U22ES120CE
Credits: 2	CIE Marks:40	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	At the end of the course, students will be able to:
1. Impart skills of drawing instruments and their use to convey exact and complete information of any object. 2. Explore various scales in Engineering practice 3. Construct engineering curves. 4. Prepare orthographic projections of points, lines, planes and solids	1. Identify the qualities of precision and accuracy. 2. Convey technical information effectively through sketches / drawings. 3. Construct engineering curves with different methods. 4. Develop the conics using different methods, hypocycloidal and involutes. 5. Draw the orthographic projection of points, lines, planes and solids.

UNIT-I: Introduction: Instruments and their uses, lettering, types of lines and dimensioning methods.
Scales: Reduced and Enlarged scales, Representative fraction, Scales: plain, diagonal only.
Regular Polygons: Polygons given the length of side only.

UNIT-II: Engineering curves: Ellipse, Parabola and Hyperbola (Eccentricity method only), Cycloid, Epicycloid, Hypocycloid and Involute.

UNIT-III: Projection of points and straight lines: Orthographic projection, Projection of points placed in different quadrants, Projection of straight lines inclined to one and two reference planes placed in first quadrant only, Traces.

UNIT-IV: Projections of planes: Projection of perpendicular planes, Oblique planes and Traces of planes.

UNIT-V: Projection of solids: Polyhedra, Solids of revolution, Projections of solids in simple position (prisms, pyramids, cylinders and cones), axis inclined to one plane, Axis inclined to both the reference planes, Projection of solids using auxiliary plane method.

Learning Resources:
1. Bhatt N.D. "Elementary Engineering Drawing", Charotar Publishers, 2014.
2. Thomas E French, Charles J Vierck, Robert J. Foster, "Engineering Drawing and Graphic Technology", McGraw Hill Education, 2012.
3. Gill P.S. "Engineering Drawing: Geometrical Drawing", SK Kataria & sons, 2012.
4. Venugopal.K "Engineering Drawing and Graphics Plus Autocad", New Age International (P) Ltd., New Delhi, 2010.
5. Siddiquee A.N "Engineering Drawing with a Primer on Autocad", Prentice hall of India Ltd., New Delhi, 2004.
6. Basanth Agrawal, Agrawal C.M "Engineering Graphics" First Edition, Tata McGraw Hill, 2012
7. BVR Gupta, M Raja Roy, "Engineering Drawing with AutoCad", IK Int Pvt Ltd, 2009
8. NPTEL Course (www.nptel.ac.in)
9. Virtual labs (www.vlab.co.in)

The break-up of CIE: Internal Tests + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Tests	:	30
2	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests   :   90 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
BASIC ELECTRICAL ENGINEERING FOR CIVIL ENGINEERS

SYLLABUS FOR B.E. I SEMESTER

L: T: P (Hrs/Week):2:0:0	SEE Marks: 60	Course Code:U22ES110EE
Credits:2	CIE Marks: 40	Duration of SEE: 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to:	On completion of the course, students will be able to
1. To provide an understanding of basics in Electrical circuits 2. To explain the working principles of Electrical Machines.	1. Aanalyze Electrical circuits to compute and measure the parameters of Electrical Energy. 2. Comprehend the working principles of Electrical DC Machines. 3. Comprehend the working principle of electrical AC machines.

Unit-I:D.C. Circuits : Electrical circuit elements (R, L and C), independent voltage and current sources, Kirchhoff current and voltage laws, Mesh Analysis, Nodal analysis.

Unit II: A.C. Circuits: Representation of sinusoidal waveform - peak and rms values, form factor, phasor representation, real power, reactive power, apparent power, power factor, Energy, Analysis of single-phase ac series combinations of R-L-C circuits, Three-phase balanced circuits, voltage and current relations in star and delta connections.

Unit-III:DC Machines: Construction, Working principle of DC Generator and DC motor, EMF equation, Types of DC Generators & motors, Torque in a DC motor, Torque – speed characteristic of DC Shunt motor, Speed control of DC shunt motor.

Unit IV:AC Machines & Applications: Generation of rotating magnetic fields, Construction and working of a three-phase induction motor, torque-slip characteristics. Principle And Application of Motors in Lifts, Elevators, Conveyor belts and escalators

Learning Resources

1. D. P. Kothari and I. J. Nagrath, "Basic Electrical Engineering", Tata McGraw Hill, 2010.
2. D. C. Kulshreshtha, "Basic Electrical Engineering", McGraw Hill, 2009.
3. L. S. Bobrow, "Fundamentals of Electrical Engineering", Oxford University Press, 2011.
4. E. Hughes, "Electrical and Electronics Technology", Pearson, 2010.
5. V.K Mehta, Rohit Mehta, "Principles of Electrical Engineering and Electronics", S Chand & Company Ltd, 2006.
6. J.B. Guptha, A course in electrical installation estimating and costing, reprint 2013, published by S.K. Kataria&Sons.
7. V. D. Toro, "Electrical Engineering Fundamentals", Prentice Hall India, 1989.

The break-up of CIE: Internal Tests   + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests   :   90 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CIVIL ENGINEERING
ENVIRONMENTAL SCIENCE
(Common to Civil, EEE, ECE &Mech.)

SYLLABUS FOR B.E. I-SEMESTER

L: T: P (Hrs/Week):2:0:0	SEE Marks:60	Course Code:U22MC010CE
Credits : - - -	CIE Marks:40	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
In this subject the students will	*Upon the completion of this course students will be able to*
1. Describe various types of natural resources available on the earth surface. 2. Explain the concepts of an ecosystem and the biotic and abiotic components of various aquatic ecosystems. 3. Identify the values, threats of biodiversity, endangered and endemic species of India along with the conservation of biodiversity. 4. Explain the causes, effects and control measures of various types of environmental pollutions. 5. Describe the methods for water conservation, the causes, effects of global warming, climate change, acid rain, ozone layer depletion, population explosion.	1. Describe the various types of natural resources. 2. Differentiate between various biotic and abiotic components of ecosystem. 3. Examine the values, threats of biodiversity, the methods of conservation, endangered and endemic species of India. 4. Illustrate causes, effects, control measures of various types of environmental pollutions. 5. Explain the methods of water conservation, causes, effects of climate change, global warming, acid rain and ozone layer depletion, population explosion.

UNIT-I: Environmental Studies: Definition, importance of environmental studies. Natural resources: Water resources; floods, drought, conflicts over water, dams-benefits and problems. Food resources; Effects of modern agriculture, fertilizer-pesticide problems, water logging salinity. Energy resources: Renewable and non-renewable energy resources. Land Resources, soil erosion and desertification.

UNIT-II: Ecosystems: Structure and function of an ecosystem, producers, consumers and decomposers, food chains, food webs, ecological pyramids, classification of ecosystems, aquatic ecosystem (ponds) ,Terrestrial ecosystem(Forest)

UNIT-III: Biodiversity: Genetic, species and ecosystem diversity. Values of biodiversity, threats to biodiversity, endangered and endemic species of India, conservation of biodiversity. Biological diversity Act 2002

UNIT-IV: Environmental Pollution: Causes, effects and control measures of air pollution, air pollution control devices(catalytic convertor) water pollution, water pollution monitoring devices, soil pollution, noise pollution,solid waste & e-waste management.

UNIT-V: Social Aspects and the Environment: Water conservation, Climate change, global warming, acid rain, ozone layer depletion. Environmental Impact Assesment, population explosion. Consumerism, Sustainable development goals (SDG-17),Environmental protection act 1986.

Learning Resources:

1. Deswal S. and Deswal A., A Basic Course on Environmental studies, Dhanpat Rai & Co Pvt. Ltd. 2013.
2. Benny Joseph, Environmental Studies, Tata McGraw-Hill, 2006.
3. Suresh K. Dhameja, Environmental Studies, S.K. Kataria & Sons, 2010.
4. De A.K., Environmental Chemistry, New Age International, 2003.
5. Odum E.P., Fundamentals of Ecology, W.B. Sunders Co., USA, 2004.
6. Sharma V.K., Disaster Management, National Centre for Disaster Management, IIPE, Delhi, 2013.
7. Rajagopalan R., Environmental Studies, Second Edition, Oxford University Press, 2013.

The break-up of CIE: Internal Tests + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Tests	:	30
2	No. of Assignments	:	2	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	2	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests : 90 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CIVIL ENGINEERING
BASIC ENGINEERING DRAWING
(Common to CSE & IT)

SYLLABUS FOR B.E. I-SEMESTER

L : T : P (Hrs./week):1:0:2	SEE Marks:60	Course Code: U22ES030CE
Credits: 2	CIE Marks:40	Duration of SEE : 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	At the end of the course, students will be able to:
1. Impart skills in using drawing instruments to convey exact and complete information of the object. 2. Construct conic sections and regular polygons. 3. Construct the orthographic projections of points, lines, planes and solids. 4. Draw sections and development of regular solids. 5. Visualize and construct isometric projections from orthographic projections of regular solids.	1. Understand the fundamentals of drawing. 2. Draw the orthographic projections of points and straight lines. 3. Draw the orthographic projections of planes inclined to both reference planes. 4. Draw the orthographic projections of solids inclined to both reference planes. 5. Draw the isometric projections of lines, planes and solids.

UNIT-I: Introduction to Engineering Drawing: Necessity of Engineering Drawing for engineers, Use of Drawing Instruments, Types of Lines, Lettering practice, Dimensioning and its methods, Conic sections by eccentricity method, Regular polygons given the length of side.

UNIT-II: Orthographic Projections: Principles of orthographic projections, conventions, projections of points placed in different quadrants.
Projections of straight lines inclined to one and two reference planes placed in first quadrant only. Traces (By conventional methods only).

UNIT-III: Projections of Planes: Projections of perpendicular planes, oblique planes and their traces.

UNIT-IV:Projections of Regular Solids: Projections of prism, cylinder, pyramid and cone in simple positions and axis inclined to one and two reference planes. Concept of development of solids.

UNIT-V: Isometric Projections: Principles of isometric projections – Isometric scale, Isometric axes, Isometric planes, Isometric view. Isometric views of lines, planes, regular solids, and combination of two solids.

Learning Resource:
1. Bhatt N.D. "Elementary Engineering Drawing",Charotar Publishers,2014.
2. Thomas E French, Charles J Vierck, Robert J. Foster,"Engineering Drawing and Graphic Technology",Mc Graw Hill Education, 1993.
3. Gill P.S."Engineering Drawing: Geometrical Drawing",S K Kataria & sons, 2012.
4. Venu gopal. K" Engineering Drawing and Graphics Plus Autocad",New Age International (P) Ltd., New Delhi,2011.
5. Siddiquee A.N" Engineering Drawing with a Primer on Autocad", Prentice hall of India Ltd., New Delhi,2004.
6. Basanth Agrawal, Agrawal C.M " Engineering Drawing" Second Edition, Tata McGraw Hill,2013
7. BVR Gupta, MRajaRoy, "Engineering Drawing with AutoCad", IKInt Pvt Ltd, 2009.
8. NPTEL Course (www.nptel.ac.in)
9. Virtual labs (www.vlab.co.in)

The break-up of CIE: Internal Tests + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests   :   90 Minutes

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD-31

DEPARTMENT OF CHEMISTRY
APPLIED CHEMISTRY LAB

SYLLABUS FOR B.E. I-SEMESTER

L : T : P(Hrs./week):2 : 0 : 0	SEE Marks:50	Course Code: U22BS011CH
Credits: 1	CIE Marks:30	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	Attheendofthecourse,studentswillbeableto:
1. Describe the quantitative analytical techniques 2. Learn the skills to handle the instruments 3. Apply the theoretical principles in experiments 4. Examine the accuracy	1. Estimate the amount of metals in the given solutions. 2. Analyze the hardness, alkalinity and chloride content of a given water sample. 3. Determine the amount of a substance in a given solution by conductometry, potentiometry and pH metry 4. Use the principle of colorimetry in the estimation of Permanganate / Copper (II) in a given solution.

1. Preparation of standard FAS or oxalic acid solution and standardization of $KMnO_4$ or NaOH solution.

2. Estimation of ferrous iron in the given solution by permanganometry.

3. Estimation of chromium (VI) in the given solution by standardized FAS.

4. Estimation of copper (II) in given solution by hypo.

5. Estimation of available chlorine in bleaching powder.

6. Estimation of total hardness of given water sample.

7. Estimation of alkalinity of a given sample.

8. Conductometric acid-base titrations -Determination of strength of given acids (HCl *Vs* NaOH and CH_3COOH *Vs* NaOH).

9. Conductometric acid-base titrations- Determination of strength of acids in a given mixture of acids (HCl and CH_3COOH *Vs* NaOH)

10. Determination of strength of a given acid by Potentiometry.

11. Determination of concentration of a given $FeSO_4$ using redox titration by Potentiometry.

12. Determination of strength of a given acid by pH metry.

13. Determination of strength of permanganate or copper in brass solution by Colorimetry.

14. Synthesis of Phenol formaldehyde resin / PANI.

15. Chemistry of blue printing.

Learning Resource:
1. G H Jeffery, J Bassett, J Mendham, R C Denney, Vogel's text book of quantitative chemical analysis, Fifth Edition.
2. M S Kaurav, Engineering chemistry with laboratory experiments, PHI learning (P) ltd, New Delhi.
3. Sunita rattan, Experiments in applied chemistry, S K Kataria & Sons (2010)
4. A text book on experiments and calculation Engg. S.S. Dara.

No. of Internal Tests: 01   Max. Marks for Internal Test: 12

Marks for day-to-day laboratory class work   18
Duration of Internal Test: 3 Hours

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF MECHANICAL ENGINEERING
ENGINEERING WORKSHOP-I
(Common to Mechanical, Civil & EEE branches)

SYLLABUS FOR B.E.I-SEMESTER

L:T:P(Hrs/week):0:0:2	SEE Marks:50	Course Code:U22ES111ME
Credits :01	CIE Marks:30	Duration of SEE:03Hours

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	At the end of the course, students will be able to:
1 know basic workshop processes, adopt safety practices while working with various tools	1 create models in Carpentry, Plumbing, Electrical & Electronics and Sheet metal trades by using the relevant tools.
2 Identify, select and use various marking, measuring, holding, striking and cutting tools &equipment.	2 measure and inspect the finished components using suitable measuring instruments. apply basic electrical and electronics engineering knowledge to make simple electrical circuits and check their functionality along with practice in soldering of electronic components.

List of the Experiments:
PLUMBING:
1. Introduction of tools, joints, couplings and valves etc.
2. Pipe thread cutting and making single joint with coupling and tap connection.
3. Water shower connection with reducer coupling
ELECTRICAL & ELECTRONICS:
1. Two lamps in (a) series (b) parallel with 3 pin plug and switches
2. Staircase wiring and Tube light wiring
3. (a) Identification of electronic components
   (b) Soldering practice

CARPENTRY:
1. Half-lap joint
2. Dove-tail joint
3. Bridle joint

SHEET METAL:
1. Rectangular box
2. Rectangular scoop with handle
3. Making a funnel with soldering

Additional Experiments
1. Plumbing: Geyser connection(demo)
2. Electrical & Electronics: LT Distribution with loads (Demo)
3. Carpentry: Wood turning operation (demo)
4. Sheet Metal: Making a T-Joint (Demo).

Learning Resources:
1. Hajra Choudhury S.K., Hajra Choudhury A.K., Nirjar Roy S.K. "Elements of Workshop Technology" Vol-I 2008 & Vol-II 2010 Media Promoters & Publishers Pvt. Limited, Mumbai.
2. Kalpakjian S. and Steven R. Schmid, "Manufacturing Engineering and Technology" 4th Edition, Pearson Education India, 2002.
3. Gowri P., Hariharan and Suresh Babu A., "Manufacturing Technology-I", Pearson Education 2008.
4. P. Kannaiah & K. L. Narayana "Workshop manual" 2nd Ed., Scitech publications (I) Pvt. Ltd., Hyderabad.
5. B.L. Juneja, "Workshop Practice", Cengage Learning India Pvt. Limited, 2014.
6. www.technologystudent.com

No. of Internal Tests: 01   Max. Marks for Internal Test: 12

Marks for day-to-day laboratory class work   18
Duration of Internal Test: 2 Hours

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
BASIC ELECTRICAL ENGINEERING FOR CIVIL ENGINEERS LAB

SYLLABUS FOR B.E. I SEMESTER

L:T:P(Hrs./week):0:0:2	SEE Marks:50	Course Code: U22ES111EE
Credits :01	CIE Marks:30	Duration of SEE: 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	At the end of the course, students will be able to:
1. To provide the practical knowledge on operation of DC, AC machines and circuits.	1. Handle the basic electrical equipments. 2. Find the various electrical parameters in DC and Ac circuits. 3. Find the Efficiency of the DC and AC machines.

List of Experiments:

1   Basic safety precautions. Introduction and use of measuring instruments – voltmeter, ammeter, multi-meter, oscilloscope. Practical resistors, capacitors and inductors
2   Verification of mesh and nodal analysis, Sinusoidal steady state
3   response of R-L, and R-C circuits – Measurement of phase angle

4   Measurement of cumulative three-phase power in balanced three-phase circuits.
5   Improvement of power factor in RLC circuits.
6   Demonstration of cut-out sections of machines: dc machine (commutator-brush arrangement), induction machine (squirrel cage rotor).
7   Torque Speed Characteristic of dc shunt motor
8   Speed control of dc shunt motor
9   Torque-Slip Characteristic of a three-phase induction motor
10 Measurement of electrical energy

No. of Internal Tests: 01   Max. Marks for Internal Test: 12

Marks for assessment of each experiment   18
Duration of Internal Test: 3 Hours

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
DEPARTMENT OF CIVIL ENGINEERING

SCHEME OF INSTRUCTION AND EXAMINATION (R-22)
BE (CIVIL ENGINEERING) II-SEMESTER ACADEMIC YEAR 2022 - 2023
(Students Admitted in 2022-23)

Course Code	Name of the Course	L	T	P/D	Duration in Hrs	SEE	CIE	Credits
THEORY								
U22HS010EH	English Language and Communication	2	-	-	3	60	40	2
U22BS210MA	Differential Equations & Complex Analysis	3	-	-	3	60	40	3
U22BS220PH	Optics, Acoustics and Sensors	3	-	-	3	60	40	3
U22BS210CE	Geology	2	-	-	3	60	40	2
U22ES220CE	Engineering Drawing – II	1	-	2	3	60	40	2
U22ES210CE	Engineering Mechanics	3	-	-	3	60	40	3
U22MC010ME	Introduction to Entrepreneurship	1	-	-	2	40	30	-
PRACTICALS								
U22HS211EH	English Language and Communication Skills Lab	-	-	2	3	50	30	1
U22BS221PH	Applied Physics Lab	-	-	2	3	50	30	1
U22ES211ME	Engineering Workshop-II	-	-	2	3	50	30	1
Student should complete one online certificate course equivalent to 2 credits during I-VI Semester								
Total		15	-	8		550	360	18
Grand Total			23			910		
Note: The left over hours are to be allotted to Sports / Library / Mentor Interaction /CC / RC / TC / PDC based on the requirement.								

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
DEPARTMENT OF CIVIL ENGINEERING

SCHEME OF INSTRUCTION AND EXAMINATION (R-22)
BE (CIVIL ENGINEERING) II-SEMESTER ACADEMIC YEAR 2022 - 2023
(Students Admitted in 2022-23)

INTERDISCIPLINARY COURSES OFFERED BY CIVIL ENGINEERING

Course Code	Name of the Course	Scheme of Instruction			Scheme of Examination			
		Hours per Week			Duration in Hrs	Maximum Marks		Credits
		L	T	P/D		SEE	CIE	
Theory (Common to EEE & ECE)								
U22ES030CE	Basic Engineering Drawing	1	-	2	3	60	40	2
Theory (Common to CSE & IT)								
U22MC010CE	Environmental Science	2	-	-	3	60	40	-
Theory (Mech.)								
U22ES210CE	Engineering Mechanics	3	-	-	3	60	40	3
U22ES220CE	Engineering Drawing – II	1	-	2	3	60	40	2
Theory (IT)								
U22ES010CE	Basic Engineering Mechanics	3	-	-	3	60	40	3

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), IBRAHIMBAGH, HYDERABAD-500031

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES
ENGLISH LANGUAGE AND COMMUNICATION

SYLLABUS FOR B.E. II-SEMESTER

L:T:P(Hrs./week):0:0:2	SEE Marks:60	Course Code: U22HS010EH
Credits :02	CIE Marks:40	Duration of SEE: 3 Hours

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to :	*At the end of the course students should be able to:*
1. Build greater confidence and proficiency in oral and written communication. 2. Equip themselves with essential language skills to analyze and articulate their point of views. 3. Use English to communicate in various social settings. 4. Develop the ability to engage in reading for reflection and enquiry. 5. Construct grammatically and semantically correct sentences.	1. Communicate effectively, appropriately and ethically in both professional & personal spheres. 2. Listen for gist and make inferences from various speeches and converse intelligibly in various contexts. 3. Construct grammatically correct sentences using adequate vocabulary to compose written and spoken discourses. 4. Read, evaluate and appreciate various text types.

UNIT-1 : Effective communication and Interpersonal skills
1.1 Roleand Importance of Communication – functions, process, types, styles, channels and barriers of communication.
1.2 Johari window.
1.3 Knapp's Model of Interpersonal Communication
1.4 Persuasion techniques.

UNIT-2 : Listening and Speaking skills
2.1 Importance of listening-- Types of listening—Strategies to improve listening.
2.2 Speaking skills: Speaking stratagies.

UNIT-3: Reading and Writing skills

3.1 Reading strategies**--**Analyzing graphics & Visual aids, SQ3R – Survey, Question, Read, Recite, Review.

3.2   Features of Writing---Principles of writing paragraphs-Coherence, Cohesion & Unity; Use of appropriate linkers/connectives.

3.3 Request letters

UNIT-4: Vocabulary Building and Grammar

4.1 **Vocabulary Building**: Synonyms, Antonyms, One-word substitutes; Collocations; Idioms.

4.2 **Functional Grammar**: Articles, Prepositions; Tense and Aspect; Subject- Verb agreement; Direct and Indirect Speech.

UNIT-5: Reading for appreciation of literary texts

5.1 **Prose text**- Our Own Civilization—CEM Joad.

5.2 **Poem** – what like should be Patrical A Fleming

Prescribed textbook for theory:

Technical communication - Principles and Practice (2nd Edition 2014) - Meenakshi Raman and Sangeeta Sharma- Oxford University Press.

Learning Resources:

1. E.Suresh Kumar, P. Sreehari and J. Savithri - Essential English
2. Reading comprehension - Nuttal.J.C - Orient Blackswan
3. Sunitha Mishra,C. Murali Krishna, Communication Skills for Engineers, Pearson, 2004.
4. M. Ashraf Rizvi. Effective Technical Communication. Tata Mcgraw Hill, 2005.
5. Allen and Waters., How English Works.
6. Willis Jane., English through English.
7. Brown, Penelope and Stephen C.Levinson. 1978. Universals in language usage: politeness phenomena: Cambridge University Press.

The break-up of CIE: Internal Tests   + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests   :   90 Minutes

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERBAD-500031

DEPARTMENT OF MATHEMATICS
DIFFERENTIAL EQUATIONS & COMPLEX ANALYSIS
(Common to Civil, EEE, ECE, Mech.)
SYLLABUS FOR B.E. II-SEMESTER

Instruction : 3+1	SEEMarks : 60	Course Code: U22BS210MA
Credit : 3	CIE Marks: 40	Duration of SEE : 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to :	*At the end of the course students should be able to:*
1. Solve first order differential equations using elementary techniques and learn its applications.	1. Identify the suitable I.F and solve differential equations, model the real time electrical engineering problems viz., RC & LR Circuits into differential equations and solve.
2. Use the various higher order homogeneous and non-homogeneous linear differential equations with constant coefficients to solve it and apply on electrical circuits	2. Apply various higher order Linear Differential equations, to solve LC and LCR circuits.
3. Understand the Analytic functions, conditions and harmonic functions.	3. Apply the condition(s) for a complex variable function to be analytic and/or harmonic and to construct an Analytic function.
4. Evaluate a line integral of a function of a complex variable using Cauchy's integral formula, and how to evaluate Taylor's and Laurent Series.	4. Evaluate complex integrals by Cauchy's theorem and Cauchy's Integral formula and define singularities of a function and to expand a given function as a Taylor's / Laurent's series.
5. Study the concepts of matrices, Eigen values and Eigen vectors, Diagonalization.	5. Find the rank of a given matrix, diagonalizable a given matrix

UNIT – I: ORDINARY DIFFERENTIAL EQUATIONS OF FIRST ORDER: Exact first order differential equations - Integrating factors- Clairaut's equation -Applications of First Order Differential Equations - Orthogonal trajectories (Cartesian families) – LR and RC Circuits.

UNIT – II: HIGHER ORDER LINEAR DIFFERENTIAL EQUATIONS:
Solutions of Homogeneous and Non Homogeneous linear equations with
constant coefficients-   Method of Variation of Parameters –Applications of
linear differential equations to LCR circuits

UNIT –III: COMPLEX VARIABLES (DIFFERENTIATION): Limits and
Continuity of function - Differentiability and Analyticity - Necessary &
Sufficient Condition for a Function to be Analytic - Milne-Thompson's
method -Harmonic Functions.

UNIT – IV: COMPLEX INTEGRATION: Complex Integration- Cauchy's
Theorem - Extension of Cauchy's Theorem for multiply connected regions-
Cauchy's Integral Formula - Power series - Taylor's Series - Laurent's Series
(without proofs) –Poles and Residues.

UNIT – V: MATRICES: Rank of a Matrix- Linearly independence and
dependence of Vectors - Characteristic equation- -Eigen values and
Eigenvectors - Cayley - Hamilton Theorem (without proof)-
Diagonalization using Similarity Transformation.

Learning Resources
1. Advanced Engineering Mathematics 3rd Edition, R.K.Jain &
   S.R.K.Iyengar, Narosa
2. Publishing House.
3. Higher Engineering Mathematics 40thEdition Dr. B.S Grewal, Khanna
   Publishers.
4. A Text book of Engineering Mathematics, N.P.Bali & Manish Goyal,
   Laxmi Publications.
5. Advanced Engineering Mathematics, by Wylie & Barrett, Tata Mc Graw
   Hill, New Delhi.
6. Advanced Engineering Mathematics, 8th Edition by Erwin Kreyszig , John
   Wiley & Sons, Inc.
7. Complex Variables and applications, J.W.Brown and R.V.Churchill, 7th
   Edition, Tata Mc Graw Hill,2004.
8. http://mathworld.wolfram.com/topics
9. http://www.nptel.ac.in/course.php

The break-up of CIE: Internal Tests   + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests   :   90 Minutes

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD-31

DEPARTMENT OF PHYSICS
OPTICS, ACOUSTICS AND SENSORS

SYLLABUS FOR B.E.II-SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code: U22BS220PH
Credits :3	CIE Marks: 40	Duration of SEE:03Hours

COURSE OBJECTIVES *The objective of the course is to*	COURSE OUTCOMES *On completion of the course, students will be able to*
1. Explain mathematical formulations of waves and oscillations.	1. Interpret behavior of mechanical oscillators with and without damping effects
2. State principles of interference, diffraction and polarization of light.	2. Outline the principles of wave optics and their applications
3. Comprehend lasing action and state application of lasers	3. Compare different types of lasers and summarize merits and demerits of optical fiber communication
4. Describe characteristics of acoustics quieting effects required for a hall.	4. Explain production of ultrasonics and summarize good building acoustics
5. Interpret the advantages of using sensors in civil engineering.	5. List various sensors used for structural health monitoring

UNIT-I: OSCILLATIONS: Definition of SHM, equation of motion and solution to simple harmonic oscillator, energy of simple harmonic oscillator, equation of motion and solution to damped harmonic oscillator, logarithmic decrement, energy of damped oscillator, relaxation time, equation of motion and solution to forced harmonic oscillator, Resonance, Q-factor, electromechanical analogy. Real life applications of mass-spring systems and mechanical oscillators.

UNIT-II: WAVE OPTICS: Interference: conditions for sustained interference, interference due to thin parallel film, Newton's rings, applications of interference.

Diffraction: Phenomenon of diffraction of light, classes of diffractions, Fraunhofer diffraction due to a single slit, diffraction due to N- slits (plane transmission grating), resolving power, application of diffraction.

Polarization: Polarization of light, types of polarized light, double refraction, construction and working of Nicol's Prism, Polarizer and analyzer, Quarter wave and Half wave plates.

Relevant applications of wave optics in the field of civil engineering such as stress management.

UNIT-III: LASERS AND OPTICAL FIBRES: Lasers: induced absorption, spontaneous and stimulated emissions, Properties of laser light, population inversion, meta-stable states, pumping mechanisms, components of laser, construction and working of Ruby laser, He-Ne laser, advantages and applications oflasers including highway engineering.

Optical Fibers: introduction to optical fibers, propagation of light in optical fiber, numerical aperture, acceptance angle, types of optical fibers, V- Number, signal losses in optical fibers: Attenuation-absorption, Scattering, bending, alignment losses, Signal distortion: intermodal and intra model losses. Block diagram of optical communication system, advantages and application of optical fibers.

UNIT-IV: ACOUSTICS : Architectural Acoustics: classification of sound: musical sound and noise, Characteristics of musical sound-pitch, loudness, timbre, sound intensity, sound pressure levels, phon, Sone, reverberation time, Sabine's formula, sound absorbent materials, absorption coefficient, conditions for acoustic quieting: effects and remedies. sound proofing applications used in civil and building Engineering.

Ultrasonics:propertiesofultrasonics,typesofultrasonicwaves,productionoful trasonics by piezoelectric and magnetostriction methods, detection of ultrasonics by piezoelectric, Kundt's tube, flame test, thermal detector, applications of Ultrasonics: SONAR, cavitation, welding, sonogram. Ultrasonic non-destructive testing applications in civil engineering.

UNIT-V: SENSORS FOR STRUCTURAL HEALTH MONITORING:
Introduction to Structural Health Monitoring (SHM), Types of sensors in Structural Health Monitoring: Load Cells, Strain Gauges,Optical Fiber

Sensors, Accelerometer,Vibrating Wire Traducers,Linear Variable Differential Transformer (LVDT),Inclinometer (Slope Indicator), Tiltmeter, Temperature Sensors.

Learning Resources:

1. J Walker, D., Halliday and R Resnick, Principles of Physics, 10th edition, Wiley, 2016.
2. Jewett and Serway, Physics for Scientists and Engineering, 7th edition, 2012.
3. M.N. Avadhanulu and P.G. Kshirsagar and TVS Arun Murthy A Textbook Engineering Physics, 11th Edition, S. Chand,2018.
4. Senior, Optical Fiber Communications: Principles and Practice, 3rd Edition, Pearson,2010
5. John G. Webster and HalitEren, Measurement, instrumentation, and Sensors handbook: Spatial, Mechanical, Thermal,and Radiation Measurement, CRC press, 2014.

The break-up of CIE: Internal Tests   + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
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3	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests   :   90 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CIVIL ENGINEERING
GEOLOGY

SYLLABUS FOR B.E. II-SEMESTER

L:T:P(Hrs./week):2:0:0	SEEMarks:60	Course Code: U22BS210CE
Credits:2	CIEMarks:40	DurationofSEE:3Hrs

COURSEOBJECTIVES	COURSEOUTCOMES
In this subject the students will:	Upon the completion of this course students will be able to:
1. Describe the various properties of minerals, distinguishing features of rocks. 2. Describe the geological structures, processes of weathering and classification of soils. 3. Explain the process of ground water exploration. 4. Illustrate the knowledge of geological studies for dams and reservoirs. 5. Illustrate the knowledge of geological studies for tunnels, list the causes and effects of earth quakes, and landslides with their mitigation measures.	1. Identify the different minerals and distinguishing features exhibited by the rocks 2. Identify the geological structures like folds, faults, joints and unconformities present in rocks and describe the processes of weathering, classify and distribution of soils. 3. Assess the occurrence of ground water in various lithological formations and location of bore wells. 4. Evaluate the suitability of site for the dam construction. 5. Evaluate the suitability of site for the tunnel construction, recognize the causes and effects of earth quakes, and landslides and suggest mitigation measures.

UNIT-I:**Mineralogy:** Definition of mineral and crystal, physical properties used in the identification of minerals, physical properties of quartz, feldspars, hornblende, biotite, muscovite, talc, olivine, calcite, kyanite and garnet.

Rocks: Textures and structures of igneous, sedimentary and metamorphic rocks. Geological description and Indian occurrence of granite, basalt, dolerite, gabbro, laterites and stone, shale, limestone, slate, gneiss, quartzite, marble.

UNIT-II: Geological Structures: Classification, mode of origin and engineering importance of folds, faults, joints and unconformities.

Rock Weathering: Processes and end-products of weathering.

Geology of Soils: Formation of soils, soil profile, nature of parent materials, relative stability of minerals, geological classification of soils, types of Indian soils.

UNIT-III: Hydrogeology: Hydrological cycle, water table, aquifers, occurrence of ground water in various lithological formations. Ground water movement, springs. Ground water exploration.

UNIT-IV: Geology for Dams and Reservoirs: Types of dams. Dam foundations and reservoirs. Engineering and geological investigations for a masonry dam site; analysis of dam failures in the past.Engineering geology of major dam sites of India, Reservoir induced seismicity.

UNIT-V: Tunnels: Engineering geological investigations of tunnels in rock; Stand-up time of different rocks. Problems of tunnelling, pay line and over break, logging of tunnels, and geology of some well known tunnels.

Geological Hazards: Geological aspects of earthquakes and land slides.

Learning Resources:
1. Parbin Singh, Engineering and General Geology, S.K.Kataria & Sons, 2019
2. Chennakesavulu N.,Text Book of Engineering Geology, Macmill an IndiaLtd.,2018
3. Gokhale K.V.G.K., Engineering Geology, B.S. Publishers, 2013.

4. BellF.G., Fundamentals of Engineering Geology, Aditya Books Pvt. Ltd., 2007.
5. Krynine D.P. and Judd W.R.,Principles of Engineering Geology and Geotechnics, CBS Publishers & Distributors, Indian Edition, 2005.
6. Subinoy Gangopadhyay, Engineering Geology, Oxford University Press, 2013.
7. MIT Open Course Ware: Introduction to Geology, https://ocw.mit.edu/courses/12-001-introduction-to-geology-fall-2013/

The break-up of CIE: Internal Tests   + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests   :   90 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CIVIL ENGINEERING
ENGINEERINGDRAWING-II
(Common to Civil & Mechanical Engineering)

SYLLABUS FOR B.E. II SEMESTER

L:T:P (Hrs./week): 1:0:2	SEE Marks: 60	Course Code: U22ES220CE
Credits: 2	CIE Marks: 40	Duration of SEE: 3Hrs

Course Objectives	Course Outcomes
Objectives of this course are to:	At the end of the course, students will be able to:
1. Explain the principles involved in Section of simple solids 2. Develop surfaces of simple solids 3. Explain intersection of cylinder with cylinder and cylinder with cone 4. Differentiate between isometric view and isometric projection 5. Draw orthographic views from pictorial views	1. Draw sectional views of simple solids 2. Develop the lateral surfaces of simple solids 3. Prepare orthographic views of intersection of solids. 4. Visualize isometric view of simple planes, solids and combined solids 5. Construct orthographic views of simple objects from their pictorial views

UNIT-I: Sections of Solids: True shape of sections, sections of prisms, pyramids, cylinders and cones (axis perpendicular to HP and VP only).

UNIT-II: Development of Surfaces: Basic concepts of development of surfaces, Methods of development – Parallel line development and radial line development, Development of prisms, pyramids, Cylinders and cones.

UNIT-III: Intersection of Surfaces: Intersection of cylinder and cylinder, cylinder and cone.

UNIT–IV: Isometric Projections: Isometric scale, Isometric projections of prisms, pyramids, cylinders, cones, spheres, and combinations of two or three solids.

UNIT-V: Conversion of Isometric Views to Ortho-graphic views:
Drawing orthographic views from Isometric views for simple objects.

Learning Resources:
1. Bhatt N.D. "Elementary Engineering Drawing",CharotarPublishers,2014.
2. Thomas E French, Charles J Vierck, Robert J. Foster, "Engineering Drawing and Graphic Technology",Mc Graw Hill Education, 2012.
3. Gill P.S."Engineering Drawing: Geometrical Drawing", S K Kataria & sons, 2012.
4. Venugopal.K "Engineering Drawing and Graphics Plus Autocad", New Age International (P)Ltd., New Delhi,2010.
5. Siddiquee A.N" Engineering Drawing with a Primer on Autocad", Prentice hall of India Ltd., New Delhi,2004.
6. Basanth Agrawal, Agrawal C.M"Engineering Graphics "First Edition,Tata Mc Graw Hill,2012
7. BVR Gupta, M Raja Roy, "Engineering Drawing with AutoCAD", IKIntPvt Ltd, 2009.
8. NPTEL Course (www.nptel.ac.in)
9. Virtual labs (www.vlab.co.in)

The break-up of CIE: Internal Tests   + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests   :   90 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CIVIL ENGINEERING
ENGINEERING MECHANICS
(Common to Civil & Mechanical Engineering)

SYLLABUS FOR B.E. II-SEMESTER

L:T:P (Hrs./week): 3:0:0	SEE Marks: 60	Course Code: U22ES210CE
Credits: 3	CIE Marks: 40	Duration of SEE: 3Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	At the end of the course, students will be able to:
1. Determine the mass moment of inertia and product of inertia of standard and composite sections. 2. Understand the concepts of dynamics and its principles. 3. Explain kinetics and kinematics of particles, projectiles, curvilinear motion, centroidal motion and plane motion of rigid bodies. 4. Impart the concepts of work-energy method and its applications to translation, rotation and plane motion. 5. Impart the concept of impulse momentum relation	1. Compute mass moment of inertia and product of inertia of standard and composite section. 2. Distinguish between statics and dynamics and differentiate between kinematics and kinetics. 3. Understand the kinetics and kinematics of a body undergoing rectilinear, curvilinear, rotatory motion and rigid body motion. 4. Solve problems using work energy equations for translation, fixed axis rotation and plane motion. 5. Solve problems using impulse momentum equation

UNIT-I: Product of Inertia & Mass moment of Inertia: Product of inertia, Mass moment of inertia for solid and composite bodies, Radius of gyration.

UNIT–II: Kinematics: Rectilinear motion, Curvilinear motion, Projectile motion, Velocity and acceleration, Types of rigid body motion, and its analysis in a plane.

UNIT-III: Kinetics: Analysis as a particle, Analysis as a rigid body in translation, Fixed axis rotation. Rolling bodies, Plane motion.

UNIT –IV: Work Energy: Principles of work-energy and its application to translation, Fixed axis rotation and plane motion.

UNIT-V: Impulse and momentum: Introduction, linear impulse-momentum, principle of conservation of linear momentum, loss of kinetic energy.

Learning Resources:
1. Singer F.L "Engineering Mechanics", Harper & Collins, Singapore, 3rd Edition 2011.
2. Timoshenko S.P and Young D.H., J V Rao, Sukumar Patil, "Engineering Mechanics (SI Units)", McGraw Hill, 5th edition.2013.
3. Andrew Pytel, JaanKiusalaas, "Engineering Mechanics", Cengage Learning, 4th edition, 2016.
4. Beer F.P & Johnston E.R Jr. "Vector Mechanics for Engineers", TMH, 12th edition, 2019.
5. Hibbeler R.C Sharma D P & Ashok Gupta, "Engineering Mechanics", Pearson Education, 2012.
6. Tayal A.K., "Engineering Mechanics – Statics & Dynamics", Umesh Publications, 2011.
7. Basudeb Bhattacharyya, "Engineering Mechanics", Oxford University Press,2nd edition, 2014.
8. Meriam. J. L., "Engineering Mechanics", Volume-II Dynamics, John Wiley & Sons, 4th edition, 2008.
9. NPTEL Course (www.nptel.ac.in)
10. Virtual labs (www.vlab.co.in)

The break-up of CIE: Internal Tests   + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests   :   90 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF MECHANICAL ENGINEERING
INTRODUCTION TO ENTREPRENEURSHIP

SYLLABUS FOR B.E.I-SEMESTER

L:T:P(Hrs/week):1:0:0	SEE Marks:40	Course Code: U22MC010ME
Credits : --	CIE Marks:30	Duration of SEE: 02Hours

COURSE OBJECTIVE *The objective of the course is to*	COURSE OUTCOMES *On completion of the course, students will be able to*
1. Inspire students develop an entrepreneurial mind-set, educate about the resources and schemes available to start enterprises in India.	1 Get awareness about entrepreneurship and potentially become an entrepreneur. 2 Discern the characteristics required to be a successful entrepreneur 3 Know the importance of effective communication. 4 Demonstrate effective sales skills

Unit-I: Sources of new ideas, techniques for generating ideas. Team formation, how entrepreneurship has changed the country and world, entrepreneurial myths, E-cells and their significance, success story of entrepreneurs, eg: Practo, global entrepreneurs, entrepreneurial journeys, challenges, and successes, characteristics of a Successful Entrepreneur, entrepreneurial styles, introduction to business model.

Unit-II: Importance of effective communication for entrepreneurs, communication barriers, miscommunication, incorrect assumptions about people, importance of listening, design thinking-a problem solving process, sales skills, understanding the customer-centric approach, personal selling techniques, show and tell, elevator pitch, managing risks and learning from failures, women entrepreneurs.

Learning Resources:

1. Bruce R. Barringer and R. Duane Ireland, "Entrepreneurship: successfully launching new ventures", 3rd edition, Pearson Prentice Hall, 2009.
2. P. Denning and R. Dunham, "The Innovator's Way", MIT Press: Cambridge, Massachusetts, 2010.
3. Arya Kumar, "Entrepreneurship", Pearson Education, Delhi, 2012.
4. Michael H. Morris, D.F.Kuratko, J G Covin, "Corporate Entrepreneurship and Innovation", Cengage learning, New Delhi,2010
5. Peter F. Drucker, "Innovation and Entrepreneurship", Routledge Classics, 2015.
6. Eric Ries, "The Lean Start-up", Currency, 1st edition, 2011.
7. http://www.learnwise.org

The break-up of CIE: Internal Tests   + Assignments + Quizzes

1	No. of Internal Tests	:	1	Max. Marks for each Internal Test	:	20
2	No. of Assignments	:	1	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	1	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests   :   60 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CIVIL ENGINEERING
BASIC ENGINEERIN GDRAWING
(Common to EEE & ECE)

SYLLABUS FOR B.E. II-SEMESTER

L:T:P (Hrs./week): 1:0:2	SEE Marks: 60	Course Code: U22ES030CE
Credits: 2	CIE Marks: 40	Duration of SEE: 3Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	At the end of the course, students will be able to:
1. Impart skills in using drawing instruments to convey exact and complete information of the object. 2. Construct conic sections and regular polygons. 3. Construct the orthographic projections of points, lines, planes and solids. 4. Draw sections and development of regular solids. 5. Visualize and construct isometric projections from orthographic projections of regular solids.	1. Understand the fundamentals of drawing. 2. Draw the orthographic projections of points and straight lines. 3. Draw the orthographic projections of planes inclined to both reference planes. 4. Draw the orthographic projections of solids inclined to both reference planes. 5. Draw the isometric projections of lines, planes and solids.

UNIT-I: Introduction to Engineering Drawing: Necessity of Engineering Drawing for engineers, Use of Drawing Instruments, Types of Lines, Lettering practice, Dimensioning and its methods, Conic sections by eccentricity method, Regular polygons given the length of side.

UNIT-II: Orthographic Projections: Principles of orthographic projections, conventions, projections of points placed in different quadrants.
Projections of straight lines inclined to one and two reference planes placed in first quadrant only. Traces (By conventional methods only).

UNIT-III: Projections of Planes: Projections of perpendicular planes, oblique planes and their traces.

UNIT-IV: Projections of Regular Solids: Projections of prism, cylinder, pyramid and cone in simple positions and axis inclined to one and two reference planes. Concept of development of solids.

UNIT-V: Isometric Projections: Principles of isometric projections – Isometric scale, Isometric axes, Isometric planes, Isometric view. Isometric views of lines, planes, regular solids, and combination of two solids.

Learning Resource:
1. Bhatt N.D. "Elementary Engineering Drawing",CharotarPublishers,2014.
2. Thomas E French, Charles J Vierck, Robert J. Foster,"Engineering Drawing and Graphic Technology",Mc Graw Hill Education, 1993.
3. Gill P.S."Engineering Drawing: Geometrical Drawing",S K Kataria & sons, 2012.
4. Venugopal.K"EngineeringDrawingandGraphicsPlusAutocad",NewAgeInte rnational(P)Ltd., NewDelhi,2011.
5. Siddiquee A.N "Engineering Drawing with a Primer on Autocad", Prentice hall of India Ltd., New Delhi,2004.
6. Basanth Agrawal, Agrawal C.M "Engineering Drawing" Second Edition, Tata Mc Graw Hill, 2013
7. BVR Gupta, MRajaRoy, "Engineering Drawing with AutoCad", IKInt Pvt Ltd, 2009.
8. NPTEL Course (www.nptel.ac.in)
9. Virtual labs (www.vlab.co.in)

The break-up of CIE: Internal Tests   + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests   :   90 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CIVIL ENGINEERING
ENVIRONMENTAL SCIENCE
(Common to CSE & IT)

SYLLABUS FOR B.E. II-SEMESTER

L : T : P (Hrs./week): 2 :0 : 0	SEE Marks:60	Course Code: U22MC010CE
Credit: - - -	CIE Marks:40	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
In this subject the students will	*Upon the completion of this course students will be able to*
1. Describe various types of natural resources available on the earth surface. 2. Explain the concepts of an ecosystem and the biotic and abiotic components of various aquatic ecosystems. 3. Identify the values, threats of biodiversity, endangered and endemic species of India along with the conservation of biodiversity. 4. Explain the causes, effects and control measures of various types of environmental pollutions. 5. Describe the methods for water conservation, the causes, effects of global warming, climate change, acid rain, ozone layer depletion, population explosion.	1. Describe the various types of natural resources. 2. Differentiate between various biotic and abiotic components of ecosystem. 3. Examine the values, threats of biodiversity, the methods of conservation, endangered and endemic species of India. 4. Illustrate causes, effects, control measures of various types of environmental pollutions. 5. Explain the methods of water conservation, causes, effects of climate change, global warming, acid rain and ozone layer depletion, population explosion.

UNIT-I: Environmental Studies: Definition, importance of environmental studies. Natural resources: Water resources; floods, drought, conflicts over water, dams-benefits and problems. Food resources; Effects of modern agriculture, fertilizer-pesticide problems, water logging salinity. Energy resources: Renewable and non-renewable energy resources. Land Resources, soil erosion and desertification.

UNIT-II: Ecosystems: Structure and function of an ecosystem, producers, consumers and decomposers, food chains, food webs, ecological pyramids, classification of ecosystems, aquatic ecosystem (ponds) ,Terrestrial ecosystem(Forest)

UNIT-III: Biodiversity: Genetic, species and ecosystem diversity. Values of biodiversity, threats to biodiversity, endangered and endemic species of India, conservation of biodiversity. Biological diversity Act 2002

UNIT-IV: Environmental Pollution: Causes, effects and control measures of air pollution, air pollution control devices(catalytic convertor) water pollution, water pollution monitoring devices, soil pollution, noise pollution,solid waste & e-waste management.

UNIT-V: Social Aspects and the Environment: Water conservation, Climate change, global warming, acid rain, ozone layer depletion. Environmental Impact Assesment, population explosion. Consumerism, Sustainable development goals (SDG-17),Environmental protection act 1986.

Learning Resources:

4. Deswal S. and Deswal A., A Basic Course on Environmental studies, Dhanpat Rai & Co Pvt. Ltd. 2013.
5. Benny Joseph, Environmental Studies, Tata McGraw-Hill, 2006.
6. Suresh K. Dhameja, Environmental Studies, S.K. Kataria & Sons, 2010.
8. De A.K., Environmental Chemistry, New Age International, 2003.
9. Odum E.P., Fundamentals of Ecology, W.B. Sunders Co., USA, 2004.
10. Sharma V.K., Disaster Management, National Centre for Disaster Management, IIPE, Delhi, 2013.
11. Rajagopalan R., Environmental Studies, Second Edition, Oxford University Press, 2013.

The break-up of CIE: Internal Tests + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Tests	:	30
2	No. of Assignments	:	2	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	2	Max. Marks for each Quiz Test	:	5
Duration of Internal Tests		:	90 Minutes			

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF CIVIL ENGINEERING
BASIC ENGINEERING MECHANICS
(For IT)

SYLLABUS FOR B.E. II SEMESTER

L : T : P(Hrs./week):3 : 0 : 0	SEE Marks:60	Course Code: U22ES010CE
Credits:3	CIE Marks:40	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
Objectives of this course are to:	At the end of the course, students will be able to:
1. Explain the resolution of a system of forces (coplanar, spatial, concurrent, non-concurrent) and compute their resultant. 2. Solve particle equilibrium problem using equation of equilibrium 3. Determine forces in the members of a truss 4. Perform analysis of bodies lying on rough surfaces. 5. Locate the centroid of a body and also compute the area moment of inertia of standard and composite sections.	1. Determine resultant of forces acting on a body. 2. Analyse equilibrium of a body subjected to a system of forces. 3. Perform analysis of trusses using method of joints and method of sections. 4. Solve problem of bodies subjected to friction. 5. Find the location of centroid and calculate moment of inertia and polar moment of inertia of a given section.

UNIT-I: Force Systems: Rectangular components, moment, couple and resultant of two dimensional and three dimensional force systems.

UNIT-II: Equilibrium of Force Systems: Free body diagram, Equations of equilibrium, Equilibrium of planar and spatial system.

UNIT-III: Determinate Trusses: Analysis of plane trusses like Warren girder, Pratt truss, Fink truss etc using method of joints and method of sections.

UNIT-IV: Friction: Laws of friction. Application to simple systems, Connected systems and belt friction, Wedge friction.

UNIT-V: Centroid and Moment of Inertia: Centroids of lines, areas and volumes, Moment of inertia of areas, Composite areas, Polar moment of inertia, Radius of gyration.

Learning Resources:
1. Singer F.L "Engineering Mechanics", Harper & Collins, Singapore, 3rd Edition 2011.
2. Timoshenko S.P and Young D.H "Engineering Mechanics", McGraw Hill International Edition, 2017
3. Andrew Pytel., JaanKiusalaas., "Engineering Mechanics", Cengage Learning, 2014.
4. Beer F.P & Johnston E.R Jr. "Vector Mechanics for Engineers", TMH, 2019.
5. Hibbeler R.C, "Engineering Mechanics", Pearson Education, 2017.
6. Tayal A.K., "Engineering Mechanics – Statics & Dynamics", Umesh Publications, 2011.
7. Basudeb Bhattacharyya., "Engineering Mechanics", Oxford University Press, 2014.

8. Meriam. J. L. and Kraige L.G., "Engineering Mechanics", Volume-I Statics, John Wiley & Sons, 2017.
9. NPTEL Course (www.nptel.ac.in)
10. Virtual labs (www.vlab.co.in)

The break-up of CIE: Internal Tests + Assignments + Quizzes

1	No. of Internal Tests	:	2	Max. Marks for each Internal Test	:	30
2	No. of Assignments	:	3	Max. Marks for each Assignment	:	5
3	No. of Quizzes	:	3	Max. Marks for each Quiz Test	:	5

Duration of Internal Tests   :   90 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES
ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY
(Common to all branches)

SYLLABUS FOR B.E. II SEMESTER

L : T : P(Hrs./week):2: 0 : 0	SEE Marks:50	Course Code: U22HS111EH
Credits:1	CIE Marks:30	Duration of SEE: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the learners to:	**On completion of the course, learners will be able to:**
1. Learn the speech sounds, parts of speech and distinguish between vowel and consonant sounds in the English language to reduce mother tongue influence when speaking English.	1. Speak well using 'generally acceptable English' in terms of pronunciation and use of diction.
2. Understand and follow the rules in debates, group discussions, interviews.	2. Participate effectively in group discussions, public speaking, debates (formal and informal).
3. Develop reading skills and analyse various text types.	3. Read, analyse, evaluate and infer meaning from different types of texts.

1.0 PHONETICS LAB- TOPICS
1.1   **Introduction to English Phonetics:**Classification of consonants and vowel sounds and related symbols.

1.2   **Aspects of language learning and ear training activities-** Word stress and intonationLongman Dictionary of Contemporary English-6th Edition, 2020.

2.0 INTERACTIVE COMMUNICATION SKILLS LAB-TOPICS
2.1   **Group discussion:** Objectives of GD, Types of GDs; Initiating,

Continuing, and concluding a GD.

2.2 **Debate:** Understanding the difference between a debate and a group discussion, essentials of debates.

2.3 **Public speaking:** Dos and don'ts of public speaking. Listening and analysing speeches of greatpersonalities in history, TED talks, Documentaries and Movies.

3.0 READING SKILLS LAB – TOPICS: 3.1 Sub-skills of reading-skimming, scanning, extensive and intensive reading.

3.2 Teaching different types of texts for comprehension-short stories and technical articles.

3.3 Newspaper reading and paraphrasing.

Prescribed textbook for laboratory:

Speak Well: Jayshree Mohanraj, KandulaNirupa Rani and Indira Babbellapati - Orient Black Swan

Longman Dictionary of Contemporary English - 6th Edition, 2020.(The students will be given the PDF format)

Learning Resources:

1. Balasubramanian: A textbook of English phonetics for Indian students, Macmillan, 2008.
2. PriyadarshiniPatnaik : Group discussion and interviews, Cambridge University Press India private limited 2011.
3. Daniel Jones: Cambridge English Pronouncing Dictionary - A Definitive guide to contemporary English Pronunciation.
4. Reading Cards (Eng400): Orient Black Swan. Reading Squabble - Hadfield.

No. of Internal Tests: 01   Max. Marks for Internal Test: 12

Marks for assessment of each experiment 18
Duration of Internal Test: 3 Hours

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
IBRAHIMBAGH, HYDERABAD-31

DEPARTMENT OF PHYSICS
APPLIED PHYSICS LAB

Syllabus for II-Semester

L:T:P(Hrs/week):0:0:2	SEE Marks:50	Course Code: U22BS221PH
Credits :01	CIE Marks:30	Duration of SEE:03Hours

COURSE OBJECTIVES *The objective of the course is to*	**COURSE OUTCOMES** *On completion of the course, students will be able to*
1. to study and discuss the characteristics of a given device	1. Conduct experiment independently and in team to record the measurements
2. to identify probable errors and take in the readings and known possible precautions	2. Outline the precautions required to be taken for each experiment
3. to compare the experimental and theoretical values and draw possible conclusions.	3. Compare the experimental results with standard values and estimate errors
4. To interpret the results from the graphs drawn using experimental values.	4. Draw graphs and interpret the results with respect to graphical and theoretical values
5. To write the record independently with appropriate results.	5. Write the summary of the experiment and draw appropriate conclusions

1. Determination of moment of inertia of a Fly Wheel
2. Estimation of errors in the time period and determination of 'g' using Simple pendulum
3. Computation of rigidity modulus of material of a wire using Torsional Pendulum
4. Estimation of frequency of electrically maintained Tuning fork- Melde'sexperiment
5. Determination of radius of gyration and acceleration due to gravity

      using Compound Pendulum.

6. Assessment of velocity of ultrasonic waves in liquids
7. Calculation of wavelength of Semiconductor lasers.
8. Measurement of radius of curvature of a Plano-convex lens by formingNewton's Rings.
9. Determination of wavelengths of mercury vapour lamp- diffraction grating
10. Determination of specific rotation of an optically active solution by polarimeter
11. Calculation of numerical aperture, acceptance angle and power loss due to bending of an optical fibre.
12. Study of I-V characteristics of P-N Junction diode
13. Gyroscope- study of gyroscopic effects.
14. Determination of wavelength of a light source by Michelson interferometer
15. Estimation of distance by laser light source

      *Each student should perform at least 10 (Ten) experiments.

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for assessment of each experiment			18
Duration of Internal Test: 3 Hours			

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031

DEPARTMENT OF MECHANICAL ENGINEERING
ENGINEERING WORKSHOP-II
(Common to Mechanical, Civil & EEE Branches)

SYLLABUS FOR B.E.II-SEMESTER

L:T:P(Hrs/week):0:0:2	SEE Marks:50	Course Code: U22ES211ME
Credits :01	CIE Marks:30	Duration of SEE:03Hours

COURSE OBJECTIVES	COURSE OUTCOMES
The course will enable the students to	On completion of the course, students will be able to
1 Know basic workshop processes, adopt safety practices while working with various tools	1 Create models in smithy, welding, fitting and machining trades by using the relevant tools.
2 Identify, select and use various marking, measuring, holding, striking and cutting tools &equipments.	2 Measure and inspect the finished components using suitable measuring instruments.

List of the Experiments:
BLACK SMITHY
1. Flattening (round to square cross section)
2. Bending operation (U-shape)
3. S-shape hook
WELDING
1. Bead formation using arc welding
2. Butt joint & T joint using arc welding
3. Lap joint using gas welding`
FITTING
1. Template fitting (square fit)
2. V-groove fit
3. Drilling and Tapping
MACHINING
1. Plain turning and step turning
2. Taper turning
3. Thread cutting

ADDITIONAL EXPERIMENTS
1. Black Smithy:Fullering operation (demo)
2. Welding: Spot welding (demo)
3. Fitting: Assembly of pulley on a shaft with key (demo)
4. Machining: Additive manufacturing (demo)

Learning Resources:
1. Hajra Choudhury S.K., Hajra Choudhury A.K., Nirjar Roy S.K. "Elements of Workshop Technology" Vol-I 2008 & Vol-II 2010 Media Promoters & Publishers Pvt. Limited, Mumbai.
2. Kalpakjian S. and Steven R. Schmid, "Manufacturing Engineering and Technology" 4th Edition, Pearson Education India, 2002.
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No. of Internal Tests: 01   Max. Marks for Internal Test: 12

Marks for assessment of each experiment   18
Duration of Internal Test: 3 Hours