

Courses of Study

2019-20

B.Tech. Civil Engineering

IILP

School of Engineering and Technology

B.Tech. Civil Engineering (IILP) 2019-20																																																	
Semester	Course I				Course II				Course III				Course IV				Course V				Course VI				Course VII				Course VIII				L	T	P	C	Contact Hours												
	TYCE101	TYCE102			TYCE103			TYCE104			TYCE105			Code				Code				Code																											
L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C										
I	3	1	0	4	3	0	2	4	3	0	2	4	3	0	0	3	1	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	1	6	17	20								
	BS				PC				PC				BS				HSS																																
	Algebra and Differential Calculus Statistics, Probability				Mechanics of Materials				Surveying				Geological Sciences				Communication Skills																																
II	TYCE201				TYCE202				TYCE203				TYCE204				TYCE205								Code				Code																				
	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C					
	3	0	2	4	3	0	2	4	3	0	2	4	3	1	0	4	3	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	1	8	20	24
	BS				PC				PC				PC				ES																																
Applied Physics and Chemistry				Building Materials Construction and Architectural Planning				Geotechnical Engineering				Structural Analysis - I				Fundamentals of Computing																																	

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Semester	Course I				Course II				Course III				Course IV				Course V				Course VI				Course VII				Course VIII				L	T	P	C	Contact Hours					
	TYCE301		TYCE302		TYCE303		TYCE304		TYCE305		Code		Code		Code																											
III	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C						
	3	0	2	4	3	0	2	4	3	1	0	4	3	1	0	4	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	4	1	9	18
	PC				PC				PC				PC				PWSI																									
	Fluid Mechanics - I				Concrete Technology				Structural Analysis -II				Foundation Engineering				Internship I																									
IV	TYCE401				TYCE402				TYCE403				TYCE404				TYCE405				TYCE406				Code				Code													
	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C		
	3	0	0	3	3	0	0	3	3	0	2	4	3	0	2	4	2	0	2	3	0	0	4	2	0	0	0		0	0	0	0	0	0	0	0	1	4	0	1	9	24
	PC				PC				PC				PC				HSS																									
Water Resource Engineering - I				Project management & Engineering Economics				Fluid Mechanics - II				Environmental Engineering-I				Technical Communication				Seminar																						

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	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C								
V	TYCE501				TYCE502				TYCE503				TYCE504				TYCE505				TYCE506				Code				Code				1	2	0	1	0	2	1	22
	3	0	2	4	3	0	2	4	3	0	0	3	3	0	0	3	0	0	0	4	0	0	6	3	0	0	0	0	0	0	0	0								
	PC				PC				PC				PC				PWSI				PWSI																			
	Steel Structures				Advance Surveying				Transportation Engineering				Water Resource Engineering-II				Internship II				Mini Project																			
VI	TYCE601				TYCE602				TYCE603				TYCE604				TYCE605				TYCE606				Code				Code				1	5	0	1	0	2	0	25
	3	0	2	4	3	0	2	4	3	0	0	3	3	0	0	3	3	0	0	3	0	0	6	3	0	0	0	0	0	0	0	0								
	PC				PC				PCE				PCE				OE				PWSI																			
	Reinforced Cement Concrete - I				Environmental Engineering II				DEI				DEII				OEI				Project Stage I																			

School of Engineering and Technology

B.Tech. Civil Engineering (IILP) 2019-20																																													
Semester	Course I				Course II				Course III				Course IV				Course V				Course VI				Course VII				Course VIII				L	T	P	C	Contact Hours								
	TYCE701				TYCE702				TYCE703				TYCE704				TYCE705				Code				Code				Code																
VII	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C	L	T	P	C					
	3	0	2	4	3	0	0	3	3	0	0	3	0	0	16	8	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	18	24	27
	PC				PCE				OE				PCE				PWSI																9	0	18	24	27								
	Quantity Surveying, Contracts & Tenders				DEIII				OEII				Project Stage II & Viva Voce				Internship III																9	0	18	24	27								

TOTAL 90 4 66 140 160

Department Elective I					
Transportation Engineering					
Course Code	Course	L	T	P	C
1	Advanced Concrete Technology	3	0	0	3
2	Ground Improvement	3	0	0	3
3	Integrated Water Resources and Planning	3	0	0	3

Department Elective II					
Water Resources and Environmental Engineering					
Course Code	Course	L	T	P	C
1	Matrix Methods of Structural Analysis	3	0	0	3
2	Architecture & Town Planning	3	0	0	3
3	Numerical Methods in Civil Engineering	3	0	0	3
4					
5					

Department Elective III					
Geotechnical Engineering and Engineering Geology					
Course Code	Course	L	T	P	C
1	Elements of Remote Sensing	3	0	0	3
2	Environmental Impact Assessment	3	0	0	3
3	Finite Element Methods	3	0	0	3

Chairman,
Board of Studies, Civil Engineering

Year: First Year

Semester: I

Course: Algebra, Differential Calculus, Statistics & Probability

Course Code: TYCE101

Teaching Scheme (Hrs/Week)				Continuous Internal Assessment (CIA)					End Semester Examination		Total
L	T	P	C	CIA-1	CIA-2	CIA-3		Lab	Theory	Lab	
3	1	-	4	20	20	10		-	100	-	100
Max. Time, End Semester Exam (Theory) - 3Hrs.											

Prerequisite	<ol style="list-style-type: none"> 1. Introduction and basic concepts of derivative and integration of functions. 2. Basic concepts and methods to solve simultaneous equations, quadratic equations.
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Course Objectives

- 1 To solve System of linear equations using matrix methods.
- 2 To understand partial differentiation with their applications stationary values arising in engineering optimization problems.
- 3 To solve ordinary differential equations
- 4 To understand the basic concepts of statistics and probability

Course Content

Unit No.	Module No.	Content	Hours
1	I	Matrices: Elementary Operations, Rank of a Matrix using Echelon form, Reduction to normal form, Solution of system of Homogeneous and Non –Homogeneous Linear Equations.	5
	II	Matrices (Continued): Linear Dependent and Independent vectors, Linear & Orthogonal Transformations, Eigen values & Eigen vectors, Diagonal Form	5
2	I	Partial Differentiation: Partial derivatives of first and second order, Total Derivatives, Partial derivatives of implicit functions, composite functions and associated Theorems.	5
	II	Applications of Partial Derivatives: Maxima & Minima of Functions of Two variables, Lagrange’s method of undetermined multipliers, Errors & Approximations	5
3	I	Ordinary Differential Equations: Order and degree of Differential Equations, Solutions of Ordinary Differential Equations of first order and first degree, Methods of finding General Solution of DE of first order and first degree such as variable separable, substitution,	5



		homogeneous & non homogeneous DEqs,	
	II	Ordinary Differential Equations (continued): Exact DEqs, Reducible to exact DEqs, Linear DEqs, Reducible to linear DEqs, Symmetrical simultaneous differential equation and its applications.	4
4	I	Statistics: Measures of central tendency, standard deviation, coefficient of variation	4
	II	Statistics (Continued): correlation and regression, reliability of regression estimates	4
5	I	Probability: Basic concepts of Probability, Probability Theorems and properties of probability, probability density function.	4
	II	Probability distributions: Binomial, Poisson and Normal distributions, chi-square test.	4
Total No. of Hrs			45

Beyond the Syllabus

Curve fitting

Course Outcome

Students should able to

- | | |
|------------|---|
| CO1 | Student will able to use matrix algebra and solve system of linear equations using matrix methods |
| CO2 | Student will able to ordinary differential equations of first order and first degree |
| CO3 | Student will be able to solve symmetrical simultaneous differential equations |
| CO4 | Student will be able to understand basic statistical tools, correlation and regression lines. |
| CO5 | Student will be understand probability theory and distribution |

Recommended Resources

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|------------------------|--|
| Text Books | <ol style="list-style-type: none"> Higher Engineering Mathematics by B.V.Ramana, (Tata-McGraw Hill) Advanced Engineering Mathematics by Erwin Kreyszig (Wiley Eastern Ltd.) |
| Reference Books | <ol style="list-style-type: none"> Higher Engineering Mathematics by B.S.Grewal (Khanna Publications, Delhi) Advanced Engineering Mathematics, 2e by M.D.Greenberg (Pearson Education) |
| E-Resources | https://onlinecourses.nptel.ac.in/noc18_ce04/preview |



School of Engineering and Technology
First Year Civil Engineering (IILP)

Year: First Year
Course: Mechanics of Materials

Semester: I
Course Code:TYCE102

Teaching Scheme (Hrs/Week)				Continuous Internal Assessment (CIA)				End Semester Examination		Total
L	T	P	C	CIA-1	CIA-2	CIA-3	Lab	Theory	Lab	
3	-	2	4	20	20	10	25	100	25	150
Max. Time, End Semester Exam (Theory) -3Hrs.								End Semester Exam (Lab) – 2Hr		

Prerequisite	<p>3. Introduction and basic concepts of physics like Force, displacement, velocity, acceleration, speed impulse, momentum, work, Newton's laws of motion, energy etc.</p> <p>4. Basic concept and equations of mathematics like simultaneous equations, quadratic equations.</p>
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Course Objectives

- 1** To study the different types of stresses due to load, temperature, etc.
- 2** To learn concept of Shear Force and Bending Moment Diagram for determinate beams.

Course Content

Unit No.	Module No.	Content	Hours
1	I	Simple Stresses and Strains: Concept of structure- Determinate and indeterminate. Concept of axial and shear force. Concept of normal and shear stress. Concept of linear, lateral and shear strain. Elasticity, Elastic limit, Hooke's law, Poisson's ratio, Equation for axial deformation. Determination of axial deformation of stepped bars and drawing AFD. Analysis of parallel bars in composite section. Volumetric Strain. Two and Three dimensional stress system- Generalized Hooke's law.	6
	II	Various elastic constants like bulk modulus, shear modulus. Different relations among various elastic constants like Modulus of elasticity, Poisson's ratio, bulk modulus, shears modulus. Indeterminate bars with and without yielding of support. Temperature stresses in bar.	6
2	I	Shear Force and Bending Moment Diagram: Definition of beam – determinate and indeterminate. Types of supports, their reactions. Types of beams. Ways of load application.	3
	II	Concept of shear force, shear force diagram, Point of contra shear and its location. Concept of bending moment, bending moment diagram,	3



		Point of contra flexure and its location. Concept of sagging and hogging BM.	
	III	Drawing SFD and BMD for simple, cantilever and compound beams. Relation between shear force, bending moment and intensity of loading. Deriving load diagram from SFD and BMD.	4
3	I	Bending and Shear Stresses in Beams: Concept of pure bending. Assumptions in theory of pure bending, Neutral axis. Division of beam into tension and compression zones. Derivation of flexure formula, Determination of moment of inertia of compound sections.	4
	II	Drawing bending stress distribution diagrams. Moment of Resistance of cross-section and sectional modulus. Force on partial cross sectional area and its contribution towards moment of resistance.	4
	III	Concept of longitudinal shear, derivation of shear stress formula, shear stress distribution for various cross sections, maximum and average shear stress over cross section of a beam. Designing shear connectors.	4
4	I	Torsion and Principal Stresses: Torsion: Torsion of circular shafts: theory of pure torsion, assumptions, derivation of torsion formula. Stresses, Torsion formula applied to determinate and indeterminate shafts in series and in parallel subjected to twisting moments.	5
	II	Power transmitted by shafts, twisting moment diagrams. Principal Stresses: General, Objective, Initial states of stress like uniaxial stress, biaxial stress, pure shear and General state i.e. biaxial stress accompanied with shear stress. Resolving general state of stress for normal and shear stresses on an oblique plane. Principal stresses and principal planes. Maximum shear stress. (Analytical approach only)	6
5	I	Columns and Footings: Axially loaded columns: concept of critical or buckling load, assumptions, Euler's formula for buckling load with hinged ends, equivalent length for various end conditions, Limitations of Euler's equation. Factor of safety, safe load.	5
	II	Rankine's formula. Direct and bending stresses. Eccentric loading and stress analysis for axial load, uniaxial bending and biaxial bending, No tension condition, Limiting eccentricity, Core of section.	5
Total No. of Hrs			55

Beyond the Syllabus

Finding the strength of different engineering materials .

Course Outcome

Students should able to

- | | |
|------------|--|
| CO1 | Students will be able to analyse the materials and determine the basic properties. |
| CO2 | Students will be able to determine the shear force and bending moments required for structural analysis and design |
| CO3 | Students will be able to determine the shear and bending stresses and their importance in structural analysis and design |
| CO4 | Students will be able to determine the torsional and Principal stresses required for structural analysis and design |
| CO5 | Students will be able to determine the critical loads for long and short columns |



List of Experiments

1. Tension test on mild and TMT steel
2. Shear test on mild and TMT steel
3. Torsion test on mild steel and aluminium
4. Izod and Charpy impact test on mild steel, brass aluminium and copper.
5. Compression test on timber (parallel and perpendicular grain)
6. Bending test on timber and plywood.
7. Water absorption, Efflorescence test on bricks
8. Compressive strength test on bricks
9. Flexural strength of flooring and roofing tiles.
10. Abrasion test of flooring tiles.

Recommended Resources

Text Books	<ol style="list-style-type: none"> Strength of Materials - F.L. Singer and Andrew Pyt Ltd, Harper and Row Publication Strength of Materials – R. Subramanian, Oxford University Press. Mechanics of Structures – TimoShenko and Young, East-West Press Ltd.
Reference Books	<ol style="list-style-type: none"> Strength of Materials D. Ghosh , A.K.Datta--- New Age International Publishers. Mechanics of Materials- Beer and Johnston, McGraw Hill Publication. Introduction to Mechanics of Solids- E.P. Popov, Prantice Hall Publication. Strength of Materials- S.S. Ratan, Tata McGraw Hill Strength of Materials – Ramamrutham. Strength of Materials – Er. R K Rajput. Mechanics of Structures Vol. II by S. B. Junnarkar and Dr. H. J. Shah, Twenty second edition, Charotar Publishing House Pvt Ltd. Mechanics of solids by R Vaidynathan, P Perumal and S Lingedwari, Scitech Publication (India) Pvt Ltd. Mechanics of Materials by Gere & Timoshenko, CBC publisher
E-Resources	https://onlinecourses.nptel.ac.in/noc18_ce04/preview



School of Engineering and Technology

First Year Civil Engineering (IILP)

Year: First Year
Course: Surveying

Semester: I
Course Code:TYCE103

Teaching Scheme (Hrs/Week)				Continuous Internal Assessment (CIA)				End Semester Examination		Total	
L	T	P	C	CIA-1	CIA-2	CIA-3		Lab	Theory	Lab	
3	0	2	4	20	20	10		25	100	25	150
Max. Time, End Semester Exam (Theory) -3Hrs.									End Semester Exam (Lab) – 2Hr		

Prerequisite	5. Introduction and basic concepts of surveying and its principles. 6. Basic concept and equations of mathematics like area and angle calculations on field.
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Course Objectives

- 1** To introduce to students the theory and application of surveying
- 2** To make the students well understand the fundamentals of surveying knowledge and being familiar with various aspects of surveying practice.
- 3** To develop the ability to adopt and apply techniques, skills and modern engineering tools necessary for field surveying.
- 4** To provide practical based learning to use instruments for field surveying.

Course Content

Unit No.	Module No.	Content	Hours
1	I	Introduction to Surveying: Definition, objectives, uses, fundamental classification of survey, principles of surveying, scale and types of scale, different instruments used in surveying and its uses.	6
	II	Plane Table Survey: Definitions, Plane table accessories, Errors, Advantages & Disadvantages, Methods of plotting – Radiation, Intersection, Traversing and resection.	4
2	I	Linear Measurement: Distance measurement: Methods, Equipment, Tape, Ranging, EDM for linear measurement, Errors in measurement.	6
	II	Angular measurement: Prismatic Compass: Construction and uses, meridians, bearings, local attraction, dip and declination. Theodolite: Types, Parts of theodolite, temporary adjustment, permanent adjustments, Measurements of horizontal angles (methods of repetition and reiteration) and measurement of vertical angles, errors in measurements	6
3	I	Leveling & Contouring: Definitions, Instruments, Types of levels,	6



		Datum, types of bench marks, methods of leveling, Trigonometric Leveling-Definition and types, R.L. computations by Collimation Method and Rise-Fall Method, correction for curvature & Refraction.	
	II	Auto levelling principle and its advantages. profile leveling and cross sectioning, Contour- characteristics, methods of plotting contour, methods of contouring, uses of contour maps, tacheometric contouring.	6
4	I	Traverse Survey: Types of traverse, Open and closed traverse, Theodolite traverse – Field work, Latitude, departure, Coordinate system of traverse.	6
	II	Adjustment of closed traverse by transit rule and Bowditch's rule, Gales traverse table, General method of calculating area and volume.	6
5	I	Modern surveying equipment's: Introduction to total station, GIS, Remote sensing.	5
	II	Applications of remote sensing and GIS, traverse survey by total station, maps	5
Total No. of Hrs			56

Beyond the Syllabus

Working on advance equipments like Total Station, EDM, GPS etc .

Course Outcome

Students should able to

CO1 Operate and use surveying equipment

CO2 Draw plan or map of the existing permanent features on the ground.

CO3 Classify the ground features from the map or plan.

CO4 Analyze temporary adjustments and check permanent adjustments of the Theodolite

CO5 Understand concept of Levelling



List of Experiments

1. Plane table survey by method of Radiation/ Intersection
2. Measurement of bearings using prismatic compass
3. Simple and differential levelling – Plane of collimation and Rise and Fall method
4. Determination of horizontal and vertical distance using tacheometer.
5. Measurement of horizontal angle and vertical angle by repetition method by using 20” theodolite
6. Measurement of horizontal, vertical angle and distance by using total station.
7. Setting out building Layout using foundation plan.
8. Project I: Tachometric contouring project on hilly area.
9. Project II: Road Project using Auto level for minimum 100m length
10. Project III: Traversing using total station.

Recommended Resources

Text Books	5. T. P. Kanetkar & S. V. Kulkarni, Surveying & Levelling-Part I, Pune Vidhyarthi Griha Prakashan. N. N. Basak, Surveying..
Reference Books	1. R. Subramanian, Surveying and Leveling, Oxford University. 2. B. C. Punmia, A. K. Jain & A. K. Jain, Surveying Vol. I, Laxmi Publications. A. M. Chandra, Plane Surveying, New Age International. 3. S. K. Duggal, Surveying Vol. I, Tata Mcgraw-Hill.
E-Resources	https://nptel.ac.in/courses/105107122/1



Teaching Scheme (Hrs/Week)				Continuous Internal Assessment (CIA)					End Semester Examination		Total
L	T	P	C	CIA-1	CIA-2	CIA-3		Lab	Theory	Lab	
3	-	-	3	20	20	10		-	100	-	100
Max. Time, End Semester Exam (Theory) -3Hrs.											

Prerequisite	<ol style="list-style-type: none"> 1. Introduction and basic concepts of surveying and its principles. 2. Basic concept and equations of mathematics like area and angle calculations on field.
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Course Objectives

- 1 To study basic of engineering geology and introductory part of the earth science.
- 2 To understand the utility and application of geological principles in various phases of civil engineering activities
- 3 To describe the sources, and characterization of common Building materials.
- 4 To understand the nature of geological structures and their importance on the civil engineering structures.
- 5 To understand the nature of geographic distribution of rocks and engineering properties of rock on the earth.
- 6 To explain various natural hazards and their implications on structures and effects on society.

Course Content

Unit No.	Module No.	Content	Hours
1	I	Introduction to General Geology: —introduction and scope of the subject; The Earth: Origin, Age, Interior, Materials; lithosphere and its composition. Study of minerals: properties of mineral, classification of minerals; mineral families and its significance in formation of rocks.	6
	II	Study of rocks: introduction to petrology; rock cycle; Strength Properties of Rocks: introduction to concept Rock Mass Strength; Igneous rocks :classification and texture of rocks Igneous rocks. Secondary rocks :Rock weathering process; process of formation of sedimentary rocks ; Grain size classification; porosity and permeability concept. Metamorphic rocks : texture and structure of metamorphic rocks . Agents of metamorphism; engineering properties of rocks. Uses and Indian Occurrence of the following rocks - Granite, Diorite, Dolerite, Pegmatite, Basalt, Shale, Sandstone, Limestone, Breccia and Conglomerate, Gneiss, Schist, Slate, Quartzite and marble..	4



2	I	Geomorphology: Geological Work of Rivers, Glaciers, Wind and Sea/Oceans, Deposits and Landforms; Formation of Soils; coastal geology. Streams and its various types. Drainage system and various types of drainage patterns.	6
	II	Stratigraphy: physiographic and stratigraphic divisions of India; Geological time scale; significance of physiographic divisions and its structures in civil engineering activities.	6
3	I	Geological structures: dip and strike, folds and fault their types and parts, unconformities, joints. Structural formation and importance in respect of civil engineering structures. Structural features resulted due to igneous intrusions.	6
	II	Introduction to plate tectonics: plate tectonics theory and mountain building activity. Earthquakes and significance of seismic studies in civil engineering projects.	6
4	I	Preliminary Geological and Geophysical Explorations: Surface and subsurface geological investigation for major civil engineering projects, Geophysical investigation methods, detail about resistivity survey for subsurface and groundwater explorations.	6
	II	Involvement of Geology in Reservoir, Dams, Tunnelling and case studies: Strength, stability and water tightness of foundation rocks, influence of geological conditions on the choice of site for major engineering projects and its types. Important geological considerations while choosing the alignment of tunnel, difficulties during the tunnelling because of different geological conditions, suitability of common rock type for tunnel.	6
5	I	Hydrology: type of groundwater, influence of hydro geological properties of rock, geological work of groundwater, types of aquifers, cone of depression, artificial recharge of ground water.	5
	II	Geological Hazards: volcanism, landslide and stability of slope and preventive majors Remote sensing: Basics of remote sensing GIS and GPS, principles and applications in civil engineering projects	5
Total No. of Hrs			56

Beyond the Syllabus

Case studies of various rocks and minerals.

Course Outcome

Students should able to

CO1	Understand physical properties, mechanical properties of the minerals.
CO2	To know its application in civil engineering.
CO3	Interpret geohydrological characters of the rocks present at the foundations of the dam, percolation tanks, and tunnels.
CO4	Differentiate between the different rock types and their inherent characteristics.
CO5	Understand physical properties, mechanical properties of the minerals.



Recommended Resources

Text Books	6. Murthy, V.N.S., “Text Book of Soil Mechanics and Foundation Engineering”, CBS Publishers
Reference Books	4. Engineering & General Geology by Parbin Singh. 5. Reddy, D. V. "Engineering Geology", Vikas Publishing House. 6. A Text Book of Remote Sensing and Geographical Information Systems by M.Anji Reddy- 2nd Edition B S Publication. 7. Principles of Engineering Geology by S.K.Garg. 8. G.W. Tyrrell, ‘The Principles of Petrology. Murthy, V.N.S., “Text Book of Soil Mechanics and Foundation Engineering”, CBS Publishers.
E-Resources	https://nptel.ac.in/courses/105105106/



School of Engineering and Technology

First Year Civil Engineering (IILP)

Year: First Year

Semester: II

Course: Transportation Engineering - I

Course Code: TYCE201

Teaching Scheme (Hrs/Week)				Continuous Internal Assessment (CIA)				End Semester Examination		Total
L	T	P	C	CIA-1	CIA-2	CIA-3	Lab	Theory	Lab	
3	0	0	3	20	20	10	-	100	-	100
Max. Time, End Semester Exam (Theory) -3Hrs.										

Prerequisite	7. Introduction and basic concepts of derivation and integration 8. Basic concept and equations of mathematics like statistics and probability
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Course Objectives

- 1** To teach the students about the different transportation systems
- 2** Describe the terminology of infrastructure services like railway, tunnels, docks and harbour and airport facilities.

Course Content			
Unit No.	Module No.	Content	Hours
1	I	Infrastructure: Scope of Transportation Engineering in National & Global development, Provisions made for various infrastructure sectors like Roads & Highways, Railways, Airports, Ports, Housing, and Energy & Power sector with reference to 12 th Five Year Plan. Public Private Partnership (PPP) its advantages and disadvantages.	6
	II	Public Private Partnership (PPP) its advantages and disadvantages.	2
2	I	Railways Engineering: Merits of rail transportation, railway gauges and gauge problems, Cross section of permanent way and track components: Sleepers-functions and types, Rails:	4
	II	Coning of wheels and tilting of rails, rail cross sections, wear and creep of rails, rail fastenings. Points crossings and turnouts. Functions components, elements of points, types of crossings and turnouts.	5
3	I	Tunnel Engineering: Functions of tunnel, criteria for selection of size & shape of tunnels. Pilot tunnel, shaft, addit and portal, NATM TBM & Earth Pressure Balance Method of tunnelling in soft soil.	4
	II	Drilling & blasting method of tunnelling including various operations like mucking, micro tunnelling and trenchless tunnelling.	3
4	I	Water Transportation: Introduction to harbours, Requirements of harbours and ports. Classification of harbours with examples, Selection	4



		of site for harbour.	
	II	Various components of ports, harbour works, break waters, jetties, wharves, piers, berthing facilities, types and construction, dolphins, docks, transit sheds and warehouses, general layout, containers and container yard, layout and handling equipment	4
5	I	Airport Engineering: Advantages and limitations of air transportation Aircraft characteristics and their influence on airport planning, Airport planning: topographical and geographical features, air traffic characteristics, and development of new airports, factors affecting airport site selection, Characteristics of good layout, runway configuration, airport obstruction, location of terminal buildings, aprons and hangers.	4
	II	Zoning requirements regarding permissible heights of constructions and landing within the airport boundary. Runways and taxiways: Runway orientation, wind coverage, use of wind rose diagram, basic runway length, corrections for elevation, temperature and gradient as per ICAO and FAA recommendation. Airport classification by ICAO.	4
Total No. of Hrs			40

Course Outcome

Students should able to

CO1	Students will be able to describe the terminology of infrastructure services like railway, docks and harbour and airport facilities.
CO2	Describe and sketch railway, docks and harbor and airport components.
CO3	Analyze the factors influencing the site selection for railway, docks, harbour and airport facilities.

Recommended Resources

Text Books	1. Construction Planning Methods & Equipment: Puerifoy –Tata MC Graw Hill
Reference Books	1. Saxena S.C. and Arora S. P., A course of railway engineering, Dhanpat Rai and sons, New Delhi 2. Railway Engineering, 2/E by Chandra—Oxford University Press 3. Railway Track Engineering: J.S.Mundrey, Tata McGraw Hill 4. Harbour, Dock & Tunnel Engineering: R. Srinivasan 5. Khanna and Arora, Airport planning & design, Nemchand Bros, Roorkee
E-Resources	https://nptel.ac.in/downloads/105101087/



School of Engineering and Technology

First Year Civil Engineering (IILP)

Year: First Year

Semester: II

Course: Building Materials Construction and Architectural Planning

Course Code: TYCE202

Teaching Scheme (Hrs/Week)				Continuous Internal Assessment (CIA)				End Semester Examination		Total
L	T	P	C	CIA-1	CIA-2	CIA-3	Lab	Theory	Lab	
3	0	2	4	20	20	10	25	100	25	150
Max. Time, End Semester Exam (Theory) -3Hrs.								End Semester Exam (Lab) - NA		

Prerequisite	9. Introduction and basic building components 10. Basic knowledge of building materials
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Course Objectives

- 1** To study different types of materials used in construction for civil engineering projects
- 2** To describe all basic activities of construction from foundation to finishing.
- 3** To enumerate different types of structure and their requirement as building components

Course Content

Unit No.	Module No.	Content	Hours
1	I	Masonry: Stone masonry: principal terms, types of stone masonry. Brick masonry: characteristics of good building bricks, is specification and tests, classification of bricks: silica, refractory, fire and fly ash bricks. Brick work, types of bonds: English, Flemish, header, stretcher, construction procedure, supervision. Block Masonry – Cellular lightweight concrete blocks, hollow blocks, concrete blocks, glass blocks, solid blocks, cavity wall construction.	6
	II	Requirement of a good partition wall: metal partitions, asbestos cement partition, wooden partition. Reinforced brick masonry: applications, advantages, materials required and construction procedure. Composite masonry: types, advantages, applications, materials required and construction procedure.	5
2	I	Flooring & Roofing Material: A) Flooring materials: Functional requirement of flooring, types of floor Finishes and their suitability, construction details for concrete, tiles and stone flooring. Types of flooring: timber flooring, cement concrete flooring, mosaic flooring, ceramic flooring, Terrazzo flooring, tiled flooring, rubber flooring, cork flooring, epoxy asphalt flooring, Hollow block and rib floors, industrial flooring: tremix or vacuum de-watered flooring (vdf).	6
	II	B) Roofing materials – Galvanized iron pre-coated aluminum sheets,	5



		fiber sheets, and Mangalore tiles. Roof construction: types and their suitability, method of construction, types of trusses, And types of shell structure: dome, translation shells, space and frame structure: Pneumatic structures, grain storage structures, prefabricated structures, fixing details of roof covering.	
3	I	Doors, windows, arches and lintels: A) Doors and windows: definition of technical terms, installation of doors and window frames and their size specifications, fixtures and fastenings. Types of doors: glazed or sash Doors, plastic doors, flush doors, louvered doors, collapsible doors, revolving doors, rolling Steel doors, sliding doors, swing doors, folding doors. Types of windows: casement window, Double hung window, pivoted window, sliding windows, louvered or venetian window, metal Window, sash or glazed window, bay window, corner window, dormer window, gable Window, skylight window, circular window, mosquito proof window, curtain wall window. Ventilators: purpose and types.	6
	II	B) Arches and lintels: principle of arch action, types of arches, method of arch Construction, centering and removal of centering. Lintels: necessity and types, chajja or Weather shade necessity and types	5
4	I	Miscellaneous materials: properties, types and uses of following materials: lime, Polymers, plastic types, mastic, gypsum, clay tiles and glazed wares, timber: types and Properties, advantages and applications of aluminum, stainless steel, fibrous, laminated, Particulate, combinations of composite materials: laminated fiber reinforced polymers.	6
	II	Glass: Uses, types and properties, application and ingredients, market forms, glass claddings, Aluminum composite panel cladding. Ceramic products: ceramic sanitary application, water Closet, urinals, washes basins, their common sizes, pipes and fittings. Eco-friendly materials: Eco-friendly decorating materials, eco-friendly flooring, thatch, bamboo, linoleum, cork	6
5	I	Stairs and supporting structure: consideration in planning, design considerations, staircase: types, and details of ramps. Ladders, lifts, and escalator. Types of staircase: straight stairs, open well stairs, quarter turn stairs, half turn stairs, turning stairs, dog-legged stairs, circular stairs, geometrical stairs, bifurcated stairs, and spiral stairs.	5
	II	Form work and casting procedure for reinforced concrete columns, R.C.C. beams and girders, R.C.C. slabs, curing methods, precast and pre-stressed concrete construction and joints in concrete work. Slip form work: component parts- design criteria, underpinning, Scaffolding: purpose, types and suitability	5
Total No. of Hrs			55

Course Outcome

Students should able to

CO1 Identify types of building and basic requirements of building components.

CO2 Explain types of masonry, formwork, casting procedure and necessity of



	Underpinning and scaffolding.
CO3	Elucidate different types of flooring and roofing materials.
CO4	Describe types of doors, windows, arches and lintel
CO5	Explain different materials especially eco-friendly materials and safety measures to be adopted at any construction site.

Recommended Resources

Text Books	<ol style="list-style-type: none"> 7. Building Construction by B.C. Punmia, Laxmi Publications. 8. Building Materials by S.V.Deodhar, Khanna Publication. 9. Building Construction by Bindra and Arora, Dhanpat Rai Publications. 10. Civil Engineering Materials by Neil Jackson & Ravindra K. Dhir, Palgrave Macmillan.
Reference Books	<ol style="list-style-type: none"> 1. Building Materials by S. K. Duggal, New Age International Publishers. 2. Civil Engineering Materials by TTTI Chandigarh, Tata McGraw Hill Publications. 3. Materials of construction by D.N Ghose, Tata McGraw Hill. 4. Building Construction by S.C. Rangwala, Charotdar Publications. 5. National Building Code of India. 6. The construction of buildings; seventh edition, Vol.1 & Vol.2 by R. Barry, Oxford: Blackwell Science. 7. Building Materials Technology by Ruth T. Brantley & L. Reed Brantley, Tata McGraw Hill. 8. Properties of Concrete by A. M. Neville, Pearson Education Limited. 9. Mitchell's Advanced Building Construction: The Structure by J. Stroud Foster
E-Resources	https://nptel.ac.in/courses/105102088/



School of Engineering and Technology

First Year Civil Engineering (IILP)

Year: First Year

Semester: II

Course: Geotechnical Engineering

Course Code: TYCE203

Teaching Scheme (Hrs/Week)				Continuous Internal Assessment (CIA)				End Semester Examination		Total
L	T	P	C	CIA-1	CIA-2	CIA-3	Lab	Theory	Lab	
3	0	2	4	20	20	10	25	100	25	150
Max. Time, End Semester Exam (Theory) -3Hrs.								End Semester Exam (Lab) – 2Hr.		

Prerequisite	Basic knowledge about various engineering properties of soil.
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Course Objectives

- 1** To develop skills in dealing with soil as a construction material or as load carrying component of an engineering structures.
- 2** To develop an understanding of the behaviour of foundations for engineering structures and to gain knowledge of the design that can be applied to practical problems
- 3** To understand and able to apply modelling and analysis techniques used in soil mechanics (a)Darcy’s Law and Flow net for seepage; (b) Consolidation models for load time deformation responses of soil.
- 4** To compute lateral earth pressure & factor of safety of stable slopes

Course Content			
Unit No.	Module No.	Content	Hours
1	I	Introduction and Index Properties of Soil Need for soil engineering studies, complexity of soil, historical development, regional soil deposits in India. Solids-water-air relationships & Index properties: Phase diagram, relationships, water content determination, specific gravity of solids determination, In-situ determination of density - relative density, grain shape, Index properties – grain size distribution and consistency of clays:	6
	II	Atterberg Limits, activity. Classification of soils: Unified Soil Classification System, AASHTO classification system, Indian Standard soil classification system and textural classification of soils, plasticity chart Soil structure and clay minerals: Clay minerals, clay particle interaction, soil structure and fabric, specific surface, granular soil structure	6
2	I	Permeability: Darcy’s law, Laboratory and Field tests to determine coefficient of permeability. Permeability of layered soil Seepage and Seepage Pressure, quick sand phenomenon, critical hydraulic gradient,	5
	II	General flow equation for 2-D flow (Laplace equation), Flow Net,	5

		properties and application, Flow Net construction for flow under sheet pile and earthen dam	
3	I	Engineering Properties of Soil Compaction: Factors affecting compaction, laboratory tests, compaction in field, compaction specifications and field control. Consolidation: Fundamentals of consolidation, consolidation parameters, one dimensional laboratory consolidation test, time rate of consolidation.	5
	II	Vertical stress below applied loads: Boussinesq equations, vertical stress beneath loaded area, New Mark's influence chart, approximate distribution methods, Westergaard's solution	5
4	I	Shear Strength of Soil. Introduction – Shear strength an Engineering Property. Mohr's stress circle, Mohr Coulomb failure theory. The effective stress principle- Total stress, effective stress and neutral stress / pore water pressure. Peak and Residual shear strength, factors affecting shear strength. Stress-strain behavior of sands and clays.	6
	II	Measurement of Shear Strength – Direct Shear test, Triaxial Compression test, Unconfined Compression test, Vane Shear test. Their suitability for different types of soils, advantages and disadvantages. Different drainage conditions for shear tests.	6
5	I	Lateral Earth Pressure and Stability of slopes Lateral Earth Pressure: Introduction, Active - Passive and Earth pressure at rest conditions. Coulomb's - Rankine's theories of earth pressure, Culman's graphical method.	6
	II	Stability of slopes: modes of slope failure, factor of safety, infinite slope - finite slope - Swedish method - Taylors stability number- Applications to design of earth dam	6
Total No. of Hrs			56

Course Outcome

Students should able to

CO1	Classify soils and determine their physical characteristics such as grain size, water content, void ratio, and unit weight
CO2	Understand one- and two-dimensional flow of water through soils and be able to determine hydraulic conductivity, porewater pressures, and seepage stresses.
CO3	Determine the compaction of soils and be able to specify and monitor field compaction . Understand how stresses are distributed within soils from surface loads and the limitations in calculating these stresses. Be able to determine consolidation parameters and calculate one-dimensional consolidation settlement
CO4	Determine soil strength parameters from soil tests, for example, the friction angle and undrained shear strength
CO5	Determine the lateral earth pressure and understand stability of slopes

Recommended Resources

Text Books

11. Craig, R.F. “Craig’s soil mechanics”, Spon Press 2004.
12. Holtz, R.D. & Kovacs, W.D., “An introduction to geotechnical engineering”, Prentice Hall, 1981.
13. Lambe, T.W. & Whitman, R.V., “Soil Mechanics”, John Wiley & Sons, 1979.

Reference Books

9. Mitchell, J.K. & Soga, K., “Fundamentals of soil behaviour”, John Wiley & Sons, 2005.
10. Ranjan, Gopal & Rao, A.S.R., “Basic and applied soil mechanics”, New Age International Pvt. Ltd., 2004.
11. Terzaghi, Peck and Mesri “Soil Mechanics in Engineering Practice” 1996.
12. Parcher .J.V & Means .R.E, “Soil Mechanics and Foundations”, Columbus, 1968. Bowles J E, "Foundation Analysis & Design", McGraw Hill Inc., New York, 1988.

E-Resources

<https://nptel.ac.in/courses/105101001/>

School of Engineering and Technology

First Year Civil Engineering (IILP)

Year: First Year

Semester: II

Course: Structural Analysis - I

Course Code:TYCE204

Teaching Scheme (Hrs/Week)				Continuous Internal Assessment (CIA)				End Semester Examination		Total	
L	T	P	C	CIA-1	CIA-2	CIA-3		Lab	Theory	Lab	
3	1	-	4	20	20	10		-	100	-	100
Max. Time, End Semester Exam (Theory) -3Hrs.											

Prerequisite	Basic knowledge about types of load, deflection, various support conditions.
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Course Objectives

- 1 To understand the basics configuration and classification of structures.
- 2 To analyse the determinate and indeterminate structures.

Course Content

Unit No.	Module No.	Content	Hours
1	I	Fundamentals of structure, slope and deflection. Types and classification of structures based on structural forms, concept of indeterminacy, static and kinematics degree of indeterminacy.	6
	II	Strain energy, Castigliano's first theorem, application to determine slope and deflection of determinate beams and frames	6
2	I	Slope Deflection Method: Slope and deflection of determinate beams by Macaulay's method, concept of moment area method and conjugate beam method and its application.	5
	II	Derivation of slope deflection equations, Analysis of statically indeterminate beams and rectangular portal frames (two dimensional structures) with and without sway using slope deflection method (Up to three unknowns), Application of modified slope deflection equations, Drawing SFD and BMD on tension side	5
3	I	Moment Distribution Method: General, Absolute stiffness, Modified stiffness, Carry over factor, Distribution factor.	5
	II	Analysis of statically indeterminate beams and rectangular portal frames (two dimensional structures) with and without sway using moment distribution method, Drawing SFD and BMD on tension side.	5
4	I	Influence line diagram: Basic concept, Muller-Breslau's principle, influence line diagram for reaction, shear and moment to simply supported and overhanging beams, application of influence line	5

		diagram to determine reaction, shear and moment in beams.	
	II	Influence line diagram for axial force in trusses, application of influence line diagram to determine of axial forces in the members of plane determinate trusses under dead load and live load.	5
5	I	Analysis of arches: Three hinged arches: Concepts, types of arches, analysis of parabolic arch with supports at same and different levels, semi-circular arches with support at same level, determination of horizontal thrust, radial shear and normal thrust for parabolic and circular arch.	4
	II	Two hinged arches: analysis of parabolic and semi-circular arches with supports at same level, determination of horizontal thrust, radial shear and normal thrust.	4
Total No. of Hrs			50

Course Outcome

Students should able to

- CO1** Students will understand the basic concept of static and kinematic indeterminacy.
- CO2** Students will be able to analyze determinate and indeterminate structures using different methods.
- CO3** Students will be able to apply influence line diagrams for the analysis of structures.
- CO4** Students will be able to analyze two and three hinged arches.

Recommended Resources

- Text Books**
14. Structural Analysis: A matrix approach by G.S. Pandit and S. P. Gupta, Tata Mc Graw Hill.
 15. Structural Analysis: A Matrix Approach by Pandit and Gupta, McGraw Hills. Theory of Structures – S Ramamrutham.
 16. Structural Analysis Vol-1, third edition, By S S Bhavikatti, Vikas publishing House, PVT, LTD.
 17. Theory of Structures – VaziraniRatwani

- Reference Books**
1. Mechanics of Structures Vol. II by S B Junnarkar and Dr. H J Shah, Twenty second edition, Charotar Publishing House Pvt. Ltd.
 2. Structural Analysis: Deodas Menon--Narosa Publishing House.
 3. Theory of Structures: Vol. I by B. C. Punmia, Laxmi Publication.
Theory of Structures: Vol. II by B. C. Punmia, Laxmi Publication

E-Resources <https://nptel.ac.in/courses/105105166/>

School of Engineering and Technology

First Year Civil Engineering (IILP)

Year: First Year

Semester: II



Teaching Scheme (Hrs/Week)				Continuous Internal Assessment (CIA)				End Semester Examination		Total
L	T	P	C	CIA-1	CIA-2	CIA-3	Lab	Theory	Lab	
3	0	2	4	20	20	10	50	50	-	150
Max. Time, End Semester Exam (Theory) -3Hrs.										

Prerequisite	11. Introduction and basic concepts of derivative and integration of functions. 12. Basic concepts and methods to solve simultaneous equations, quadratic equations.
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Course Objectives

- To solve System of linear equations using matrix methods.
- To understand partial differentiation with their applications stationary values arising in engineering optimization problems.
- To solve ordinary differential equations
- To understand the basic concepts of statistics and probability

Course Content

Unit No.	Module No.	Content	Hours
1	I	LASER Laser - introduction, difference between ordinary source of light and laser. Properties of laser, Absorption, spontaneous and stimulated emission, population inversion, pumping and types of pumping. Active medium, Components of laser. Three level and four level system, Ruby laser, He-Ne laser, Applications of laser industrial, medical etc. Holography.	8
2	II	Semiconductor physics Introduction to formation of energy bands in solids. Classification of solids, electrical conductivity in conductor and semiconductors. Influence of external factors on conductivity (temperature, impurity), Hall effect.	6
3	III	Superconductivity : properties of superconductor, Meissner effect, isotope effect, persistent current, critical current density, critical magnetic field, BCS theory of superconductivity, type-I and type-II superconductors. DC and AC Josephson effect, SQUIDS, application of superconductivity like magnets, transmission line, levitation, etc.).	6
4	IV	UNIT-I : WATER TECHNOLOGY Boiler problems- scale, sludge, priming, foaming, caustic embrittlement, and corrosion, causes, preventions, and disadvantages. Water softening processes (external and internal treatment methods) – Zeolite process,	10

		Ion exchange method, Desalination, Reverse osmosis & Electrodialysis. Phosphate conditioning, colloidal conditioning, calgon conditioning for boiler feed water.	
5	V	UNIT III: POLYMER Degree of polymerisation, classification of polymers based on sources, composition, structure etc., Types of polymerisation- addition and condensation polymerisation, free radical mechanism of addition polymerisation. compounding of plastics, glass transition temperature and factors affecting it. Important polymers- Preparation, properties and Engineering uses. Thermoplastics, Thermosetting plastics, polythene (LDPE and HDPE), Polycarbonate, Nylon-6, Nylon-66, , Rubber, processing of natural rubber, vulcanization of rubber, synthetic rubber, Natural and synthetic rubber.	10
Total No. of Hrs			40

Beyond the Syllabus

Course Outcome

Students should able to

- | | |
|------------|---|
| CO1 | Student will able to understand basics involved in lasers. |
| CO2 | Student will able to classify solids, will understands the concepts involved in conductivity. |
| CO3 | Student will be able to understand basic concepts of superconductivity. |
| CO4 | Student will be able to understand impurities in water and their treatment methods. |
| CO5 | Student will be understand preparation, properties and applications of some polymers. |

List of Experiments

1. To determine the wavelength of laser by using plane diffraction grating
2. To Determine the sound absorption coefficient
3. To study Hall effect
4. To determine band gap of semiconductor
5. Identify and determination of type and amount of alkalinity in given water sample
6. Performing titration of Strong acid Vs Weak base by using PH Meter
7. Determining Hardness of given water sample By EDTA method
8. Preparation of phenol formaldehyde resin .

Recommended Resources

- | | |
|-------------------|---|
| Text Books | 1. A text book of Engg. Physics by M. N. Avadhalula and P. G. Kshirsagar, S. Chand Pub. |
| | 2. Engg. Physics by Abhijit Nayak, S. K. Kataria and sons Pub. |
| | 3. R. K. Gaur and S.C. Gupta, 'Engineering Physics' Dhanpat Rai |



Publications, New Delhi(2003)

4. A Text book of Engineering Chemistry by Dr S S Dara, Dr S S Umare, S Chand & company Ltd.
5. Engineering Chemistry - Sunita Rattan
6. Engineering Chemistry, K. Shesha Maheshwari, Mridula Chug, Pearson,2018

**Reference
Books**

1. Engineering Physics, malik and singh, Tata Mc Graw Hill .
2. A textbook of engineering Physics, Pillai, sivakami, new age International, limited
3. Corrosion Engineering ,Fontenna & Greene
4. Chemistry, Raymond Chang. (Tata McGraw Hill).

**E-
Resources**



School of Engineering and Technology

First Year Civil Engineering (IILP)

Year: First Year

Semester: I

Course: Communication Skill (HSS)

Course Code: 17YHS111

Teaching Scheme (Hrs/Week)				Continuous Internal Assessment (CIA)					End Semester Examination		Total
L	T	P	C	CIA-1	CIA-2	CIA-3	CIA-4	Lab	Theory	Lab	
2	-	2	3	10	20	10	10	-	50	-	100
Max. Time, End Semester Exam									End Semester Orals –1 Hr.		

Prerequisite	1. Functional grammar-Parts of speech, Tenses, Sentence pattern 2. Formal letter 3. Fluency in reading and speaking
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Course Objectives

- 1** To acquire basic language skills (LSRW) to communicate with speakers of English language.
- 2** To develop their intellectual, personal and professional abilities.
- 3** To develop skill to communicate fluently.
- 4** To enhance team building and time management skills.
- 5** To inculcate employability skills among students.

Course Content			
Unit No.	Module No.	Content	Hours
1	I	English Vocabulary building: Affixes, Prefixes & Suffixes	3
	II	Word building- Compound words, Standard Abbreviations	2
	III	Antonyms and Synonyms- functional usage	2
	IV	Active & Passive voice	2
2	I	Writing skills: Parts of speech	3
	II	Paragraph writing	2
	III	Use of Idioms, Phrases and Proverbs in sentences	2
	IV	Basic sentence pattern	1
	V	Importance of punctuation	1
3	I	CALL- Computer Assisted Language Laboratory Listening exercises- Extempore	4
	II	Vocabulary building -Task based Lab Activities	5
	III	Language fluency Linguistic accuracy & Communicative fluency	5
	IV	Listening to varied registers-Role play - Situational Dialogues	2
	V	Pronunciation, Intonation, Stress and Rhythm- Public speaking	4



4	I	Oral & Written Presentation Tenses	2
	II	Ice breaking, reporting, Question & answer skill	2
	III	Formal & Informal speech	3
Total No. of Hrs			45

Beyond the Syllabus

Self-Introduction, SWOT/SWOC, Group Discussion

Course Outcome

Students should able to

- CO1** Students will acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.
- CO2** Students will be able to write formal letters effectively.
- CO3** Students will be able to prepare, organize and deliver oral presentation.
- CO4** Students will develop reading speed and build academic vocabulary.
- CO5** Students will demonstrate behaviour and attitudes appropriate to university environment.

List of Experiments

Sr. No.	Description
1	Module 1 CALL- Computer Assisted Language Laboratory Listening exercises- Extempore
2	Module 2 Vocabulary building -Task based Lab Activities
3	Module 3 Language fluency Linguistic accuracy & Communicative fluency
4	Module 4 Listening to varied registers-Role play - Situational Dialogues
5	Module 5 Pronunciation, Intonation, Stress and Rhythm- Public speaking



Recommended Resources
Text Books

1. Communication Skills by Sanjay Kumar and PushpaLata, Oxford University Press.
2. Developing Communication Skill by Krishna Mohan, MeeraBanerji, McMillan India Ltd.
3. English for Business Communication by Simon Sweeney, Cambridge University Press.
4. Exercises in Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford University Press

Reference Books

1. Ethics in Engineering Practice and Research by Caroline & Whitbeck, Cambridge University Press.
2. Basic Managerial Skills by E. H. McGrath, Eastern Economy Edition, Prentice hall India.
3. Change Your Thoughts; Change Your Life by Wayne Dyer, Hay House India, ISBN-139788189988050.
4. The Power of Your Subconscious Mind by Dr Joseph Murphy MaanuGraphics , ISBN-13 9789381529560.
5. Baltra, A. (1986). "Computer assisted language learning: What is it all about?" Paper presented at a conference at the University of California, Irvine.
6. Jones, C. (1986). It's not so much the program, more what you do with it: The importance of methodology in CALL. "System, 14"(2), p.171-78.
7. Rivers, W. (Ed.). (1987) "Interactive language teaching." NY: Cambridge University Press.

E-Resources

- https://www.britishcouncil.in/sites/default/files/esfe_report.pdf
<https://www.britishcouncil.org/sites/default/files/english-soft-skills-maghreb-research-report.pdf>
<http://nptel.ac.in/courses/109104030/references/references.pdf>
<http://promeng.eu/downloads/training-materials/ebooks/soft-skills/effective-communication-skills.pdf>

