Syllabus-2020-2021

(SOET)(BTech-CivilEngineering)

Title of the Course	Industrial training
Course Code	CED0702[P]

Part A

Year	4th	**Semester**	7th	**Credits**	L	T	P	C
					0	0	2	2
Course Type	Lab only							
Course Category	Projects and Internship							
Pre-Requisite/s	Basic Knowledge of Civil Engineering			**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** Understand the 'real' working environment and get acquainted with the organization structure, business operations and administrative functions**(BL2-Understand)** **CO2-** To have hands-on experience in the students' related field so that they can relate and reinforce what has been taught at the university**(BL2-Understand)** **CO3-** To promote cooperation and to develop synergetic collaboration between industry and the university in promoting a knowledgeable society**(BL3-Apply)** **CO4-** Develop the confidence require for group living and sharing of responsibilities of acquire leader ship qualities and democratic attitudes. **(BL4-Analyze)** **CO5-** Develop the capacity to meet emergencies and natural disasters and practice national integration and social harmony**(BL5-Evaluate)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✓ Environment ✕		**SDG (Goals)**	SDG9(Industry Innovation and Infrastructure) SDG11(Sustainable cities and economies)				

Part B

Modules	Contents	Pedagogy	Hours
1	Students have to submit a report on training and give a presentation on his/her experience	Presentation	8

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module-I	Industrial training has its own importance in a career of a student who is pursuing a professional degree. It is considered as a part of college curriculum. The objective of an industrial training is to provide us an insight regarding internal working of companies. We understand that theoretical knowledge is not enough for a successful professional career. With an aim to go beyond academics, industrial visit provides students a practical perspective of the work place. Industrial trainings provide an opportunity to learn practically through interaction, working methods and employment practices.	Field work	BL3-Apply	40 hrs
Module-II	It gives students an exposure to current work practices as opposed to possibly theoretical knowledge being taught at college. Industrial visits provide an excellent opportunity to interact with industries and know more about industrial environment. Industrial trainings are arranged by TAP cell with an objective of providing us an opportunity to explore different sectors like IT, Manufacturing services, finance and marketing. Industrial visit helps to combine theoretical knowledge with practical knowledge. Industrial realities are opened to the students through industrial visits/trainings.	Field work	BL4-Analyze	40 hrs

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
	50				
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	40	20	60	

Part E

Books	
Articles	
References Books	
MOOC Courses	
Videos	

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	0	1	0	2	1	3	2	3	2	0	2	1	1	2
CO2	2	1	0	0	2	1	2	3	3	2	1	2	2	1	1
CO3	2	1	0	0	2	1	3	3	2	2	0	2	2	2	1
CO4	2	0	1	0	2	0	3	2	2	2	0	2	1	2	1
CO5	2	1	0	0	3	2	3	3	3	2	1	2	2	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2020-2021

(SOET)(BTech-CivilEngineering)

Title of the Course	Major Project (Planning and Literature Survey)
Course Code	CED0703[P]

Part A

Year	4th	**Semester**	7th	**Credits**	L	T	P	
					0	0	2	
Course Type	Project							
Course Category	Projects and Internship							
Pre-Requisite/s	Knowledge of Civil engineering and interdisciplinary subjects.			**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** To enhance writing skills and knowledge.**(BL2-Understand)** **CO2-** To increase their mental ability.**(BL3-Apply)** **CO3-** To inculcate the ability to express innovative opinion and thoughts**(BL4-Analyze)** **CO4-** To have Dissertation works as skills development in students.**(BL5-Evaluate)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**						

Part B

Modules	Contents	Pedagogy	Hours
1	Project/Problem Identification	Project Work	8
2	Project Analysis, Requirement Gathering	Project Work	8
3	Writing of Literature Review	Project Work	8
4	Findings of Research Gap	Project Work	8
5	Presentation and Report Writing	Project Work	8

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module-I	Identification of a problem and formulation of a topic of project/thesis	PBL	BL3-Apply	15 hrs
Module-III	Dissertation and Viva-voci	PBL	BL5-Evaluate	20 hrs

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
	50				
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	50	40	20	60	

Part E

Books	
Articles	
References Books	
MOOC Courses	
Videos	

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	0	0	0	2	1	3	3	3	2	0	2	1	1	2
CO2	2	0	1	0	1	0	2	2	3	2	0	2	2	2	1
CO3	1	1	0	0	2	1	3	3	3	2	0	1	1	1	1
CO4	2	1	1	0	1	1	3	2	2	2	0	2	1	1	2
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2020-2021

(SOET)(BTech-CivilEngineering)

Title of the Course	MATRIX ANALYSIS OF STRUCTURES
Course Code	CEE0701

Part A

Year	4th	**Semester**	7th	**Credits**	L	T	P	C
					3	1	0	4
Course Type	Theory only							
Course Category	Discipline Electives							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** Students will understand the concept of Axial Force Elements **(BL2-Understand)** **CO2-** Students will learn about the Stress and Strain work energy **(BL1-Remember)** **CO3-** Students will be able to analyse Shape Functions for different elements**(BL4-Analyze)** **CO4-** Students will be able to apply the matrix analysis on 2D and 3D frames and Trusses**(BL3-Apply)** **CO5-** Students will be able to understand Buckling Analysis for linear and non linear elements**(BL2-Understand)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✕ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕		**SDG (Goals)**	SDG11(Sustainable cities and economies)				

Part B

Modules	Contents	Pedagogy	Hours
1	Introduction - Review of Structures, Degrees of Freedom & Coordinate Systems, Axial Force Elements, Matrix Condensation, Matrix Condensation Example, Axial Force Elements - Global Equations, Direct Stiffness Method Mathcad Background, member truss	Lectures with problem based learning, experimental learning, case study,	8
2	Stress & Strain - Work & Energy, Axial Force & Torsional Elements, Beam Elements, Frame-Truss Example 3D Coordinate Transformations, Coord. Transformation, Space Truss, Member End Releases - Hinge Example, Virtual Displacements	Lectures with problem based learning, experimental learning, case study,	8
3	Displaced State of Elements - Shape Functions, Element Stiffness from Virtual Displacements, Stiffness Matrices from Virtual Work, Non-nodal Forces from Virtual Displacements, Thermal & Prestrain Loads by Virtual Work, Non uniform Elements, Tapered Element Example, Tapered Element/Log Shape Function	Lectures with problem based learning, experimental learning, case study,	8
4	Non uniform Torsion, Non uniform Torsion 2D vs, 3D comparison, Uniform Torsion, 8-Element Non uniform Torsion, Shear Deformations, Shear Deformation Example, Nonlinear Analysis Nonlinear Examples, Presentation Topic Proposal, Plastic Hinge Example, Matrix Non-linear Analysis, Geometric Stiffness Matrices for 2D, Geometric Stiffness Matrix Example, Geometric Stiffness Matrix Example, Presentation Outline, Nonlinear Material Behavior	Lectures with problem based learning, experimental learning, case study,	10
5	Nonlinear Material Example, Eigenvalue Buckling Analysis, Eigenvalue Buckling Example, Partially Restrained Joints, Presentation Progress Report, Member End Offsets, Restraint/Offset Example, Structural Optimization	Lectures with problem based learning, experimental learning, case study,	6

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1		PBL		

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	40	12	60	0
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	Matrix Structural Analysis 2nd ed, by McGuire, Gallagher, and Ziemian
Articles	https://repository.bakrie.ac.id/10/1/%5BTSI-LIB-131%5D%5BAslam_Kassimali%5D_Matrix_Analysis_of_Structure.pdf
References Books	MATRIX ANALYSIS OF STRUCTURES by Aslam Kassimali
MOOC Courses	https://archive.nptel.ac.in/courses/105/105/105105180/
Videos	https://www.youtube.com/watch?v=Wa9ZSWlrpnk

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	1	1	-	-	-	-	-	2	2	1	2	3	3
CO2	2	2	1	2	-	-	-	-	-	2	1	2	3	3	2
CO3	1	3	1	2	-	-	-	-	-	2	2	2	3	2	1
CO4	2	2	2	1	-	-	-	-	-	2	1	1	2	2	2
CO5	3	2	2	2	-	-	-	-	-	1	1	2	2	3	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2020-2021

(SOET)(BTech-CivilEngineering)

Title of the Course	Advanced Foundation Engineering
Course Code	CEE0702[T]

Part A

Year	4th	**Semester**	7th	**Credits**	L	T	P	C
					3	1	0	4
Course Type	Theory only							
Course Category	Discipline Electives							
Pre-Requisite/s	basic foundantion knowledge			**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** Students will revise the concept of Exploration of soil.**(BL1-Remember)** **CO2-** Students are able to understand the concept of excavation and different types of foundations.**(BL2-Understand)** **CO3-** Students are able to apply the knowledge of different foundations for construction practices.**(BL3-Apply)** **CO4-** To analyze different theories of bearing capacities and settlements regarding structures.**(BL4-Analyze)** **CO5-** Students will be able to conduct several tests and evaluate different parameters of foundation**(BL5-Evaluate)** **CO6-** To complete foundation work at a construction site.**(BL6-Create)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**						

Part B

Modules	Contents	Pedagogy	Hours
1	Different types of piles on the labs of basis of casting, function , distribution of load various factors affecting load carrying capacity of piles, pile load test, static & kinematic analysis of pile groups in sand & clays, Cast in situ pile construction	lecture with experimental learning, interactive workshops, field trips	10
2	Settlement & safe load Carrying capacity of pile foundations, laterally loaded and battered piles, group action of piles, Foundation on expansive soils, drilled piers and caissons, Elements of well foundations, shapes, depth of scour, well sinking, tilts, shift and their prevention	lecture with experimental learning, interactive workshops, field trips	08
3	Basic design criteria for foundation, design of shallow foundation, allowable, total & differential settlement, Bearing capacity effect of water table as per IS code.	lecture with experimental learning, interactive workshops, field trips	10
4	Types of coffer dams, design of cellular coffer dams.	lecture with experimental learning, interactive workshops, field trips	08
5	Modes of vibration. Mass-spring analogy, Natural frequency. Effect of vibration on soils. Vibration isolation. Criteria for design. Design of block foundation for impact type of machine.	lecture with experimental learning, interactive workshops, field trips	09

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	spt test	Field work	BL4-Analyze	4

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
0	0	0	0	0	0

Part E

Books	Advanced Foundation Engineering By VNS Murthy
Articles	https://easyengineering.net/advanced-foundation-engineering-book/
References Books	Advanced Foundation Engineering By B. C Punamia
MOOC Courses	https://archive.nptel.ac.in/courses/105/105/105105207/
Videos	https://archive.nptel.ac.in/courses/105/105/105105207/

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	-	2	3	1	-	2	1	1	2	3	2	3	1
CO2	1	2	2	-	2	3	1	-	3	2	2	1	2	1	2
CO3	2	1	2	3	2	1	3	1	-	2	2	1	2	2	1
CO4	2	3	3	2	1	2	1	-	2	-	2	1	3	3	1
CO5	3	3	1	2	2	1	2	3	2	2	1	1	2	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2020-2021

(SOET)(BTech-CivilEngineering)

Title of the Course	Pavement Design
Course Code	CEE0703

Part A

Year	4th	**Semester**	7th	**Credits**	L	T	P	C
					3	1	0	4
Course Type	Theory only							
Course Category	Discipline Electives							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** Systematically generate and compile required data's for design of pavement (Highway & Airfield)**(BL3-Apply)** **CO2-** Analyze stress, strain and deflection by boussinesq's, bur mister's and westergaard's theory**(BL4-Analyze)** **CO3-** Design rigid pavement and flexible pavement conforming to IRC58-2002 and IRC37-2001.**(BL4-Analyze)** **CO4-** Evaluate the performance of the pavement and also develops maintenance statement based on site specific requirements**(BL5-Evaluate)** **CO5-** Understand the various causes leading to failure of pavement and remedies for the same**(BL2-Understand)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕		**SDG (Goals)**	SDG9(Industry Innovation and Infrastructure) SDG11(Sustainable cities and economies)				

Part B

Modules	Contents	Pedagogy	Hours
1	Introduction: Desirable characteristics of pavement, Types and components, Difference between Highway pavement and Air field pavement, Design strategies of variables, Functions of subgrade, sub base, Base course, surface course, comparison between Rigid and flexible pavement Fundamentals of Design of Pavements: Stresses and deflections, Principle, Assumptions and Limitations of Boussinesq's theory, Burmister theory and problems	Lectures with Presentation, Site Visit to Highway Construction site	8
2	Design Factors: Design wheel load, contact pressure, Design life, Traffic factors, climatic factors, Road geometry, Subgrade strength and drainage, ESWL concept Determination of ESWL by equivalent deflection criteria, Stress criteria, EWL concept, and problems on above. Flexible pavement Design: Assumptions, Mcleod Method, Kansas method, CBR method, IRC Method (old), CSA method using IRC-37-2001	Lectures with Presentation, Site Visit to Highway Construction site	8
3	Flexible Pavement Failures, Maintenance and Evaluation: Types of failures, Causes, Remedial/Maintenance measures in flexible pavements, Functional Evaluation by Visual inspection and unevenness measurements, Structural evaluation by Benkleman beam deflection method, Falling weight deflecto meter, GPR method. Design factors for runway pavements, Design methods for Airfield pavement	Lectures with Presentation, Site Visit to Highway Construction site	8
4	Stresses in Rigid Pavement : Types of stress, Analysis of Stresses, Westergaard's Analysis, Modified Westergaard equations, Critical stresses, Wheel load stresses, Warping stress, Frictional stress, combined stresses (using chart / equations), problems on above. Design of Rigid Pavement: Design of CC pavement by IRC: 58-2002 for dual and Tandem axle load, Reinforcement in slabs, Design of Dowel bars, Design of Tie bars, Design factors for Runway pavements, Design methods for airfield pavements	Lectures with Presentation, Site Visit to Highway Construction site	8
5	Rigid Pavement Failures, Maintenance and Evaluation: Types of failures, causes, remedial/maintenance measures in rigid pavements, Functional evaluation by Visual inspection and unevenness measurements, wheel load and its repetition, properties of sub grade, properties of concrete. External conditions, joints, Reinforcement, Requirements of joints, Types of joints, Expansion joint, contraction joint, warping joint, construction joint, longitudinal joint, Design of joints	Lectures with Presentation, Site Visit to Highway Construction site	8

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	Students will Collect the data from highway and develop best design	PBL	BL4-Analyze	15 hrs
2	Students will study different types of Pavements that are used in India	Case Study	BL3-Apply	15

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	40	12	60	0
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	S K Khanna, C E G Justo, and A Veeraragavan, "Highway Engineering", Nem Chand & Brothers
Articles	https://www.researchgate.net/search.Search.html?query=Pavement-Design&type=publication
References Books	L.R.Kadiyali and Dr.N.B.Lal, " Principles and Practices of Highway Engineering", Khanna publisher
MOOC Courses	https://archive.nptel.ac.in/courses/105/106/105106221/
Videos	https://www.youtube.com/watch?v=fGcgX63pBk4

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	1	-	-	-	-	-	-	2	2	2	2	3
CO2	3	2	2	2	-	-	-	-	-	-	2	1	3	3	3
CO3	3	2	3	1	-	-	-	-	-	-	2	2	3	2	2
CO4	3	2	2	1	-	-	-	-	-	-	2	2	3	2	2
CO5	3	2	2	1	-	-	-	-	-	-	1	2	2	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2020-2021

(SOET)(BTech-CivilEngineering)

Title of the Course	Seismic analysis of structures
Course Code	CEE0704[T]

Part A

Year	4th	**Semester**	7th	**Credits**	L	T	P	C
					3	1	0	4
Course Type	Theory only							
Course Category	Discipline Electives							
Pre-Requisite/s	basic knowledge of Rcc and steel structure and its design provisions			**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** To remember the various concepts in theory of seismic structures**.(BL1-Remember)** **CO2-** : To understand & analyze the concept of soft storeys**(BL2-Understand)** **CO3-** To implement the different designing earthquake resistant structures**(BL3-Apply)** **CO4-** : To provide experimental basis, and to enable the students to analyze and test equivalent lateral force method**(BL4-Analyze)** **CO5-** To evaluate the applications of dynamic analysis**(BL5-Evaluate)** **CO6-** : To apply the understanding of retrofitting techniques**(BL6-Create)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✓		**SDG (Goals)**					

Part B

Modules	Contents	Pedagogy	Hours
1	Introduction to Earthquake Resistant Design, 24 IIT Kanpur Tips. .	lecture with experimental learning, interactive workshops, field trips	10
2	Equivalent lateral force method. (Code based procedure for determination of design lateral force)	lecture with experimental learning, interactive workshops, field trips	10
3	Effects of torsion on the buildings.	lecture with experimental learning, interactive workshops, field trips	08
4	Dynamic analysis. (Code based procedure for determination of design lateral force) Determination of eigen-values and eigen – vectors, model participation factor, model mass, design lateral force, storey shear	lecture with experimental learning, interactive workshops, field trips	09
5	An introduction to seismic analysis of special structures, water tower dam, chimney, bridge, nuclear power plant etc.	lecture with experimental learning, interactive workshops, field trips	08

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	tune mass demper	PBL	BL4-Analyze	3
2	comparitve studey of base isolated bulding	PBL	BL5-Evaluate	4

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
0	0	0	0	0	0

Part E

Books	Earthquake resistant design of structures by Pankaj Agarwal & Manish Shrikhande, PHI Publication House
Articles	https://www.scribd.com/document/343407200/Pankaj-Agarwal-and-Manish-Shrikhande
References Books	Earthquake resistant design of structures By Michael R. Lindeburg, Professional Publications House
MOOC Courses	https://archive.nptel.ac.in/courses/105/102/105102016/ http://www.digimat.in/nptel/courses/video/105102016/L27.html
Videos	

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	3	2	1	3	-	-	-	2	3	2	1	2	1
CO2	-	2	3	1	2	2	-	-	2	-	3	2	1	1	2
CO3	2	-	1	-	2	1	3	2	-	1	-	-	2	1	-
CO4	2	2	-	3	1	1	2	2	1	3	2	1	3	3	1
CO5	2	-	1	2	2	1	-	1	2	3	2	3	2	1	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2020-2021

(SOET)(BTech-CivilEngineering)

Title of the Course	Fundamentals of Remote Sensing & GIS
Course Code	CEE0705

Part A

Year	4th	**Semester**	7th	**Credits**	L	T	P	C
					3	1	0	4
Course Type	Theory only							
Course Category	Discipline Electives							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** Observe, Identify and define simple/ complex problems of day to day lives present in Industry/ Society where GIS and Remote Sensing applications can be useful**(BL2-Understand)** **CO2-** Apply knowledge of basic image interpretation and data image processing.**(BL3-Apply)** **CO3-** Integrate the existing data through various observations from various angles and layer creation**(BL4-Analyze)** **CO4-** Apply problem-solving methodologies to generate, evaluate and justify innovative solutions by designing and conducting/ analyzing and interpreting the data**(BL3-Apply)** **CO5-** Demonstrate the ability to give solutions with an ability which can help communicate effectively for giving betterinterpretation and solutions**(BL4-Analyze)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕	**SDG (Goals)**		SDG9(Industry Innovation and Infrastructure) SDG11(Sustainable cities and economies)				

Part B

Modules	Contents	Pedagogy	Hours

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	Projects on Water Resource Mapping and Management	PBL	BL4-Analyze	15
2	Projects on Land Use Mapping and LandResource Management	PBL	BL4-Analyze	15

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	40	12	60	0
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	Lilliesand T.M. and Kiefer R.W., Remote Sensing and image Interpretation, John Wiley and Sons, New York, 2004
Articles	https://www.researchgate.net/publication/225223282_Basics_of_Remote_Sensing
References Books	Burrrough P.A and McDonnel R.A., Principles of Geographic Information Systems, Oxford university press, 1998
MOOC Courses	https://www.iirs.gov.in/pgdiploma
Videos	https://www.youtube.com/watch?v=VfDAd-MO94o

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	-	-	-	-	-	-	-	2	2	3	2	2
CO2	2	2	2	-	-	-	-	-	-	-	2	1	2	3	2
CO3	2	1	2	-	-	-	-	-	-	-	2	2	2	3	2
CO4	3	2	2	-	-	-	-	-	-	-	2	2	2	2	3
CO5	2	3	2	-	-	-	-	-	-	-	2	2	3	3	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2020-2021

(SOET)(BTech-CivilEngineering)

Title of the Course	Fluid Dynamics
Course Code	CEE0706

Part A

Year	4th	**Semester**	7th	**Credits**	L	T	P	C
					3	1	0	4
Course Type	Theory only							
Course Category	Discipline Electives							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** Students will revise the concepts of fluid properties**(BL1-Remember)** **CO2-** Students will understand the concept of fluid kinematics**(BL2-Understand)** **CO3-** Students will analyse the type of boundary layer flows**(BL4-Analyze)** **CO4-** Students will be able to apply the fluid concepts for hydraulic structures**(BL3-Apply)** **CO5-** Students will be able to evaluate different flow conditions with different defined equations**(BL5-Evaluate)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕		**SDG (Goals)**	SDG9(Industry Innovation and Infrastructure) SDG11(Sustainable cities and economies)				

Part B

Modules	Contents	Pedagogy	Hours
1	Basic Concepts and Fundamentals: Definition and properties of Fluids, Fluid as continuum, Langragian and Eulerian description,Velocity and stress field, Fluid statics, Fluid Kinematics Governing Equations of Fluid Motion: Reynolds transport theorem, Integral and differential forms of governing equations: mass, momentum and energy conservation equations, NavierStokes equations,Euler's equation,Bernoulli's Equation	Lectures with Presentation, Seminars	8
2	Exact solutions of Navier-Stokes Equations: Couette flows,Poiseuille flows, Fully developed flows in noncircular cross-sections, Unsteady flows, Creeping flows Potential Flows: Revisit of fluid kinematics,Stream and Velocity potential function, Circulation, Irrotational vortex,Basic plane potential flows: Uniform stream;Source and Sink;Vortex flow, Doublet,Superposition of basic plane potential flows, Flow past a circular cylinder, Magnus effect;Kutta-Joukowski lift theorem; Concept of lift and drag.	Lectures with Presentation, Seminars	8
3	Laminar Boundary Layers: Boundary layer equations, Boundary layer thickness, Boundary layer on a flat plate, similarity solutions, Integral form of boundary layer equations, Approximate Methods, Flow separation,Entry flow into a duct Elements of Stability Theory: Concept of small-disturbance stability, Orr-Sommerfeld equation, Inviscid stability theory,Boundary layer stability, Thermal instability, Transition to turbulence	Lectures with Presentation, Seminars	8
4	Turbulent Flow: Introduction, Fluctuations and timeaveraging, General equations of turbulent flow, Turbulent boundary layer equation, Flat plate turbulent boundary layer, Turbulent pipe flow, Prandtl mixing hypothesis, Turbulence modeling, Free turbulent flows	Lectures with Presentation, Seminars	7
5	Compressible Flows: Speed of sound and Mach number,Basic equations for one dimensional flows, Isentropic relations, Normal-shock wave, Rankine-Hugoniot relations, Fanno and Rayleigh curve, Mach waves, Oblique shock wave,PrandtlMeyer expansion waves, Quasione dimensional flows, Compressible viscous flows, Compressible boundary layers Introduction to Computational Fluid Dynamics (CFD): Boundary conditions,Basic discretization – Finite difference method, Finite volume method and Finite element method	Lectures with Presentation, Seminars	9

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	Performance of real nozzle	Case Study	BL4-Analyze	15
2	Measurements of boundary layer thickness using numerical & analytical solution	PBL	BL4-Analyze	15

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	40	12	60	0
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	Batchelor G.K,An Introduction to Fluid Dynamics, Cambridge University Press, 1983 Frank M. White, Fluid Mechanics, Tata McGraw-Hill, Singapore,Sixth Edition, 2008
Articles	https://ocw.mit.edu/courses/2-06-fluid-dynamics-spring-2013/pages/syllabus/
References Books	Frank M. White,Viscous Fluid Flow, Third Edition, McGraw-Hill Series of Mechanical Engineering, 2006
MOOC Courses	https://archive.nptel.ac.in/courses/112/106/112106200/
Videos	https://www.youtube.com/watch?v=AirfUsq8aSo&t=160s

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	1	-	-	-	-	-	-	-	1	1	1	2	1
CO2	3	2	2	-	-	-	-	-	-	-	1	2	1	1	2
CO3	3	2	2	-	-	-	-	-	-	-	2	1	2	2	1
CO4	3	1	2	-	-	-	-	-	-	-	1	-	1	2	1
CO5	3	2	2	-	-	-	-	-	-	-	-	1	2	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2020-2021

(SOET)(BTech-CivilEngineering)

Title of the Course	Wastewater Treatment and Recycling
Course Code	CEE0707

Part A

Year	4th	**Semester**	7th	**Credits**	L	T	P	C
					3	1	0	4
Course Type	Theory only							
Course Category	Discipline Electives							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** Integrated waste management issues, collection, recovery, reuse, recycling, energy-from-waste, and landfilling**(BL3-Apply)** **CO2-** Analyze & compute the challenges of waste management for smart cities**(BL4-Analyze)** **CO3-** Understand the C&D Waste and E-Waste Management**(BL2-Understand)** **CO4-** Design the generation rates and waste composition material**(BL5-Evaluate)** **CO5-** Perform the role of MSW management within the various initiatives of the Govt. of India including: Swachh Bharat Mission, Smart Cities as well as Make in India**(BL3-Apply)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✓ Human Values ✓ Environment ✓		**SDG (Goals)**	SDG4(Quality education) SDG6(Clean water and sanitation) SDG11(Sustainable cities and economies)				

Part B

Modules	Contents	Pedagogy	Hours
1	Important terminologies in waste water treatments systems: Sludge, aerobic treatments, anerobic treatments, bioengineering, biosolids, clarifiers, sewers, wetland, retention time, disinfection, influent, effluent, scum, anaerobic digestion, trickling filter, root zone treatment technology	Lectures with problem based learning, experimental learning, case study,	8
2	Sewage and waste water treatments systems: A. Primary treatment methods B. Secondary treatment methods and C. Tertiary treatment methods	Lectures with problem based learning, experimental learning, case study,	8
3	Biotechnological application of hazardous waste management and management of Resources: Use of microbial systems, Waste water treatment using root zone treatment by plants. Reclamation of wasteland: biomass production for Biogas	Lectures with problem based learning, experimental learning, case study,	7
4	Sludge disposal: Sources and effects of sludge on the environment. Methods of sludge disposal	Lectures with problem based learning, experimental learning, case study,	8
5	Wastewater Recycling: Scope and demands; Types and stages of recycling; Recycling requirements; Designated reuse criteria; centralized vs decentralized recycling systems	Lectures with problem based learning, experimental learning, case study,	9

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	Development of Natural Filters for clean water	PBL	BL5-Evaluate	15 hrs
2	Development of Biogas chamber model	PBL	BL5-Evaluate	15 hrs

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	60	12	40	0
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	Biotreatment Systems, Volume II ; D.L. Wise Biodegradation and Bioremediation. Academic Press; 2nd edn. Martin Alexander
Articles	https://www.researchgate.net/publication/375376650_The_Treatment_of_Wastewater_Recycling_and_Reuse_-Past_Present_and_in_the_Future
References Books	Gabriel Bitton (Author). Wastewater Microbiology, 2nd Edition. Wiley-Liss; 2nd edition (February 16, 1999).
MOOC Courses	https://onlinecourses.nptel.ac.in/noc21_ce49/preview
Videos	https://www.youtube.com/watch?v=fHRxhuMQQnE

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	-	-	2	3	-	-	-	2	2	3	3	3
CO2	3	2	2	-	-	-	3	-	-	-	2	3	2	2	2
CO3	2	2	2	-	-	2	3	-	-	-	3	2	2	2	2
CO4	2	2	3	-	-	1	3	-	-	-	2	3	2	2	2
CO5	3	2	2	-	-	2	3	-	-	-	2	3	3	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2020-2021

(SOET)(BTech-CivilEngineering)

Title of the Course	Sustainable Construction Methods
Course Code	CEE0708

Part A

Year	4th	**Semester**	7th	**Credits**	L	T	P	C
					3	1	0	4
Course Type	Theory only							
Course Category	Discipline Electives							
Pre-Requisite/s				**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** Student will be able to Classify the sustainable construction materials**(BL2-Understand)** **CO2-** Student will be able to Apply cutting-edge construction technologies**(BL3-Apply)** **CO3-** Student will be able to Evaluate different sustainable construction methods**(BL5-Evaluate)** **CO4-** Student will be able to Apply different rating systems of construction/buildings as a professional**(BL3-Apply)** **CO5-** Student will be able to Apply life cycle approach to optimize the performance of green construction materials **(BL3-Apply)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✓		**SDG (Goals)**	SDG11(Sustainable cities and economies)				

Part B

Modules	Contents	Pedagogy	Hours
1	Types of foundations and construction methods. Basics of Formwork and Staging. Common building construction methods (conventional walls and slabs; conventional framed structure with blockwork walls). Modular construction methods for repetitive works	Lectures with problem based learning, experimental learning, case study, field trips	8
2	Precast concrete construction methods. Basics of Slip forming for tall structures. Basic construction methods for steel structures. Basics of construction methods for Bridges	Lectures with problem based learning, experimental learning, case study, field trips	8
3	dentification of cutting-edge sustainable construction materials, technologies, and project management strategies for use in the construction industry and evaluation of their potential to reduce the negative environmental impacts of construction activity	Lectures with problem based learning, experimental learning, case study, field trips	8
4	Study and evaluation of current LEED and GRIHA rating for construction system. Detailed case study and analysis of highly successful recent "green construction projects". Guidance to students for the LEED Green Associate professional licensing examination	Lectures with problem based learning, experimental learning, case study, field trips	8
5	Environmental impact of materials; life-cycle assessment; material selection to optimize performance; design, evaluation, and production of green construction materials	Lectures with problem based learning, experimental learning, case study, field trips	8

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	60	12	40	0
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	Rebecca L. Henn; Andrew J. Hoffman (2013), Constructing Green the Social Structures of Sustainability (Urban and Industrial Environments), MIT Press
Articles	https://www.researchgate.net/publication/358582436_A_Study_on_Sustainable_Construction_Practices_and_Management
References Books	Kim S. Elliott, Precast Concrete Structures – 12 June 2019, CRC Press Taylor and Francis
MOOC Courses	https://archive.nptel.ac.in/courses/105/102/105102195/
Videos	https://www.youtube.com/watch?v=LdHMjhaBWxw

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	-	1	2	3	-	-	-	1	2	2	2	2
CO2	3	3	2	-	1	1	1	-	-	-	1	2	2	3	2
CO3	2	2	2	-	-	2	2	-	-	-	2	2	2	2	3
CO4	2	2	2	-	1	2	1	-	-	-	1	1	3	3	3
CO5	3	3	2	-	1	1	2	-	-	-	1	2	3	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2020-2021

(SOET)(BTech-CivilEngineering)

Title of the Course	Advanced Structural Design(Steel)
Course Code	CEL0723[T]

Part A

Year	4th	**Semester**	7th	**Credits**	L	T	P	C
					4	1	0	
Course Type	Embedded theory and lab							
Course Category	Discipline Core							
Pre-Requisite/s	must have the knowledge of steel structure and its component design			**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** CO1: Students will revise the concept of Steel Design.**(BL1-Remember)** **CO2-** CO2:Students are able to understand the concept Plate Girders**(BL2-Understand)** **CO3-** CO3:Students are able to apply the knowledge of different types of truss loading**(BL3-Apply)** **CO4-** CO4:To analyze different loadings on Bunkers and Silos**(BL4-Analyze)** **CO5-** CO5: Students will be able to design several complex steel structures**(BL5-Evaluate)** **CO6-** CO6:To complete Design of Water Tank**.**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕		**SDG (Goals)**					

Part B

Modules	Contents	Pedagogy	Hours
1	Design of Plate girder bridges.	lecture with experimental learning, interactive workshops, field trips	
2	Design of truss girder bridges for railways and highway (IRC &IRS holding)	lecture with experimental learning, interactive workshops, field trips	
3	WATER TANKS: Pressed steel tanks, tanks with ordinary plates for different cross section.	lecture with experimental learning, interactive workshops, field trips	
4	Design of Chimneys.	lecture with experimental learning, interactive workshops, field trips	
5	Introduction of HT electric tower, Bunkers and Silos.	lecture with experimental learning, interactive workshops, field trips	

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1`	design of chimney	Experiments	BL2-Understand	3
2	design of water tank	Experiments	BL4-Analyze	3
3	design of plate girder	Experiments	BL4-Analyze	3
4	design of bunker	Experiments	BL4-Analyze	3
5	design of silos	Experiments	BL4-Analyze	3

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	40	12	60	20
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
0	0	0	0	0	0

Part E

Books	Advanced steel design of structure By Chandrasekarn S, crc Press.
Articles	https://www.scribd.com/document/504740284/DR-B-C-Punmia-Steel-Structure
References Books	Advanced steel design By B C Punamia, Laxmi Publication.
MOOC Courses	https://www.youtube.com/watch?v=qJV5zdx7NJs
Videos	https://www.youtube.com/watch?v=qJV5zdx7NJs

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	2	2	2	2	2	3	3	1	2	2	3	3	2
CO2	1	2	2	2	2	2	1	2	2	3	1	3	2	3	3
CO3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	1	2	2	3	2	3	-	3	3	3	3	2	3	3	2
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2020-2021

(SOET)(BTech-CivilEngineering)

Title of the Course	Environment Engineering -I
Course Code	CEL0724[T]

Part A

Year	4th	**Semester**	7th	**Credits**	L	T	P	C
					3	0	2	4
Course Type	Embedded theory and lab							
Course Category	Discipline Core							
Pre-Requisite/s	have the knowledge of chemistry and its basic experiments and theory			**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** CO1: To remember the various concepts in theory of sources of water.**(BL1-Remember)** **CO2-** CO2: To understand & analyze the concept of population forecasting**(BL2-Understand)** **CO3-** CO3: To implement the different standards of potable water**(BL2-Understand)** **CO4-** CO4: To provide experimental basis, and to enable the students to analyze physical,chemical and biological impurities**(BL4-Analyze)** **CO5-** CO5: To evaluate the applications of rain water harvesting**(BL5-Evaluate)** **CO6-** CO6: To apply the understanding of water treatment**(BL3-Apply)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✓		**SDG (Goals)**					

Part B

Modules	Contents	Pedagogy	Hours
1	Sources of water & their estimation, water quality from ground & surface waters, various types of water demand requirement of water for various uses, Population forecasting methods.	lecture with experimental learning, interactive workshops, field trips	10
2	General impurities of water, characteristics of water, impurities present & their significance, water borne diseases control, Analysis of water physical, chemical, bacteriological water standard for different uses intake structure, water conveyance, conduit for transportation, pumps for water riffing- materials, operation & pumping station	lecture with experimental learning, interactive workshops, field trips	10
3	Purification of water supply, treatment methods, design, screening segmentation, coagulation, filtration, disinfection, aeration softening of water, advancement & technologies used in sedimentation, filtration . Miscellaneous treatment methods.	lecture with experimental learning, interactive workshops, field trips	10
4	Distribution systems- layout hydraulics, pipe fittings, values. Appurtenances in distribution system, analysis of distri system & pips network – Hardy cross method, detection of leakage, maintenance, location & height of distribution reservoir , service reservoir capacity	lecture with experimental learning, interactive workshops, field trips	10
5	Rural water supply scheme-System in water supply, financing and management of water supply project, water pollution control act, conservancy & water carriage system, sanitary appliance and their operation.	lecture with experimental learning, interactive workshops, field trips	10

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	Determination of pH and Turbidity	Experiments	BL4-Analyze	3
2	Determination of Alkalinity/Acidity.	Experiments	BL2-Understand	3
3	Determination of Chlorides.	Experiments	BL4-Analyze	3
4	Determination of B.O.D	Experiments	BL4-Analyze	3
5	Determination of C.O.D	Experiments	BL2-Understand	3

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	40	12	60	20
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
0	0	0	0	0	0

Part E

Books	S.K.Garg, Environmental engineering volume 1 and 2, Khanna publisher
Articles	https://easyengineering.net/sewage-waste-disposal-and-air-pollution-engineering-by-santosh-kumar-garg/
References Books	B.C.Punamia, Environmental engineering volume 1 and 2, Laxmi Publication
MOOC Courses	https://archive.nptel.ac.in/courses/127/105/127105018/
Videos	https://ia902309.us.archive.org/6/items/eco-8/ECO8.pdf https://ia902309.us.archive.org/6/items/eco-8/ECO8.pdf

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	2	2	2	2	2	3	3	1	2	2	3	3	1
CO2	1	2	2	2	2	2	1	2	2	3	1	3	2	3	3
CO3	1	1	-	-	-	-	-	-	-	2	3	2	2	1	2
CO4	1	2	2	3	2	3	1	3	3	3	2	2	3	2	1
CO5	1	2	2	3	2	2	1	2	2	1	1	2	2	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2020-2021

(SOET)(BTech-CivilEngineering)

Title of the Course	Introduction to Construction Planning and Management
Course Code	CEL0725[T]

Part A

Year	4th	**Semester**	7th	**Credits**	L	T	P	C
					03	01	00	
Course Type	Theory only							
Course Category	Discipline Core							
Pre-Requisite/s	Students must have knowledge of the RCC Structure.			**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** Students will get knowledge different management techniques for construction. **(BL1-Remember)** **CO2-** To understand the resource of contract management**(BL2-Understand)** **CO3-** Students are able to Take the details of contracts & Tenders.**(BL3-Apply)** **CO4-** To adopt knowledge in construction & project management.**(BL4-Analyze)** **CO5-** To evaluate the behavior and strength of structural elements under the action of compound stresses and thus understand failure concepts**(BL5-Evaluate)** **CO6-** To Complete Determination of Organisational behaviour**(BL6-Create)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕		**SDG (Goals)**					

Part B

Modules	**Contents**
1	Methods ofconstruction,formworkandcentering.Scheduleofconstruction,joblayout,principlesofconstructionmanagement,modernmanagementtechniqueslikeCP
2	Factors affecting selection, investmentand operating cost, output of various equipments, brief study of equipmentsrequiredforvariousjobssuchasearthwork,dre
3	Contractors & Tenders:- DifferenttypesofContracts&Tenders,noticeinvitingtenders,contractdocument,departmentalmethodofconstruction,rate list, security depc contract,arbitration,administrativeapproval,technicalsanction.
4	Importance, types ofspecifications, specificationsforvarioustradesofengineeringworks. Variousformsusedinconstructionworks,measurementbook,cashbook,ma varioustypesofrunningbills,securedadvance,finalbill.
5	Accommodationofsitestaff, contractor'sstaff,variousorganizationchartsandmanuals,personnelinconstruction,welfarefacilities,labourlawsandhumanrelations,safetyengineering.Problemofe

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	highway module	PBL	BL2-Understand	4
2	bridge module	PBL		3

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	40	12	60	
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
0	0	0	0	0	0

Part E

Books	L.S. Srinath, Construction Planning & Management, Laxmi Publication L.S. Srinath, Construction Planning & Management, Laxmi Publication
Articles	https://easyengineering.net/construction-engineering-and-management-by-seetharaman-nw1/
References Books	S.Seetharaman, Introduction to Construction Planning & Management, New Age Publication S.Seetharaman, Introduction to Construction Planning & Management, New Age Publication
MOOC Courses	https://www.youtube.com/playlist?list=PLWnoy5z_3BObBvFtBlowxM05D-q0VAWEs
Videos	https://archive.nptel.ac.in/courses/105/104/105104161/

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	1	2	2	-	1	3	3	1	2	3	3	2
CO2	-	2	2	2	2	-	2	1	1	1	1	1	2	-	2
CO3	1	2	3	2	1	3	2	2	1	1	-	2	-	-	3
CO4	-	2	3	3	2	-	3	2	-	-	1	2	1	2	2
CO5	1	2	2	2	2	3	3	1	1	-	2	1	3	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-