

# 13. B.Tech.in Civil Engineering

#### 13. (a) Mission of the Department

	To move up through international alliances and collaborative initiatives in civil engineering to achieve global excellence
Mission Stmt – 2	To accomplish a process to advance knowledge in a rigorous research environment related to civil engineering and allied disciplines
Mission Stmt – 3	To attract and build people in a rewarding and inspiring environment by fostering freedom, empowerment, creativity and innovation.

#### 13. (b) Program Educational Objectives (PEO)

PEO - 1	Graduates will pursue higher studies in civil engineering, management and other related fields
PEO - 2	Graduates will perform as professional engineers in the fields of civil engineering
PEO - 3	Graduates will perform in diverse fields and gradually move into teamwork and leadership positions.
PEO - 4	Graduates will contribute to the development of the profession, nation and society

### 13. (c) Mission of the Department to Program Educational Objectives (PEO) Mapping

	Mission Stmt. – 1	Mission Stmt. – 2	Mission Stmt. – 3
PEO – 1	3	3	2
PEO – 2	3	2	3
PEO – 3	3	2	3
PEO – 4	3	2	3

<sup>3 –</sup> High Correlation, 2 – Medium Correlation, 1 – Low Correlation

#### 13. (d) Mapping Program Educational Objectives (PEO) to Program Outcomes (PO)

					Р	rogram Ou	tcomes (PC	D)				
	Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern Tool Usage	The engineer and society	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning
PEO – 1	3	3	3	3	3	1	1	1	1	1	1	1
PEO – 2	3	3	3	3	3	1	1	1	1	1	1	1
PEO – 3	1	1	1	1	2	2	1	3	3	3	3	3
PEO – 4	1	1	1	1	1	3	3	3	2	2	2	3

<sup>3 –</sup> High Correlation, 2 – Medium Correlation, 1 – Low Correlation

## 13. (e) Program Structure: B.Tech. in Civil Engineering

	Humanities & Social Sciences including Management Courses (H)						Basic Science Courses (B)				
Course	Course	Hou	rs/ W			Course		Hou	ırs/ W		
Code	Title	L	T	Р	С	Code	Title	L	Τ	Р	С
	Communicative English	2	1	0	3		Calculus and Linear Algebra  Advanced Calculus and Complex Analysis	3	1	0	4
21LEH102T 21LEH103T		-				21CYB101J		3	1	2	5
21LEH103T		2	1	0	3	21BTB103T		2	0	0	2
21LEH105T Japanese			,	U	Ü	21PYB104J	Physics : Mechanics	3	1	2	5
21LEH106T				İ		21MAB201T	Transforms and Boundary Value Problems	3	1	0	4
21LEH107T							Applied Geology	3	0	2	4
	Philosophy of Engineering	1	0	2	2		Probability and Statistics	3	1	0	4
21PDH201T   Social Engineering         2         0         0         2							Total Credits				3
21GNH401T   Behavioural Psychology							Professional Core Courses I				
Engineering Science Courses (S)						Course Code	Course Title	Hou	rs/ W	Veek P	C
Course	Course	Hou	rs/ W	/eek			Building Materials in the Built Environment	3	0	0	3
Code	Title	L	Т	Р	С		Hydro Mechanics and Hydraulic Engineering	3	0	0	3
	Engineering Graphics and Design	0	0	4	2		Fluid Mechanics and Machinery Lab	0	0	2	1
	Basic Civil and Mechanical Workshop	0	0	4	2		Engineering Surveying	3	0	0	3
	Electrical and Electronics Engineering	3	1	0	4	21CEC202L	Surveying Lab	0	0	2	1
	Programming for Problem Solving	3	0	2	4		Environmental Engineering and Design	3	0	0	3
	Design Thinking and Methodology	1	0	4	3		Environmental Engineering Laboratory	0	0	2	1
	Mechanics of Structures	3	0	0	3		Artificial Intelligence	3	0	0	3
210883031	Data Science		U	U	2 <b>20</b>		Structural Engineering Design-I Concrete Technology and Strength of Materials		U		3
	Total Credits	•			ZU	21CEC204L	Laboratory	0	0	2	1
						21CFC205T	Geomechanics	3	0	0	3
Cada	Mandatory Courses (M)	-	Т т	. T D			Geomechanics Laboratory	0	0	2	1
Code 21PDM101	Course Title  L Professional Skills and Practices	0	T		0 0		Irrigation and Water Resources Engineering	3	0	0	3
21PDM101		0					Concrete Technology and Special Concrete	3	0	0	3
21PDM201		0		2	0		Structural Analysis	3	0	0	3
21PDM202		0					Computer-Aided Civil Engineering Laboratory	0	0	2	1
21PDM301		0					Structural Engineering Design-II	2	1	0	3
21PDM302		0				21CEC303T	Transportation Engineering	3	0	0	3
21CYM101	T Environmental Science	1				21CEC303L	Transportation Engineering Laboratory	0	0	2	1
21LEM101	T Constitution of India	1	0	0	0	21CEC3041	Construction Engineering and Management	3	0	0	3
21LEM201		1					Total Credits				4(
21LEM202		1					Project Work, Seminar, Internship In				
21LEM301		1	-			0	Industry / Higher Technical Institutions (P)  Course	Han	/\^	Veek	
21LEM302		1	0	0	0	Course Code	Title	ПOU	T	P	C
21GNM101 21GNM102		-					Community Connect	0	0	2	1
21GNM102		- 0	0	2	0	21CEP302L		0	0	6	
21GNM104						21CEP303T		3	0	0	3
	I INSO				0	21CEP401L	Major Project	_		30	1.
ZTONWITOT	L NSO Total Cre	dits	-			LIOLI IOIL	iviajoi i roject	0			
210MMT04		dits				21CEP402L	Internship	0	0	30	
ZTOWWTO		dits					Internship Total Credits	0	0	30	19
21 GIWWI 04	Total Cre Open Elective Courses (0)	dits					Internship	0	0	30	1
Course	Total Cre		rs/ W	/eek		21CEP402L  Course	Internship Total Credits Open Elective Courses (0) Any 3 Courses Course	Hou	ırs/ W	Veek	
	Open Elective Courses (O) Any 3 Courses			/eek	С	21CEP402L  Course Code	Internship  Total Credits  Open Elective Courses (0) Any 3 Courses  Course Title	Hou	ırs/ W	Veek P	C
Course Code	Open Elective Courses (O) Any 3 Courses Course	Hou	rs/ W		C 3	21CEP402L  Course Code	Internship Total Credits Open Elective Courses (0) Any 3 Courses Course	Hou	ırs/ W	Veek	C
Course Code 21CEO301T	Open Elective Courses (O) Any 3 Courses Course Title	Hou	Τ	Р		Course Code 21CEO317J	Internship  Total Credits  Open Elective Courses (0) Any 3 Courses  Course Title	Hou	ırs/ W	Veek P	
Course Code 21CEO301T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures	Hou L 3	T 0	P 0	3	21CEP402L  Course Code 21CEO317J 21CEO318T	Internship  Total Credits  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology	Hou L 2	T 0 0	Veek P 2 0	3
Course Code 21CEO301T 21CEO302T 21CEO303T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure	Hou L 3 3	T 0 0	P 0 0	3 3 3	Course Code 21CEO317J 21CEO318T 21CEO319T	Internship  Total Credits  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources Management	Hou L 2 3	T 0 0 0	Veek P 2 0	3
Course Code 21CEO301T 21CEO302T 21CEO303T 21CEO304T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure Real Estate Management	Hou L 3 3 3	T 0 0 0	P 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3	Course Code 21CEO317J 21CEO318T 21CEO319T	Internship  Total Credits  Open Elective Courses (0) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources	Hou L 2 3 3	T 0 0	Veek P 2 0	3
Course Code 21CEO301T 21CEO302T 21CEO303T 21CEO304T 21CEO305T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure Real Estate Management Project Management	Hou L 3 3 3 3	T 0 0 0 0	P 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3	Course Code 21CEO317J 21CEO318T 21CEO319T 21CEO320T	Internship  Total Credits  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources Management	Hou L 2 3	T 0 0 0	Veek P 2 0	3
Course Code 21CEO301T 21CEO302T 21CEO303T 21CEO305T 21CEO306T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure Real Estate Management Project Management Environmental Impact Assessment	Hou L 3 3 3 3 3	T 0 0 0 0 0	P 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3 3	Course Code 21CEO317J 21CEO318T 21CEO320T 21CEO320T 21CEO321T	Internship  Total Credits  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources Management Principles of Satellite Remote Sensing Spatial Information System Remote sensing and GIS applications in	Hou L 2 3 3 3 3	T 0 0 0 0 0 0 0	P   2   0   0   0   0   0   0   0   0   0	
Course Code 21CEO301T 21CEO302T 21CEO303T 21CEO305T 21CEO306T 21CEO307T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure Real Estate Management Project Management Environmental Impact Assessment Municipal Solid Waste Management	Hou L 3 3 3 3 3 3	T 0 0 0 0 0 0	P 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3 3 3	Course Code 21CEO317J 21CEO318T 21CEO320T 21CEO322T 21CEO322T	Internship  Total Credits  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources Management Principles of Satellite Remote Sensing Spatial Information System Remote sensing and GIS applications in Engineering	Hou L 2 3 3 3 3 3	T 0 0 0 0 0 0 0	Veek P 2 0 0 0 0 0 0 0	
Course Code 21CEO301T 21CEO302T 21CEO303T 21CEO305T 21CEO306T 21CEO307T 21CEO308T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure Real Estate Management Project Management Environmental Impact Assessment Municipal Solid Waste Management Disaster Mitigation and Management	Hou L 3 3 3 3 3 3 3 3 3 3	T 0 0 0 0 0 0 0	P 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3 3 3 3	Course Code 21CEO317J 21CEO318T 21CEO320T 21CEO322T 21CEO322T 21CEO323T	Internship  Total Credits  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources Management Principles of Satellite Remote Sensing Spatial Information System Remote sensing and GIS applications in Engineering Spatial technology in Engineering	Hou L 2 3 3 3 3 3 3	T 0 0 0 0 0 0 0	P   2   0   0   0   0   0   0   0   0   0	
Course Code 11CE0301T 11CE0302T 11CE0303T 11CE0305T 11CE0306T 11CE0306T 11CE0308T 11CE0309T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure Real Estate Management Project Management Environmental Impact Assessment Municipal Solid Waste Management Disaster Mitigation and Management Water Pollution and its Management	Hou L 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	T 0 0 0 0 0 0 0 0	P 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3 3 3 3 3	Course Code 21CEO317J 21CEO318T 21CEO320T 21CEO322T 21CEO322T 21CEO323T	Internship  Total Credits  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources Management Principles of Satellite Remote Sensing Spatial Information System Remote sensing and GIS applications in Engineering	Hou L 2 3 3 3 3 3 3 3 3	T 0 0 0 0 0 0 0	Veek P 2 0 0 0 0 0 0 0	
Course Code 11CEO301T 11CEO302T 11CEO303T 11CEO305T 11CEO306T 11CEO306T 11CEO308T 11CEO309T 11CEO309T 11CEO3010T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure Real Estate Management Project Management Environmental Impact Assessment Municipal Solid Waste Management Disaster Mitigation and Management Water Pollution and its Management Global Warming and Climate Change	Hou L 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	T 0 0 0 0 0 0 0 0	P 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3 3 3 3 3 3	Course Code 21CEO317J 21CEO318T 21CEO320T 21CEO322T 21CEO322T 21CEO323T	Internship  Total Credits  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources Management Principles of Satellite Remote Sensing Spatial Information System Remote sensing and GIS applications in Engineering Spatial technology in Engineering GIS and Spatial Analysis	Hou L 2 3 3 3 3 3 3	0 0 0 0	Veek P 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	33 33 33 33 33 33 33 33 33 33 33 33 33
Course Code 21CEO301T 21CEO302T 21CEO303T 21CEO305T 21CEO306T 21CEO307T 21CEO309T 21CEO309T 21CEO310T 21CEO311T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure Real Estate Management Project Management Environmental Impact Assessment Municipal Solid Waste Management Disaster Mitigation and Management Water Pollution and its Management Global Warming and Climate Change Indoor and Ambient Air Quality Management	Hou L 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	T 0 0 0 0 0 0 0 0 0 0	P 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3 3 3 3 3 3 3 3	Course Code 21CEO317J 21CEO319T 21CEO320T 21CEO322T 21CEO322T 21CEO322T 21CEO323T 21CEO324T 21CEO325T	Internship  Total Credits  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources Management Principles of Satellite Remote Sensing Spatial Information System Remote sensing and GIS applications in Engineering Spatial technology in Engineering GIS and Spatial Analysis	Hou L 2 3 3 3 3 3 3 3 3	0 0 0 0 0	Week P 2 0 0 0 0 0 0 0	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
Course Code 21CEO301T 21CEO302T 21CEO303T 21CEO304T 21CEO306T 21CEO307T 21CEO309T 21CEO309T 21CEO310T 21CEO311T 21CEO311T 21CEO312T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure Real Estate Management Project Management Environmental Impact Assessment Municipal Solid Waste Management Disaster Mitigation and Management Water Pollution and its Management Global Warming and Climate Change Indoor and Ambient Air Quality Management Intelligent Transportation Systems	Hou L 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	T 0 0 0 0 0 0 0 0 0 0 0	P 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3 3 3 3 3 3 3 3	Course Code 21CEO317J 21CEO319T 21CEO320T 21CEO322T 21CEO322T 21CEO322T 21CEO323T 21CEO324T 21CEO325T 21CEO3025T 21CEO401T	Internship  Total Credits  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources Management Principles of Satellite Remote Sensing Spatial Information System Remote sensing and GIS applications in Engineering Spatial technology in Engineering GIS and Spatial Analysis Web GIS	Hou L 2 3 3 3 3 3 3 3 3 3 3 3 3	0 0 0 0 0	Veek P 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(
Course Code 21CEO301T 21CEO302T 21CEO303T 21CEO305T 21CEO306T 21CEO307T 21CEO309T 21CEO301T 21CEO311T 21CEO311T 21CEO312T 21CEO312T 21CEO312T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure Real Estate Management Project Management Environmental Impact Assessment Municipal Solid Waste Management Disaster Mitigation and Management Water Pollution and its Management Global Warming and Climate Change Indoor and Ambient Air Quality Management Intelligent Transportation Systems Traffic Management Systems	Hou L 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	T 0 0 0 0 0 0 0 0 0 0	P 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3 3 3 3 3 3 3 3	Course Code 21CEO317J 21CEO319T 21CEO320T 21CEO322T 21CEO322T 21CEO322T 21CEO322T 21CEO322T 21CEO325T 21CEO325T 21CEO401T 21CEO402T	Internship  Total Credits  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources Management Principles of Satellite Remote Sensing Spatial Information System Remote sensing and GIS applications in Engineering Spatial technology in Engineering GIS and Spatial Analysis Web GIS Building Materials Introduction to Environmental Studies	Hou L 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	0 0 0 0 0 0 0	Veek P 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	33 33 33 33 33 33 33 33 33 33 33 33 33
Course Code 21CEO301T 21CEO302T 21CEO303T 21CEO305T 21CEO306T 21CEO307T 21CEO309T 21CEO311T 21CEO311T 21CEO312T 21CEO313T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure Real Estate Management Project Management Environmental Impact Assessment Municipal Solid Waste Management Disaster Mitigation and Management Water Pollution and its Management Global Warming and Climate Change Indoor and Ambient Air Quality Management Intelligent Transportation Systems Traffic Management Systems Traffic flow Modeling and Simulation	Hou L 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	T 0 0 0 0 0 0 0 0 0 0 0 0	P 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3 3 3 3 3 3 3 3 3	Course Code 21CEO317J 21CEO319T 21CEO321T 21CEO322T 21CEO322T 21CEO322T 21CEO322T 21CEO325T 21CEO401T 21CEO402T 21CEO403T	Internship  Total Credits  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources Management Principles of Satellite Remote Sensing Spatial Information System Remote sensing and GIS applications in Engineering Spatial technology in Engineering GIS and Spatial Analysis Web GIS Building Materials Introduction to Environmental Studies Integrated Waste Management	Hou L 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	0 0 0 0 0 0 0 0	Veek P 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Course Code 21CEO301T 21CEO302T 21CEO303T 21CEO305T 21CEO306T 21CEO307T 21CEO309T 21CEO310T 21CEO311T 21CEO311T 21CEO314T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure Real Estate Management Project Management Environmental Impact Assessment Municipal Solid Waste Management Disaster Mitigation and Management Water Pollution and its Management Global Warming and Climate Change Indoor and Ambient Air Quality Management Intelligent Transportation Systems Traffic Management Systems Traffic flow Modeling and Simulation Techniques	Hou L 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	T 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Course Code 21CEO317J 21CEO319T 21CEO321T 21CEO322T 21CEO322T 21CEO322T 21CEO325T 21CEO401T 21CEO402T 21CEO403T 21CEO403T 21CEO404T	Internship  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources Management Principles of Satellite Remote Sensing Spatial Information System Remote sensing and GIS applications in Engineering Spatial technology in Engineering GIS and Spatial Analysis Web GIS Building Materials Introduction to Environmental Studies Integrated Waste Management Principles of Sustainable Development	Hou L 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	0 0 0 0 0 0 0 0	Veek	
Course Code 21CEO301T 21CEO302T 21CEO303T 21CEO305T 21CEO306T 21CEO307T 21CEO309T 21CEO311T 21CEO311T 21CEO314T 21CEO314T 21CEO314T 21CEO314T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure Real Estate Management Project Management Environmental Impact Assessment Municipal Solid Waste Management Disaster Mitigation and Management Water Pollution and its Management Global Warming and Climate Change Indoor and Ambient Air Quality Management Intelligent Transportation Systems Traffic Management Systems Traffic flow Modeling and Simulation Techniques Viscoelasticity	Hou L 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	T 0 0 0 0 0 0 0 0 0 0 0 0	P   O   O   O   O   O   O   O   O   O	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Course Code 21CEO317J 21CEO319T 21CEO321T 21CEO322T 21CEO322T 21CEO322T 21CEO325T 21CEO401T 21CEO402T 21CEO403T 21CEO403T 21CEO405T	Internship  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources Management Principles of Satellite Remote Sensing Spatial Information System Remote sensing and GIS applications in Engineering Spatial technology in Engineering GIS and Spatial Analysis Web GIS Building Materials Introduction to Environmental Studies Integrated Waste Management Principles of Sustainable Development Road Safety and Audit	Hou L 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	0 0 0 0 0 0 0 0 0	Veek P 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Course Code 21CEO301T 21CEO302T 21CEO303T 21CEO305T 21CEO306T 21CEO307T 21CEO309T 21CEO311T 21CEO311T 21CEO314T 21CEO314T 21CEO314T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure Real Estate Management Project Management Environmental Impact Assessment Municipal Solid Waste Management Disaster Mitigation and Management Water Pollution and its Management Global Warming and Climate Change Indoor and Ambient Air Quality Management Intelligent Transportation Systems Traffic Management Systems Traffic flow Modeling and Simulation Techniques	Hou L 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	T 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Course Code 21CEO317J 21CEO319T 21CEO321T 21CEO322T 21CEO322T 21CEO322T 21CEO322T 21CEO325T 21CEO401T 21CEO402T 21CEO403T 21CEO405T 21CEO406T	Internship  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources Management Principles of Satellite Remote Sensing Spatial Information System Remote sensing and GIS applications in Engineering Spatial technology in Engineering GIS and Spatial Analysis Web GIS Building Materials Introduction to Environmental Studies Integrated Waste Management Principles of Sustainable Development Road Safety and Audit Traffic Management System	Hou L 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	0 0 0 0 0 0 0 0 0 0	Veek P 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Course Code 21CEO301T 21CEO302T 21CEO303T 21CEO305T 21CEO306T 21CEO307T 21CEO309T 21CEO311T 21CEO311T 21CEO314T 21CEO314T 21CEO314T 21CEO314T	Open Elective Courses (O) Any 3 Courses Course Title Maintenance and Rehabilitation of Structures Disaster Resistant Structures Smart City and Infrastructure Real Estate Management Project Management Environmental Impact Assessment Municipal Solid Waste Management Disaster Mitigation and Management Water Pollution and its Management Global Warming and Climate Change Indoor and Ambient Air Quality Management Intelligent Transportation Systems Traffic Management Systems Traffic flow Modeling and Simulation Techniques Viscoelasticity	Hou L 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	T 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P   O   O   O   O   O   O   O   O   O	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Course Code 21CEO317J 21CEO319T 21CEO321T 21CEO322T 21CEO322T 21CEO322T 21CEO322T 21CEO325T 21CEO401T 21CEO402T 21CEO403T 21CEO404T 21CEO405T 21CEO406T 21CEO407T	Internship  Open Elective Courses (O) Any 3 Courses Course Title  Rural Development and Technology Floods and Flood Management Climate Change and Water Resources Management Principles of Satellite Remote Sensing Spatial Information System Remote sensing and GIS applications in Engineering Spatial technology in Engineering GIS and Spatial Analysis Web GIS Building Materials Introduction to Environmental Studies Integrated Waste Management Principles of Sustainable Development Road Safety and Audit	Hou L 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	0 0 0 0 0 0 0 0 0	Veek P 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	33 33 33 33 33 33 33 33 33 33 33 33 33

	Open Elective Courses (O)				
	Any 3 Course				
Course	Course	Hou	rs/ W	/eek	
Code	Title	L	Т	Р	С
21CEO409T	Water Quantity and Quality	3	0	0	3
21CEO410T	Remote Sensing Surveying	3	0	0	3
21CEO411T	Introduction to GIS and data	3	0	0	3
21CEO412T	Web and Mobile GIS	3	0	0	3
21CEO413T	Digital Mapping	3	0	0	3
	Total	Credi	te		na

	Professional Elective Courses (E) Any 7 Courses						Professional Elective Courses (E) Any 7 Courses						
Course	Course		lours Neel	_		Course	Course		Hours/ Week				
Code	Title	L	Τ	Р	С	Code	Title	L	Τ	Р	С		
	Professional Elective – 1						Professional Elective – 5						
21CEE301T	Foundation Engineering and Design	3	0	0	3	21CEE404T	Surface Hydrology	3	0	0	3		
21CEE302T	Geotechnical Design	3	0	0	3	21CEE405T	Groundwater Engineering	3	0	0	3		
21CEE303T 21CEE304T	Ground Improvement Techniques Foundation on Expansive Soil	3	0	00	3	21CEE406T	Design of Hydraulic Structures and Irrigation Engineering	3	0	0	3		
Professional Elective – 2					•	21CEE407T	Advance Hydraulic Engineering and Design	3	0	0	3		
21CEE305T	Solid and Hazardous Waste Management	3	0	0	3		Professional Elective – 6						
21CEE306T	Air and Noise Pollution Control	3	0	0	3	21CEE408T	Fundamentals of Remote Sensing and GIS	3	0	0	3		
21CEE307T	Environmental Impact Assessment and Life	3	^	0	3		GIS and its Techniques	3	0	0	3		
21CEE30/1	Cycle Analysis	3	U	U	3		Professional Elective – 7						
	Professional Elective – 3					21CEE410T	Construction Equipment and Automation	3	0	0	3		
21CEE308T	Pavement analysis and design	3	0	0	3	21CEE411T	Contracts Management	3	0	0	3		
21CEE309T	Railway, Airport and Harbour Engineering	3	0	0	3	21CEE412T	Repairs and Rehabilitation techniques	3	0	0	3		
21CEE310T	Traffic Engineering	3	0	0	3	21CEE413T	Sustainable Construction Methods	3	0	0	3		
21CEE311T	Pavement Construction Technology	3	0	0	3	21CEE414T	BIM in Construction Management	3	0	0	3		
21CEE312T	Computer application in Transportation	3	0	0	3	21CEE415T	Modern Civil Engineering Economics	3	0	0	3		
	Engineering	Ť	_		To		Total Credits				21		
	Professional Elective – 4	L_											
21CEE401T	Advanced Pre-stressed Concrete	3	0	0	3								
21CEE402T	Earthquake Resistant Design of Structures	3	0	0	3								
21CEE403T	Design of Steel Concrete Composite Structures	3	0	0	3								

## 13. (f) Implementation Plan: B.Tech. in Civil Engineering

21LEH1017   Communicative English   2   1   0   3   2   1   0   3   2   1   0   3   2   1   0   3   2   1   0   3   2   1   0   3   2   1   0   3   2   1   0   3   2   1   0   3   2   1   0   0   0   0   2   2   2   2   2   1   0   3   2   1   0   0   0   0   2   2   2   2   2   1   0   3   2   2   2   2   2   2   0   3   2   2   2   2   2   2   2   3   3															
Code															
21LEH1017   Communicative English	Code		L	Wee	ek	Þ	С	Code		Course Title		Nee	k	С	
			_	_				21LEH102T	Chinese		<u> </u>		_		
21/15/10712   Engineering Graphics and Design   0   0   1   2   21/15/10717   Engineering Graphics and Pericios   1   0   0   0   0   21/15/10717   Environmental Science*   1   0   0   0   0   0   0   21/15/10717   Environmental Science*   1   0   0   0   0   0   0   0   0   0															
21ES101T   Electrical and Electronics Engiopecing   3   1   0   4   21CPMI0TI   Improvemental Science   1   0   0   0   2   21CPMI0TI   Improvemental Science   1   0   0   0   0   21CPMI0TI   Improvemental Science   1   0   0   0   0   21CPMI0TI   Improvemental Science   1   0   0   0   0   21CPMI0TI   Improvemental Science   1   0   0   0   0   0   0   0   0   0					-	_		21LEH104T	German	man			0	2	
		T Electrical and Electronics Engineering						21LEH105T	Japanese	nese				3	
Total Credits	21CYM101	T Environmental Science*			_		_								
Total Credits			0	0	2	2	0	21LEH107T	Spanish						
	21LEM1017			0	(	_		21GNH101J	Philosophy	of Engineering	1	0	2	2	
		Total Credit	18	21MAB102T	Advanced (	Calculus and Complex Analysis	3	1	0	4					
								21CYB101J	Chemistry			1	2	5	
										aterials in the Built Environment		_		3	
218TB103T   Bology   Bosic Civil and Mechanical Workshop   0   0   2   0   0   2   2   2   0   0												1			
									-	ng tot i resiem delving		_			
21PDM102L   Seneral Aptitude*   2									- 0,		+-	_			
Semester - III											+	_			
Code								21PDM102L	General Ap	titude*	0	0	2	0	
Semester - III								21GNM101L	Physical an	nd Mental Health using Yoga					
Semester - III								21GNM102L	NSS		0	0	2	0	
Semester - III								21GNM103L	NCC						
Semester - III								21GNM104L	LNSO	Total Credits				25	
Code										Total Credits	•			23	
Code		Semester – III								Semester – IV	,				
21MAB201T   Transforms and Boundary Value Problems   3   1   0   4   21CEC201T   Hydro Mechanics and Hydraulic Engineering   3   0   0   3   21CEC201T   Hydro Mechanics and Hydraulic Engineering   3   0   0   2   1   21CEC202T   Engineering Surveying   3   0   0   2   1   21CEC202T   Engineering Surveying   3   0   0   3   21CEC202T   Engineering Surveying   3   0   0   3   21CEC202T   Engineering Surveying   3   0   0   3   21CEC203T   Environmental Engineering and Design   3   0   0   3   21CEC203T   Environmental Engineering and Design   3   0   0   3   21CEC203T   Environmental Engineering and Methodology   1   0   4   3   21CEC203T   Environmental Engineering Laboratory   0   0   2   1   21CEC203T   Engineering Laboratory   0   0	Code	Course Title	Hou				С	Code		Course Title	Ηοι			С	
	2414402047		L	_	-				Annlind Co.		L				
21CEC2011															
21CEC202T   Engineering Surveying														3	
21CEC2021   Surveying Lab									Concrete Te	echnology and Strength of					
21CEC203L   Environmental Engineering Laboratory			0					21CEC204L			0	U	2	7	
21CES2017   Mechanics of Structures   3   0   0   3   21CES2017   Mechanics of Structures   3   0   0   0   2   21LEM2017   Professional Elective - I   1   0   0   0   2   21EM2017   Professional Elective - I   3   0   0   3   21CES2017   Mechanics of Structural Analysis   21CES2017   Mechanics of Structural Engineering   2   0   0   2   2   2   2   2   2   2												-		3	
21CEC301T   Mechanics of Structures   3   0   0   3   21LEM201T   Professional Ethics   1   0   0   0   0   0   0   0   0   0												-		1	
Semester - V   Semester - V   Semester - V     Semester - V   Semester - V     Semester - V     Semester - V     Semester - V     Semester - V     Semester - V     Semester - V     Semester -															
Semester - V   Code							_					-			
Semester - V   Code							_							0	
Semester - V   Code			3				_			luman Values	1	0		0	
Code   Course Title   Hours/ Week   L   T   P   C										Total Credits	6			23	
Code   Course Title   Hours/ Week   L   T   P   C															
Code   Course Title   Hours/ Week   L   T   P   C		Semester – V								Semester – VI					
Code			Ноц	ırs/ V	Vee	ek	_				Hou	ırs/ W	eek		
21MAB301T   Probability and Statistics   3   1   0   4   21CEC301T   Structural Analysis   3   0   0   3   3   21CEC301T   Structural Analysis   2   1   0   3   3   21CEC302T   Structural Engineering Laboratory   0   0   2   1   3   21CEC302T   Structural Engineering Design-II   2   1   0   3   3   21CEC303T   Transportation Engineering   3   0   0   3   3   21CEC303T   Transportation Engineering   3   0   0   3   3   21CEC303T   Transportation Engineering Laboratory   0   0   2   1   E-1   Professional Elective - I   3   0   0   3   3   0   0   3   3   0   0	Code	Course Litle	L	Τ	F	5 (	C	Code		Course Litle	L			C	
21CEC301L   Computer-Aided Civil Engineering Laboratory   0   0   2   1   0   3   21CEC302T   Structural Engineering Design-II   2   1   0   3   3   21CEC303T   Transportation Engineering   3   0   0   3   3   21CEC303L   Transportation Engineering Laboratory   0   0   2   1   1   21CEC303L   Transportation Engineering Laboratory   0   0   2   1   21CEC303L   Transportation Engineering Laboratory   0   0   3   3   21CEC303L   Project   0   0   0   0   3   3   21CEC303L   Project   0   0   0   0   0   0   3   3   3   0   0	21MAB301T	Probability and Statistics			0	)	4					0	0	2	
Semester - VII   Semester - VII   Semester - VII   Semester - VII   Code   Course Title   Hours/ Week   L   T   P   C   Code   Course Title   E-4   Professional Elective - IV   3   0   0   3   0   0   3   0   0   3   0   0			_									-		3	
21CEC303T   Transportation Engineering   3   0   0   3   21CEC303L   Transportation Engineering Laboratory   0   0   2   1   21CEC303L   Engloyability Skills and Practices   0   0   2   0   21CEC303L   Engloyability Skills and Practices   0   0   2   0   21CEC403L   Engloyability Skills and Practices   0   0   2   0   21CEC403L   Engloyability Skills and Practices   0   0   2   0   21CEC403L   Engloyability Skills and Practices   0   0   2   0   21CEC403L   Engloyability Skills and Practices   0   0   2   0   21CEC403L   Engloyability Skills and Practices   0   0   2   0   21CEC403L   Engloyability Skills and Practices   0   0   2   0   21CEC403L   Engloyability Skills and Practices   0   0   0   0   0   0   0   0   0												-	•	3	
21CEC303L   Transportation Engineering Laboratory   0   0   2   1										II Elective – III		_	_	3	
Semester - VII   Seme				+								_		3	
O         Open Elective − I         3         0         0         3           21PDM301L         Analytical and Logical Thinking Skills         0         0         2         0           21LEM301T         Indian Art Form         1         0         0         0         2           21GNP301L         Community Connect         0         0         2         1         0         0           Code         Course Title         Hours/ Week         L         T         P         C           21GNH401T         Behavioral Psychology         2         1         0         3         0         3           E-4         Professional Elective – IV         3         0         3         0         3           E-5         Professional Elective – V         3         0         3         0         3           E-7         Professional Elective – VII         3         0         0         3         0         3           O         Open Elective – III         3         0         3         0         3         0         3			_										_	3	
21PDM301L   Analytical and Logical Thinking Skills   0 0 0 2 0   21LEM301T   Indian Art Form					_								_	0	
Code   Course Title   Hours/ Week   L   T   P   C   Code   Course Title   Hours/ Week   L   T   P   C   Code   Professional Elective – VI   3   0   0   3   E-7   Professional Elective – VI   3   0   0   3   O   Open Elective – III   3   0   0   3   O   Open Elective – III   3   0   0   3   O   Open Elective – III   Total Credits		, 0	_				-			itional Knowledge	1	0	0	0	
Total Credits   22										Total Credits	;			17	
Semester - VII	21GNP301L			0	2	_									
Code         Course Title         Hours/ Week L   T   P   C         Code         Course Title         Hours/ Week L   T   P   C           21GNH401T Behavioral Psychology         2   1   0   3         3         2   1   0   3         4   21CEP401L   Major Project   21CEP401L   Internship         0   0   30   3         0   30   3 </td <td></td> <td>i otal Credit</td> <td>•</td> <td></td> <td></td> <td></td> <td>LL</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		i otal Credit	•				LL								
Code         Course Title         Hours/ Week L   T   P   C         Code         Course Title         Hours/ Week L   T   P   C           21GNH401T Behavioral Psychology         2   1   0   3         3         2   1   0   3         4   21CEP401L   Major Project   21CEP401L   Internship         0   0   30   3         0   30   3 </td <td></td>															
Code   Course little   L   T   P   C     Code   Course little   Week   L   T   P   C     Code   Course little   Week   L   T   P   C   Code   Course little   Week   L   T   P   C   Code   Course little   Code   Code   Course little   Code   Course little   Code   Course little   Code   Course little   Code	Semester – VII								Semester – VIII						
Code	Code	Course Title	Hou	_		_	c T			Cause - T:41 -	T			_	
E-4   Professional Elective - IV   3   0   0   3      -5   Professional Elective - V   3   0   0   3    -6   Professional Elective - V   3   0   0   3    -7   Professional Elective - VI   3   0   0   3    -7   Professional Elective - VI   3   0   0   3    -7   Professional Elective - VI   3   0   0   3    -7   Professional Elective - III   3   0   0   3			L	_	_	_		Coc	ie	Course Little	+			С	
E-5 Professional Elective – V 3 0 0 3				_				21CFP	401L	Maior Proiect					
E-6   Professional Elective - VI   3   0   0   3				_	_							0 0	30	15	
E-7         Professional Elective – VII         3         0         0         3           O         Open Elective – III         3         0         0         3					+-						dits			15	
O Open Elective – III 3 0 0 3				_	_										
Total Credits 18		Open Elective – III	3	_	_	)	3								
		Total Credits	•			1	18								