

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
 BIRLA INSTITUTE OF TECHNOLOGY
 (A Deemed to be University u/s 3 of UGC Act)
 MESRA : RANCHI

Structure for M.Tech. (Civil Engineering) from 2024 Batch

First Semester

Theory Courses

<u>Course Code</u>	<u>Course</u>	<u>L-T-P</u>	<u>Credits</u>
CE501	Advanced Solid Mechanics	3-0-0	3
CE579	Construction Technology and Project Management	3-0-0	3
CE580	Urban Environmental Management	3-0-0	3
CE581	Numerical Methods and Computational Techniques	3-0-0	3
CE582	Optimisation Techniques	3-0-0	3

Laboratory Courses

<u>Course Code</u>	<u>Course</u>	<u>L-T-P</u>	<u>Credits</u>
CE583	Construction Materials and Quality Control	0-0-4	2
CE584	Modern Tools in Civil Engineering	0-0-4	2
MT132	Communication Skills – I	0-0-3	1.5

Total Credits in First Semester = 20.5

Second Semester (With Specialisation in Structural Engineering)

Theory Courses (Any Five Courses)

<u>Course Code</u>	<u>Course</u>	<u>L-T-P</u>	<u>Credits</u>
CE506	Finite Element Method	3-0-0	3
CE503	Structural Dynamics and Earthquake Engineering	3-0-0	3
CE511	Advanced Concrete Technology	3-0-0	3
CE507	Theory of Plates and Shells	3-0-0	3
CE547	Prestressed Concrete	3-0-0	3
CE542	Bridge Engineering	3-0-0	3
CE585	Retrofitting and Rehabilitation of Concrete Structures	3-0-0	3
CE543	Design of High Rise Structures	3-0-0	3
CE549	Structural Design of Foundation	3-0-0	3
CE546	Fracture Mechanics	3-0-0	3

Laboratory Courses

<u>Course Code</u>	<u>Course</u>	<u>L-T-P</u>	<u>Credits</u>
CE586	Concrete and Building Materials Laboratory	0-0-4	2
CE587	Structural Analysis and Design	0-0-4	2
MT133	Communication Skills – II	0-0-3	1.5

Total Credits in Second Semester = 20.5

Second Semester (With Specialisation in Geotechnical Engineering)

Theory Courses (Any Five Courses)

<u>Course Code</u>	<u>Course</u>	<u>L-T-P</u>	<u>Credits</u>
CE515	Advanced Soil Mechanics	3-0-0	3
CE516	Foundation Engineering	3-0-0	3
CE519	Soil Exploration	3-0-0	3
CE518	Soil Dynamics	3-0-0	3
CE554	Environmental Geotechnics	3-0-0	3
CE520	Earth and Earth Retaining Structures	3-0-0	3
CE558	Ground Improvement	3-0-0	3
CE523	Rock Mechanics and Tunnelling	3-0-0	3
CE562	Stability of Slopes	3-0-0	3
CE556	Groundwater Flow	3-0-0	3

Laboratory Courses

<u>Course Code</u>	<u>Course</u>	<u>L-T-P</u>	<u>Credits</u>
CE588	Soil Testing Laboratory	0-0-4	2
CE589	Design of Foundations	0-0-4	2
MT133	Communication Skills – II	0-0-3	1.5

Total Credits in Second Semester = 20.5

Second Semester (With Specialisation in Environmental Engineering)

Theory Courses (Any Five Courses)

<u>Course Code</u>	<u>Course</u>	<u>L-T-P</u>	<u>Credits</u>
CE529	Water Supply Engineering	3-0-0	3
CE532	Wastewater Engineering	3-0-0	3
CE533	Air Pollution and Control	3-0-0	3
CE534	Solid Waste Management	3-0-0	3
CE537	Environmental Impact Assessment	3-0-0	3

CE572	Industrial Safety and Occupational Health	3-0-0	3
CE563	Climate Change and Sustainable Development	3-0-0	3
CE574	Renewable Energy Technology	3-0-0	3
CE590	Environmental Quality and Monitoring	3-0-0	3
CE527	Ecological Engineering	3-0-0	3

Laboratory Courses

<u>Course Code</u>	<u>Course</u>	<u>L-T-P</u>	<u>Credits</u>
CE591	Water and Wastewater Analysis Laboratory	0-0-4	2
CE592	Air and Soil Analysis Laboratory	0-0-4	2
MT133	Communication Skills – II	0-0-3	1.5

Total Credits in Second Semester = 20.5

Third Semester

<u>Course Code</u>	<u>Course</u>	<u>L-T-P</u>	<u>Credits</u>
CE513	Thesis (Part – I)		8
	OE – I/ MOOC – I		3
	OE – II/ MOOC – II		3

Total Credits in Third Semester = 14

Fourth Semester

<u>Course Code</u>	<u>Course</u>	<u>L-T-P</u>	<u>Credits</u>
CE514	Thesis (Part – II)		16

Total Credits in Fourth Semester = 16

Total Credits in M.Tech. Programme = 20.5+20.5+14+16 = 71

Open Electives

To be Offered to M.Tech. Students of other Departments

<u>Course Code</u>	<u>Course</u>	<u>L-T-P</u>	<u>Credits</u>
CE593	Environmental Management	3-0-0	3
CE594	Natural Resources Management	3-0-0	3
CE577	Industrial Pollution and Control	3-0-0	3
CE578	Waste Management	3-0-0	3