

# Birla Institute of Technology, Mesra, Ranchi

## Course Structure for B.Tech. (Civil and Environmental Engineering)

Based on NEP-2020, CBCS and OBE, Effective from 2024-2025

Sr. No.	Semester of Study (Recommended)	Category of Course	Course Code	Subjects	Mode of Delivery & Credits <i>L-Lecture; T-Tutorial; P-Practical</i>			Total Credits	
					L (Periods/Week)	T (Periods/Week)	P (Periods/Week)		
<b>FIRST</b>					<b>THEORY</b>				
I.1		FS	MA24101	Mathematics - I	3	1	0	4	
I.2			PH24101	Physics	3	1	0	4	
I.3			BE24101	Biological Science for Engineers	2	0	0	2	
I.4			GE	CS24101	Programming for Problem Solving	3	1	0	4
I.5				EE24101	Basics of Electrical Engineering	2	1	0	3
<b>LABORATORIES</b>									
I.6		FS	PH24102	Physics Laboratory	0	0	2	1	
I.7		GE	CS24102	Programming for Problem Solving Laboratory	0	0	2	1	
I.8				EE24102	Electrical Engineering Laboratory	0	0	2	1
I.9		HSS	HS24131	Communication Skill - I	0	0	3	1.5	
I.10	MC	MC24 101/102/1 03 /104/105	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA) /Entrepreneurship	0	0	2	1		
<b>TOTAL (Theory + Labs)</b>							<b>22.5</b>		
<b>SECOND</b>					<b>THEORY</b>				
II.1		FS	MA24103	Mathematics - II	3	1	0	4	
II.2			CH24101	Chemistry	3	1	0	4	
II.3		GE	EC24101	Basic Electronics	2	1	0	3	
II.4			ME24101	Basics of Mechanical Engineering	2	1	0	3	
II.5		FS	CE24101	Environmental Science	2	0	0	2	
<b>LABORATORIES</b>									
II.6		FS	CH24102	Chemistry Laboratory	0	0	2	1	
II.7		GE	EC24102	Basic Electronics Laboratory	0	0	2	1	
II.8				ME24102	Engineering Graphics	0	0	4	2
II.9				PE24102	Workshop Practice	0	0	2	1
II.10	MC	MC24 106/107/1 08/109 /110	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA) /Entrepreneurship	0	0	2	1		
<b>TOTAL (Theory + Labs)</b>							<b>22</b>		
<b>GRAND TOTAL FOR FIRST YEAR</b>							<b>44.5</b>		
<b>THIRD</b>					<b>THEORY</b>				
III.1		FS	MA24201	Numerical Methods	2	0	0	2	
III.2		PC	CE24201	Solid Mechanics	4	0	0	4	
III.3			CE24202	Structural Analysis - I	3	0	0	3	

III.4			CE24203	Fluid Mechanics	4	0	0	4
III.5			CE24204	Building Materials and Construction	3	0	0	3
III.6		HSS	MT24131	UHV-II: Understanding Harmony	3	0	0	3
<b>LABORATORIES</b>								
III.7		FS	MA24202	Numerical Methods Laboratory	0	0	2	1
III.8		PC	CE24205	Civil Engineering Drawing	0	0	4	2
III.9			CE24206	Fluid Mechanics Laboratory	0	0	2	1
III.10		MC	MC24 201/202/2 03/204 /205	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA) / Entrepreneurship	0	0	2	1
<b>TOTAL (Theory + Labs)</b>								<b>24</b>
<b>FOURTH</b>		<b>THEORY</b>						
IV.1		PC	CE24207	Structural Analysis - II	3	0	0	3
IV.2			CE24208	Surveying	3	0	0	3
IV.3			CE24209	Construction Engineering and Management	3	0	0	3
IV.4			CE24210	Earthquake Engineering and Disaster Mangement	2	0	0	2
IV.5		PE	CE2425X	Elective - I	3	0	0	3
IV.6		OE	XX24XXX / MO24201	Open Elective - I / MOOC - I	3	0	0	3
IV.7		MC	HS24211	Indian Knowledge System	2	0	0	0
<b>LABORATORIES</b>								
IV.8		PC	CE24211	Structural Engineering Laboratory - I	0	0	2	1
IV.9			CE24212	Surveying Field Work	0	0	4	2
IV.10			CE24213	Specifications Estimation and Costing	1	0	2	2
IV.11			CE24214	Solid Mechanics Laboratory	0	0	2	1
IV.12		MC	MC24 206/207/2 08/209/21 0	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA) / Entrepreneurship	0	0	2	1
<b>TOTAL (Theory + Labs)</b>								<b>24</b>
<b>GRAND TOTAL FOR SECOND YEAR</b>								<b>48</b>
<b>FIFTH</b>		<b>THEORY</b>						
V.1		PC	CE24301	Structural Design - I	4	0	0	4
V.2			CE24302	Water Resources Engineering	3	0	0	3
V.3			CE24303	Geotechnical Engineering	3	0	0	3
V.4			CE24304	Environmental Engineering	3	0	0	3
V.5			CE24305	Transportation Engineering	3	0	0	3
V.6		OE	XX24XXX / MO24301	Open Elective - II / MOOC - II	3	0	0	3
<b>LABORATORIES</b>								
V.7		PC	CE24306	Water Resources Engineering Laboratory	0	0	2	1.0

V.8			CE24307	Environmental Engineering Laboratory	0	0	2	1.0
V.9		HSS	HS24133	Communication Skill - II	0	0	3	1.5
V.10		PC	CE24300	Project - I				2
<b>TOTAL (Theory + Labs)</b>								<b>24.5</b>
<b>SIXTH</b>		<b>THEORY</b>						
VI.1		PC	CE24308	Structural Design - II	4	0	0	4
VI.2		PE	CE2435X	Elective - II	3	0	0	3
VI.3			CE2435X	Elective - III	3	0	0	3
VI.4			CE2435X	Elective - IV	3	0	0	3
VI.5		OE	XX24XXX / MO24303	Open Elective - III / MOOC - III	3	0	0	3
<b>LABORATORIES</b>								
VI.6		PC	CE24309	Structural Engineering Laboratory - II	0	0	2	1
VI.7			CE24310	Computer Aided Analysis and Design	1	0	2	2
VI.8			CE24311	Geotechnical Engineering Laboratory	0	0	2	1
VI.9			CE24312	Transportation Engineering Laboratory	0	0	2	1
VI.10			CE24350	Project - II				2
<b>TOTAL (Theory + Labs)</b>								<b>23</b>
<b>GRAND TOTAL FOR THIRD YEAR</b>								<b>47.5</b>
<b>SEVENTH</b>		<b>THEORY</b>						
VII.1		PE	CE2445X	Elective - V	3	0	0	3
VII.2			CE2445X	Elective - VI	3	0	0	3
VII.3			CE2445X	Elective - VII	3	0	0	3
VII.4		OE	XX24XXX / MO24401	Open Elective - IV / MOOC - IV	3	0	0	3
VII.5		HSS	MT24204	Constitution of India	2	0	0	0
<b>LABORATORIES</b>								
VII.6		PC	CE24402	Remote Sensing and GIS Laboratory	0	0	2	1
VII.7			CE24403	Advanced Instrumentation Laboratory	0	0	2	1
VII.8		MC	MC24400	Summer Training (Minimum Four Weeks / 160 Hrs)				4
VII.9		PC	CE24400	Project - III				3
<b>TOTAL (Theory + Labs)</b>								<b>21</b>
VIII.1	<b>EIGHTH</b>	PC	CE24450/ CE24490	Project-IV / Industry Internship				6
VIII.2			CE24498	Comprehensive Viva				1
<b>TOTAL (Theory + Labs)</b>								<b>7</b>
<b>GRAND TOTAL FOR FOURTH YEAR</b>								<b>28</b>
<b>GRAND TOTAL FOR B.TECH.</b>								<b>168</b>

Head  
Civil and Environmental Engineering

Dean (UGS)