



# **S.Y.B.Tech. (Civil Engineering) Sem. III & IV Course Credit System Regulation 2022**

## **NOTES:**

- (1) Laboratory course is considered as a separate head of passing.
- (2) Tentatively the first two modules of the course content will be covered in T1 and third and fourth modules of the course content will be covered in T2. Any change in the same will be informed by the course instructor. The end semester examination will cover all the modules of the course content. T1 and T2 shall be of 15 points and of one hour duration each.
- (3) Assessment criteria for laboratory/Tutorial work. i.e. weightage for assessment shall be as follows: i) Attendance in Laboratory/Tutorial = 20%, (ii) Journal= 40%, (iii) Practical Examination (and/or) Mini project (and/or) Quiz (and/or) Seminar (and/or) Oral (and/or) Industry visit report= 40%.
- (4) IE: Internal Evaluation will be carried out by course instructor for 10 points. It is the continuous evaluation throughout the semester. The evaluation will be based on minimum three of the following activities decided by course instructor. The maximum points that can be assigned to one activity will be 04. The course instructor needs to inform the students and head of the department about the activities those will be considered for IE and the points assigned to them in first week of semester. The course instructor will submit the internal evaluation points (out of 10 with activity wise break up) to examination section before the beginning of End Semester examination.  
List of Activities: 1. Class Involvement 2. Assignments 3. Problem Solving 4. Mini project 5. Quizzes 6. Presentation 7. Oral
- (5) Student can opt for an online course available on <https://swayam.gov.in/> or <https://onlinecourses.nptel.ac.in/> subject to approval from the department. After successful completion of the course, the course title can appear on the grade card of a student.
- (6) The Mandatory courses are with Pass (P) and No Pass (NP) grades.
- (7) Department will offer Value Added courses in a semester, subject to availability of resources and enrolment of minimum 20 students opting for the course. Upon completion of the Value Added course, the course title shall appear in the grade card of the student.
- (8) Students can optionally opt for Non-Technical Value Added courses offered by Center for Continuing Education (CCE-SPCE). Upon successful completion of the course, the course title shall appear on the grade card of the student.
- (9) The contents of core courses are aligned with the latest GATE syllabus. The mapping between GATE syllabus topics and core courses is given in Table GATE-MAP.
- (10) Refer (i) Academic rules and regulations and (ii) Examination rules and regulations for further details



BHARTIYA VIDYA BHAVAN'S  
SARDAR PATEL COLLEGE OF ENGINEERING  
Munshi Nagar Andheri (W)



Credit System for Second Year B.Tech. in Civil Engineering (Semester III)														
Applicable for the students entering in First Year in Academic Year 2022-23 (Applicable from 2023-24)														
Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)			End Semester Evaluation (Points)		End semester weightage (%)	Term work / Practical	Total Points
			L	P	T		T-I	T-II	IE	Points	Time (Hrs)			
	Core Courses													
1	Laplace Linear Algebra and Complex Analysis	BS-BTC301	2	0	0	2	15	15	10	100	3	60%	0	100
2	Mechanics of Materials	ES-BTC302	3	0	0	3	15	15	10	100	3	60%	0	100
3	Basics of Surveying	PC-BTC303	2	0	0	2	15	15	10	100	3	60%	0	100
4	Building Drawing with CAD	ES-BTC304	2	0	0	2	15	15	10	100	3	60%	0	100
5	Engineering Geology	BS-BTC305	2	0	0	2	15	15	10	100	3	60%	0	100
6	Fluid Mechanics	PC-BTC306	3	0	0	3	15	15	10	100	3	60%	0	100
7	Building Materials and Construction	PC-BTC307	2	0	1	3	15	15	10	100	3	60%	25	125
	Laboratory Courses													
8	Mechanics of Materials (Lab)	ES-BTC351	0	2	0	1	0	0	0	0	0	0%	25	25
9	Basics of Surveying (Lab.)	PC- BTC352	0	2	0	1	0	0	0	0	0	0%	25	25
10	Fluid Mechanics (Lab.)	PC- BTC353	0	2	0	1	0	0	0	0	0	0%	25	25
11	Materials Testing & Evaluation (Lab.)	PC- BTC354	0	2	0	1	0	0	0	0	0	0%	25	25
12	Building Drawing with CAD (Lab.)	ES-BTC355	0	2	0	1	0	0	0	0	0	0%	25	25
13	Engineering Geology (Lab.)	BS-BTC356	0	2	0	1	0	0	0	0	0	0%	25	25
	Online Courses													
14	#Online Course	OL-BTCxxx	0	0	0	0	0	0	0	0	0	0	0	0
Value Added Courses														
15	UHV-I/Or Any other	VA-BTC301	2			0	15	15	10	50	2	0	0	0
	TOTAL		16	12	1	23								



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Credit System for Second Year B.Tech. in Civil Engineering (Semester IV) Applicable for the students entering in First Year in Academic Year 2022-23 (Applicable from 2023-24)														
Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation(Points)			End Semester Evaluation (Points)		End semester weightage (%)	Term work / Practical	Total Points
			L	P	T		T-I	T-II	IE	Points	Time (Hrs)			
	Core Courses													
1	Probability, Statistics and Operational Research	BS-BTC401	2	0	0	2	15	15	10	100	3	60%	0	100
2	Structural Mechanics	PC-BTC402	3	0	1	4	15	15	10	100	3	60%	25	125
3	Concrete Technology	PC-BTC403	2	0	0	2	15	15	10	100	3	60%	0	100
4	Surveying & Geomatics	PC-BTC404	3	0	0	3	15	15	10	100	3	60%	0	100
5	Hydraulic Engineering	PC-BTC405	2	0	0	2	15	15	10	100	3	60%	0	100
6	Transportation Engineering	PC-BTC406	2	0	1	3	15	15	10	100	3	60%	25	125
7	Environmental Engineering-I	PC-BTC407	2	0	0	2	15	15	10	100	3	60%	0	100
	Laboratory Courses													
8	Concrete Technology (Lab)	PC-BTC451	0	2	0	1	0	0	0	0	0	0	25	25
9	Surveying & Geomatics(Lab.)	PC-BTC452	0	2	0	1	0	0	0	0	0	0	25	25
10	Hydraulic Engineering (Lab.)	PC-BTC453	0	2	0	1	0	0	0	0	0	0	25	25
11	Environmental Engineering -I (Lab)	PC-BTC454	0	2	0	1	0	0	0	0	0	0	25	25
	Mandatory Course													
12	Indian Traditional Knowledge	MC-BT002	2	0	0	0	15	15	10	50+50*	3	60%	0	100
	Online Courses													
13	#Online Course	OL-BTCxxx	0	0	0	0	0	0	0	0	0	0	0	0
	Value Added Courses													
14	UHV-II/or any other	VA-BTC401	2	0	0	0	15	15	10	50	2	0	0	0
	TOTAL		18	6	2	22								

IE: Internal Evaluation



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# **T.Y.B.Tech. (Civil Engineering) Sem. V & VI Course Credit System Regulation 2022**

## **NOTES:**

- (1) Laboratory course is considered as a separate head of passing
- (2) Tentatively the first two modules of the course content will be covered in T1 and third and fourth modules of the course content will be covered in T2. Any change in the same will be informed by the course instructor. The end semester examination will cover all the modules of the course content. T1 and T2 shall be of 15 points and of one hour duration each.
- (3) Assessment criteria for laboratory/Tutorial work. i.e. weightage for assessment shall be as follows: i) Attendance in Laboratory/Tutorial = 20%, (ii) Journal= 40%, (iii) Practical Examination (and/or) Mini project (and/or) Quiz (and/or) Seminar (and/or) Oral (and/or) Industry visit report= 40%.
- (4) IE: Internal Evaluation will be carried out by course instructor for 10 points. It is the continuous evaluation throughout the semester. The evaluation will be based on minimum three of the following activities decided by course instructor. The maximum points that can be assigned to one activity will be 04. The course instructor needs to inform the students and head of the department about the activities those will be considered for IE and the points assigned to them in first week of semester. The course instructor will submit the internal evaluation points (out of 10 with activity wise break up) to examination section before the beginning of End Semester examination.  
List of Activities: 1. Class Involvement 2. Assignments 3. Problem Solving 4. Mini project 5. Quizzes 6. Presentation 7. Oral
- (5) Student can opt for an online course available on <https://swayam.gov.in/> or <https://onlinecourses.nptel.ac.in/> subject to approval from the department. After successful completion of the course, the course title can appear on the grade card of student.
- (6) The Mandatory courses are with Pass (P) and No Pass (NP) grades.
- (7) Department will offer Value Added courses in a semester, subject to availability of resources and enrolment of minimum 20 students opting for the course. Upon completion of the Value Added course, the course title shall appear in the grade card of the student.
- (8) Students can optionally opt for Non-Technical Value Added courses offered by Center for Continuing Education (CCE-SPCE). Upon successful completion of the course, the course title shall appear on the grade card of the student.
- (9) The contents of core courses are aligned with the latest GATE syllabus. The mapping between GATE syllabus topics and core courses is given in Table GATE-MAP.
- (10) Refer (i) Academic rules and regulations and (ii) Examination rules and regulations for further details



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Credit System for Third Year B.Tech. in Civil Engineering (Semester V) Applicable for the students entering in First Year in Academic Year 2022-23 (Applicable from 2024-25)														
Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)			End Semester Evaluation (Points)		End semester weightage (%)	Term work/ Practical	Total Points
			L	P	T		T- I	T-II	IE	Points	Time (hrs)			
<b>Core Courses</b>														
1	Structural Engineering	PC-BTC501	3	0	1	4	15	15	10	100	3	60%	25	125
2	Hydrology & Water Resources Engineering	PC-BTC502	3	0	1	4	15	15	10	100	3	60%	25	125
3	Soil Mechanics	PC-BTC503	3	0	0	3	15	15	10	100	3	60%	0	100
4	Highway Engineering	PC-BTC504	2	0	0	2	15	15	10	100	3	60%	0	100
5	Environmental Engineering-II	PC-BTC506	3	0	0	3	15	15	10	100	3	60%	0	100
6	Organizational ,Communication and Interpersonal Skills	HSM-BTC507	2	0	1	3	15	15	10	100	3	60%	25	125
<b>Laboratory Courses</b>														
7	Highway Engineering (Lab)	PC-BTC551	0	2	0	1	0	0	0	0	0	0	25	25
8	Environmental Engineering II (Lab)	PC- BTC552	0	2	0	1	0	0	0	0	0	0	25	25
9	Soil Mechanics (Lab)	PC- BTC553	0	2	0	1	0	0	0	0	0	0	25	25
<b>Online Courses</b>														
10	#Online Course	OL-BTCxxx	3	0	0	0	0	0		0	0	0	0	0
<b>Value Added Courses</b>														
11	#Value Added Tech./Non-Tech.	VA-BTCXXX VN-BTCXXX	Courses offered by CCE											
<b>TOTAL</b>			<b>17</b>	<b>4</b>	<b>3</b>	<b>22</b>								



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Credit System for Third Year B.Tech. in Civil Engineering (Semester VI) Applicable for the students entering in First Year in Academic Year 2022-23 (Applicable from 2024-25)														
Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)			End Semester Evaluation (Points)		End semester weightage (%)	Term work/ Practical	Total Points
			L	P	T		T-I	T-II	IE	Points	Time (Hrs)			
	Core Courses													
1	Construction Engineering &Management	PC-BTC601	3	0	1	4	15	15	10	100	3	60%	25	125
2	Design of Steel Structures	PC-BTC602	3	0	1	4	15	15	10	100	3	60%	25	125
3	Foundation Engineering	PC-BTC603	3	0	0	3	15	15	10	100	3	60%	0	100
4	Design of RCC Elements	PC-BTC604	3	0	1	4	15	15	10	100	3	60%	25	125
5	#Professional Elective - I	PE-BTCXXX	3	0	0	3	15	15	10	100	3	60%	0/25*	100/125*
6	#Professional Elective II	PE-BTCXXX	3	0	0	3	15	15	10	100	3	60%	0/25*	100/125*
7	#Open Elective-I	OE-BTCXXX	3	0	0	3	15	15	10	100	3	60%	0	100
	Mandatory Course													
8	Environmental studies	MC-102	2	0	0	0	20	20		50+50*	3	60%	0	100
	Project Course													
9	Project Stage I	PR-BTC601	2			1	One or more In-semester presentations						50	50
	Online Courses/Skill based courses													
10	#Online Course	OL-BTCXXX	3	0	0	0	0	0		0	0	0	0	0
	Value Added Courses													
11	#Value Added Tech./Non-Tech.	VA-VNBTCXXX	Courses offered by CCE											
	TOTAL		21	0	3	25								

\* Professional elective and Open elective can be for 2 lectures + 1 tutorial based on course instructor's discretion; For such courses, the total marks will be 125 i.e 25 marks for tutorial added. However, the total credits shall remain same



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**Professional Elective I**

Specialization	Sr. No.	Code	Elective
Structures	1	PE-BTC621	Analysis of Indeterminate Structures
	2	PE-BTC622	Geographic Information System Science and Application
Water Resources	3	PE-BTC631	Hydraulic structures & Irrigation Engineering
	4	PE-BTC 632	Introduction to Offshore Engineering
Construction Management	5	PE-BTC641	Special Construction Materials & Methods
Environmental Engg.	6	PE-BTC 651	Solid and Hazardous Waste Management
	7	PE-BTC 652	Air and Noise Pollution Control
Transportation and Geo-Tech	8	PE-BTC 661	Pavement Subgrade and Materials
	9	PE-BTC 662	Ground Improvement Techniques

**Professional Elective II**

Specialization	S. No	Code	Elective
Structures	1	PE-BTC 624	Structural Dynamics
Water Resources	2	PE-BTC 633	Open Channel Flow
	3	PE-BTC 634	Ground Water Development and Management
	4	PE-BTC 635	Urban Hydrology and hydraulics
Construction Management	5	PE-BTC 642	Disaster Preparedness , Planning and Management
	6	PE-BTC 644	TQM and MIS in construction
Environmental Engg.	7	PE-BTC 653	Rural Water Supply and Sanitation
	8	PE-BTC 654	Physico chemical processes
Transportation and Geo-Tech	9	PE-BTC 663	Low Cost Roads
	10	PE-BTC 664	Traffic engineering and control
	11	PE-BTC 665	Introduction to Geotechnical Earthquake Engineering



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Open Elective-I		
Sr No.	Code	Elective
1	OE-BTC 611	Human Resources Development And Organizational Behavior
2	OE-BTC 612	Sustainable Development
4	OE-BTC 614	Artificial Intelligence Techniques
5	OE-BTC 615	Numerical Computations
6	OE –BTE 601	Project Management
7	OE-BTE 602	Artificial Intelligence
8	OE-BTE 605	Linear Algebra And Matrix Computation
9	OE-BTM 611	Computational Methods
10	OE-BTM 613	Entrepreneurship Development And Start Up
11	OE-BTM 614	Introduction To Optimization Methods
12	OE-BTS 6C1	Online Course from SWAYAM/NPTEL- Sustainable Materials and Green Buildings (Note 9)





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# **B.Tech.**

## **(Civil Engineering)**

### **Sem. VII & VIII**

## **Course Credit System Regulation 2022**

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- (6) The Mandatory courses are with Pass (P) and No Pass (NP) grades.
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- (9) The contents of core courses are aligned with the latest GATE syllabus. The mapping between GATE syllabus topics and core courses is given in Table GATE-MAP.
- (10) Refer (i) Academic rules and regulations and (ii) Examination rules and regulations for further details



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**Credit System for Final Year B.Tech. in Civil Engineering (Semester VII)**  
**Applicable for the students entering in First Year in Academic Year 2022-23 (Applicable from 2025-26)**

Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)			End Semester Evaluation (Points)		End semester weightage (%)	Term work/ Practical	Total Points
			L	P	T		T-I	T-II	IE	Points	Time			
	<b>Core Courses</b>													
1	Design of concrete structures	PC-BTC701	3	0	1	4	15	15	10	100	3	60%	25	125
2	Engineering Economics Estimation and Costing	PC-BTC702	3	0	1	4	15	15	10	100	3	60%	25	125
3	#Professional Elective III	PE-BTCXXX	3	0	0	3	15	15	10	100	3	60%	0/25*	100/125*
4	#Professional Elective IV	PE-BTCXXX	3	0	0	3	15	15	10	100	3	60%	0/25*	100/125*
5	#Open Elective II	OE-BTCXXX	3	0	0	3	15	15	10	100	3	60%	0	100
6	Project-Stage II	PR-BTCXXX	0	(2+6) <sup>s</sup>	0	4	One or more In-semester presentations						100	100
	<b>Online Courses</b>													
7	#Online Course	OL-BTCxxx	3	0	0		0	0		0	0	0	0	0
	<b>Value Added Courses</b>													
8	#Value Added Tech./Non-Tech.	VA-BTCXXX VN-BTCXXX	3	0	0		0	0		0	0	0	0	0
	<b>TOTAL</b>		<b>15</b>	<b>8</b>	<b>2</b>	<b>21</b>								

\* Professional elective and Open elective can be for 2 lectures + 1 tutorial based on course instructor's discretion; For such courses, the total marks will be 125 i.e 25 marks for tutorial added. However, the total credits shall remain same



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**Professional Elective III**

Specialization	Sr. No.	Code	Elective
Structures	1	PE-BTC721	Advanced Structural Analysis
	2	PE-BTC 722	Structural analysis by Matrix Methods
	3	PE-BTC 723	Repair and rehabilitation of structures
Water Resources	4	PE-BTC 731	Surface Hydrology
Environmental Engg.	5	PE-BTC 741	Water and Air quality Modelling
	6	PE-BTC742	Environmental Impact Assessment
Transportation and Geo-Tech	7	PE-BTC 761	Pavement Design & Construction
	8	PE-BTC 762	Advanced Foundation Engineering
	9	PE-BTC 763	Rock Mechanics

**Professional Elective IV**

Specialization	Sr. No.	Code	Elective
Structures	1	PE-BTC 724	Structural dynamics
	2	PE-BTC 726	Prestressed Concrete
Water Resources	3	PE-BTC732	Hydraulic Modelling
Environmental Engg	4	PE-BTC 742	Sustainable Engineering and technology
	5	PE-BTC743	Industrial Wastewater treatment
Construction Management	6	PE-BTC 751	Engineering risk and uncertainty
	7	PE-BTC752	Infrastructure Planning and Management
Transportation and Geo-Tech	8	PE-BTC 764	Design and Construction of Rigid Pavements



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Open Elective-II		
Sr. No.	Code	Elective
1	OE-BTC 711	Economic policies of India
2	OE-BTC 712	Entrepreneurship, Innovation and Design Thinking
3	OE-BTC 713	Disaster Management and preparedness
4	OE-BTC 714	Engineering System and development
5	OE-BTE 701	Computer network
6	OE-BTE 702	Engineering economics
7	OE-BTE 703	Embedded system
8	OE-BTE 704	Internet of things
9	OE-BTM 714	Introduction to Micro-Electro-Mechanical Systems (MEMS)
10	OE-BTM 715	Solar and Wind Technology
11	OE-BTM 717	Introduction to Augmented Reality
12	OE-BTM 718	Fundamental of Artificial Intelligence (AI) and Machine Learning



BHARTIYA VIDYA BHAVAN'S  
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Credit System for Final Year B.Tech. in Civil Engineering (Semester VIII)													
Applicable for the students entering in First Year in Academic Year 2022-23 (Applicable from 2025-26)													
Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)		End Semester Evaluation (Points)		End semester weightage (%)	Term work/Practical	Total Points
			L	P	T		T-I	T-II	Points	Time (Hrs)			
Open Elective Course													
1	#Open Elective -III	Refer open elective III table	SWAYAM / NPTEL Course of 12 weeks			3			-	-	-	100	100
Internship													
2	External / Internal Internship	PR-BTCXXX				9	Refer institute academic book for details					200	200
	TOTAL					12							

Open Elective-III		
Sr. No.	Code	Elective
1	OE-BTC 811	Mechanics of water waves
2	OE-BTC 812	Human Resource Development& Organizational Behavior
4	OE-BTC814	Disaster Management and preparedness
5	OE-BTE801	Robotics
6	OE-BTE802	Power Plant Engineering
7	OE-BTE803	Electrical engineering materials
8	OE-BTE804	Medical Electronics
9	OE-BTE805	Image processing
10	OE-BTM712	Introduction to Research Methodology
11	OE-BTM719	Value Engineering