Course Structure

for Degree Program

B. Tech. in Civil Engineering

In line with National Education Policy 2020

(Effective from AY 2023-24 for University Department only)

Dr. Babasaheb Ambedkar Technological University

Lonere 402 103, Dist- Raigad, Maharashtra, INDIA

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Course Structure, Guidelines, Rules and Regulations

Preamble

Economic advancement of a country is closely tied to the quality of technical education it offers. Engineering education is reaching new heights and plays a significant role in the overall education system. The preparation of engineering graduates should focus on enhancing their employability and sustainability in response to evolving industry and societal needs. As technology advances and expectations change rapidly, updating the curriculum to be contemporary and relevant is imperative.

In order to align our technical education system with global standards and practices, based on performance and assessment system was implemented earlier for all Undergraduate Programs (UG). Now as per National

Education Policy-2020 framework we are incorporating project-based learning. The realm of engineering and technology, characterized by its interdisciplinary nature, demands the synthesis of knowledge from a wide array of domains including humanities, arts, and advanced technologies. However, what distinguishes technologists is their proficiency in design and their ability to adeptly apply this knowledge across diverse disciplines to achieve effective problem-solving.

In response to these needs, aspiring engineers need thorough preparation and a deep understanding of the latest technological trends and industrial requirements. This calls for studying under a modern and adaptable curriculum that mirrors the global environment. As part of this initiative, there is a push to integrate recent advancements and enrich course content with pertinent and up-to-date subjects. Consequently, a revised structure and curriculum will debut from the academic year 2023-24 for First Year Civil Engineering, with intentions to progressively implement these updates across second, third- and fourth-year engineering programs.

Project-based learning has been introduced alongside traditional classroom teaching and laboratory-based learning to enhance the overall learning experience. The objective is to encourage students to learn collaboratively in groups of 3 to 4, focusing on solving meaningful problems. These problems can be theoretical, practical, social, technical, symbolic, cultural, or scientific, arising from students' curiosity across various disciplines and professional contexts. The selected problems should be exemplary and may require an interdisciplinary approach for both analysis and resolution. This approach aims to develop students' capacity for learning through shared cognition.

- Laboratory Course:

This is focused on completing experiments and assignments related to the courses of the Semester.

- Seminar: This aspect will revolve around state-of-the-art topics selected by students and approved by the authority. Students are required to submit a certified seminar report in a standard format, evaluated by their assigned guide and the department/institute head for satisfactory completion of the work.
- Project Work in Final Year: Project work in the seventh Semester is integral to the curriculum. It involves applying knowledge gained throughout the graduation program, ideally addressing societal needs. The project provides an opportunity for students to design and construct complete systems or subsystems, specializing in areas of their interest. Students must prepare a certified final project report in standard format, evaluated by their guide and the department/institute head for satisfactory completion of the work.
- Internship: Internships are crucial for educational and career development, offering practical experience in field of discipline. It plays a significant role as employers seek well-trained employees. The primary objective is to expose technical students to real-world industrial environments, providing insights into the social, economic, and administrative factors influencing organizational operations. Students may choose internships in industries, government agencies, NGOs, MSMEs, rural settings, innovation hubs, intellectual property rights (IPR), or entrepreneurship initiatives. They can opt to focus on innovation, leading to start-up's, or gain experience in industry/NGO/government/MSME settings to prepare for professional roles. The conduction, monitoring, assessment, and evaluation of internships follow guidelines provided by AICTE.

Definition of Credit **

1 Hour Lecture (L) per week	1 credit for 1 Hour
Tutorial (T) per week	1 credit for 1 Hour
Practical(P) per week 2 Hours Practical (Lab)/week	1 credit for 2 Hours

** The head of Tutorial and Practical (as a special case) may be merged for common credit with the permission of authority.

Rule No. 1: Eligibility for Admission

Eligibility Criteria

Students seeking admission to the first year of the Bachelor's degree course in Engineering and Technology must fulfil the eligibility criteria as laid down from time to time by the following authorities:

- **Dr. Babasaheb Ambedkar Technological University (DBATU)**
- **Government of Maharashtra**
- **All India Council for Technical Education (AICTE)**

Rule No. 2: Scheme of Assessment

Eligibility for the Degree of Bachelor of Engineering and Technology

To be eligible for the degree of Bachelor of Engineering and Technology, a candidate must:

1. **Appearing for Examinations**:
    - A candidate is required to appear for all prescribed examinations during the course of study. This includes theory exams, practical exams, term-work assessments, project evaluations, and any other form of examination as specified in the Course Contents.
2. **Passing of Examinations**:
    - A candidate must pass all the prescribed examinations. The passing criteria, including minimum marks required in theory, practical, term-work, and other components, will be as per the rules laid down by the university.

Components of Assessment

The scheme of assessment typically includes the following components:

1. **Theory Examinations**:
    - Conducted at the end of each Semester.
    - Assess the theoretical understanding of the subjects.
2. **Practical Examinations**:
    - Conducted to assess the practical skills and application of knowledge.
    - Includes laboratory work, experiments, and practical assignments.
3. **Term-Work Assessments**:
    - Continuous assessment of assignments, tutorials, and project work throughout the Semester.
    - Includes the evaluation of written assignments, presentations, and project reports.
4. **Project Work**:
    - Assessment of project-based learning and final year projects.
    - Includes continuous assessment by the faculty and final evaluation through project reports, presentations, and viva-voce.
5. **Internal Continuous Assessment**:
    - Regular assessments conducted throughout the Semester.
    - Includes quizzes, class tests, mid-term exams, and participation in class activities.

General Rules and Regulations

1. The normal duration of the course leading to B.Tech. degree will be EIGHT semesters.
2. The normal duration of the course leading to M.Tech. degree will be FOUR semesters.
3. Each academic year shall be divided into 2 semesters, each of 20 weeks duration, including evaluation and grade finalization, etc. The Academic Session in each semester shall provide for at least 90 Teaching Days, with at least 40 hours of teaching contact periods in a five to six days session

per week. The semester that is typically from Mid-July to November is called the ODD SEMESTER, and the one that is from January to Mid-May is called the EVEN SEMESTER. Academic Session may be scheduled for the Summer Session/Semester as well. For 1st year B. Tech and M. Tech the schedule will be decided as per the admission schedule declared by Government of Maharashtra.

4. The schedule of academic activities for a Semester, including the dates of registration, mid-semester examination, end-semester examination, inter-semester vacation, etc. shall be referred to as the Academic Calendar of the Semester, which shall be prepared by the Dean (Academic), and announced at least TWO weeks before the Closing Date of the previous Semester.
5. The Academic Calendar must be strictly adhered to, and all other activities including co-curricular and/or extra -curricular activities must be scheduled so as not to interfere with the Curricular Activities as stipulated in the Academic Calendar.

Registration:

1. Lower and Upper Limits for Course Credits Registered in a Semester, by a Full- Time Student of a UG/PG Program:

   A full time student of a particular UG/PG program shall register for the appropriate number of course credits in each semester/session that is within the minimum and maximum limits specific to that UG/PG program as stipulated in the specific Regulations pertaining to that UG/PG program.
2. Mandatory Pre-Registration for higher semesters: In order to facilitate proper planning of the academic activities of a semester, it is essential for the every institute to inform to Dean (Academics) and COE regarding details of total no. of electives offered (Course-wise) along with the number of students opted for the same. This information should be submitted within two weeks from the date of commencement of the semester as per academic calendar.
3. PhD students can register for any of PG/PhD courses and the corresponding rules of evaluation will apply.
4. Under Graduate students may be permitted to register for a few selected Post Graduate courses, in exceptionally rare circumstances, only if the DUGC/DPGC is convinced of the level of the academic achievement and the potential in a student.

Course Pre-Requisites:

1. In order to register for some courses, it may be required either to have exposure in, or to have completed satisfactorily, or to have prior earned credits in, some specified courses.
2. Students who do not register on the day announced for the purpose may be permitted LATE REGISTRATION up to the notified day in academic calendar on payment of late fee.

3. REGISTRATION IN ABSENTIA will be allowed only in exceptional cases with the approval of the Dean (Academic) / Principal.
4. A student will be permitted to register in the next semester only if he fulfills the following conditions:
   i) Satisfied all the Academic Requirements to continue with the program of Studies without termination
   ii) Cleared all Institute, Hostel and Library dues and fines (if any) of the previous semesters;
   iii) Paid all required advance payments of the Institute and hostel for the current semester;
   iv) Not been debarred from registering on any specific ground by the Institute.

Evaluation System:

1. Absolute grading system based on absolute marks as indicated below will be implemented from academic year 2023-24, from I year B. Tech.

Percentage of marks	Letter Grade	Grade Point
91-100	EX	10.0
86-90	AA	9.0
81-85	AB	8.5
76-80	BB	8.0
71-75	BC	7.5
66-70	CC	7.0
61-65	CD	6.5
56-60	DD	6.0
51-55	DE	5.5
40-50	EE	5.0
<40	EF	0.0

2. Class is awarded based on CGPA of all eighth semester of B.Tech Program.

CGPA for pass is minimum 5.0	
CGPA upto <5.50	Pass class
CGPA ≥ 5.50&<6.00	Second Class
CGPA ≥ 6.00&<7.5	First Class
CGPA >7.50	Distinction
[Percentage of Marks =CGPA*10.0]	

3. A total of 100 Marks for each theory course are distributed as follows:

Mid Semester Exam (MSE) Marks	20
Continuous Assessment Marks	20
End Semester Examination (ESE)Marks	60

4. A total of 100 Marks for each practical course are distributed as follows

1.	Continuous Assessment Marks	50
2.	End Semester Examination (ESE)Marks	50

- It is mandatory for every student of B. Tech to score a minimum of 40 marks out of 100, M. Tech to score a minimum of 45 marks out of 100 with a minimum of 20 marks out of 60 marks in End Semester Examination for theory course.
- This will be implemented from the first year of B. Tech starting from Academic Year 2023-24

5. Description of Grades

EX Grade: An 'EX' grade stands for outstanding achievement.

EE Grade: The 'EE' grade stands for minimum passing grade.

The students may appear for the remedial examination for the subjects he/she failed for the current semester of admission only and his/her performance will be awarded with EE grade only.

If any of the students remain absent for the regular examination due to genuine reason and the same will be verified and tested by the Dean (Academics) or committee constituted by the University Authority.

FF Grade: The 'FF' grade denotes very poor performance, i.e. failure in a course due to poor performance. The students who have been awarded 'FF' grade in a course in any semester must repeat the subject in next semester.

6. Evaluation of Performance

a. Semester Grade Point Average (SGPA)

The performance of a student in a semester is indicated by Semester Grade Point Average (SGPA) which is a weighted average of the grade points obtained in all the courses taken by the student in the semester and scaled to a maximum of 10. (SGPI is to be calculated up to two decimal places). A Semester Grade Point Average (SGPA) will be computed for each semester as follows:

$$SGPA = \frac{[\sum_{i=1}^{n} c_i g_i]}{[\sum_{i=1}^{n} c_i]}$$

Where

'n' is the number of subjects for the semester,

'c_i' is the number of credits allotted to a particular subject, and

'g_i' is the grade-points awarded to the student for the subject based on his performance as per the above table.

SGPA will be rounded off to the second place of decimal and recorded as such.

b. Cumulative Grade Point Average (CGPA):

An up to date assessment of the overall performance of a student from the time he entered the Institute is obtained by calculating Cumulative Grade Point Average (CGPA) of a student. The CGPA is weighted average of the grade points obtained in all the courses registered by the student since s/he entered the Institute. CGPA is also calculated at the end of every semester (upto two decimal places).Starting from the first semester at the end of each semester (S), a Cumulative Grade Point Average (CGPA) will be computed as follows:

$$CGPA = \frac{[\sum_{i=1}^{m} c_i g_i]}{[\sum_{i=1}^{m} c_i]}$$

Where,

'm' is the total number of subjects from the first semester onwards up to and including the semester S,

'ci' is the number of credits allotted to a particular subject, and

'gi' is the grade-points awarded to the student for the subject based on his/her performance as per the above table.

CGPA will be rounded off to the second place of decimal and recorded as such.

7. Attendance Requirements:

a. All students must attend every lecture, tutorial and practical classes.

b. To account for approved leave of absence (eg. representing the Institute in sports, games or athletics; placement activities; NCC/NSS activities; etc.) and/or any other such contingencies like medical emergencies, etc., the attendance requirement shall be a minimum of 75% of the classes actually conducted. If the student failed to maintain 75% attendance, he/she will be detained for appearing the successive examination. The Dean (Academics)/ Principal is permitted to give 10% concession for the genuine reasons as such the case may be. In any case the student will not be permitted for appearing the examination if the attendance is less than 65%.

c. The course instructor handling a course must finalize the attendance 3 calendar days before the last day of classes in the current semester and communicate clearly to the students by displaying prominently in the department and also in report writing to the head of the department concerned.

d. The attendance records are to be maintained by the course instructor and he shall show it to the student, if and when required.

8. Transfer of Credits:

The courses credited elsewhere, in Indian or foreign University/Institutions/ Colleges/Swayam Courses by students during their study period at DBATU may count towards the credit requirements for the award of degree. The guidelines for such transfer of credits are as follows:

a. 20 % of the total credit will be considered for respective calculations.
b. Credits transferred will be considered for overall credits requirements of the program.
c. Credits transfer can be considered only for the course at same level i.e UG, PG etc.
d. A student must provide all details (original or attested authentic copies) such as Course Contents, number of contact hours, course instructor /project guide and evaluation system for the course for which he is requesting a credits transfer. He shall also provide the approval or acceptance letter from the other side. These details will be evaluated by the concerned Board of Studies before giving approval. The Board of Studies will then decide the number of equivalent credits the student will get for such course(s) in DBATU. The complete details will then be forwarded to Dean for approval.
e. A student has to get minimum passing grades/ marks for such courses for which the credits transfers are to be made.
f. Credits transfers availed by a student shall be properly recorded on academic record(s) of the student.
g. In exceptional cases, the students may opt for higher credits than the prescribed.

Table A: Credit Structure for UG program in Engineering

Course Category	Recommended	Provided
Basic Science Course (BSC)	14 to 18	17
Engineering Science Course (ESC)	12 to 16	16
Program Core Course (PCC)	44 to 56	58
Multidisciplinary Minor (MDM)	14	14
Humanities Social Science and Management (HSSM-IKS/VEC/AEC)	14	12
Vocational and Skill Enhancement Course (VSEC)	08	08
Open Elective (OE) Other than a particular program	08	09
Program Elective Course (PEC)	20	20
Experiential Learning Courses (ELC)	22	22
Co-curricular Courses (CC)	02-04	02
TOTAL	**160 to 176**	**178**

Civil Engineering Program

Program Objectives

Goal of the Civil Engineering at Dr. Babasaheb Ambedkar Technological University, Lonere (DBATU) is to provide students with preparation to become worthy of professional careers in the field and to be motivated for lifelong learning. All prescribed courses have definite objectives and outcomes.

Program objectives are expected qualities of engineers as under:

a) Preparation: To prepare students to excel in various educational programmes or to succeed in industry / technical profession through further education/training;

b) Core Competence: To provide students with a solid foundation in mathematical, scientific fundamentals required to solve real life civil engineering problems;

c) Breadth: To train students with a breadth of scientific knowledge to comprehend, analyze, design & create novel products and solutions for real life problems;

d) Professionalism: To inculcate in students professional/ethical attitude, effective team work skills, multidisciplinary approach and to relate engineering issues to a broader context;

e) Learning Environment: To provide students with academic environment of excellence, leadership, ethical guidelines and life-long learning needed for a long / productive career.

Program Educational Objectives

1. Taking pride in their profession and have commitment to highest standards of ethical practices and related technical disciplines;
2. Able to design various structures and systems that is safe, economical and efficient;
3. Capable of using modern tools efficiently in all aspects of professional practices;
4. Dealing successfully with real life civil engineering problems and achieve practical solutions based on a sound science and engineering knowledge;
5. Shall be engage in continuous research, development and exchange of knowledge for professional development;
6. Be honest in their control and performing their duties and promote effective use of resources through open, honest and impartial services to the public;
7. Act in such a manner which will uphold the honour, integrity, or dignity of the engineering profession, and avoid knowingly engaging in business or professional practices of a fraudulent, dishonest or unethical nature;
8. Recognize that the lives, safety, health and welfare of the general public are dependent upon engineering, decision and practices;
9. Continue their professional development throughout their careers and provide opportunities for the professional development.

Program Outcomes

At the end of the program the student will be able to:

PO 1	Apply the knowledge of mathematics, basic sciences, and civil engineering to the solution of complex engineering problems.
PO 2	Identify, formulate, research literature, and analyze complex civil engineering problems reaching substantiated conclusions.
PO 3	Design solutions for complex engineering problems and design of civil engineering structures that meet the specified needs.
PO 4	Use civil engineering research-based knowledge related to interpretation of data and provide valid conclusions.
PO 5	Create, select, and apply modern civil engineering and IT tools to complex engineering activities with an understanding of the limitations.
PO 6	Apply reasoning acquired by the civil engineering knowledge to assess societal and safety issues.
PO 7	Understand the impact of engineering solutions on the environment, and demonstrate the knowledge for sustainable development.
PO 8	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	Communicate effectively on complex engineering activities with the engineering community and with society at large.
PO 11	Understand the engineering and management principles and apply these to the multidisciplinary environments.
PO 12	Recognize the need for life-long learning in the broadest context of technological change.

Program-Specific Outcomes (PSOs)

PSO 1	Make the students employable in engineering industries.
PSO 2	Motivate the students for higher studies and research.
PSO 3	Motivate the students for various competitive examinations.

Teaching & Evaluation Scheme for First Year of B. Tech. Civil Engineering

GROUP B

Sr. No.	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	ISE	MSE	ESE	Total	
Semester- I										
1	23UD1000BS101	Engineering Mathematics – I	4	0	0	20	20	60	100	4
2	23UD1PHYBS102	Engineering Physics	3	0	0	20	20	60	100	3
3	23UD1PHYBSL103	Engineering Physics Lab	0	0	2	60	--	40	100	1
4	23UD1EGDES104	Engineering Graphics & Design	2	0	0	20	20	60	100	2
5	23UD1EGDESL105	Engineering Graphics & Design Lab	0	0	2	60	--	40	100	1
6	23UD1191ES106	Basic Civil Engineering	3	0	0	20	20	60	100	3
7	23UD1000VS108	Communication Skills	2	0	0	20	20	60	100	2
8	23UD1000VSL109	Communication Skills Lab	0	0	2	60	--	40	100	1
9	23UD1000VS111	Design Thinking	2	0	0	60	--	40	100	2
10	23UD1000CC112A	NSS-I	1	0	2	60	--	40	100	2
	23UD1000CC112B	NCC								
	23UD1000CC112C	Yoga Education								
Total			**17**	**0**	**8**	**400**	**100**	**500**	**1000**	**21**
Semester- II										
1	23UD1000BS201	Engineering Mathematics – II	4	0	0	20	20	60	100	4
2	23UD1CHEBS202	Engineering Chemistry	3	0	0	20	20	60	100	3
3	23UD1CHEBSL203	Engineering Chemistry Lab	0	0	2	60	--	40	100	1
4	23UD1EMES204	Engineering Mechanics	3	0	0	20	20	60	100	3
5	23UD1EMESL205	Engineering Mechanics Lab	0	0	2	60	--	40	100	1
6	23UD1000VS206	Computer Programming	2	0	0	20	20	60	100	2
7	23UD1000ES206B	Basic Electrical and Electronics Engineering	3	0	0	20	20	60	100	3
8	23UD1000VSL207	Computer Programming Lab	0	0	2	60	--	40	100	1
9	23UD1000VSL210	Workshop Practices	0	0	4	60	--	40	100	2
10	23UD1191IK211	History of Indian Civil Engineering	2	0	0	60	--	40	100	2
11	23UD1000CC212C	Health & Wellness	1	0	2	60	--	40	100	2
	23UD1000CC212D	Fine Arts								
	23UD1000CC212F	Performing Arts								
Total			**18**	**0**	**12**	**460**	**100**	**540**	**1100**	**24**

 # Refer to the University website for the subjects under IKS bucket.

Note: Students can complete online courses of 40% of total credits through online platform NPTEL / SWAYAM/ Sector Skill council of India and other online platforms identified by the University time to time. At least 80% contents of the NPTEL / SWAYAM/ Sector Skill council of India course should match with syllabus contents of the subject prescribed by the university.

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Teaching & Evaluation Scheme for Second Year B. Tech. Civil Engineering

Sr. No.	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	ISE	MSE	ESE	Total	
Semester-III										
1	24UD1000BS301	Engineering Mathematics - III	3	0	0	20	20	60	100	3
2	24UD1191PC302	Mechanics of Solids	2	1	0	20	20	60	100	3
3	24UD1191PC303	Surveying	2	1	0	20	20	60	100	3
4	24UD1191PC304	Building Construction	3	0	0	20	20	60	100	3
5	24UD1ARPOEM05	Open Elective-I (From Bucket)	2	0	0	20	20	60	100	2
6	Refer Bucket	Multi-Disciplinary Minor-I (From Bucket)	3	0	0	20	20	60	100	3
7	24UD1000VE307	Constitution of India	0	0	0	-	-	-	AU	GR
8	24UD1000VE308B	Life of Bharat Ratna Dr. Babasaheb Ambedkar	1	0	0	50	0	0	50	1
10	24UD1191HM309	Entrepreneurship Development Process	1	0	0	50	-	50	100	1
11	24UD1191PCL310	Mechanics of Solid Lab	0	0	2	25	-	25	50	1
12	24UD1191PCL311	Surveying Lab	0	0	2	25	-	25	50	1
13	24UD1191MDL312	MDM-I Lab	0	0	2	25	-	25	50	1
		TOTAL	**17**	**2**	**6**	**295**	**120**	**485**	**900**	**22**
Semester-IV										
1	24UD1191PC401	Structural Mechanics-I	2	1	0	20	20	60	100	3
2	24UD1191PC402	Concrete Technology	3	0	0	20	20	60	100	3
3	24UD1191PC403	Hydraulics Engineering	2	1	0	20	20	60	100	3
4	24UD1191PC404	Building Planning & Drawing	3	0	0	20	20	60	100	3
5	24UD1ARPOEM05	Open Elective-II (From Bucket)	3	0	0	20	20	60	100	3
6	24UD1UHVVE407	Universal Human Values-II	3	0	0	20	20	60	100	3
7	24UD1000VE408A	Life of Chhatrapati Shivaji Maharaj	1	0	0	50	0	0	50	1
9	24UD1191PCL409	Concrete Technology Lab	0	0	2	25	-	25	50	1
10	24UD1000AE410	Modern Indian Language	2	0	0	20	20	60	100	2
11	24UD1191PCL411	Hydraulics Lab	0	0	2	25	-	25	50	1
12	24UD1191PCL412	Building Planning & Drawing Lab	0	0	2	25	-	25	50	1
13	24UD1ARPOEL413	Open Elective-II –Lab	0	0	2	25	-	25	50	1
		TOTAL	**19**	**2**	**68**	**290**	**140**	**520**	**950**	**25**

Course Type	Course Code	Course Name
Open Elective-I	24UD1ARPOEM05B	Building Materials & Composites
	24UD1ARPOEM05I	Design of Masonry Structures
	24UD1ARPOEM05J	Energy Efficient Buildings
Open Elective-II	24UD1ARPOEM05G	Advanced Surveying
	24UD1ARPOEM05H	Modern Surveying

Course Type	Course Code	Course Name
Multi-Disciplinary Minor-I	Refer Bucket	Refer Bucket
Modern Indian Language	24UD1000AE410A	Marathi
	24UD1000AE410B	Hindi
	24UD1000AE410C	Sanskrit

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Teaching & Evaluation Scheme for Third Year B. Tech. Civil Engineering

Sr. No.	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credits
			L	T	P	ISE	MSE	ESE	Total	
Semester-V										
1	25UD1191PC501	Structural Mechanics-II	3	0	0	20	20	60	100	3
2	25UD1191PC502	Design of Steel Structures	3	0	0	20	20	60	100	3
3	25UD1191PC503	Open Channel Flow & Hydraulics Machines	3	0	0	20	20	60	100	3
4	25UD1191PC504	Geotechnical Engineering	3	0	0	20	20	60	100	3
5	24UD1ARPOEM05	Open Elective-III (From Bucket)	3	0	0	20	20	60	100	3
6	Refer Bucket	Multi-Disciplinary Minor-II (From Bucket)	3	0	0	20	20	60	100	3
7	25UD1191PCL507	Design of Steel Structures Lab	0	0	2	50	-	50	100	1
8	25UD1191PCL508	OCF & HM Lab	0	0	2	25	-	25	50	1
9	25UD1191PCL509	Geotechnical Engineering Lab	0	0	2	50	-	50	100	1
10	25UD1191HM510	Soft Skills Development	0	2	0	-	-	-	AU	GR
11	25UD1191VS511	Construction Equipment and Site Safety Management	0	2	0	25	-	25	50	2
		TOTAL	**18**	**4**	**6**	**270**	**120**	**510**	**900**	**23**
Semester-VI										
1	25UD1191PC601	Design of Concrete Structures	3	0	0	20	20	60	100	3
2	25UD1191PE602	Program Elective-I	3	0	0	20	20	60	100	3
3	25UD1191PE603	Program Elective -II	3	0	0	20	20	60	100	3
4	25UD1191PE604	Program Elective-III	3	0	0	20	20	60	100	3
5	25UD1191PC 605	Foundation Engineering	3	0	0	20	20	60	100	3
6	Refer Bucket	Multi-Disciplinary Minor-III (From Bucket)	3	0	0	20	20	60	100	3
7	25UD1191PCL607	Design of Concrete Structures Lab	0	0	2	50	-	50	100	1
8	25UD1191PEL608	Program Elective-II- Lab	0	0	2	25	-	25	50	1
9	25UD1191PEL609	Program Elective-III- Lab	0	0	2	25	-	25	50	1
10	25UD1191EL610	Seminar	0	0	2	25	-	25	50	1
11	25UD1191VS611	Academic Research Writing	1	0	0	25	-	25	50	1
12	25UD1191EL612	Project Phase-I	0	0	4	50	-	50	100	2
		TOTAL	**19**	**0**	**12**	**320**	**120**	**560**	**1000**	**25**

Course Type	Course Code	Course Name
Program Elective-I	25UD1191PE602A	Hydraulics Structures
	25UD1191PE602B	Irrigation Engineering
Program Elective-II	25UD1191PE603A	Water Quality Engineering
	25UD1191PE603B	Environment Health and Safety
Program Elective-III	25UD1191PE604A	Highway & Railway Engineering
	25UD1191PE604B	Intelligent Transportation Systems
	25UD1191PE604C	Traffic Engineering & Managemen

Course Type	Course Code	Course Name
Open elective-III	24UD1ARPOEM05H	Geomatics Engineering
	24UD1ARPOEM05O	Ground Improvement Techniques
	24UD1ARPOEM05P	Sustainable Construction Methods
Multi-Disciplinary Minor-II	Refer Bucket	Refer Bucket
Multi-Disciplinary Minor-III	Refer Bucket	Refer Bucket

Teaching & Evaluation Scheme for Fourth Year B. Tech. Civil Engineering

Sr. No.	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	ISE	MSE	ESE	Total	
Semester- VII										
1	26UD1191PC701	RC & PSC Structures	3	0	0	20	20	60	100	3
2	26UD1191PC702	Infrastructure Engineering	3	0	0	20	20	60	100	3
3	26UD1191PE703	Program Elective -IV	3	0	0	20	20	60	100	3
4	26UD1191PE704	Program Elective -V	3	0	0	20	20	60	100	3
5	26UD1191PC705	Water Resource Engineering	3	0	0	20	20	60	100	3
6	Refer Bucket	Multi-Disciplinary Minor-IV (From Bucket)	3	0	0	20	20	60	100	3
7	26UD1191PLC707	RC & PSC Structures Lab	0	0	2	50	-	50	100	1
8	26UD1191PEL708	Program Elective -IV -LAB	0	0	2	25	-	25	50	1
9	26UD1191PEL709	Program Elective -V-LAB	0	0	2	25	-	25	50	1
10	26UD1191EL710	Research Methodology	0	2	0	25	-	25	50	2
11	26UD1191EL711	Project Phase-II	0	0	4	50	-	50	100	2
		TOTAL	**18**	**2**	**10**	**295**	**120**	**535**	**950**	**25**

Semester- VIII										
1	Refer Bucket	Multi-Disciplinary Minor-V (From Bucket)	0	0	0	20	20	60	100	2
2	26UD1191EL802	Civil Engineering Softwares	0	0	0	50	-	50	100	2
3	26UD1191EL803	Internship	0	0	20	100	-	100	200	10
		TOTAL	**00**	**00**	**20**	**170**	**20**	**210**	**400**	**14**

Course Type	Course Code	Course Name
Program Elective-IV	26UD1191PE703	Pollution Control & Treatment
	26UD1191PE703	Industrial Waste water Management
Program Elective-V	26UD1191PE704	Professional Practices
	26UD1191PE704	Construction Cost Analysis
	26UD1191PE704	Estimation and Costing

Course Type	Course Code	Course Name
Multi-Disciplinary Minor-IV	Refer Bucket	Refer Bucket
Multi-Disciplinary Minor-V	Refer Bucket	Refer Bucket

Type of course:

Basic Science: **BS**	Engineering Science: **ES**
Program Elective: **PE**	Program Core: **PC**
Modern Indian Language: **MIL**	Indian Knowledge System: **IK**
Value Education Course: **VEC**	Ability Enhancement Course: **AE**
Vocational and Skill Enhancement: **VS**	Audit Course: **AU**
Open Elective: **OE** (Other than particular program)	Co-curricular & Extracurricular Activities: **CC**
Humanities, Management, language and Commerce: **HM**	Multidisciplinary Courses: **MD**

ELECTIVE / OPEN ELECTIVE/ MULTIDISCIPLINARY MINOR COURSES

1) Below listed courses will be offered as per student's requirement and availability of subject expert with the approval of the head of the department.

OPEN ELECTIVE OTHER THAN PARTICULAR PROGRAM

Sr.No.	Course Offered	Teaching Scheme (Hrs)				Credits
		L	T	P	TOTAL	
1	Building Materials	02	00	00	02	02
2	Design of Masonry Structures	02	00	00	02	02
3	Energy Efficient Buildings	02	00	00	02	02
4	Advanced Surveying	03	00	02	04	04
5	Modern Surveying	03	00	00	03	03
6	Geomatics Engineering	03	00	00	03	03
7	Ground Improvement Techniques	03	00	00	03	03
8	Sustainable Construction Methods	03	00	00	03	03

PROGRAM ELECTIVE COURSE

Sr.No.	Course Offered	Teaching Scheme (Hrs)				Credits
		L	T	P	TOTAL	
1	Hydraulics Structures	03	00	00	03	03
2	Irrigation Engineering	03	00	00	03	03
3	Water Quality Engineering	03	00	02	05	04
4	Environment Health and Safety	03	00	02	05	04
5	Highway & Railway Engineering	03	00	02	05	04
6	Intelligent Transportation Systems	03	00	02	05	04
7	Traffic Engineering & Management	03	00	02	05	04
8	Pollution Control & Treatment	03	00	02	05	04
9	Industrial Waste water Management	03	00	02	05	04
10	Professional Practices	03	00	02	05	04
11	Construction Cost Analysis	03	00	02	05	04
12	Estimation and Costing	03	00	02	05	04

Note: The elective courses listed in the Course Contents structure are indicative. Students shall ensure availability of Course Contents prior to registration.

HONORS- CIVIL ENGINEERING

Sr.No.	Course Offered	Teaching Scheme (Hrs)				Credits
		L	T	P	TOTAL	
1	Finite Element Method	03	00	00	03	03
2	Limit State Design of Steel Structures	03	00	00	03	03
3	Elements of Remote Sensing	03	00	00	03	03
4	Building Planning and Design	03	00	00	03	03
5	Advanced Structural Design	03	00	00	03	03
6	Theory of Plates and Shells	03	00	00	03	03

RESEARCH - CIVIL ENGINEERING

Sr.No.	Course Offered	Teaching Scheme (Hrs)				Credits
		L	T	P	TOTAL	
1	Problem Identification and Definition	03	01	00	04	04
2	Experimental Work/Analytical Tools and Prototype Development	03	01	00	04	04
3	Literature Review	03	01	00	04	04
4	Publication	03	01	00	04	04
5	Data Analysis	03	01	00	04	04

MOOC/SWAYAM- COURSE

Sr.No.	Course Offered	Duration of Online Course
1	Urban Services Planning	06 to 12 weeks
2	Sustainable Building Planning	
3	Environmental Planning and Management	
4	Planning and Architectural Studies	

Teaching Scheme: Students must enroll any above mentioned course on online platform like MOOC/SWAYAM or can attend the offline workshops during the SEM-VII/VIII as per availability and produce the certificate to faculty co coordinator of institute/department. Assessment work can be done by faculty coordinator based on the students performance.

MULTIDISCIPLINARY MINOR BASKET
UNIVERSITY DEPARTMENT

MINOR DEGREE IN CIVIL ENINGEERING
(for other than Civil Engineering program students)

Semester	Subject Code	Subject Name	Total Credits
SEM-III	24UD1191MD306	Introduction to Engineering Geology	3
SEM-III	24UD1191MD306A	Building Construction	3
SEM-V	25UD1191MD506	Engineering Economics and Project Management	3
SEM-VI	25UD1191MD606	Town and Urban Planning	3
SEM-VII	25UD1191MD706	Geomatics Engineering	3
SEM-VII	25UD1191MD706A	Infrastructure Engineering	3
SEM-VIII	25UD1191MD801	MOOC/SWAYAM/NPTEL	2
MINIMUM CREDITS REQUIRED TO COMPLETE A MINOR DEGREE IN CIVIL ENGINEERING			**14**

MINOR DEGREE IN PLANNING ENINGEERING
(only for Civil Engineering program students)

Semester	Subject Code	Subject Name	Total Credits
SEM-III	24UD1191MD306	Introduction to Engineering Geology	3
SEM-III	24UD1191MDL312	Engineering Geology Lab	1
SEM-III	24UD1191MD306A	Site Planning	3
SEM-V	25UD1191MD506	Engineering Economics and Project Management	3
SEM-V	25UD1191MD506A	Planning Legislation	3
SEM- VI	25UD1191MD606	Town and Urban Planning	3
SEM-VI	25UD1191MD606A	Disaster Mitigation and Management	3
SEM-VII	26UD1191MD706A	Bamboo for Sustainable Development	3
SEM-VII	26UD1191MD706B	Ferrocement Technology	3
SEM-VIII	27UD1191MD801	MOOC/SWAYAM/NPTEL	2
MINIMUM CREDITS REQUIRED TO COMPLETE A MINOR DEGREE IN PLANNING ENGINEERING			**14**