

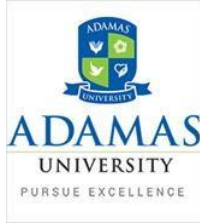
# **ADAMAS UNIVERSITY**

## **SCHOOL OF ENGINEERING & TECHNOLOGY**

### **B. Tech (Civil Engineering)**

### **Course Structure**

**Academic Year 2024-25**



**ADAMAS UNIVERSITY, KOLKATA  
SCHOOL OF ENGINEERING & TECHNOLOGY  
DEPARTMENT OF CIVIL ENGINEERING**

**VISION OF THE UNIVERSITY**

To be an internationally recognized university through excellence in inter-disciplinary education, research and innovation, preparing socially responsible well-grounded individuals contributing to nation building.

**MISSION STATEMENTS OF THE UNIVERSITY**

**M.S 01:** Improve employability through futuristic curriculum and progressive pedagogy with cutting-edge technology

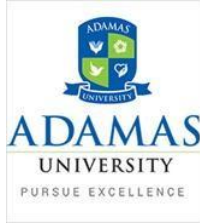
**M.S 02:** Foster outcomes-based education system for continuous improvement in education, research and all allied activities

**M.S 03:** Instill the notion of lifelong learning through culture of research and innovation

**M.S 04:** Collaborate with industries, research centers and professional bodies to stay relevant and up-to-date

**M.S 05:** Inculcate ethical principles and develop understanding of environmental and social realities

**CHANCELLOR / VICE CHANCELLOR**



**ADAMAS UNIVERSITY, KOLKATA  
SCHOOL OF ENGINEERING & TECHNOLOGY  
DEPARTMENT OF CIVIL ENGINEERING**

**VISION OF THE SCHOOL**

To develop well-grounded, socially responsible engineers and technocrats in a way to create a transformative impact on Indian society through continual innovation in education, research, creativity and entrepreneurship.

**MISSION STATEMENTS OF THE SCHOOL**

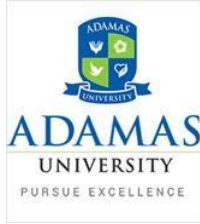
**M.S 01:** Build a transformative educational experience through disciplinary and interdisciplinary knowledge, problem solving, communication and leadership skills.

**M.S 02:** Develop a collaborative environment open to the free exchange of ideas, where research, creativity, innovation and entrepreneurship can flourish among individual students.

**M.S 03:** Impact society in a transformative way – regionally and nationally - by engaging with partners outside the borders of the university campus.

**M.S 04:** Promote outreach programs which strives to inculcate ethical standards and good character in the minds of young professionals

**DEAN / SOET**



**ADAMAS UNIVERSITY, KOLKATA  
SCHOOL OF ENGINEERING & TECHNOLOGY  
DEPARTMENT OF CIVIL ENGINEERING**

**VISION OF THE DEPARTMENT**

To impart quality higher education in Civil Engineering for a continuously changing societal demands with credibility, integrity and ethical standards.

**MISSION STATEMENTS OF THE DEPARTMENT**

**M.S 01:** Produce well qualified and employable engineers by imparting quality education through industry based flexible curriculum.

**M.S 02:** Enhance the skills of entrepreneurship, innovativeness, management and life-long learning in young engineers.

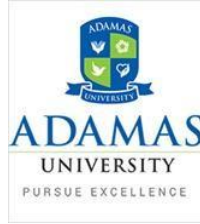
**M.S 03:** To inculcate professional ethics and make socially responsible engineers.

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**HOD**

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**DEAN / SOET**



**ADAMAS UNIVERSITY,  
SCHOOL OF ENGINEERING & TECHNOLOGY  
DEPARTMENT OF CIVIL ENGINEERING**

**Name of the Programme: B. Tech (Civil Engineering)**

**PROGRAMME EDUCATIONAL OBJECTIVES (PEO)**

**PEO1:** Engage in analysis and design of various structures, tools and its applications in the field of Construction and allied engineering industries.

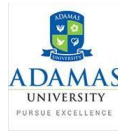
**PEO2:** Apply the knowledge of Civil Engineering to solve problems of social relevance, and/or pursue higher education and research.

**PEO3:** Work effectively as individuals and as team members in multidisciplinary projects.

**PEO4:** Engage in lifelong learning, career enhancement and adopt to changing professional and societal needs.

**HOD**

**DEAN / SOET**



**ADAMAS UNIVERSITY, KOLKATA  
SCHOOL OF ENGINEERING & TECHNOLOGY  
DEPARTMENT OF CIVIL ENGINEERING**

**Name of the Programme: B. Tech (Civil Engineering)**

**GRADUATE ATTRIBUTE / PROGRAMME OUTCOME (PO)**

**PO1: Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

**PO2: Problem Analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

**PO3: Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

**PO4: Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

**PO5: Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

**PO6: The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

**PO7: Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

**PO8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

**PO9: Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

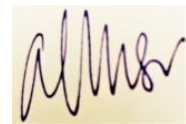
**PO10: Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

**PO11: Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

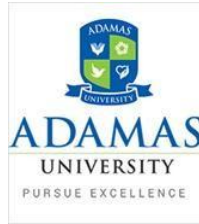
**PO12: Life-long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



**HOD**



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**ADAMAS UNIVERSITY, KOLKATA  
SCHOOL OF ENGINEERING & TECHNOLOGY  
DEPARTMENT OF CIVIL ENGINEERING**

**Name of the Programme: B. Tech (Civil Engineering)**

**PROGRAMME SPECIFIC OUTCOME (PSO)**

**PSO 01:** Enhancing the employability skills by making the students capable of qualifying national level competitive examinations

**PSO 02:** Inculcating technical competencies among students to deal with rapidly changing demands in civil engineering field.

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**HOD**

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**DEAN / SOET**



**ADAMAS UNIVERSITY**  
**SCHOOL OF ENGINEERING & TECHNOLOGY**  
**DEPARTMENT OF CIVIL ENGINEERING**  
**B. Tech (Civil Engineering)**  
**Course Structure**

**FIRST YEAR**

**SEMESTER I**

S. No	Type	Course Code	Course Title	L	T	P	Contact Hrs/wk	Credits
1	Theory (ESC)	MTH11501	Engineering Mathematics-I	3	1	0	4	4
2	Theory (ESC)	EVS11112	Environmental Science	2	0	2	4	3
3	Theory (CC)	GEE11001	Electrical and Electronics Technology	2	0	0	2	2
4	Theory (SEC)	GEE11012	Disruptive Technology Innovations	1	0	2	3	2
5	Theory (SEC)	MEE11002	Engineering Mechanics	2	1	0	3	3
6	Theory (ESC)	BIT11003	Life Sciences	2	0	0	2	2
7	Practical (CC)	GEE12002	Electrical and Electronics Technology Lab	0	0	4	4	2
8	Practical (CC)	MEE12001	Engineering Workshop	0	0	4	4	2
<b>Total</b>				<b>12</b>	<b>2</b>	<b>12</b>	<b>26</b>	<b>20</b>

**SEMESTER II**

S. No	Type	Course Code	Course Title	L	T	P	Contact Hrs/wk	Credits
1.	Theory (ESC)	MTH11502	Engineering Mathematics- II	3	1	0	4	4
2.	Theory (SEC)	DGS11002	Design Thinking & Prototyping	2	1	0	3	3
3.	Theory (ESC)	PHY13201	Applied Science	2	0	2	4	3
4	Theory (CC)	CSE11001	Introduction to Programming	2	0	0	2	2
5	Theory (AEC)	ENG11053	English Communication	1	0	2	3	2
6	Theory (SEC)	DGS11002	Design Thinking and Prototyping	1	0	2	3	2
7	Practical (CC)	CSE12002	Programming Lab	0	0	4	4	2
8	Practical (CC)	CEE12001	Engineering Drawing and CAD	0	0	4	4	2
<b>Total</b>				<b>11</b>	<b>2</b>	<b>14</b>	<b>27</b>	<b>20</b>

**SECOND YEAR**

<b>Semester-III</b>								
<b>S. No</b>	<b>Type</b>	<b>Course Code</b>	<b>Subject Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Contact Hrs/wk</b>	<b>Credits</b>
1.	Theory (BSC)	MTH11529	Engineering Mathematics – III A/B/C	3	1	0	4	4
2.	Theory (ESC)	<b>CEE13001</b>	Applied Geology	2	0	2	4	3
3.	Theory (PCC)	CEE11005	Prof. Core – I Structural Mechanics I	3	1	0	4	4
4.	Theory (PCC)	CEE11004	Prof. Core – II Fluid Mechanics and Hydraulic Machinery	3	0	0	3	3
5.	Theory (PCC)	<b>CEE11062</b>	Prof. Core – III Surveying and Geomatics	3	1	0	4	4
6.	Practical (PCC)	<b>CEE12063</b>	Prof. Core Lab – I Fluid Mechanics and Hydraulic Machinery Lab	0	0	2	2	1
7.	Practical (PCC)	CEE12011	Prof. Core Lab – II Surveying Practice Lab	0	0	2	2	1
8.	Practical (BSC)	MTH12531	Numerical Techniques Lab	0	0	2	2	1
9.	Practical (Mandatory)	IDP14001	Interdisciplinary Project	0	0	5	5	3
10.	Practical (Mandatory)	SOC14100	# Community Service	-	-	-	-	1
<b>Total</b>				<b>14</b>	<b>3</b>	<b>13</b>	<b>30</b>	<b>25</b>

**# Community Service will be taken up during the summer vacation of II Semester and evaluated in III Semester.**

SEMESTER-IV								
S. No	Type	Course Code	Subject Name	L	T	P	Contact Hrs/wk	Credits
1.	Theory (PCC)	CEE11008	Prof. Core – IV Soil Mechanics	3	0	0	3	3
2.	Theory (PCC)	<b>CEE11064</b>	Prof. Core – V Construction Engineering Materials	3	0	0	3	3
3.	Theory (PCC)	CEE11007	Prof. Core – VI Structural Mechanics II	3	1	0	3	4
4.	Theory (PCC)	CEE11010	Prof. Core – VII Water Resources Engineering	3	0	0	3	3
5.	Theory (PCC)	CEE11015	Prof. Core – VIII Transportation Engineering	3	1	0	4	4
6.	Theory (Mandatory)	PSG11021	Human Values and Professional Ethics	2	0	0	2	2
7.	Practical (PCC)	<b>CEE12065</b>	Prof. Core Lab – III Structural Mechanics Lab	0	0	2	2	1
8.	Practical (PCC)	<b>CEE12087</b>	Prof. Core Lab – V Soil Mechanics Lab	0	0	2	2	1
<b>Total</b>				<b>17</b>	<b>02</b>	<b>04</b>	<b>22</b>	<b>21</b>

**THIRD YEAR**  
**SEMESTER –V**

S. No	Type	Course Code	Subject Name	L	T	P	Contact Hrs /week	Credits
1.	Theory (PCC)	CEE11014	Prof. Core – IX Foundation Engineering	3	0	0	3	3
2.	Theory (PCC)	CEE11013	Prof. Core – X Design of RC Structures	3	0	0	3	3
3.	Theory (PCC)	<b>CEE11068</b>	Prof. Core – XI Construction Techniques, Equipment & Practices	3	0	0	3	3
4.	Theory (PCC)	<b>CEE11088</b>	Prof. Core – XII Concrete Technology	3	0	0	3	3
5.	Theory (PEC)	CEE11026/ CEE11028/ <b>CEE11069</b>	<b>Prof. Elective – I</b> 1. Remote Sensing and GIS 2. Advanced Structural Analysis 3. Waterproofing Protection of Concrete Structures	3	0	0	3	3
6.	Theory (PEC)	<b>CEE11070/ CEE11071/ CEE11072</b>	<b>Prof. Elective – II</b> 1. Traffic Engineering 2. Hydraulic Structures 3. Building Services	3	0	0	3	3
7.	Practical (PCC)	CEE12020	Prof. Core Lab – V Geotechnical Engineering Lab	0	0	2	2	1
8.	Practical (PCC)	CEE12021	Prof. Core Lab – VI Transportation Engineering Lab	0	0	3	3	2
9.	Practical (PCC)	CEE12090/ CEE12091/ <b>CEE12092</b>	<b>Skill Enhancement Course - 1</b> 1. Computer Aided Drawing 2. Designing of Structure using Sketch Up 3. Graphical Analysis using Excel	0	0	2	2	1
10.	Practical (PCC)	<b>CEE12066</b>	Prof. Core Lab – IV Construction Engineering Materials Lab	0	0	2	2	1
11.	Practical (PSI)	<b>CEE15089</b>	Technical Seminar	0	0	0	0	1
<b>Total</b>				<b>15</b>	<b>0</b>	<b>9</b>	<b>27</b>	<b>24</b>

SEMESTER –VI								
S. No	Type	Course Code	Subject Name	L	T	P	Contact Hrs/wk	Credits
1.	Theory (PCC)	CEE11024	Prof. Core – XIII Design of Steel Structure	3	0	0	3	3
2.	Theory (PCC)	CEE11025	Prof. Core – XIV Environmental Engineering	3	0	0	3	3
3.	Theory (PEC)	CEE11042/ <b>CEE11019/</b> CEE11039	<b>Prof. Elective – III</b> 1. Prestressed Concrete Structures 2. Solid Waste Management 3. Construction Planning & Management	3	0	0	3	3
4.	Theory (PEC)	<b>CEE11074/</b> <b>CEE11075/</b> <b>CEE11076</b>	<b>Prof. Elective – IV</b> 1. Ground Improvement Techniques 2. Railways, Airport, Docks & Harbour 3. Project Safety Management	3	0	0	3	3
5.	Theory (OEC)	<b>SDS11511/</b> <b>ECE11050</b>	<b>Open Elective – I</b> 1. Probability & Statistics 2. Sensors & Actuators	3	0	0	3	3
6.	Theory (HSSM)	ECO11505	Economics for Engineers	3	0	0	3	3
7.	Practical (PCC)	CEE12033	Prof. Core Lab – VIII Environmental Engineering Lab	0	0	2	2	1
8.	Practical (Sessional) (PCC)	<b>CEE12093/</b> <b>CEE12094/</b> <b>CEE12095</b>	<b>Skill Enhancement Course – 2</b> 1. Architectural Planning and Drawing 2. Modelling & Photorealistic Design of Structure Using - 3D Max 3. Modelling & Animation Rendering using REVIT Architecture	0	0	2	2	1
9.	Practical (PEC)	CEE12035/ <b>CEE12078/</b> <b>CEE12079/</b> <b>CEE12096</b>	<b>Prof. Elective – I/II Lab</b> 1. Remote Sensing & GIS Lab 2. Advanced Structural Analysis Lab 3. Building Services Lab 4. Waterproofing Appraisal Lab	0	0	2	2	1
<b>Total</b>				<b>18</b>	<b>0</b>	<b>6</b>	<b>24</b>	<b>21</b>

**FOURTH YEAR**

<b>SEMESTER-VII</b>								
<b>S. No</b>	<b>Type</b>	<b>Course CODE</b>	<b>Subject Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Contact Hrs/week</b>	<b>Credits</b>
1.	Theory (HSSM)	MGT11402	Industrial Management	3	0	0	3	3
2.	Theory (PCC)	CEE11034	Prof. Core – XV Estimation and Valuation	3	0	0	3	3
3.	Theory (PEC)	<b>CEE11080/ CEE11081/ CEE11082</b>	<b>Prof. Elective – V</b> 1. Smart Materials & Smart Structures 2. Air & Noise Pollution 3. Contract Laws & Regulation	3	0	0	3	3
4.	Theory (OEC)	<b>CSE11202/ ECE11051/ ECE11052</b>	<b>Open Elective – II</b> 1. Introduction of AI & ML 2. Fundamentals of Wireless Communication 3. Introduction of Internet of Things	3	0	0	3	3
5.	Theory (OEC)	<b>CSE11203/ ECE11053/ ECE11054</b>	<b>Open Elective – III</b> 1. Applications of AI & ML 2. Application of Drone Technology 3. Application of IOT	3	0	0	3	3
6.	Practical (PCC)	<b>CEE12083</b>	<b>Prof. Core Lab – X</b> Detailing of Steel Structures	0	0	2	2	1
7.	Practical (PEC)	<b>CEE12084/ CEE12085/ CEE12086</b>	<b>Prof. Elective III/IV/V Lab</b> 1. Ground Improvement Techniques Lab 2. Air & Noise Pollution Lab 3. Structural Monitoring & Assessment Lab	0	0	2	2	1
8.	Practical (PSI)	CEE14053	Summer Internship <sup>#</sup>	-	-	-	-	2
9.	Practical (PSI)	CEE14054	Minor Project	0	0	6	6	2
10.	Practical (PSI)	CEE12097/ CEE12098/ CEE12099	<b>Skill Enhancement Course – 3</b> 1. Computational tool for Survey (Total Station) 2. Planning & Scheduling Primavera 3. Complete Processes of Construction Industry	0	0	2	2	1
<b>Total</b>				<b>15</b>	<b>0</b>	<b>12</b>	<b>27</b>	<b>22</b>

**# Summer Internship for 30 days will be taken at the end of 6<sup>th</sup> semester and will be evaluated in the 7<sup>th</sup> semester.**

Semester-VIII								
S. No	Type	Course Code	Subject Name	L	T	P	Contact Hrs/week	Credits
1.	Practical (PSI)	CEE14056 CEE14057 CEE14058	Industry Work Experience / SIRE* / Major Project	0	0	12	12 (For Major Project only)	6
2.	Practical (PSI)	CEE15059	Comprehensive Viva Voce	-----			-----	1
3.	Practical (PSI)	CEE12100/ CEE12101/ CEE12102	<b>Skill Enhancement Course – 4</b> 1. Analysis & Structural Design using Software' SAP2000 2. Analysis & Structural Design using Software' STAAD Pro 3. Analysis & Structural Design using Software- ANSYS	0	0	2	2	1
<b>Total</b>				<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>8</b>

\*SIRE: Scientific Investigation & Research Experience

Total Credits Distribution Semester wise: (B. Tech)

Semester	I	II	III	IV	V	VI	VII	VIII	Total Credits
Credits	21	19	25	21	24	21	22	08	161

### Credit Distribution (Excluding Specialization)

Sl. No.	Category	Breakup of Credits in this Course Structure	AICTE Credit Distribution
1.	Humanities, Social Sciences & Management Courses (HSSM)	10	12
2.	Basic Science Courses (BSC)	22	25
3.	Engineering Science Courses (ESC)	18	24
4.	Professional Core Courses (PCC)	61	48
5.	Professional Elective Courses (PEC)	17	18
6.	Open Elective Courses (OEC)	09	18

7.	<b>Project work, seminar and internship in industry or elsewhere (PSI)</b>	<b>14</b>	<b>15</b>
8.	<b>Mandatory Course (Mandatory)</b>	<b>10</b>	<b>Non Credit</b>
<b>Total Credits</b>		<b>161</b>	<b>160</b>