ADAMAS UNIVERSITY

SCHOOL OF ENGINEERING & TECHNOLOGY

B. Tech (Civil Engineering)

Course Structure

Academic Year 2026-27

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 inter-disciplinary 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.



HOD **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 **DEAN / SOET**

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.



HOD

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 (BSC)	MTH11501	Engineering Mathematics-I	3	1	0	4	4
2	Theory (BSC)	PHY13201	Applied Science	2	0	0	2	2
3	Theory (ESC)	GEE11001	Electrical and Electronics Technology	2	0	0	2	2
4	Theory	CSE11082	Principles and Applications of AI	1	0	2	3	2
5	Theory (BSC)	BIT11003	Life Sciences	2	0	0	2	2
6	Theory (ESC)	MEE11002	Engineering Mechanics	2	1	0	3	3
7	Practical (BSC)	PHY12202	Applied Science Lab	0	0	3	3	2
8	Practical (ESC)	GEE12002	Electrical and Electronics Technology Lab	0	0	4	4	2
9	Practical (ESC)	MEE12001	Engineering Workshop	0	0	4	4	2
			Total	**12**	**2**	**13**	**27**	**21**

SEMESTER II								
S. No	**Type**	**Course Code**	**Course Title**	**L**	**T**	**P**	**Contact Hrs/wk**	**Credits**
1.	Theory (BSC)	MTH11502	Engineering Mathematics– II	3	1	0	4	4
2.	Theory (Mandatory)	DGS11001	Design Thinking & Prototyping	2	0	2	4	3
3.	Theory (BSC)	EVS11112	Environmental Science	2	0	0	2	2
4.	Theory (ESC)	CSE11001	Introduction to Programming	2	0	0	2	2
5.	Theory (HSSM)	ENG11053	English Communication	1	0	2	3	2
6.	Theory (Mandatory)	EIC11001	Venture Ideation	2	0	0	2	2
7.	Theory (Mandatory)	CLL103	Soft Skills and Aptitude I	0	0	2	1	1
8.	Practical (ESC)	CSE12002	Programming Lab	0	0	4	4	2
9.	Practical (ESC)	CEE12001	Engineering Drawing and CAD	0	0	4	4	2
			Total	**12**	**1**	**14**	**26**	**20**

SECOND YEAR

Semester-III								
S. No	**Type**	**Course Code**	**Subject Name**	**L**	**T**	**P**	**Contact Hrs/wk**	**Credits**
1.	Theory (BSC)	MTH11529	Engineering Mathematics – III A/B/C	3	1	0	4	4
2.	Theory (ESC)	CEE13001	Applied Geology	2	0	2	4	3
3.	Theory (PCC)	CEE11005	Structural Mechanics I	3	1	0	4	4
4.	Theory (PCC)	CEE11004	Fluid Mechanics and Hydraulic Machinery	3	0	0	3	3
5.	Theory (PCC)	CEE11064	Building Materials and Construction	3	0	0	3	3
6.	Theory (Mandatory)	CLL203	Soft Skills and Aptitude II	1	0	0	1	1
7.	Practical (PCC)	CEE12063	Fluid Mechanics and Hydraulic Machinery Lab	0	0	2	2	1
8.	Practical (PCC)	CEE12065	Structural Mechanics Lab	0	0	2	2	1
9.	Practical (BSC)	MTH12531	Numerical Techniques Lab	0	0	2	2	1
10.	Practical (Mandatory)	IDP14001	Interdisciplinary Project	0	0	5	5	3
11.	Practical (Mandatory)	SOC14100	# Community Service	-	-	-	-	1
			Total	**15**	**2**	**13**	**30**	**25**

 # 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	Soil Mechanics	3	0	0	3	3
2.	Theory (PCC)	CEE11062	Surveying and Geomatics	3	0	0	3	3
3.	Theory (PCC)	CEE11007	Structural Mechanics II	3	1	0	3	4
4.	Theory (PCC)	CEE11039	Construction Planning & Management	3	0	0	3	3
5.	Theory (PCC)	CEE11015	Transportation Engineering	3	1	0	4	4
6.	Theory (PCC)	CEE11034	Estimation and Valuation	3	0	0	3	3
7.	Theory (Mandatory)	PSG11021	Human Values and Professional Ethics	2	0	0	2	2
8.	Theory (Mandatory)	CLL204	Soft Skills and Aptitude III	1	0	0	1	1
9.	Practical (PCC)	CEE12011	Surveying Practice Lab	0	0	2	2	1
10.	Practical (PCC)	CEE12087	Soil Mechanics Lab	0	0	2	2	1
11.	Practical (PCC)	CEE12090/ CEE12098	**Skill Enhancement/Project Course - 1** 1. Computer Aided Drawing 2. Planning & Scheduling Software' Primavera	0	0	2	2	1
			Total	**21**	**02**	**06**	**28**	**26**

THIRD YEAR
SEMESTER –V

S. No	Type	Course Code	Subject Name	L	T	P	Contact Hrs /week	Credits
1.	Theory (PCC)	CEE11014	Foundation Engineering	3	0	0	3	3
2.	Theory (PCC)	CEE11013	Design of RC Structures	3	0	0	3	3
3.	Theory (PCC)	CEE11010	Water Resources Engineering	3	0	0	3	3
4.	Theory (PCC)	CEE11088	Concrete Technology	3	0	0	3	3
5.	Theory (PEC)	CEE11026/ CEE11028/ CEE11069	**Prof. Elective – I** 1. Remote Sensing and GIS 2. Advanced Structural Analysis 3. Waterproofing Protection of Concrete Structures	3	0	0	3	3
6.	Theory (PEC)	CEE11070/ CEE11071	**Prof. Elective – II** 1. Traffic Engineering 2. Hydraulic Structures	3	0	0	3	3
7.	Theory (Mandatory)	CLL303	Soft Skills and Aptitude IV	1	0	0	1	1
8.	Practical (PCC)	CEE12020	Geotechnical Engineering Lab	0	0	2	2	1
9.	Practical (PCC)	CEE12021	Transportation Engineering Lab	0	0	2	2	1
10.	Practical (Sessional) (PCC)	**CEE12097/ CEE12091/ CEE12095**	**Skill Enhancement/Project Course – 2** 1. Computational tool for Survey' Total Station 2. Modelling & Photorealistic Design of Structure Using - 3D Max 3. Modelling & Animation Rendering using REVIT Architecture	0	0	2	2	1
11.	Practical (PCC)	**CEE12066**	Concrete Technology Lab	0	0	2	2	1
			Total	**19**	**0**	**8**	**27**	**23**

SEMESTER –VI								
S. No	**Type**	**Course Code**	**Subject Name**	**L**	**T**	**P**	**Contact Hrs/wk**	**Credits**
1.	Theory (PCC)	CEE11024	Design of Steel Structure	3	0	0	3	3
2.	Theory (PCC)	CEE11025	Environmental Engineering	3	0	0	3	3
3.	Theory (PEC)	CEE11042/ CEE11019/ CEE11105	**Prof. Elective – III** 1. Prestressed Concrete Structures 2. Solid Waste Management 3. Green Building	3	0	0	3	3
4.	Theory (PEC)	CEE11074/ CEE11075/ CEE11076	**Prof. Elective – IV** 1. Ground Improvement Techniques 2. Railways, Airport, Docks & Harbour 3. Project Safety Management	3	0	0	3	3
5.	Theory (OEC)	CSE11028/ ECE11034/ MEE11074	**Open Elective–I** 1. Artificial Intelligence 2. Internet of Things 3. Digital Manufacturing	3	0	0	3	3
6.	Theory (HSSM)	ECO11505	Economics for Engineers	3	0	0	3	3
7.	Theory (Mandatory)	CLL304	Soft Skills and Aptitude V	1	0	0	1	1
8.	Practical (PCC)	CEE12033	Environmental Engineering Lab	0	0	2	2	1
9.	Practical (PSI)	CEE12093/ CEE12091/ CEE12101	**Skill Enhancement/Project Course – 3** 1. Introduction to MATLAB 2. Designing of Structure using Sketch Up 3. Analysis & Structural Design using Software' STAAD Pro	0	0	2	2	1
10.	Practical (PEC)	CEE12096 / CEE12084	**Prof. Elective – I/II Lab** 1. Waterproofing Appraisal Lab 2. Ground Improvement Techniques Lab	0	0	2	2	1
			Total	**19**	**0**	**6**	**25**	**22**

FOURTH YEAR

	SEMESTER-VII							
S. No	**Type**	**Course CODE**	**Subject Name**	**L**	**T**	**P**	**Contact Hrs/week**	**Credits**
1.	Theory (HSSM)	MGT11402	Industrial Management	3	0	0	3	3
2.	Theory (PCC)	CEE11103	Application of AI in Smart Infrastructure	3	0	0	3	3
3.	Theory (PEC)	CEE11080/ CEE11104	**Prof. Elective – V** 1. Smart Materials & Smart Structures 2. Introduction to Structural Dynamics and Earthquake Engineering	3	0	0	3	3
4.	Theory (OEC)	ECE11037 MEE11077/ MEE11074	**Open Elective–II** 1. Mobile Communication 2. Introduction to Automobile Engineering 3. Digital Manufacturing	3	0	0	3	3
5.	Theory (OEC)	MEE11076 CSE11041 CSE11043	**Open Elective–III** 1. Introduction to Robotics and Automation 2. Internet of Things 3. Machine Learning	3	0	0	3	3
6.	Theory (Mandatory)	CLL405	Soft Skills and Aptitude VI	1	0	0	1	1
7.	Practical (PCC)	CEE12083	**Prof. Core Lab – X** Detailing of Steel Structures	0	0	2	2	1
8.	Practical (PEC)	CEE12086 /- CEE12035	**Prof. Elective III/IV/V Lab** 1. Structural Monitoring & Assessment Lab 2. Remote Sensing & GIS Lab	0	0	2	2	1
9.	Internship	CEE14053	Summer Internship[#]	-	-	-	-	2
10.	Practical (PSI)	CEE14054	Minor Project	0	0	6	6	2
11.	Practical (PSI)	CEE12100/ CEE12109 CEE12102	**Skill Enhancement/Project Course – 4** 1. Hydrology & River analysis system Software' HEC-RAS 2. Advanced Geotechnical Analysis Using GeoStudio 3. Analysis & Structural Design using Software' ANSYS	0	0	2	2	1
			Total	**16**	**0**	**12**	**28**	**23**

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

Semester-VIII								
S. No	**Type**	**Course Code**	**Subject Name**	**L**	**T**	**P**	**Contact Hrs/week**	**Credits**
1.	Practical (PSI)	CEE14056 CEE14057CEE14058	Industry Work Experience / SIRE* / Major Project	0	0	12	12 (For Major Project only)	6
2.	Practical (PSI)	CEE15059	Comprehensive Viva Voce	------			------	1
			Total	**0**	**0**	**12**	**12**	**7**

***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**	**20**	**25**	**26**	**23**	**22**	**23**	**07**	**167**