

**EVALUATION SCHEME**  
**OF**  
***M. TECH***  
**(HYDRAULICS AND WATER RESOURCES ENGINEERING)**  
***I YEAR***

**DEPARTMENT OF CIVIL ENGINEERING**

**INTEGRAL UNIVERSITY**  
**LUCKNOW**

## EVALUATION SCHEME

**Branch: M. Tech Hydraulics and Water Resources Engineering**

**(w.e.f. Batch 2021-22)**

**Year – I, Semester – I**

S. No.	Course Category	Code No	Name of Subject	Periods				Evaluation Scheme				Subject Total	Attributes							United Nations Sustainable Development Goals (SDGs)
				L	T	P	C	Continuous Assessment (CA)			ESE		Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
								CT	TA	Total										
1	DC	CE566	Open Channel Hydraulics	3	1	-	4	40	20	60	40	100	✓				✓	✓		SDGs 6
2	DC	CE556	Water Resources Systems Planning and Management	3	1	0	4	40	20	60	40	100	✓	✓	✓					SDGs 6
3	DC	CE557	Advanced Hydraulic Engineering	3	1	0	4	40	20	60	40	100	✓		✓		✓			SDGs 6
4	DE	CE555	Mathematics and Statistics for Hydraulic Engineering	3	1	0	4	40	20	60	40	100	✓		✓					SDGs 4
	DE	CE558	Modeling Simulation and Optimization										✓	✓	✓					SDGs 4
	DE	CE560	Advanced Numerical Analysis										✓		✓					SDGs 4
	DE	CE561	Flood and Drought										✓		✓		✓			SDGs 13
<b>PRACTICAL / DRAWING / DESIGN</b>																				
5	DC	CE563	Experimental Method in Water Resources Engineering	0	0	3	2	40	20	60	40	100	✓	✓	✓					SDGs 4
<b>Total</b>				<b>12</b>	<b>4</b>	<b>3</b>	<b>18</b>					<b>500</b>								

**L** – Lecture; **T** – Tutorial; **P** – Practical; **C** – Credits; **CT** – Class Tests; **TA** – Teacher Assessment

**Continuous Assessment (CA)** = Class Tests + Teacher Assessment

**Subject Total** = Continuous Assessment (CA) + End Semester Examination (ESE)

**DC** – Departmental Core

**DE** – Departmental Elective

## EVALUATION SCHEME

**Branch: M. Tech Hydraulics and Water Resources Engineering**

**(w.e.f. Batch 2021-22)**

**Year – I, Semester – II**

S. No.	Course Category	Code No	Name of Subject	Periods				Evaluation Scheme			Subject Total	Attributes							United Nations Sustainable Development Goals (SDGs)		
				L	T	P	C	Continuous Assessment (CA)				ESE	Employ ability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value		Professional Ethics	
								CT	TA	Total											
1	DC	CE565	Applied Hydrology	3	1	-	4	40	20	60	40	100	✓		✓		✓				SDGs 6
2	DC	CE552	Research Methodology	3	1	-	4	40	20	60	40	100			✓				✓		SDGs 4
3	DC	CE568	Climate Change Impacts in Water Resources Engineering	3	1	-	4	40	20	60	40	100	✓	✓			✓				SDGs 6
<b>PRACTICAL / DRAWING / DESIGN</b>																					
4	DC	CE572	Research Paper Presentation and Discussion/Seminar	-	-	-	4	-	-	60	40	100	✓		✓					✓	SDGs 4
5	DC	CE567	Computer Methods in Hydraulics and Hydrology	-	-	3	2	-	-	60	40	100	✓	✓	✓						SDGs 4
<b>Total</b>				<b>9</b>	<b>3</b>	<b>3</b>	<b>18</b>					<b>500</b>									

L – Lecture; T – Tutorial; P – Practical; C – Credits; CT – Class Tests; TA – Teacher Assessment

**Continuous Assessment (CA)** = Class Tests + Teacher Assessment

**Subject Total** = Continuous Assessment (CA) + End Semester Examination (ESE)

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**INTEGRAL UNIVERSITY**  
**DEPARTMENT OF CIVIL ENGINEERING**

**PROGRAMME: HYDRAULICS AND WATER RESOURCES ENGINEERING**

**PROGRAM SPECIFIC OUTCOMES (PSO):**

**PSO-1:** To develop the knowledge based on Hydraulics and water resources engineering and water resources management and research based on water resources engineering.

**PSO-2:** To use the knowledge and Experience gained from the course in uplifting the social living standards at economical cost with modern technology and new inventions for making a great Society, State and Country.

**PROGRAM EDUCATIONAL OBJECTIVES (PEO):**

**PEO-1:** Students will have sound knowledge to identify and formulate challenging in Water Resources Engineering problems and apply appropriate research methodologies to provide technical solutions that are economically feasible and sustainable.

**PEO-2:** Students will possess analytical and lateral thinking ability to engage in lifelong learning for professional advancement to cope up with the rapidly evolving Water Resource Engineering profession which is multi-disciplinary.

**PEO-3:** Students will become socially responsible and work efficiently and accept leadership roles in their profession, public services and community.

**PROGRAM OUTCOMES (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, review 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 lifelong learning in the broadest context of technological change.