Academic Program Description (2025-2026)

Department of Dams and Water Resources Engineering

Bologna Process 2025 - 2026

Degree Program Catalogue

UNIVERSITY OF TIKRIT

Bachelor of Engineering – Dams and Water Resources Engineering

Degree Program Catalogue

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1. Vision and Mission Statement

Vision

Leadership in education and research in Dams and Water Resources Engineering, with an effective response to global challenges in water management and climate change, in order to achieve sustainable development that keeps pace with scientific and technological advancement in education and rigorous research.

Mission

1. Build and instill a culture of excellence in teaching and engineering education.

2. Become one of the leading choices for students among engineering departments in Iraq.

3. Encourage and support the admission of international students to the college.

4. Activate and stimulate scientific research through new ideas and support these ideas to create innovators, creators, and leaders in scientific research.

5. Enhance and develop the curricula to improve students' personalities and professional abilities.

6. Build a network of alumni and employers to create a scientific support network for the college.

2. Program Specification

Item	Description
European Credit System	240 ECTS
Degree Awarded	Bachelor of Science in Dams and Water Resources Engineering
Program Code	—
Attendance Mode	Full-time
Duration	4 levels – 8 semesters

The Dams and Water Resources Engineering program at Tikrit University is designed to be a distinguished and comprehensive specialization that prepares highly qualified engineers with a global perspective in water resources

management. The program provides students with a strong academic foundation and enables them to acquire the knowledge and technical skills needed to address global challenges in the development and management of water resources.

The program emphasizes professionalism in engineering practice and integrates engineering principles with water science and structural engineering to enhance innovation, leadership, technology, and sustainable development. The curriculum combines theoretical and practical aspects, including dam performance and the reduction of environmental impacts. Students gain practical experience in the design, implementation, operation, and management of water systems. The first and second levels cover fundamentals and core subjects, preparing students for advanced study and specialization in the third and fourth levels of the program.

3. Program Objectives

The Dams and Water Resources Engineering program aims to:

1. Prepare highly qualified engineers specialized in Dams and Water Resources Engineering to work in various water and dam sectors.

2. Support the educational process in line with international accreditation standards to achieve the department's vision and mission.

3. Improve the capabilities of faculty members and attract distinguished competencies to the department.

4. Provide rigorous applied scientific research that produces new knowledge that can be employed in local and international markets.

5. Enhance the confidence of society and external institutions in the department's graduates.

6. Promote scientific cooperation and exchange, and establish partnership agreements with corresponding departments and knowledge institutions in advanced countries.

Educational Objectives of the Bachelor's Program

1. Prepare competent male and female engineers who possess the technical and personal capabilities required to succeed in the fields of Dams and Water Resources Engineering.

2. Contribute to service projects that highlight the community role of water engineering, while adhering to the ethical principles of the profession and promoting integrity and responsibility toward society and the environment.

3. Enable graduates to pursue postgraduate studies and encourage continuous professional development and lifelong learning by linking water resources engineering with related disciplines.

4. Student Learning Outcomes

1. Ability to identify, formulate, and solve engineering problems in the field of dams and water resources by applying the principles of engineering, science, and mathematics.

2. Ability to design appropriate engineering solutions for dam projects and water resources management, considering public health and safety as well as relevant environmental, economic, social, and cultural factors.

3. Ability to conduct experiments and measurements related to water and dams, analyze the resulting data, and use engineering judgment to reach accurate conclusions.

4. Ability to communicate clearly and effectively with different groups, including engineers, the local community, and government bodies, using appropriate communication methods.

5. Ability to recognize ethical and professional responsibilities in engineering work and make decisions based on an awareness of the impact of engineering solutions in local and global contexts, especially in water and environmental issues.

6. Ability to recognize the importance of continuous learning, select suitable methods for developing skills and knowledge, and apply what is learned to problems in Dams and Water Resources Engineering.

7. Ability to work effectively within a team, whether as a member or a leader, by setting goals, organizing tasks, meeting deadlines, and creating a cooperative and supportive work environment for all.

5. Faculty Members

Name	Qualification / Specialization	Academic Rank	Email	Mobile
Raad Hubi Arzuqi Jasim	Ph.D. in Water Resources Engineering	Professor	dr.raadhoobi@tu.edu.iq	07701708827
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6. Credits, Assessment and Cumulative GPA

Credit System

Tikrit University follows the Bologna Process using the European Credit Transfer and Accumulation System (ECTS). The total number of credits in the study program is 240 ECTS, at an average of 30 ECTS per semester. One ECTS credit is equivalent to 25 hours of student workload, including both structured and unstructured work.

Assessment System

Before assessment is conducted, results are divided into two categories: pass and fail. Therefore, the results are independent of students who fail any course. The grading system is defined as follows:

Group	Grade	Assessment	Mark (%)	Definition
Pass Group (50-100)	A – Excellent	Excellent	90 - 100	Outstanding performance
Pass Group (50-100)	B – Very Good	Very Good	80 - 89	Above average with some errors
Pass Group (50-100)	C – Good	Good	70 - 79	Good work with noticeable errors
Pass Group (50-100)	D – Satisfactory	Satisfactory	60 - 69	Acceptable work, but with significant shortcomings
Pass Group (50-100)	E – Sufficient	Sufficient	50 - 59	Work meets the minimum criteria
Fail Group (0-49)	FX – Fail	Conditional Pass	45 - 49	More work is required, but credits are awarded
Fail Group (0-49)	F – Fail	Fail	0 - 45	A considerable amount of work is required

Note: Decimal marks above or below 0.5 are rounded to the nearest whole mark. For example, 54.5 is rounded to 55, whereas 54.4 is rounded to 54. The university policy does not allow adjusting “near-pass” marks; therefore, the only adjustment applied to awarded marks is the automatic rounding described above.

Cumulative GPA Calculation

The cumulative GPA is calculated by summing each course mark multiplied by its ECTS credits and then dividing the total by the total ECTS credits of the program.

Cumulative GPA for the four-year bachelor’s degree:

GPA = [(Course 1 mark × ECTS) + (Course 2 mark × ECTS) + ...] / 240

7. Study Modules

Semester 1

Module Code	Module Name	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
MATH-101	Calculus I	63	87	150	6.00	B	
ENG-101	Engineering Mechanics I	63	62	125	5.00	B	
UOT-003	Computer I	63	12	75	3.00	S	
ENG-102	Engineering Drawing	93	57	150	6.00	B	
DWRE-101	Introduction to Water Resources Engineering	63	87	150	6.00	C	
UOT-004	Human Rights and Democracy	33	17	50	2.00	S	
UOT-001	Arabic Language I	33	17	50	2.00	S	
Total		**411**	**339**	**750**	**30.00**		

Semester 2

Module Code	Module Name	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
MATH-102	Calculus II	63	87	150	6.00	B	MATH-101
ENG-103	Engineering Mechanics II	63	62	125	5.00	B	ENG-101
UOT-031	Computer II	63	12	75	3.00	B	UOT-003
DWRE-102	Construction Materials	63	37	100	4.00	B	
DWRE-104	Analytical Chemistry	78	47	125	5.00	B	
DWRE-103	Engineering Statistics	63	62	125	5.00	C	
UOT-002	English Language I	33	17	50	2.00	S	
Total		**426**	**324**	**750**	**30.00**		

Semester 3

Module Code	Module Name	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
MATH-201	Calculus III	63	87	150	6.00	B	MATH-102
DWRE-201	Strength of Materials	63	37	100	4.00	B	
DWRE-202	Fluid Mechanics I	93	57	150	6.00	C	
DWRE-203	Engineering Surveying I	78	72	150	6.00	B	
DWRE-204	Concrete Technology	63	37	100	4.00	B	
UOT-005	Crimes of the Baath Regime in Iraq	33	17	50	2.00	S	
UOT-011	Arabic Language II	33	17	50	2.00	S	
Total		**426**	**324**	**750**	**30.00**		

Semester 4

Module Code	Module Name	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
MATH-202	Calculus IV	63	87	150	6.00	B	MATH-201
DWRE-205	Fluid Mechanics II	93	57	150	6.00	C	DWRE-202
DWRE-206	Engineering Surveying II	78	72	150	6.00	B	DWRE-203
DWRE-207	Water Quality and Pollution	78	47	125	5.00	C	
DWRE-208	Engineering Geology	63	12	75	3.00	B	

UOT-011	Ethics and Leadership Skills	33	17	50	2.00	S	
UOT-021	English Language II	33	17	50	2.00	S	
Total		**441**	**309**	**750**	**30.00**		

Semester 5

Module Code	Module Name	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
MATH-301	Engineering Analysis	63	37	100	4.00	B	
DWRE-301	Structural Analysis	63	62	125	5.00	B	
DWRE-302	Soil Mechanics I	78	47	125	5.00	B	
DWRE-303	Engineering Hydrology I	63	87	150	6.00	C	
DWRE-304	Open Channel Hydraulics	63	87	150	6.00	C	
DWRE-305	Engineering Management and Economy	48	52	100	4.00	B	
Total		**378**	**372**	**750**	**30.00**		

Semester 6

Module Code	Module Name	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
MATH-302	Numerical Analysis	63	37	100	4.00	B	
DWRE-306	Concrete Design	63	62	125	5.00	B	
DWRE-307	Soil Mechanics II	78	47	125	5.00	B	DWRE-302
DWRE--308	Engineering Hydrology II	63	87	150	6.00	C	DWRE-303
DWRE-309	Irrigation Engineering and Applications	63	62	125	5.00	C	
DWRE-310	Hydraulics of Pipeline Systems	63	62	125	5.00	C	
Total		**393**	**357**	**750**	**30.00**		

Semester 7

Module Code	Module Name	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
DWRE-401	Hydraulic Structures I	63	87	150	6.00	C	
DWRE-402	Foundation Engineering	63	62	125	5.00	B	
DWRE-403	Estimation and Construction Methods	48	52	100	4.00	B	
DWRE-404	Drainage Engineering and Applications	48	52	100	4.00	C	
--------	Elective Course I	63	62	125	5.00	E	
DWRE-405	Graduation Project I	48	102	150	6.00	C	
Total		**333**	**417**	**750**	**30.00**		

Semester 8

Module Code	Module Name	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
DWRE-406	Hydraulic Structures II	63	87	150	6.00	C	DWRE-401
DWRE-407	River Engineering	63	62	125	5.00	C	
DWRE-408	Dams and Reservoirs Engineering	63	62	125	5.00	C	
DWRE-409	Sanitary Engineering	63	37	100	4.00	C	
--------	Elective Course II	63	37	100	4.00	E	
DWRE-410	Graduation Project II	48	102	150	6.00	C	
Total		**363**	**387**	**750**	**30.00**		

Abbreviations

Code	Structured SWL type	Code	Module type	Code	Meaning
CL	Class Lecture	B	Basic learning activities	SWL	Student Workload
Lab	Laboratory	C	Core learning activity	SSWL	Structured Student Workload
Pr	Practical Training	S	Support or related learning activity	USSWL	Unstructured Student Workload
Tut	Tutorial	E	Elective learning activity		
Lect	Online lecture				
Semn	Seminar				

Note: Columns O, Q and R are programmed, protected, and should not be edited.

8. Contact

Program Manager

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