

# UNIVERSITY of TIKRIT

جامعة تكريت



Bachelor of Science Honours (B.Sc. Honours) -  
Civil Engineering

بكالوريوس علوم - هندسة مدنية



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## 1. Overview

This catalogue is about the courses (modules) given by the program of Civil Engineering to gain the Bachelor of Science degree. The program delivers (48) Modules with (7000) total student workload hours and 240 total ECTS. The module delivery is based on the Bologna Process.

### نظرة عامه

يتناول هذا الدليل المواد الدراسية التي يقدمها برنامج الهندسة المدنية للحصول على درجة بكالوريوس العلوم. يقدم البرنامج (48) مادة دراسية مع (6000) إجمالي ساعات حمل الطالب و (240) إجمالي وحدات أوروبية. يعتمد تقديم المواد الدراسية على عملية بولونيا.

## 2. Undergraduate Courses 2023-2024

1

Code	Course/Module Title	ECTS	Semester
CIVL -101	Human Rights& Democracy	2	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	--	32	18
Description			
<p>حقوق الانسان: هي حقوق يتمتع بها جميع مكونات البشر لمجرد اننا من ابناء البشر. وهذه الحقوق متأصلة في جميع البشر مهما كان عرقهم او جنسهم او قوميتهم او مذهبهم ولا تمنح من أي دولة، وتتضمن حقوق الانسان والطفل في الحضارات القديمة والاسلام، المواثيق الدولية ، مصادر وضمائمات حقوق الانسان ، القوانين والدساتير، مجلس حقوق الانسان، العولمة، التقدم التكنولوجي واثره على حقوق الانسان.</p>			

2

Code	Course/Module Title	ECTS	Semester
MATH-101	Calculus I	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
4	1	78	47
Description			
<p>This course covers topics of differential and integral calculus including limits and continuity, higher-order derivatives, curve sketching, differentials, definite and indefinite integrals (areas and volumes), and applications of derivatives and integrals. In addition, students review and extend their knowledge of trigonometry and basic analytic geometry. Important objectives of the calculus sequence are to develop and strengthen the students' problem-solving skills and to teach them to read, write, speak, and think in the language of mathematics. In particular, students learn how to apply the tools of calculus to a variety of problem situations.</p>			

3

Code	Course/Module Title	ECTS	Semester
ENG-101	Engineering Drawing I	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	47
Description			
<p>An engineering drawing course focuses on usage of drawing instruments, lettering, construction of geometric shapes, etc. Students study use of dimensioning, shapes and angles or views of such drawings. Dimensions feature prominently, with focus on interpretation, importance and accurate reflection of dimensions in engineering drawing. Other areas of study in this course may include projected views and development of surfaces.</p>			

4

Code	Course/Module Title	ECTS	Semester
CIVL -102	Engineering Mechanics I	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
4	1	78	47
Description			
<p>The course covers the following topics; statics of particles: forces in plane, forces in space, equilibrium, moment of a force, moment of a couple, equivalent systems of forces on rigid bodies, equilibrium in two dimensions, equilibrium in three dimensions, distributed forces: centroids and center of gravity, analysis of structures: trusses, frames and machines, internal forces in beams and cables, friction, moments of inertia of areas, moments of inertia of masses.</p>			

5

Code	Course/Module Title	ECTS	Semester
ENG-106	Work Shop	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3 <u>Lab.</u> + 1 <u>Prac.</u>	92	58
Description			
<p>The engineering workshop course focuses on identifying risks in the work environment and industrial safety guidelines. And training on how to measure and determine, and the use of filing tools and their work. Learn about the types of wood used in carpentry, the process of shaping it, and the use of carpentry tools and machines. Training in welding work, its types, and the process of joining metals by welding. Training on various casting works and training on mechanical operation, which includes turning, milling, and grinding. Training on pipe knowledge, how to connect, sanitary engineering works, and training on the basics of electrical workshops.</p>			

6

Code	Course/Module Title	ECTS	Semester
CIVL- 103	Construction Matrials I	5	1
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	2	63	62
Description			
<p>The aim of this course is to enable the student to:</p> <ul style="list-style-type: none"> <li>- Describe factors that control the properties of construction materials.</li> <li>- List methods of determining the properties of construction materials.</li> </ul>			

7

Code	Course/Module Title	ECTS	Semester
ENG-113	Arabic Language	2	1
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2		32	18
Description			
<p>1- تطوير المهارات اللغوية وحفظ بعض السور القرآنية وتعزيز حب اللغة لدى الطلبة.  2- فهم كيفية تطبيق القواعد اللغوية في الحياة اليومية، ومعرفة المصطلحات اللغوية في مجالات الهندسة والعلوم.  3- أهمية اللغة العربية في مجالات الحياة اليومية  4- استخدام القواعد اللغوية في كتابة التقارير والأبحاث العلمية بشكل صحيح.  5- تعزيز التعلم الذاتي والاستقلالية في التعلم وتشجيع الطلاب على أخذ مبادرة في تعلم اللغة العربية.</p>			

8

Code	Course/Module Title	ECTS	Semester
ENG -104	Computer I	5	2
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	2 <u>Lab.</u> + 1 <u>Tutor.</u>	78	47
Description			
<p>This course offers students a comprehensive exploration of the fundamental concepts and principles that underpin the field of computer science. By delving into various subjects including the historical development of computing, data representation, computer components, algorithms, programming languages, operating systems, applications, internet and networking, and cyber-security, students will develop a well-rounded understanding of the discipline. By examining the evolution of computer science over time, students will acquire a broad perspective on the field and its significance in contemporary society. Through a combination of theoretical knowledge and practical applications, this module equips students with the necessary foundation to pursue further studies or careers in computer science.</p>			

9

Code	Course/Module Title	ECTS	Semester
MATH-102	Calculus II	5	2
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
4	1	78	47
Description			
<p>A continuation of Calculus I. This is a study of multivariable calculus including vector-valued functions and the calculus of curves in space, differential calculus of multivariate functions, and integral calculus of multivariate functions, spherical and cylindrical coordinates, line and surface integrals.</p>			

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Code	Course/Module Title	ECTS	Semester
CIVL -104	Engineering Drawing II	5	2
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	3	78	47
Description			
<p>An engineering drawing course focuses on usage of drawing instruments, lettering, construction of geometric shapes, etc. Students study use of dimensioning, shapes and angles or views of such drawings. Dimensions feature prominently, with focus on interpretation, importance and accurate reflection of dimensions in engineering drawing. Other areas of study in this course may include projected views and development of surfaces..</p>			

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Code	Course/Module Title	ECTS	Semester
ENG-102	Mechanics (Dynamics)	5	2
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
4	1	78	47
Description			
<p>This course is an introduction to dynamics. Topics covered include Kinematics of a Particle, Kinematics of a Particle: Force and Acceleration and Planar Kinematics of a Rigid Body. Students will also become familiar with the following topics: Newton's second law of motion equations for systems of particles and rigid bodies in planar motion. After this course, students will be able to predict the position, velocity, and acceleration of particles.</p>			

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Code	Course/Module Title	ECTS	Semester
CIVL-105	Construction Materials II	5	2
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	2	62	63
Description			
<p>The aim of this course is to enable the student to:</p> <ul style="list-style-type: none"> <li>- Describe factors that control the properties of construction materials.</li> <li>- List methods of determining the properties of construction materials.</li> </ul>			

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Code	Course/Module Title	ECTS	Semester
CIVL -106	Engineering Geology	3	2
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
1	1 <u>Lab.</u> + 1 <u>Prac.</u>	48	27
Description			
<p>تهدف المادة الدراسية لاعطاء الطالب معلومات تفصيلية عن الجيولوجيا الهندسية ومكوناتها والمفاهيم الاساسية المتعلقة بها والخرائط الجيولوجيه وتدريب الطلبة على كيفية رسمها وقرائنها وفهمها.</p>			



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Code	Course/Module Title	ECTS	Semester
ENG-107	English Language	2	2
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	----	32	18
Description			
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.			

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Code	Course/Module Title	ECTS	Semester
MATH-201	Engineering Analysis	5	3
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
4	1	78	47
Description			
This course is offered to undergraduates and introduces students to the techniques for analytical solution of engineering problems. Ordinary and partial differential equations are considered. Throughout the course, an advanced mathematical methods are used in solution of the problems			

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Code	Course/Module Title	ECTS	Semester
CIVL -201	Concrete Technology	6	3
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
3	2 <u>Lab.</u> + 1 <u>Tutor.</u>	93	57
Description			
<p>The aim of this course is to enable the student to:</p> <ul style="list-style-type: none"> <li>- Describe factors that control the properties of concrete.</li> <li>-List methods of determining the properties of concrete.</li> </ul>			

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Code	Course/Module Title	ECTS	Semester
CIVL -202	Strength of Materials I	4	3
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
3	1	63	37
Description			
<p>The main aim of studying strength of materials is to understand how different materials behave under various types of applied forces or loads. This knowledge is essential for designing and analyzing structures and machines that can withstand the stresses and strains that they are subjected to in real-world applications. By understanding the properties of materials and how they respond to different types of forces, engineers can design structures and machines that are both safe and efficient.</p> <p>Students may also learn about different types of materials, such as metals, composites, and how they behave under different conditions.</p>			

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Code	Course/Module Title	ECTS	Semester
CIVL -203	Engineering Surveying I	5	3
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	3	78	47
Description			
<p>This course aims to establish fundamental knowledge of chemical reactor design and engineering. Presentation of the course starts by introducing the chemical reaction engineering algorithm and then utilises it to solve problems in steady state isothermal reactors. Elementary and non-elementary reactions are discussed. Catalytic reactions are also introduced.</p>			

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Code	Course/Module Title	ECTS	Semester
CIVL -204	Building construction	4	3
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
4	-----	63	37
Description			
<p>تهدف المادة الدراسية لاعطاء الطالب معلومات تفصيلية وتحليلية عن مواد الانشاء المدنية والتي تشمل كفة فقرات انشاء المباني حسب طرق تنفيذها وانواع التصاميم الانشائية والاطلاع على تطور انشاء المباني ثم معرفة كيفية تنفيذ وتصميم الاعمال المدنية الخاصة بالمنشآت البنائية المختلفة وطريقة فهم المستجدات التي تطرأ على مواد البناء وطريقة تنفيذها بأسلوب حضاري جديد يتلاءم ومواد البناء والتكنولوجيا العالمية الحديثة .</p>			

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Code	Course/Module Title	ECTS	Semester
ENG-214	Al Bath Crimes in Iraq	2	3
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	-----	32	18
Description			
<p>1- التعرف على جرائم الحزب والانتهاكات التي قام بها خلال فترة الحكم.  2- القدرة على فهم الآثار السلبية لهذا الحزب على الجانب النفسي والاجتماعي والثقافي لأفراد الشعب العراقي.  3- التعرف على التأثير السلبي على واقع البيئة العراقية.</p>			

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Code	Course/Module Title	ECTS	Semester
CIVL -205	Computer II	4	3
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	2	63	37
Description			
<p>This module introduces students to the Python programming language, its syntax, and its use in solving programming problems. The module covers the basic programming concepts of condition statements and iteration statements, along with the design and implementation of functions. The module also covers the basic data structures of Python, including lists, tuples, dictionaries, and sets. The module concludes with an introduction to string manipulation and regular expressions in Python.</p>			

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Code	Course/Module Title	ECTS	Semester
CIVL -206	Highway Engineering I	6	4
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
5	1	93	57
Description			
<p>The course is designed to: Carefully cover in lectures the necessary fundamental material and analytical techniques and demonstrate concepts with appropriate examples Allow students adequate time to practice the techniques using a large number of carefully selected tutorial problems.</p>			

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Code	Course/Module Title	ECTS	Semester
CIVL - 207	Strength of Materials II	6	4
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
5	1	93	57
Description			
<p>The main aim of studying strength of materials is to understand how different materials behave under various types of applied forces or loads. This knowledge is essential for designing and analyzing structures and machines that can withstand the stresses and strains that they are subjected to in real-world applications. By understanding the properties of materials and how they respond to different types of forces, engineers can design structures and machines that are both safe and efficient.</p> <p>Students may also learn about different types of materials, such as metals, composites, and how they behave under different conditions.</p>			

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Code	Course/Module Title	ECTS	Semester
CIVL -208	Engineering Surveying II	6	4
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	3 Lab. + 1 Tutor.	93	57
Description			
<p>This course aims to establish fundamental knowledge of studying surveying instruments and their use in the measurement of angles, distances and elevations. Also includes mathematics, computational methods, adjustments and measurement analysis used in plane surveying</p>			

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Code	Course/Module Title	ECTS	Semester
CIVL -209	Construction Drawing	4	4
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
1	3	63	37
Description			
<p>تهدف المادة الدراسية لاطاء الطالب معلومات تفصيلية عن الرسوم والمخططات والخرائط الانشائية والمفاهيم الاساسية المتعلقة بها. وتدريب الطلبة على كيفية رسمها وقرائتها وفهمها.</p>			

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Code	Course/Module Title	ECTS	Semester
CIVL -210	Fluid Mechanics	6	4
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
3	2 <u>Lab.</u> + 1 <u>Tutor.</u>	93	37
Description			
<p>This course discusses basic concepts of fluid mechanics, among others fluid types and classifications, the scope of fluid mechanics, fluid statics, Dynamic fluid and the analysis of dimensions, s, and study model. With the learning in the classroom and practicum, students get the opportunity to apply the theory obtained directly in the laboratory.</p>			

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Code	Course/Module Title	ECTS	Semester
ENG-211	English II	2	4
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	---	32	18
Description			
<p>Develop the ability/skill needed to earn a job and develop his/her critical thinking skills to work, develop and communicate.</p>			

28

Code	Course/Module Title	ECTS	Semester
MATH-302	Statistic and Probability	3	5
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	1	47	28
Description			
Students are introduced to: Introduction to <b>statistics</b> ; Frequency Tables; Measures of central tendency: Average, mode, and median; Measures of dispersion: Variance and standard deviation; Introduction to probabilities: Sample space, Events, axioms of probability; Conditional probabilities and Independence; Random variables.			

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Code	Course/Module Title	ECTS	Semester
CIVL-301	Theory of Structures I	5	5
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
4	1	78	47
Description			
structures classifications, supports types, analysis of statically determinate structures, truss analysis, shear and moments diagrams, influence lines of structures, approximate analysis of statically indeterminate structures.			

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Code	Course/Module Title	ECTS	Semester
CIVL-302	Concrete Design I	6	5
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
5	1	93	37
Description			
In this course, students learn some details of Principal of reinforced concrete design using multi-methods, flexural analysis and design of beams, shear and diagonal tension in beams, bond, anchorage, and development length, serviceability, and analysis and design for torsion.			



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Code	Course/Module Title	ECTS	Semester
CIVL-303	Soil Mechanics I	5	5
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	2 <u>Lab.</u> + 1 <u>Tutor.</u>	78	47
Description			
<p>On successful completion of this module the learner will be able to:</p> <ul style="list-style-type: none"> <li>• Calculate standard soil properties and classify a soil sample.</li> <li>• Calculate stresses in soil under various load conditions.</li> <li>• Carry out laboratory tests for preliminary engineering assessment of a soil sample.</li> <li>• Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.</li> </ul>			

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Code	Course/Module Title	ECTS	Semester
CIVL-304	Management & Economic	5	5
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
4	1	78	47
Description			
<p>This course aims to establish basic knowledge of time and financial scheduling by presenting and applying scheduling methods, resource allocation and crashed program, in addition to analyzing the time factor and its impact on capital, methods of calculating depreciation, conducting economic comparisons, and acquiring decision-making skills in choosing the optimal alternative.</p>			

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Code	Course/Module Title	ECTS	Semester
CIVL-305	Highway Engineering II	6	5
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
3	2 <u>Lab.</u> + 1 <u>Tutor.</u>	93	37
Description			
<p>The course is designed to: Carefully cover in lectures the necessary fundamental material and analytical techniques and demonstrate concepts with appropriate examples Allow students adequate time to practice the techniques using a large number of carefully selected tutorial problems.</p>			

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Code	Course/Module Title	ECTS	Semester
MATH-301	Numerical Analysis	3	6
Lectures (hr/w)	<u>Lab./Prac./Tutor.</u>	SSWL (hr/sem)	USSWL (hr/w)
2	1	48	27
Description			
<p>To explore complex systems, physicists, engineers, financiers and mathematicians require computational methods since mathematical models are only rarely solvable algebraically. Numerical methods, based upon sound computational mathematics, are the basic algorithms underpinning computer predictions in modern systems science. Such methods include techniques for simple optimization, interpolation from the known to the unknown, linear algebra underlying systems of equations, ordinary differential equations to simulate systems, and stochastic simulation under random influences. Topics covered are: the mathematical and computational foundations of the numerical approximation and solution of scientific problems; simple; vectorization; clustering; polynomial and spline interpolation; regression; pattern recognition; integration and differentiation; solution of large scale systems of linear and nonlinear equations; modelling and solution with sparse equations; explicit schemes to solve ordinary differential equations and partial differential equations.</p>			

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Code	Course/Module Title	ECTS	Semester
CIVL-306	Theory of Structures II	6	6
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
5	1	93	37
Description			
<p>In this course, students learn some information about :</p> <p>1- determine the deflection of structures</p> <p>2- analysis of statically indeterminate structures using different methods.</p>			

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Code	Course/Module Title	ECTS	Semester
CIVL-307	Concrete Design II	6	6
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
5	1	93	37
Description			
<p>In this course, students learn some details of Analysis of Indeterminate Beams, analysis and Design of Slabs (One-Way Slabs), two- way R.C. slab design, loading transfer, analysis and Design for Torsion, short Columns, and slender Columns.</p>			

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Code	Course/Module Title	ECTS	Semester
CIVL-308	Soil Mechanics II	5	6
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	2 <u>Lab.</u> + 1 <u>Tutor.</u>	78	47
Description			
<p>On successful completion of this module the learner will be able to:</p> <ul style="list-style-type: none"> <li>• Specify the essential features and requirements of soil permeability and seepage.</li> <li>• Calculate settlement and find the shear strength of soil</li> <li>• Carry out laboratory tests for preliminary engineering assessment of a soil sample.</li> <li>• Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.</li> <li>• Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.</li> <li>• Communicate effectively with a range of audiences.</li> <li>• Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.</li> <li>• Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.</li> <li>• Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.</li> <li>• Acquire and apply new knowledge as needed, using appropriate learning strategies.</li> </ul>			

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Code	Course/Module Title	ECTS	Semester
CIVL-309	Hydrology	4	6
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	2	63	37
Description			
<p>Teach students the basics of hydrology and everything related to this science and its importance through its relationship to water resources projects and their design, as the efficiency of water projects depends on the accuracy of hydrological information.</p>			

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Code	Course/Module Title	ECTS	Semester
CIVL-310	Traffic Engineering	6	6
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
3	2 <u>Lab.</u> + 1 <u>Tutor.</u>	93	37
Description			
Phase of transportation engineering which deals with planning, geometric design, and traffic operation of roads and their networks terminals, relationships with other modes of transportation.			

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Code	Course/Module Title	ECTS	Semester
CIVL-401	Engineering Project I	2	7
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	-----	32	18
Description			
Preparatory studies of the literature and data collection for the graduation project in a particular area of concentration and under the supervision of one of the faculty members. The course covers directed readings in the literature of civil engineering, introduction to research methods, seminar discussions dealing with special engineering topics of current interest. Planning, design, construction and management of an engineering project. Writing a technical report.			

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Code	Course/Module Title	ECTS	Semester
CIVL-402	Concrete Design III	6	7
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
4	2	93	37
Description			
In this course, students learn some details of One-way R.C. ribbed slab design, two-way R.C. ribbed slab (Waffle) design, plastic hinges in beams, R.C. Flat slab (Design and Analysis), openings in slabs, R.C. circular slab design, yield Lines in slabs, R.C. Staircases design, R.C. corbels design, prestressed R.C. beams, and R.C. tanks design.			

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Code	Course/Module Title	ECTS	Semester
CIVL-403	Foundation Engineering I	6	7
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
4	1	78	72
Description			
<p>Foundation engineering-II, are provided to deal with structural design of spread, combined and mat foundation. Estimating the load capacity of various type of single piles and group piles in different methods. Calculating the lateral earth pressure and design gravity and cantilever retaining walls. Finding the factor of safety for natural and artificial ground slopes.</p>			

43

Code	Course/Module Title	ECTS	Semester
CIVL-404	ConStruction Methods	5	7
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
3	1	63	62
Description			
<p>This course aims to establish basic knowledge of construction contracts and how to deal with equipment in terms of its cost and productivity, and to identify the most important factors that affect its selection and then use it in accomplishing the tasks required to achieve the highest productivity and the lowest cost.</p>			

44

Code	Course/Module Title	ECTS	Semester
CIVL-405	Sanitary Engineering I	5	7
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
3	1 <u>Lab.</u> + 1 <u>Tutor.</u>	78	47
Description			
<p>This course aims to form the basic knowledge for designing and evaluating infrastructure networks (sewage network system and storm network system). The presentation of the course begins with studying the methods of collecting water for the two networks, calculating their quantities, and then using the results in designing the network, in addition to studying the international standards for these networks. Networks evaluation (sewage network system and storm network system) and ways to fix it were also discussed.</p>			

45

Code	Course/Module Title	ECTS	Semester
CIVL-406	Hydraulic Structure	6	7
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
4	2	93	37
Description			
<p>This course aims to establish fundamental knowledge of designing hydraulic structures according to modern programs and laws, and studying the characteristics of some facilities in terms of their types, composition, flow properties, and the factors affecting them.</p>			

46

Code	Course/Module Title	ECTS	Semester
CIVL-407	Engineering Project II	2	8
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
2	-----	32	18
Description			
<p>Literature and data collection for the graduation project in a production of a product under the supervision of one of the faculty members. This is in continuation with CIVIL-401.</p>			

47

Code	Course/Module Title	ECTS	Semester
CIVL-408	Steel Design	5	8
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
3	1 <u>Prac.</u> + 1 <u>Tutor.</u>	78	47
Description			
<p>This course aims to establish fundamental knowledge of steel design and engineering. Presentation of the course starts by introducing the LRFD loads and then utilizes it to deals with different types of members under various types of loads and boundary conditions.</p>			

48

Code	Course/Module Title	ECTS	Semester
CIVL-409	Foundation Engineering II	6	8
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
4	1	78	72
Description			
Foundation engineering-II, are provided to deal with structural design of spread, combined and mat foundation. Estimating the load capacity of various type of single piles and group piles in different methods. Calculating the lateral earth pressure and design gravity and cantilever retaining walls. Finding the factor of safety for natural and artificial ground slopes.			

49

Code	Course/Module Title	ECTS	Semester
CIVL-410	Estimation and Specification	6	8
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
3	1 <u>Prac.</u> + 1 <u>Tutor.</u>	78	72
Description			
Introducing the student to the duties of the quantity surveyor during the stages of project completion, as well as estimating the value of the origin in an initial and detailed manner, as well as estimating the amount of earthworks for roads and canals, and being able to do price analysis and write specifications and undertaking documents.			



50

Code	Course/Module Title	ECTS	Semester
CIVL-411	Sanitary Engineering II	5	8
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
3	1 <u>Lab.</u> + 1 <u>Tutor.</u>	78	47
Description			
<p>This course aims to form the basic knowledge for designing and evaluating infrastructure network (supply water networks system). The presentation of the course begins with studying the methods of supplying water for the city, calculating the water demand, and then using the results in designing the network, in addition to studying the international standards for these networks. Networks evaluation for supply water networks and ways to fix it were also discussed.</p>			

51

Code	Course/Module Title	ECTS	Semester
CIVL-412	Engineering Softwares applications	6	8
Lectures (hr/w)	<u>Lab./Prac./Tutor.</u>	SSWL (hr/sem)	USSWL (hr/w)
2	3	78	72
Description			
<p>The course covers topics such as software navigation, analysis and simulation, design and modeling, data management and visualization, software integration, and practical application of software tools. Through practical exercises and projects, students will develop proficiency in selecting, utilizing, and evaluating engineering software for diverse engineering applications.</p>			



ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي