Modules Cataluge |2024-2025|

Samarra University

First cycle - Bachelor's degree-Civil Engineering

Bachelor of Science - Civil Engineering

Table of Contents

1. Overview

This guide covers the courses (units) offered by the Civil Engineering program for the Bachelor of Science degree. The program offers (9) units with a total of (1335) student work hours and 60 credit hours. The offering of units is based on the Bologna process.

consideration And general

This guide covers the subjects taught in the Civil Engineering programme for the Bachelor of Science. It presents an addition of (9) subjects already, for example, with (1335) total student load hours and 60 total European units. The presentation of the subjects is based on the Bologna process.

2. University Courses 2024-2025

Module 1

The symbol	Course/Unit Title	ECTS	Semester
UOE-1101	Computer	3.00	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
2	2	63	12
Description			
Teaching the student the basic rules of computers and their management to help him complete projects, printing matters, preparing statistics and graphs, creating presentations, designing engineering plans, etc., and the emergence of the Internet as a means available to everyone, the student learns to use the computer and digital publications through electronic correspondence, web pages, and electronic conversation.			

Module 2

The symbol	Course/Unit Title	ECTS	Semester
CE112	mathematics	10	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
4	4	123	127
Description			
The course aims to introduce the basic methods of calculus and analytical geometry as an introduction to their use in some engineering applications of calculus and solving simple differential equations, using quantitative and numerical methods to solve engineering problems, using basic knowledge to search for new techniques, in addition to extracting and evaluating the information necessary to apply engineering analysis methods to unfamiliar problems. Teaching and learning methods			

• Scientific and research skills are developed through teaching and learning activities. Analytical and problem-solving skills are also developed through a set of problems prepared by lecturers through small study groups. All submitted work is evaluated and responded to.

Module 3

The symbol	Course/Unit Title	ECTS	Semester
CE113	Engineering drawing	8.00	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
4	4	123	77
description			
It is noted that facilities, buildings and construction projects have developed significantly in recent years, and thus the methods of presenting engineering ideas and plans have developed with them, and there has been a great reliance on modern technologies such as computers and engineering programs in presenting engineering plans. Therefore, this course aims to introduce the student to the methods and tools of paper engineering drawing, how to read plans, and ways to find dimensions or shapes not shown in the engineering drawing through some engineering processes and ideas related to engineering drawing. This course is also an important introduction to engineering drawing applications on the computer, as the civil engineering specialist will not be able to make the most of the computer unless he is fully familiar with the subject of engineering drawing.			

Module 4

The symbol	Course/Unit Title	ECTS	Semester
CE114	Materials Construction	5	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
3	2	63	62
Description			
This course covers the mechanical properties of materials, - Binders: Gypsum: Manufacturing, Calcination Theory, Types of Products, Properties and Uses, and Physical Properties. Lime: Manufacturing, Calcination Theory, Types of Products, Properties and Uses, and Physical Properties. Bricks: Raw Materials, Harmful Components, Manufacturing Methods, Physical Properties, Products: Clay Bricks, Sand Lime Bricks, Concrete Bricks. Blocks: Manufacturing, Properties, Types of Blocks and Uses. Tiles: Manufacturing, Properties, Tile Tests, Types of Tiles. Wood: Types of Wood, Mechanical Properties of Wood, Wood Defects, Wood Curling. Metal: Types of Metal, Cast Iron, Wrought Iron, Steel, Mild Steel, Heat Treatment, Physical Properties.			

Module 5

The symbol	Course/Unit Title	ECTS	Semester
UOE-1102	Arabic	2	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
2	0	33	17
Description			
This course aims to: 1. Enabling students to understand the eloquence of the Holy Quran and to appreciate the aesthetics of the language in it. 2. Training students to use punctuation marks between sentences correctly. 3. To broaden the students' literary horizons of ideas, meanings and moral values. 4. Teaching students how to write correctly according to the basics of spelling, which enables them to write words correctly.			

Module 6

The symbol	Course/Unit Title	ECTS	Semester
UOE-12012	Democracy and human rights	2	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
2	0	33	17
Description			
The study of human rights aims to achieve several main objectives.: 1. Promoting awareness and respect: - Understanding human rights helps to raise awareness of the importance of the rights of every individual, regardless of race, religion, gender or social status. - Increase mutual respect among people and appreciation of cultural and social diversity. 2. Promoting justice and equality: - Emphasizing the importance of equality and justice in all aspects of life. - Providing the necessary tools to combat discrimination and injustice in society. 3. Promoting peace and stability: - Human rights promote understanding and peaceful coexistence among individuals and communities. - Reducing conflicts and disputes by promoting mutual respect and individual rights.			

Module 7

The symbol	Course/Unit Title	ECTS	Semester
CE121	Engineering Mechanics	12.00	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
6	4	153	147
Description			
This course aims to introduce the basic methods for statistically analyzing determinate structures as an introduction to indeterminate structure analysis and structural design decisions. Course outcomes and teaching, learning and assessment methods are Newton's laws of motion and trigonometric laws are defined and applied to the addition and analysis of vector quantities, determination of moment of force and its value about a given axis, determination of moment of couple, description of the concept of dry friction, analysis of the equilibrium of solid objects subjected to this force, creation of "free body diagrams" for real-world problems, application of Newton's laws of motion and vector operations to evaluate the equilibrium of particles and objects, application of the principles of equilibrium of particles and objects to analyze forces in plane truss members, discussion of the concepts of "center of gravity" and "center of mass" and calculation of their location for irregularly shaped objects and application of the concepts used to determine the center of gravity and midpoints to find the result of a generally distributed load. Use the methods learned to balance objects and the result of a generally distributed load to calculate internal forces in beams. Generalize the procedure to create diagrams of bending moments and shear forces (internal forces), and use this information in engineering design.			

Module 8

The symbol	Course/Unit Title	ECTS	Semester
CE122	AutoCAD	6.00	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
2	3	78	72
Description			
This course contains a detailed explanation of AutoCAD commands and their applications for solving drawing and design problems, where each command is fully explained with the help of examples and illustrations and the use of this command to draw projections and equal measurements of objects in engineering drawing. Cognitive objectives: Providing students with sufficient knowledge in AutoCAD to employ in design by developing students' practical, theoretical and creative abilities in various types of computer design techniques. Developing perception skills and knowledge of computer-aided design implementation technology to enrich students' experience using various AutoCAD techniques to complete the required design plans. The student can create any design plan on the program through which he can fully explain the idea.			

Module 9

The symbol	Course/Unit Title	ECTS	Semester
CE123	Engineering statistics	5	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
2	2	63	62
a description			
The course aims to introduce the student to the property of randomness in life data and the mathematical treatment of that data as well as the mathematical models that describe different types of life data - how to decide on the scientific values of simple models.			

Module 10

The symbol	Course/Unit Title	ECTS	Semester
CE124	Engineering Geology	5.00	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
2	2	63	62
Description			
The course aims to provide basic information about the components of the Earth's crust, types of rocks, forms of geological structures, factors and forces affecting the Earth's crust, earthquakes, volcanoes, natural characteristics of soil, and groundwater geology as an introduction to the study of the geology of tunnels, dams, and reservoirs, and the use of geological maps and geological surveys. The cognitive objectives are to define the concept of engineering geology and its importance in knowing the origin, history, and formation of the Earth and the forces affecting its rocks, to identify environmental problems resulting from geological phenomena, their causes, and ways to reduce their effects, to describe engineering methods for analyzing and designing systems that help solve geological problems of foundations, and to clarify the sources of groundwater and its relationship to surface water and how to avoid its risks during implementation.			

Module 11

The symbol	Course/Unit Title	European Points System	Semester
UOE-12011	English	2.00	2
Semester (hour/week)	**Lecturer/Laboratory/Practical/Teacher**	**SSWL (hour/semester)**	**USSWL (hour/week)**
2	0	33	17
Description			

The Scientific English course aims to provide students with some of the specific language skills they are likely to need when studying physics, mathematics, biology, chemistry or computer science in English. The course will also focus on the appropriateness of English in different contexts, with an emphasis on formal and academic contexts. The course therefore aims to develop the communication skills and specialist knowledge of English for science students and professionals, enabling them to communicate more confidently and effectively in their work or study environment.

Module 12

Code	Course/Module Title	ECTS	Semester
CE211	**Strength of Materials I**	**6.00**	**3**
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
3	**2**	**78**	**72**
Description			
1. The course aims to provide the students with basic knowledge of material behavior, stress strain relations, and their analysis. 2. During the course, students will review mechanics first and obtain knowledge of stress-strain relations, and their types. 3. Students will review modern sources, and show the problems and their solving methods for all issues related to the strength of materials			

Module 13

Code	Course/Module Title	ECTS	Semester
CE212	**Fluid Mechanics I**	**6.00**	**3**
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
2	**4**	**93**	**57**
Description			
The fluid mechanics staff's goal is to give students a thorough understanding of fluid mechanics' foundational ideas, theories, and practical applications. We want to foster a profound understanding of the importance of fluid dynamics in diverse engineering fields and sectors. Our course aims to provide a solid grounding in the fundamentals of fluid mechanics through interesting lectures, lively discussions, and practical experiments. We work hard to help students hone their analytical and problem-solving abilities so they can accurately assess and forecast fluid behavior in real-world situations.			

Module 14

Code	Course/Module Title	ECTS	Semester
CE213	Mathematics II	5.00	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
2	2	63	62
Description			
After completing this module, students should demonstrate competency in the following skills: 1. Use conical sections in real life applications. 2. Sketch the graph of a function using polar coordinate. 3. Convert point and functions from rectangular coordinate to polar coordinate. 4. Calculate area of shapes by use polar coordinate. 5. Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.			

Module 15

Code	Course/Module Title	ECTS	Semester
CE214	Engineering Surveying I	6.00	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	4	93	57
Description			
Measuring certain dimensions that occur on or near the surface of the Earth. Surveying equipment such as levels and theodolites are used for accurate measurement of angular deviation, horizontal, vertical and slope distances. With computerization, electronic distance measurement (EDM), total stations, GPS surveying and laser scanning have to a large extent supplanted traditional instruments. Data collected by survey measurement is converted into a graphical representation of the Earth's surface in the form of a map. This information is then used by civil engineers, contractors and realtors to design from, build on, and trade, respectively. Elements of a structure must be sized and positioned in relation to each other and to site boundaries and adjacent structures.			

Module 16

Code	Course/Module Title	ECTS	Semester
UOE-2306	English Language II	2.00	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
3		33	17
Description			

The course of scientific English is dealing with providing students with some of the specific language and skills that they are likely to need studying physics, mathematics, biology, chemistry or computer science in English. The course will also focus on English language appropriateness in different contexts, with an emphasis on formal, academic contexts. Therefore, the course aims to develop the communication skills and specialist English language knowledge of science students and professionals, enabling them to communicate more confidently and effectively in their work or study environment.

Module 17

Code	Course/Module Title	ECTS	Semester
UOE-2304	Computer II	3.00	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
2	2	63	12
Description			
The student will gain an understanding of the basic principles, structure, grammar, and uses of the C#.NET programming language. Develop the ability and skill to write and compile C#.NET programs, including an understanding of the use of variables, data types, and operators. Learn how to use control structures, including if-else statements, loops (while, for, and do-while), and switch statements to control program flow.			

Module 18

Code	Course/Module Title	ECTS	Semester
UOE-2303	Crimes of Al Ba'ath Regime in Iraq	2.00	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
2		33	17
Description			
1.Baath regime crimes according to the court law Criminal Antiquity Supreme Council in 2005 AD 2-Definition of crime and its sections. 3-CrimesPsychological And social And its effects The most prominent violations of the Baathist regime in Iraq. 4-Environmental crimes of the Baath regime in Iraq. 5-Mass grave crimes. 6-Violations of Iraqi laws			

Module 19

Code	Course/Module Title	ECTS	Semester
CE221	**Strength of Materials II**	**6.00**	**4**
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
3	**2**	**78**	**72**
Description			
On completion of the module, the student is expected to be able to: LO#1- Understand the basics of the strength of materials, and the effect of forces, moments, stresses, and strains on materials' behavior. LO#2- applies the principle of static, forces, and equilibrium moments to rigid bodies and 2D structures to determine internal stresses. LO#3- applies the principle of static, forces, and equilibrium moments to rigid bodies and 2D structures to determine internal strains. LO# 4-Discusses and solves problems related to Hooke's law, deformations in axially loaded bars, deformations in a system of axially loaded bars, statically indeterminate axially loaded members, and thermal effects on axial deformation.			

Module 20

Code	Course/Module Title	ECTS	Semester
CE222	**Fluid Mechanics II**	**6.00**	**4**
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
2	4	**93**	**57**
Description			
The fluid mechanics staff's goal is to give students a thorough understanding of fluid mechanics' foundational ideas, theories, and practical applications. We want to foster a profound understanding of the importance of fluid dynamics in diverse engineering fields and sectors. Our course aims to provide a solid grounding in the fundamentals of fluid mechanics through interesting lectures, lively discussions, and practical experiments. We work hard to help students hone their analytical and problem-solving abilities so they can accurately assess and forecast fluid behavior in real-world situations. We are dedicated to fostering a welcoming and inclusive learning atmosphere that promotes critical thinking, active involvement, and teamwork . By placing a strong emphasis on how fluid mechanics principles may be applied to actual problems, we give students the tools they need to successfully handle challenging engineering issues.			

Module 21

Code	Course/Module Title	ECTS	Semester
CE223	**Concrete Technology**	**4.00**	**4**
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
2	**2**	**63**	**37**
Description			
1. When a material with high resistance, defined by good performance, high durability, and fire resistance is required, it is great to introduce students to the most commonly used structural material in the discipline of civil engineering. 2. Give students the engineering knowledge and hands-on experience they need to understand the characteristics and behavior of construction materials as well as the key determinants of the quality of construction materials produced in various construction industries. 3. Gaining knowledge of how to do laboratory tests on construction materials and their components in accordance with Iraqi and international standards.			

Module 22

Code	Course/Module Title	ECTS	Semester
CE224	**Building Construction**	**4.00**	**4**
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/sem)**
2	**2**	**63**	**37**
Description			
After successful completion of the module, students should be able to: 1.How to use the multiples and sub-multiples of SI units likely to be used in the construction industry 2. The nature and the function of a building and recognize the building as a technology. 3. How to use the various options of excavation and trench support methods. With the primary function of any trench and excavation support method. 4. Explains type of buildings and their usage aims. 5. Explains construction stages. 6. Explain properties of building elements and prepare the drawings. 7.Explains functions of building elements. 8. Explains types and properties of foundations The student prepares foundation plans of buildings. 9. Expresses properties of different wall structures.			

Module 23

Code	Course/Module Title	ECTS	Semester
CE225	Engineering Economics	4.00	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	2	63	37
Description			
1.Description and role: define engineering economics and describe its role in decision making. 2.Engineering economic study approach: understand and identify the steps in an engineering economic study. 3.Ethics and economics: identify areas in which economic decisions can present questionable ethics. 4.Interest rate: perform calculations for interest rates and rates of return. 5.Terms and symbols: identify and use engineering economic terminology and symbols.			

Module 24

Code	Course/Module Title	ECTS	Semester
CE226	Construction Drawing	4.00	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	2	63	37
Description			
1) Definition of different structural components. 2) Explain different types of buildings. 3) Demonstration of different types of foundations and how to draw them by using AutoCAD. 4) Demonstration of different types of Beams and columns and how to draw them by using AutoCAD. 5) Demonstration of different types of slabs and how to draw them using AutoCAD.			

Module 25

Code	Course/Module Title	ECTS	Semester
UOE-2305	**Arabic II**	**2.00**	**4**
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2		33	**17**
Description			
This unit addresses the fundamentals of the Arabic language from a linguistic and historical perspective, reviewing its Semitic roots, its development over the ages, and its current status as a global language. It familiarizes the student with the status of Arabic as a language of identity, culture, and knowledge, and explores its phonetic, grammatical, and structural characteristics, in addition to its writing system and rich vocabulary. The unit also highlights the role of Arabic in communication, literary, and intellectual production, and focuses on developing essential language skills (reading, writing, listening, and speaking) within its cultural context.			

5. Contact

Chairman of the Scientific Committee:
Abbas Hadi Abbas | Master of Civil Engineering | Professor.
e-mail: abbas.hadi@uosamaeea.edu.iq
Mobile number: 009647702646694

Program Manager:
Khaled Hamid Latif |PhDIn Civil Engineering | Assistant Professor.
Email: eng.khalid.hameed@gmail.com
Mobile number: 009647713444506
Program Coordinator:

Hatim Abdel Karim Alwan | Master's in Civil Engineering | Assistant Lecturer.
Mobile number: 009647702525998
Email:Hatimhh2001@gmail.com
hatim@uosamarra.edu.iq

Program Coordinator:

Abdullateif Abdulhabar Hasan | Master's in Civil Engineering | Assistant Lecturer.

e-mail: latief.abd.h@uosamarra.edu.iq

Mobile number: 009647702551733