	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al_Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	APPLICATIONS OF STATISTICS IN CIVIL ENGINEERING		**Module Delivery**	
Module Type	BASIC		**Theory lecture**	
Module Code	CIV025			
ECTS Credits	7			
SWL (hr/sem)	175			
Module Level	1	**Semester of Delivery**	2	
Administering Department	Civil engineering	**College**	Engineering	
Module Leader	sally Muwafaq Talib	**e-mail**	Sallay.muwafaq@uowa.edu.iq	
Module Leader's Acad. Title	Assist. Lect.	**Module Leader's Qualification**	Msc	
Module Tutor		**e-mail**		
Peer Reviewer Name		**e-mail**		
Review Committee Approval	2024/9/26	**Version Number**	1.0	

Relation With Other Modules

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. To develop problem solving skills and understanding of statistical basics. 2. To understand different types of statistical datasets and how represent it in different ways, such as, tables and graphs. 3. To describe the datasets using numerical ways, such as, central measurements, the datasets distribution and dispersion. 4. To understand the basics of the probability theory. 5. To understand probability distributions, for example, discrete probability distribution, normal distribution, and binomial distribution. 6. To understand the basic of regression analysis and correlations, with more focus on the linear regression.
Module Learning Outcomes	1. Understanding the definition of statistics and statistical data collection methods. 2. Representing datasets in graphical and tables forms. 3. Determining central measurements, mean, mode and median of a dataset. 4. Determining standard deviation, variance, and variance coefficient of a dataset. 5. Describing a dataset using its quartiles, percentiles and deciles. 6. Defining the shape of a dataset's curve using kurtosis and skewness. 7. Defining the probability theory. 8. Explaining conditional probability. 9. Describing events' types, and describing mutually exclusive events. 10. Explaining the permutations and combinations, multiplication base and summation base in the probability theory. 11. Defining sampling distribution of computational media. 12. Understanding discrete probability distributions, binomial distribution. 13. Understanding polynomial distribution, Poisson distribution. 14. Understanding related Probability distributions, the normal distribution. 15. Understanding correlation and linear regression.
Indicative Contents	Indicative content includes the following. The definition of statistics and statistical data collection methods. Representing datasets in graphical (i.e. histograms, pie charts, ogives, polygons) and tables (i.e. frequency distribution tables) forms. Determining central measurements y using mean, mode, midrange and median. Determining standard deviation, variance, and variance coefficient of a dataset. Describing a dataset using its quartiles, percentiles and deciles. Defining the shape of a dataset's curve using kurtosis and skewness. Defining the probability theory. Explaining conditional probability. Describing events' types, and describing mutually exclusive events. Explaining the permutations and combinations, multiplication base and summation base in the probability theory. Defining sampling distribution of computational media.

	Understanding discrete probability distributions, binomial distribution. Understanding polynomial distribution, Poisson distribution. Understanding related Probability distributions, the normal distribution. Understanding correlation and linear regression.

Learning and Teaching Strategies

Strategies	The main strategy that will be adopted in delivering this module is due to the students' contribution in class discussions and problem solving, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive explaining the module basics and by considering types of examples that are interesting to the students.

Student Workload (SWL)

Structured SWL (h/sem)	93	**Structured SWL (h/w)**	6
Unstructured SWL (h/sem)	82	**Unstructured SWL (h/w)**	5
Total SWL (h/sem)	175		

Module Evaluation

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO # 1, 2; 6 and 7
	Assignments	2	10% (10)	2, 12	LO # 1,2,3,4; 5, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100%(100)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Introduction of statistic, Identify sources, Statistical terms, selections of information.
Week 2	Statistical distributions, Frequency Tables Represent the distributions graphically
Week 3	Measures of central tendency (mean, mode, and median), the geometric mean, harmonic mean. Compared of Measures of central tendency (mean, mode, and median)
Week 4	Change and dispersion measurements; standard deviation, variance and coefficient of

	variation.
Week 5	Measures of position (percentiles, deciles, quartiles)
Week 6	Measures of shape (kurtosis and Skewness).
Week 7	Principles of the theory of probability (Introduction), Vin Graph. Intersection and Union in the theory of probability
Week 8	Conditional probability
Week 9	Independent events, mutually exclusive events
Week 10	permutations and combinations, Multiplication base and summation base
Week 11	Sampling distribution of computational media
Week 12	Discrete probability distributions, binomial distribution
Week 13	Polynomial distribution, Poisson distribution
Week 14	Related Probability distributions, the normal distribution
Week 15	Correlation and linear regression
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	لا يوجد
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1. Mann, Prem S. "INTRODUCTORY STATISTICS", John Wiley &Sons, 5th edition, 2003. 2. د. نعمة حمد عمارة وسحر شاكر توفيق: الإحصاء وتطبيقاته الهندسية	Yes
Recommended Texts	Bluman, Allan G. "Elementary Statistics A Step by Step Approach", Mc Grew Hill, 2012	No
Websites		

APPENDIX:

GRADING SCHEME				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al_Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	COMPUTER SCIENCE		**Module Delivery**	
Module Type	BASIC		**Theory** **lecture** **lab**	
Module Code	UoW022			
ECTS Credits	3			
SWL (hr/sem)	75			
Module Level	1	**Semester of Delivery**	2	
Administering Department	Civil engineering	**College**	Engineering	
Module Leader	Thaer Taher Atshan	**e-mail**	thaertahir@uowa.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	M.Sc.	
Module Tutor		**e-mail**		
Peer Reviewer Name		**e-mail**		
Review Committee Approval	2024/9/26	**Version Number**	2024	

Relation With Other Modules

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	1. This course aims to define students everything related to the computer in terms of its physical parts or operational programs. 2. Study the Windows operating program, what are its parts, and how to deal with it. 3. Studying the most used application software on computers, which is the Office program with all its parts such as Word, Excel and PowerPoint. 4. Studying the BASIC language in writing programs and how to apply them in a way that suits the specialty of civil engineering. 5. Practical application of all that we study on the computer in a way that is appropriate for civil engineering.
Module Learning Outcomes	1. Define Types of Computers, Computers Operations, Computer Hardware, System Units, Memory Speed, Types of Memory, Computer Software. 2. Define Numbering Systems, Decimal System, Binary system, Octal System, Hexadecimal System. 3. Define Windows 7 and Microsoft office2010 4. Programming in QBasic 5. Programming Control Statements and Loop in QBasic 6. Programming Matrices in QBasic
Indicative Contents	Indicative content includes the following. Introduction to Computers, Types of Computers, Computers Operations, Computer Hardware, System Units, Memory Speed, Types of Memory, Computer Software [10 hrs]. Numbering Systems, Decimal System, Binary system, Octal System, Hexadecimal System [6 hrs] Windows 7 (The Desktop, Task Bar, The start menu, The Search Box, Libraries, Control Panel.) [6 hrs] Microsoft office2010 (Microsoft word, Microsoft exel, Microsoft PowerPoint) [12 hrs] Programming in QBasic: Introduction, Starting QBASIC , Keys in Qbasic, QBASIC language Contents Constants and Variables In QBASIC [12 hrs] Arithmetic Expression and Library Functions, Flow Charts [7 hrs] Statements in QBASIC. [16 hrs] Control Statements and Loop [16 hrs] Matrices [10 hrs]

Learning and Teaching Strategies	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)			
Structured SWL (h/sem)	48	**Structured SWL (h/w)**	6.5
Unstructured SWL (h/sem)	27	**Unstructured SWL (h/w)**	4
Total SWL (h/sem)	75		

Module Evaluation

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 3 and 6
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 5 and 6
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	-	0% (10)	-	-
Summative assessment	**Midterm Exam**	2 hr	20% (10)	7	LO # 1-6
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		100%(100)

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to Computers (Types of Computers, Computers Operations, Computer Hardware), System Units, Memory Speed, Types of Memory, Computer Software and Numbering Systems.
Week 2	Windows 7
Week 3	Windows 7

Week 4	Microsoft office
Week 5	Microsoft office
Week 6	Microsoft office
Week 7	Programming in QBasic: Introduction, Starting QBASIC , Keys in Qbasic QBASIC language Contents Constants and Variables In QBASIC
Week 8	Arithmetic Expression and Library Functions, Flow Charts
Week 9	Statements in QBASIC)Rem Statement, Cls Statement, Const Statement, Let Statement, Read-Data Statement, Input statement, Print Statement, End Statement)
Week 10	Control Statements (GOTO Statement, ON…GOTO Statement, IF…THEN Statement, Compound IF … then, Counter Instructions, The For and Next statements)
Week 11	Loops and Loops type
Week 12	Loops and Loops type
Week 13	Multiplication for Matrices& Algebraic Sum for Matrices
Week 14	Matrices' Variables
Week 15	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Lab 1: Application for Microsoft word2010
Week 2	Lab 2: Application for Microsoft exel2010
Week 3	Lab 3 Application for Microsoft PowerPoint 2010
Week 4	Lab 4: Application for writing in QBasic.
Week 5	Lab 5: Application for writing control statements in QBasic.
Week 6	Lab 6: Application for writing Loops in QBasic.
Week 7	Lab 7: Application for writing Matrices in QBasic.

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	• البرمجة بلغة البيسك ل مهدي فاضل موسى	Yes

Recommended Texts	• QBASIC Programming Without Stress by Akinola Adeniyi • A Manual for BASIC BY Trustees • Beginner's Programming Tutorial in QBasic by susan A.K. • Computer Programming in QBasic by Felix lyme • PROGRAMMING IN QBASIC by Lubna Zaghlul • Practical Computing with QBASIC by C. K. Ayo • نسخة معتمدة من اليونسكو ICDL الرخصة الدولية لقيادة الحاسب الآلي • اساسيات البرمجة بلغة البيسك ل ميخائيل رياض • برمجة الكويك بيسك ل أسامة الخ	No.
Websites	-	

APPENDIX:

GRADING SCHEME				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al_Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	CONSTRUCTION MATERIALS	**Module Delivery**	
Module Type	CORE	**Theory** **Lecture** **Lab**	
Module Code	ENG016		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	1	**Semester of Delivery**	1
Administering Department	Civil Engineering	**College**	Engineering
Module Leader	Hibatallah abd alameer	**e-mail**	Hiba.allah@uowa.edu.iq
Module Leader's Acad. Title	Assist lecturer	**Module Leader's Qualification**	Msc.
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Review Committee Approval	2024/9/26	**Version Number**	1.0

Relation With Other Modules

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	The course aims to: 1. Introduce students to the basic concepts of different building materials. 2. Identify the raw materials and manufacturing methods of building materials Identify the engineering properties of building materials. 3. Identify the requirements of standard specifications for the use of building materials. 4. Identify the laboratory tests that are conducted on building materials for quality control purposes. 5. Identify the different uses of materials in the construction industry.
Module Learning Outcomes	1. Learn about the classification of materials in general and their most important properties. 2. Learn about the mechanical properties of materials in general and solve examples related to them. 3. Learn about the definition of bricks, their classification, their most important types, raw materials and manufacturing methods. 4. Learn about the physical properties of bricks and the most important tests conducted on bricks and learn about the requirements of Iraqi specifications. 5. Learn about other types of building units such as bricks, concrete blocks, cellular concrete blocks, and the raw materials used in their manufacture, manufacturing methods and engineering properties. 6. Learn about the types of stones used in construction, their formation methods, methods of preparation and the most important engineering properties. 7. Learn about the most important binding materials such as cement, gypsum and lime, their manufacturing methods, the most important tests conducted on them and their most important physical and chemical properties. 8. Learn about the most important types of tiles used in floors, manufacturing methods, raw materials used in the industry, the most important tests and requirements of the Iraqi specification
Indicative Contents	Indicative content includes the following: 1. Overview of Materials and Building/Structural Types (Historic, Current) , Principal ,Properties of Building Materials, Physical Properties (Density, Bulk Density, Porosity, Water Permeability, etc) Mechanical Properties (Strength, Hardness, Elasticity, Plasticity) [10 hrs] 2. Structural Clay Products (Clay and its Classification, Physical Properties, Bricks, Classification and Characteristics of Good Bricks, etc) [8] 3. Other type of building units such as concrete blocks , sand lime bricks autoclaved aerated concrete blocks , etc… [8 hrs]

	4. Rocks and Stones (Classification of Rocks, Quarrying of Stones, Uses of Stones, Characteristics of good Building Stone, Deterioration of Stones, Durability of Stones, Preservation of Stones, Selection of Stones, Common Building Stones, Artificial Stones, Applications of Stones) [4 hrs] 5. Types of Trees for Timber Production, Structure of a Tree, Processing of Timber, Preservation of Timber, Wood Defects as They Affect Wood Strength, Mechanical 6. Properties of wood.[8 hrs] 7. Ferrous Metals and Alloys (Iron, Cast Iron, Wrought Iron, Steel, Rolled Steel, Reinforcing Steel Bars , stress stain diagram [8 hrs]

Learning and Teaching Strategies

Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)

Structured SWL (h/sem)	93	**Structured SWL (h/w)**	6.0
Unstructured SWL (h/sem)	82	**Unstructured SWL (h/w)**	5.5
Total SWL (h/sem)	175		

Module Evaluation

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10
	Assignments	2	5% (5)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	5% (5)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Classified of Engineering Materials and its properties, Mechanical properties of materials, type of forces.
Week 2	Exercises on Mechanical properties of materials.
Week 3	Clay Brick, Definition, Classification of clay brick , Raw materials, Production methods of clay brick, Stages of clay brick industry and type of furnaces used ,
Week 4	Engineering properties of clay brick and tests of brick,
Week 5	Other types of brick (Concrete Blocks and sand-lime brick , autoclave aerated concrete blocks)
Week 6	Building Stone: Definition, Geological Classification of stone, Preparation of stone, Utilization, Engineering properties of stone
Week 7	Mid-term Exam
Week 8	Tiles: Definition, Types of tiles, Terrazzo tiles, Ordinary tiles , Raw materials and industry, Engineering properties of tiles, Utilization of tiles
Week 9	Bonding materials: Definition, Types of bonding materials, Utilization of bonding materials, Cement Mortar, Definition, Utilization, Properties, Lime: Definition, Classification, Raw material and industry
Week 10	Utilization of lime, Properties of lime mortar, and cement and lime mortar, Gypsum: Definition, Classification, Raw materials and industry, Utilization of Gypsum, Properties of gypsum of mortar, Tests of gypsum
Week 11	Cement: Definition, Raw materials and industry, Utilization, Chemical composition of cement and its physical properties, Types of Portland and non-Portland cement.
Week 12	Wood: Definition, Types if wood, Utilizations of wood in construction , Engineering properties of wood, methods of drying and chemical treatment of wood , Dimensional changes of wood, Defect of wood, Tests of wood.

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1&2	Introduction to The Construction Materials Lab , Student Responsibilities ,How to write report .
Week 3&4	Tests of Clay Bricks : Dimensions Test and Water Absorption Test on Bricks
Week 5&6	Tests of Clay Bricks: Determination of Efflorescence of bricks and Compressive Strength of Bricks
Week 7&8	Tests of Tiles : Dimension and Shape Test and Modulus of rupture test of tile

Week 9&10	Tests of Tiles: Water Absorption Test of Tiles (Total absorption Test and Face absorption of tiles)
Week 11&12	Gypsum test: Gypsum fineness and Standard Consistency of Gypsum
Week 13&14	Gypsum test: Setting time of gypsum and Compressive strength of gypsum

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	1.Building Materials,S. K. Duggal 3rd ed., 2008 ,New Delhi.	
Recommended Texts	2.Civil Engineering Materials, N. Jackson and V. K. Dhir , 5th ed. 1996.	No
Websites	1.Materials for civil and construction engineers, M. S.	

APPENDIX:

GRADING SCHEME				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al_Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	ENGINEERING DRAWING		**Module Delivery**	
Module Type	BASIC		**Theory** **lecture** **lab** **practical**	
Module Code	ENG014			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	1	**Semester of Delivery**	1	
Administering Department	Civil engineering	**College**	Engineering	
Module Leader	Hibatallah abd alameer	**e-mail**	Hiba.allah@uowa.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	M.Sc.	
Module Tutor		**e-mail**		
Peer Reviewer Name		**e-mail**		
Review Committee Approval	2024/9/26	**Version Number**	1.0	

Relation With Other Modules

Prerequisite module	None	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	The module aims to provide students with a solid understanding of the fundamental concepts and techniques of linear algebra. This includes the study of linear equations. Students will also learn how to apply these concepts to solve real-world problems in various fields such as engineering, physics, economics, and computer science. By the end of the module, students should be able to manipulate and analyze mathematical models using linear algebraic tools and communicate their findings effectively.
Module Learning Outcomes	1. This course discusses the fundamental concepts of engineering graphics. It gives also an introduction to computer graphics using CAD software. 1 . aimed to covered 2. Drawing conventions such as standards, line types and dimensioning 3. Drawing of inclined and curved surfaces 4. Deducting the orthographic views from a pictorial 5. Drawing full and half sections , deducting an orthographic view from given two views 6. Pictorial sketching (isometric and oblique)
Indicative Contents	Recognize the value of engineering graphics as a language of communication.. . Comprehend and deduce orthographic projections of an object. 4. Visualize wide variety of objects and drawing the missing views. 5. Comprehend and deduce section views. 5
Learning and Teaching Strategies	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)			
Structured SWL (h/sem)	93	**Structured SWL (h/w)**	6.0
Unstructured SWL (h/sem)	82	**Unstructured SWL (h/w)**	5.5
Total SWL (h/sem)	150		

Module Evaluation

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	8 % (8)	5 and 10	LO #3, 4, 5 and 6
	Assignments	1	2 % (2)	14	LO # 3, 4, 5,6 and 7
	Projects / Lab.	15	15% (15)	Continuous	All
	Report	15	15% (15)	Continuous	All
Summative assessment	Midterm Exam	2hr	20% (20)	7	LO # 1-5
	Final Exam	3hr	40% (40)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	1. New Headway Plus Intermediate Student Book, Liz and Hohn Soars, 2006, Oxford University Press. 2. Writing in Paragraphs, Dorothy E Zemach and Calos Islam, 2010, Macmillan.	yes
Recommended Texts		No
Websites	News - Biomedical Engineering at the University of Michigan (umich.edu) Websites TED-Ed – YouTube BBC Learning English - 6 Minute English	

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction and Instruments
Week 2	Kufic letters1
Week 3	Principles of putting dimensions: Basic dimensions, the true dimensions, extension lines, lines of dimension
Week 4 to 6	Geometric construction: Draw an arc touches two intersecting lines, draw arc touches two brackets, draw an arc touches a straight and passes a point, draw an ellipse, draw a hexagon, draw the quinary, draw shape with eight faces, sketching inverted arc, identify points of contact
Week 7 to 9	Projections The theory of projection, the projection lines, oblique projection level, the vertical projection system, multiple projections, conclusion the third projected, draw curves and oblique surfaces on the projections
Week 10 to 11	Isometric Projection by the first even angles, projection by the third even angles, draw circles on dimensional figure, draw oblique surfaces on dimensional figure, Isometric drawing and its application
Week 12	Sections: Introduction, types of sections and symmetrical sections, cutting lines, double sections, elevations sectioned, shapes sectioned
Week 13	
Week 14	CAD Drawing Introduction to AutoCAD software, control page in AutoCAD software, types of coordinate, the command line and applications, the modified commands, the help orders in drawing, the commands circle, rectangle, offset, the command layers array, scale and aligned, the command arc with all options, the command polyline with options , types of dimensions with application examples, the command text and its types, preparing and printing options with examples
Week 14	
Week 15	

APPENDIX:

GRADING SCHEME				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
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Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
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	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al_Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	ENGINEERING GEOLOGY		**Module Delivery**	
Module Type	BASIC		**Theory lecture**	
Module Code	CIV026			
ECTS Credits	4			
SWL (hr/sem)	100			
Module Level	1	**Semester of Delivery**	2	
Administering Department	Civil engineering	**College**	Engineering	
Module Leader	Ghadeer Haitham Hasan	**e-mail**	ghadeer.haitham@uowa.edu.iq	
Module Leader's Acad. Title	Assist. Lect.	**Module Leader's Qualification**	Msc	
Module Tutor		**e-mail**		
Peer Reviewer Name		**e-mail**		
Review Committee Approval	2024/9/26	**Version Number**	1.0	

Relation With Other Modules

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	1. To develop a meaningful link between geology and civil engineering structures in context of site investigations and the project requirements. 2. To understand the behavior of different geomaterial, such as, rocks and soils. 3. To identify the occurrence, types, importance, and rules of groundwater in civil engineering context. 4. This course deals with the basic geological investigations required for megastructures, for example, dams. 5. To understand maps' basics and plotting cross sections for different subsurface settings. 6. To understand basics of geophysical techniques and geophysical site investigations.
Module Learning Outcomes	1. Recognizing how engineering geology works with different civil engineering disciplines. 2. Listing the various types of rocks and their formation. 3. Listing the various types of soils and their formation. 4. Representing the types, and rules of groundwater on civil engineering projects. 5. Summarizing what is meant by geological investigations for tunnels as megastructures 6. Summarizing what is meant by geological investigations for dams as megastructures. 7. Identifying the importance of physical properties of rocks on rocks' behavior. 8. Identifying the importance of mechanical properties of rocks on rocks' behavior. 9. Explaining seismic wave's types and how earthquake events can effect on civil engineering projects. 10. Defining different types of rock slope failures. 11. Describing variations in topography using contour maps, plotting contour maps 12. Describing subsurface attitude (i.e. horizontal layers) using two dimensional cross-sections. 13. Understating geophysics principles, data collection, and its importance for indirect geophysical site investigations. 14. To explain seismic surveys' types and techniques, their advantages and limitations. In addition to know the geotechnical parameters that can be determined using seismic methods.

	15. To explain electrical resistivity basics and applications for site investigations.
Indicative Contents	1. Indicative content includes how to Recognizing engineering geology subject works with different civil engineering disciplines , listing the various types of rocks and their formation and the various types of soils and their formation Representing the types, and rules of groundwater on civil engineering projects. Summarizing what is meant by geological investigations for megastructures such as dam or tunnels. Explaining seismic wave's types and how earthquake events can effect on civil engineering projects, defining different types of rock slope failures. Describing variations in topography using contour maps, plotting contour maps, describing subsurface attitude (i.e. horizontal layers) using two dimensional cross-sections. Understating geophysics principles, data collection, and its importance for indirect geophysical site investigations.
Learning and Teaching Strategies	
Strategies	The main strategy that will be adopted in delivering this module by refining and expanding the students' knowledge and critical thinking skills. This will be achieved through delivered classes, discussions, interactive tutorials, and by considering types of real case scenarios involving some examples of civil construction around the world that are interesting to the students, for example, Al-Jumeirah palm tree-Dubai.

Student Workload (SWL)			
Structured SWL (h/sem)	63	**Structured SWL (h/w)**	4
Unstructured SWL (h/sem)	37	**Unstructured SWL (h/w)**	2
Total SWL (h/sem)	100		

Module Evaluation					
		Time/ Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10%(10)	5,10	LO # 3,4,5; 6, and 7
	Assignments	2	10%(10)	2, 12	LO # 1,2; 8,9 and 10
	Projects / Lab.	1	10%(10)	Continuous	All
	Report	1	10%(10)	13	LO All
	Midterm Exam	2hr	50%(50)	7	LO # 1-8

Summative assessment	**Final Exam**	2hr	60%(60)	16	All
Total assessment			100%(100)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	An introduction to engineering geology and its importance for civil engineers
Week 2	Types of rocks
Week 3	An introduction to soil and soil types
Week 4	Groundwater
Week 5	Geological investigations for tunnels
Week 6	Geological investigations for dams and reservoirs
Week 7	Rock mechanics I
Week 8	Rock mechanics II
Week 9	Earthquake
Week 10	Rock slope stability
Week 11	Maps I (contour maps, and geological maps)
Week 12	Maps II (cross sections for horizontal and inclined strata)
Week 13	Geophysics I (An introduction to geophysics)
Week 14	Geophysics II (seismic method)
Week 15	Geophysics III (electrical resistivity method)
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Not available

Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Engineering Geology , university of Basrah , 2001	Yes
Recommended Texts	1- Practical engineering geology, Steve Hencher, Spon press. An introduction to applied and environmental geophysics, John M. Reynolds, Wiley-Blackwell.	No
Websites		

APPENDIX:

GRADING SCHEME				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al_Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	HUMAN RIGHTS AND DEMOCRACY	**Module Delivery**	
Module Type	BASIC	**Theory lecture**	
Module Code	UoW012		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1	**Semester of Delivery**	1
Administering Department	Civil Engineering	**College**	Engineering
Module Leader	Qassim Ali Husain	**e-mail**	Qassim.Ali @uowa.edu.iq
Module Leader's Acad. Title	Assistant Professor Dr.	**Module Leader's Qualification**	Ph.D.
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Review Committee Approval	2024/9/26	**Version Number**	1

Relation With Other Modules

Prerequisite module	None	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	•Study and review the historical and human events that led to the crystallization of human trends to establish laws and systems that approved human rights and freedoms. •Making the student understand that achieving human rights and freedom is the way to elevate and advance societies, as enjoying them enhances human skills and abilities that he uses to serve his country, its progress and civilization. •Developing the student's ability, skills and legal cultures. A- Cognitive objectives: .1Making the student understand and educate the principles of human rights and his right to enjoy freedom in all areas of life. .2Making the student understand the methods of purposeful thinking to solve the problems facing societies that do not know how to deal with the requirements of human rights and freedom, and practice them incorrectly and backwardly. .3Enabling students to obtain knowledge and understanding of systems and laws and their gradations, and how to adopt freedom and the nature of its implementation. .4Developing the student's ability, skills and legal cultures, and reviewing the types of rights and freedoms, and the governmental and political trends in their application.
Module Learning Outcomes	•Making the student understand the importance of human rights and freedoms that emerge from their concern with the human being, as he is the basic element in the state. •Providing the student with the skills to use and understand political terms, and to identify the most prominent historical and human events that called for human rights and freedoms. •Enabling the student to manage political, legal and analytical dialogues of governmental and political positions. •Developing the student's ability, skills and legal cultures**.**
Indicative Contents	Linguistic and technical meaning of human rights (2) hours. Characteristics of natural personality and characteristics of human rights (2) hours. The most important basic human rights (2). hours Human rights in Eastern and Western civilizations: • Mesopotamian civilization (1 hour). • Greek and Roman civilization (1 hour). Human rights in Islamic law and the Renaissance (2) hours. Intellectual contributions to the development of human rights (2) hours. Personal and intellectual rights and freedoms:

	• The right to life (1 hour). • Freedom of opinion (1 hour). The right to equality and economic freedoms: • The right to ownership and work (2 hours). Legal, judicial, and political means to protect human rights (3 hours). Description of objects, processes, and diagrams [7 hours]

Learning and Teaching Strategies

Strategies	Lectures are given in a live format, in addition to showing visual or film material to help the student understand the scientific content.

Student Workload (SWL)

Structured SWL (h/sem)	33	**Structured SWL (h/w)**	2
Unstructured SWL (h/sem)	17	**Unstructured SWL (h/w)**	1
Total SWL (h/sem)	50		

Module Evaluation

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10%(10)	5,10	LO#and2
	Assignments	2	10%(10)	6,12	All
	Report	1	10%(10)	13	LO#6
Summative assessment	**Midterm Exam**	2hr	20%(10)	7	All
	Final Exam	3hr	50%(50)	16	All
Total assessment			100%(100)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Linguistic and technical meaning of human rights
Week 2	*Characteristics of the natural personality *Characteristics of human rights * The most important basic human rights
Week 3	-Human rights in Eastern civilizations and societies -Mesopotamian civilization - Nile Valley civilization
Week 4	-Human rights in Western civilizations -Greek civilization

	-Roman civilization
Week 5	-Human rights in the Renaissance and the beginning of the modern era -Human rights in Islamic law
Week 6	-Intellectual contribution to the development of human rights among the Greeks -Contribution to the development of human rights among the Romans
Week 7	Intellectual and philosophical contribution to the development of human rights -Renaissance -Modern era - Appreciation of the theories of natural law and the social contract
Week 8	Personal rights and freedoms -The right to life -The right to dignity -The right to privacy -The right to residence and movement - The right to nationality
Week 9	Intellectual rights and freedoms -Freedom of belief and religion -Freedom of opinion (freedom of expression) -Freedom of assembly or meeting - Freedom of the press
Week 10	Right to participate in public affairs -Political rights - Right to employment
Week 11	The right to equality -The concept of the right to equality - Manifestations of the right to equality
Week 12	Economic freedoms -Freedom of ownership -Freedom of trade and industry -Right to work - Social security
Week 13	Legal means Constitutional means Ordinary legislation
Week 14	Judicial means Control of the constitutionality of the law Control of administrative actions
Week 15	Political means Political means in the domestic sphere Political means in the foreign sphere
Week 16	Preparation week before the final exam

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	التعليم العالي والبحث العلمي. حقوق الإنسان في الإسلام // حقوق الإنسان: المفهوم والخصائص والتصنيفات والمصادر // حقوق الإنسان في التربية الإسلامية وبعض الفلسفات التربوية الغربية دراسة مقارنة// التربية على المواطنة وحقوق الإنسان : فهم مشترك للمبادئ والمنهجيات// الحقوق الاقتصادية والاجتماعية والثقافية دليل للمؤسسات الوطنية لحقوق الإنسان	yes
Recommended Texts	النظرية التربوية: معناها ومكوناتها// الخصوصية الثقافية والترويج لتعليم حقوق الإنسان//المواطنة في فكر الغرب المعاصر // المواطنة في فكر الغرب المعاصر	No
Websites		

APPENDIX:

GRADING SCHEME				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al_Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	**MATHEMATICS II**	**Module Delivery**	
Module Type	BASIC		☒ **Theory** ☒ **Lecture** **Lab** ☒ **Tutorial** **Practical** **Seminar**
Module Code	ENG023		
ECTS Credits	6		
SWL (hr/sem)	150		

Module Level	1	**Semester of Delivery**	2
Administering Department	Civil Engineering	**College**	Engineering
Module Leader	Zahraa Khalil Hussein	**e-mail**	Zahraa.khaleel@uowa.edu.iq
Module Leader's Acad. Title	Assist.prof	**Module Leader's Qualification**	PhD
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Review Committee Approval	2024/9/26	**Version Number**	1

Relation With Other Modules

Prerequisite module	**MATHEMATICS I**	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	The aims of a mathematics module are to provide students with an understanding of mathematical concepts, skills, and techniques that can be applied to a range of real-world problems. This includes topics such as An introductory class in the theory and techniques of differentiation and integration ofalgebraic and trigonometric functions. Additionally, the module aims to prepare students for future academic and professional pursuits that require mathematical proficiency
Module Learning Outcomes	On successful completion of this module, students will be able to: 1. Find the domain and range of a function and graphs. 2. Evaluate limits, and determine continuity and differentiability offunctions. 3. Apply rules of calculus to solve engineering problems including differentialequations. 4. Differential calculus, these concepts are used to analyze rates of change,optimization problems, and the behavior of functions in engineering applications. 5. Integration: Table of integrals, Rules of integration, Definite integrals,Area bounded by curves, Integration by parts, Integration by substitution and using partial fractions. 6. Student should use more than one method to solve the integration. 7. Express and evaluate a double and triple integral in terms of the Cartesian. 8. Calculate area, volume, and surface area of integral. 9. Application of Integration: Centres of mass, Moments of inertia.
Indicative Contents	The Indicative Contents of a Mathematics module will depend on the level andscope of the course. However, some common topics that may be covered in a mathematics module include: 1- Arithmetic: Basic mathematical operations such as addition, subtraction,multiplication, and division. 2- Algebra: The study of mathematical symbols and the rules for manipulatingthese symbols to solve equations and represent real-world situations. 3- Geometry: The study of shapes, sizes, positions, and measurements of objectsin space. 4- Calculus: The study of mathematical concepts such as limits, derivatives, andintegrals. Overall, the Indicative Contents of a Mathematics module aims to provide students with a comprehensive understanding of mathematical concepts and their applications in various fields of study.

Learning and Teaching Strategies	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achievedthrough classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)			
Structured SWL (h/sem)	87	**Structured SWL (h/w)**	6
Unstructured SWL (h/sem)	80	**Unstructured SWL (h/w)**	2
Total SWL (h/sem)	105		

Module Evaluation

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO # 1, 201, and 00
	Assignments	2	10% (10)	2, 12	LO # 3,4; 6, and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100%(100)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	**Functions:** Domain and Range, Functions and their graphs, Trigonometric Functions.
Week 2 **Week 3**	**Limits and Continuity:** Limit of a Function and Limit Laws, One-Sided LimitsContinuity, Limits Involving Infinity, Asymptotes of Graphs.

Week 4 Week 5 Week 6	**Derivatives**: Tangent Lines and the Derivative at a Point, The Derivative as a Function,Differentiation Rules, Derivatives of Trigonometric Functions, The Chain Rule, ImplicitDifferentiation, Linearization and Differentials.
Week 7 Week 8 Week 9	**Applications of Derivatives:** Extreme Values of Functions, The Mean Value Theorem, Monotonic Functions and the First Derivative Test, Concavity and Curve Sketching, AppliedOptimization, Antiderivatives
Week 10 Week 11 Week 12	**Integrals:** The Definite Integral, The Fundamental Theorem of Calculus, Indefinite Integralsand the Substitution Method, Definite Integral Substitutions and the Area Between Curves.
Week 13 Week 14 Week 15	**Applications of Definite Integrals:** Volumes using Cross-Sections, Volumes using Washerand Cylindrical Shells methods, Arc Length, Areas of Surfaces of Revolution, Work and Fluid Forces, Moments and Centers of Mass.
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	George B. Thomas Jr., "CALCULUS", 14th Ed	Yes
Recommended Texts	1. Erwin Kreyszig, "Advanced EngineeringMathematics", 10th Ed. 2. Schaum's Outline of College Mathematics, FourthEdition. Mary Attenborough, "Mathematics for Electrical Engineering and Computing", 1st Ed.	No
Websites	Topics in Calculus -Wolfram Mathworld.	

APPENDIX:

GRADING SCHEME				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D-Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al_Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	ENGINEERING MECHANICS		**Module Delivery**	
Module Type	BASIC		**Theory lecture**	
Module Code	CIV024			
ECTS Credits	8			
SWL (hr/sem)	200			
Module Level	1	**Semester of Delivery**	2	
Administering Department	Civil engineering	**College**	Engineering	
Module Leader	Israa Hasan Nayel	**e-mail**	israa.nayel@uowa.edu.iq	
Module Leader's Acad. Title	Assist prof. doctor	**Module Leader's Qualification**	PhD	
Module Tutor		**e-mail**		
Peer Reviewer Name		**e-mail**		
Review Committee Approval	2024/9/26	**Version Number**	1.0	

Relation With Other Modules

Prerequisite module	Physics	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	1. Understanding the fundamental of geometric properties of shapes. 2. Developing a foundation in truss and friction analysis that students can build upon in future studies.
Module Learning Outcomes	1. Analyzing of truss structures. 2. Finding the centroids of lines, areas and volumes. 3. Finding the centroids of composite shapes. 4. Finding the moment of inertia of single shapes. 5. Finding the moment of inertia of composite shapes. 6. Finding the product of inertia of single shapes. 7. Finding the product of inertia of composite shapes. 8. Understanding friction problems.
Indicative Contents	Indicative content includes the following. - The fundamental concepts necessary forces analysis of trusses. - The properties of shapes - The friction problems.

Learning and Teaching Strategies

Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)

Structured SWL (h/sem)	93	**Structured SWL (h/w)**	6
Unstructured SWL (h/sem)	107	**Unstructured SWL (h/w)**	7
Total SWL (h/sem)	200		

Module Evaluation

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1-3
	Assignments	2	10% (10)	2, 12	LO # 1-3
	Projects / Lab.	1	10% (10)	Continuous	All

	Report	1	10% (10)	13	LO # 2-4
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1
	Final Exam	3hr	50% (50)	16	All
Total assessment			100%(100)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Introduction to trusses
Week 2	Analyzing trusses
Week 3	Examples on trusses
Week 4	Friction
Week 5	Examples on frictions
Week 6	Centroid of lines
Week 7	Mid-term Exam + Centroid of areas
Week 8	Centroid of composite areas
Week 9	Moment of inertia of single area
Week 10	Examples on Moment of inertia of single area
Week 11	Moment of inertia of composite area
Week 12	Examples on Moment of inertia of composite area
Week 13	Product of inertia of composite area
Week 14	Examples on Product of inertia of composite area
Week 15	Moher circle
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	

Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources
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	Text	Available in the Library?
Required Texts	Engineering Mechanics: Statics - Hibbeler, Russell	Yes
Recommended Texts	Engineering Mechanics, Andrew Pytel, Jaan Kiusalaas	No
Websites		

APPENDIX:

GRADING SCHEME				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al-Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	Physics		**Module Delivery**
Module Type	Basic		**Theory**
Module Code	ENG015		**Lecture**
ECTS Credits	7		**Lab**
SWL (hr/sem)	175		**Tutorial**
Module Level	1	**Semester of Delivery**	1
Administering Department	Civil Engineering	**College**	Engineering
Module Leader	Israa Hasan Nayel	**e-mail**	Sajjad.a@uokerbala.edu.iq
Module Leader's Acad. Title	Asst. Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	2024/9/26	**Version Number**	1

Relation With Other Modules

Prerequisite module	None	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. Understanding the fundamental principles of mechanical physics. 2. Developing a strong foundation in physics that students can build upon in future studies.
Module Learning Outcomes	1. Analyze the properties of forces, moments, couples, and resultants in 2D. 2. Analyze the properties of forces, moments, couples, and resultants in 3D 3. Solve equilibrium problems in 2D. 4. Solve equilibrium problems in 3D. 5. Understand basic concepts of the dynamics.
Indicative Contents	Indicative content includes the following. - The fundamental concepts necessary for the study of Physics. - The properties of forces, moments, couples, and resultants in 2D &3D - The equilibrium principles of structures. - The dynamic characteristics.

Learning and Teaching Strategies	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)			
Structured SWL (hr/sem)	108	**Structured SWL (h/w)**	6
Unstructured SWL (hr/sem)	67	**Unstructured SWL (h/w)**	4
Total SWL (h/sem)	175		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1-3
	Assignments	2	10% (10)	2, 12	LO # 1-3
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 2-4
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Introduction to Physics and Basic Concepts
Week 2	Scalars and Vectors
Week 3	Scalars and Vectors
Week 4	Newton's Laws and Units
Week 5	Rectangular Components of force in 2D
Week 6	Moment and Couple in 2D
Week 7	Mid-term Exam + Resultants in 2D
Week 8	Rectangular Components of force in 3D
Week 9	Moment, Couple and Resultants in 3D
Week 10	Equilibrium in two dimensions
Week 11	Equilibrium in two dimensions
Week 12	Equilibrium in three dimensions

Week 13	Equilibrium in three dimensions
Week 14	Introduction to dynamics.
Week 15	Introduction to dynamics
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	Workshop A
Week 2	Workshop A
Week 3	Workshop B
Week 4	Workshop B
Week 5	Workshop C
Week 6	Workshop D
Week 7	Workshop E

Learning and Teaching Resources

	Text	**Available in the Library?**
Required Texts	Engineering Mechanics STATICS J.L.Meriam And L.G.Kraige	Yes
Recommended Texts	Engineering Mechanics: Statics by Russell Hibbeler.	No
Websites		

Grading Scheme				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al_Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	ENGLISH LANGUAGE I	**Module Delivery**	
Module Type	BASIC	**Theory lecture**	
Module Code	UoW011		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	1	**Semester of Delivery**	1
Administering Department	Civil Engineering	**College**	Engineering
Module Leader	Israa mahdi kadhim	**e-mail**	israa.mahdi@uowa.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	M.Sc.
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Review Committee Approval	2024/9/26	**Version Number**	1.0

Relation With Other Modules

Prerequisite module	None	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. To review essential grammar of the language. 2. To develop writing skills in engineering topics with focus on enhancing students' abilities to deliver ideas clearly according to academic writing structure, including introduction paragraph, body paragraphs and a conclusion. To improve students' reading and comprehension skills in engineering topics, especially in prosthetics and orthotics engineering, and help them extract relevant information and summarize key points accurately. 4. To enhance students' vocabulary in engineering topics, through reading and listening activities. 5. To improve students' ability to listen effectively to different listening materials in engineering topics, understand the basic ideas, and summarize key points. 6. To improve students' ability to speak and present ideas in front of the class. 7. To enhance students' ability to engage and participate in classes through group reading or discussion.
Module Learning Outcomes	1. Students should be able to compose correct sentences according to the language grammar. 2. Students should be able to deliver well-written reports that meet the standards expected in the engineering field. 3. Students should be able to comprehend engineering documents, research papers, and manuals effectively. 4. Students should be able to understand and use technical vocabulary accurately and appropriately in their academic and professional settings. 5. Students should be able to listen to English listening materials in engineering field easily. 6. Students should be able speak in English and present ideas in public. 7. Students should be able to engage in groups and work in a team environment.

Indicative Contents	Part A - Review Grammar and Language Accuracy • Sentence structures and verb tenses in engineering contexts • Subject-verb agreement and word order • Common grammatical errors and their corrections. [8 hrs] Part B - Reading Comprehension • Reading and understanding simple technical texts and articles • Skimming and scanning techniques for technical information • Identifying main ideas and key details in engineering materials [8 hrs] Part C- Technical Vocabulary and Terminology: Vocabulary building exercises and activities Application of technical vocabulary in writing and speaking tasks [4 hrs] Part D - Writing Skills Writing short paragraphs and descriptions of engineering processes Constructing coherent sentences and organizing ideas Introduction to technical report writing and documentation. [8 hrs] Part E - Listening and Comprehension Skills Understanding spoken instructions and directions Listening to daily conversation and short stories Extracting key information from audio materials [8 hrs] Part F - Speaking Skills Participating in group discussions Practicing effective communication in team projects [7 hrs] Part G - Basic Communication Skills: Greetings, introductions, and social interactions Describing objects, processes, and diagrams [7 hrs]
Learning and Teaching Strategies	
Strategies	Strategies that are used in delivering this module is to train the students on reading, listening and writing, and that is achieved through class exercises and assignments to improve those skills. Communicative strategy: Encourage students to engage in authentic language use through pair and group work, discussions, role-plays, and real-life engineering scenarios. Multimodal Instruction: Utilize a variety of teaching resources and materials, including audiovisual materials, interactive online platforms. Incorporate visual aids, diagrams, and multimedia tools to enhance comprehension and engage visual and auditory learners. Authentic Materials: Incorporate authentic materials such as engineering articles, technical manuals, and industry reports to expose students to real-world language use in engineering contexts. This helps students develop language skills and domain-specific knowledge simultaneously. Formative Assessment: Implement regular formative assessments, such as quizzes, short writing assignments, and oral presentations, to monitor

	students' progress and provide timely feedback. Use assessment tasks to gauge language development and target areas for improvement. Self-Reflection and Self-Assessment: Encourage students to reflect on their language learning progress, set goals, and assess their own language proficiency. Promote self-directed learning by providing self-assessment tools and encouraging students to seek opportunities for autonomous language practice.

Student Workload (SWL)

Structured SWL (h/sem)	48	**Structured SWL (h/w)**	3.2
Unstructured SWL (h/sem)	27	**Unstructured SWL (h/w)**	1.8
Total SWL (h/sem)	75		

Module Evaluation

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	5%(5)	5,10	LO#and2
	Assignments	7	5%(5)	2,4,6,8,10,12 and 14	All
	Projects / Lab.	8	5%(10)	1,3,5,7,9,11, 13,and 15	All
	Report	1	5%(5)	12	LO#6
Summative assessment	**Midterm Exam**	2hr	20%(20)	7	All
	Final Exam	3hr	60%(60)	16	All
Total assessment			100%(100)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	1. It's a wonderful world! Grammar: Auxiliary verbs, naming tenses, questions and negative. Vocabulary: Social expressions, sport and Leisure. Reading: Wonders of the modern world. Writing: Topic sentences. Listening: My wonders exercise.
Week 2	2. Get happy! Grammar: Present tenses, simple and continuous, and present passive.

	Vocabulary: Numbers and dates, money and fractions. Reading: The clown doctor. Writing: Developing paragraphs with descriptive details. Listening: Sports exercise.
Week 3	3. Telling tales Grammar: Past tenses, past simple, continuous, and perfect, and past passive. Vocabulary: Art and Literature. Reading: The painter and the Writer. Writing: Using word maps to brainstorm. Listening: Books and films exercise.
Week 4	4. Doing the right thing Grammar: Modal verbs - obligation and permission. Reading: A world guide to good manners. Vocabulary: Nationality words, countries and adjectives. Writing: Review of descriptive vocabulary. Listening: Come round to my place exercise.
Week 5	5. On the move Grammar: Future forms - going to, will, and present continuous. Reading: My kind of holidays. Vocabulary: the weather, travelling around.
Week 6	6. I just love it! Grammar: Questions with like and verb patterns. Reading: Global Pizza- the history of the world's most famous food. Vocabulary: Describing food, cities and people. Writing: Paragraph explaining cause and effect/ result. Listening: New York and London exercise.
Week 7	7. The world of work Grammar: Present perfect, and present perfect passive. Reading: Dream jobs. Vocabulary: Phrasal verbs, on the phone. Writing: Expressing personal feelings about problems. Listening: The busy life of a retired man.
Week 8	8. Just imagine Grammar: Conditionals, first and second conditionals, and time clauses. Vocabulary: Base and strong adjectives. Reading: Who wants to be a millionaire. Writing: Using time expressions: after, before, and when. Listening: Who wants to be a millionaire exercise.

Week 9	9. Getting on together Grammar: Modal verbs - Probability and possibility. Vocabulary: character adjectives, agreeing and disagreeing. Reading: The man who planted trees. Writing: Writing about causes and effect relationships. Listening: Brothers and Sisters exercise.
Week 10	10. Obsessions Grammar: Present perfect continuous, questions and answers, and time clauses. Vocabulary: Compound nouns. Reading: Famous for not being famous. Writing: Summarizing all previous exercises in one writing exercise. Listening: Collectors exercise.
Week 11	11. Tell me about it Grammar: Indirect Questions, and questions tags. Reading: Engineering reading material 1. Vocabulary: Engineering terms 1. Speaking: group discussion. Listening: BBC six minutes English exercise.
Week 12	Speaking presentation. Listening: Ted video exercise.
Week 13	12. Life's great events! Grammar: Reported speech: reported statements, and reported requests and commands. Reading: Engineering reading material 2 Vocabulary: Engineering terms 2. Speaking: group discussion. Listening: Engineering listening material.
Week 14	Reading: Engineering reading material 3 Vocabulary: Engineering terms 3
Week 15	Content review
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	1. New Headway Plus Intermediate Student Book, Liz and Hohn Soars, 2006, Oxford University Press. 2. Writing in Paragraphs, Dorothy E Zemach and Calos Islam, 2010, Macmillan.	yes
Recommended Texts		
Websites	News - Biomedical Engineering at the University of Michigan (umich.edu) Websites TED-Ed – YouTube BBC Learning English - 6 Minute English	

APPENDIX:

GRADING SCHEME				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al-Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	MATHEMATICS I		**Module Delivery**	
Module Type	BASIC		**Theory** **lecture** **practical**	
Module Code	ENG013			
ECTS Credits	3			
SWL (hr/sem)	150			
Module Level	1	**Semester of Delivery**	1	
Administering Department	Civil engineering	**College**	Engineering	
Module Leader	Zahraa Khalil Hussein	**e-mail**	Zahraa.khaleel@uowa.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	M.Sc.	
Module Tutor		**e-mail**		
Peer Reviewer Name		**e-mail**		
Review Committee Approval	2024/9/26	**Version Number**	2024	

Relation With Other Modules

Prerequisite module	None	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	The aims of a mathematics module are to provide students with an understanding of mathematical concepts, skills, and techniques that can be applied to a range of real-world problems. This includes topics such as An introductory class in the theory and techniques of differentiation and integration of algebraic and trigonometric functions. Additionally, the module aims to prepare students for future academic and professional pursuits that require mathematical proficiency.
Module Learning Outcomes	On successful completion of this module, students will be able to: 1. Find the domain and range of a function and graphs. 2. Evaluate limits, and determine continuity and differentiability of functions. 3. Apply rules of calculus to solve engineering problems including differential equations. 4. Differential calculus, these concepts are used to analyze rates of change, optimization problems, and the behavior of functions in engineering applications. 5. Integration: Table of integrals, Rules of integration, Definite integrals, Area bounded by curves, Integration by parts, Integration by substitution and using partial fractions. 6. Student should use more than one method to solve the integration. 7. Express and evaluate a double and triple integral in terms of the Cartesian. 8. Calculate area, volume, and surface area of integral. 9. Application of Integration: Centres of mass, Moments of inertia.
Indicative Contents	The Indicative Contents of a Mathematics module will depend on the level andscope of the course. However, some common topics that may be covered in a mathematics module include: 1- Arithmetic: Basic mathematical operations such as addition, subtraction, multiplication, and division. 2- Algebra: The study of mathematical symbols and the rules for manipulating these symbols to solve equations and represent real-world situations. 3- Geometry: The study of shapes, sizes, positions, and measurements of objects in space. 4- Calculus: The study of mathematical concepts such as limits, derivatives, and integrals. Overall, the Indicative Contents of a Mathematics module aims to provide students with a comprehensive understanding of mathematical concepts and their applications in various fields of study

Learning and Teaching Strategies	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)			
Structured SWL (h/sem)	78	**Structured SWL (h/w)**	6.0
Unstructured SWL (h/sem)	72	**Unstructured SWL (h/w)**	4
Total SWL (h/sem)	150		

Module Evaluation

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10%	5 and 10	LO #1, 2, 10 and 11
	Assignments	2	10%	2-12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10%	Continuous	
	Report	1	10%	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2hr	10%	7	LO # 1-7
	Final Exam	3hr	50%	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Functions: Domain and Range, Functions and their graphs, Trigonometric Functions.
Week 2-3	Limits and Continuity: Limit of a Function and Limit Laws, One-Sided Limits Continuity, Limits Involving Infinity, Asymptotes of Graphs.
Week 4-6	Derivatives: Tangent Lines and the Derivative at a Point, The Derivative as a Function, Differentiation Rules, Derivatives of Trigonometric Functions, The Chain Rule, Implicit Differentiation, Linearization and Differentials.
Week 7-9	Applications of Derivatives: Extreme Values of Functions, The Mean Value Theorem, Monotonic Functions and the First Derivative Test, Concavity and Curve Sketching,

	Applied Optimization, Antiderivatives
Week 9-12	Integrals: The Definite Integral, The Fundamental Theorem of Calculus, Indefinite Integrals and the Substitution Method, Definite Integral Substitutions and the Area Between Curves.
Week 13-15	Applications of Definite Integrals: Volumes using Cross-Sections, Volumes using Washer and Cylindrical Shells methods, Arc Length, Areas of Surfaces of Revolution, Work and Fluid Forces, Moments and Centers of Mass.
Week 7	Preparatory week before the final Exam

Learning and Teaching Resources

	Text	**Available in the Library?**
Required Texts	George B. Thomas Jr., "CALCULUS", 14th Ed	yes
Recommended Texts	1.Erwin Kreyszig, "Advanced Engineering Mathematics", 10th Ed. 2.Schaum's Outline of College Mathematics, Fourth Edition. 3.Mary Attenborough, "Mathematics for Electrical Engineering and Computing", 1st Ed.	No
Websites	Topics in Calculus -Wolfram Math world.	

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	

APPENDIX:

GRADING SCHEME				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

Module Name:	
Construction management	
Module Code:	
WCV-31-07	
Semester / Year:	
First Semester/2024-2025	
Date of Preparation of this Description:	
23/9/2024	
Available Attendance Formats:	
In-person only	
Total Credit Hours / Total Units:	
Lectures are in person at the university only	
Name of the Course Coordinator (if there are multiple names):	
Name: israa mahdi kadhim **Email:** israa.mahdi@uowa.edu.iq	
Module Objectives:	
Module Objectives	•Introducing students to the basic concepts of construction project management. •Identifying the parties involved in the construction project. •Studying the methods of planning and programming construction projects using different planning methods. •Identifying the methods of project delivery •Identifying the basic elements of construction management •Programming the construction project using a computer programs
1. **Teaching and Learning Strategy**	
Strategy:	1-Encourage students to participate in exercises while refining and expanding their critical thinking skills, through interactive lessons and thinking about some simple experiments that include some sampling activities that interest students. 2. Arouse students' curiosity about the best management and planning methods in projects.

	3. Link engineering management to other related subjects, such as estimation, construction methods, etc. 4. Link the theoretical side to the practical side and transfer students' minds to construction projects. 5. Calculations must be realistic and do not accept incorrect numbers through comparison and intuition.

2. Module Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
16	3	Cognitive objectives: At the end of the chapter, the student will be able to: 1. Conduct project time planning. 2. Conduct project schedules. 3. Identify the resources needed to complete project activities. Emotional and moral objectives: 1. Take an interest in project management. 2. Stand in front of any project and notice the correct ways to manage it. 3. Think deeply about the importance of planning and project management. 4. Civil engineering is a broad field that is not limited to construction work only.	1-Introduction, construction management concept, Phases of construction project, persons involved of construction process. 2-The basic elements of construction management, goals and functions of construction management, success factors in the construction . 3-Planning, stages of the planning, the elements of good planning, the steps applied for the preparation of the main planning. 4-Methods of the planning, Bar - chart method . 5-Critical path method (arrow diagram, nodes diagram) 6-PERT method 7-Line of balance method 8-Resources management 9-Planning by using	1- Lectures 2- Homework 3- Exams 4- Questions and discussions in class 5- Extracurricular activities 6- Field trips	1-Exams and tests 2- Student participation during lectures 3- Student responses to a questionnaire about the curriculum and the faculty member 4-Extracurricular activities

			computer programs		

Module Evaluation
1- Exams and tests 2- Student participation during lectures 3- Student responses to a questionnaire about the curriculum and the faculty member 4- Extracurricular activities

Learning and Teaching Resources.	
Required textbooks (curricular books, if any)	Programming and Scheduling Techniques (Thomas Euher).2003.
Main references (sources)	Project Management (F. Gray and W. Larson) 7th Edition 2018
Recommended books and references (scientific journals, reports...)	Project management planning and control (albert laster2006)
Electronic References, Websites	

Course Description Form

1. Course Name:
Construction management II
2. Course Code:
WCV-32-07
3. Semester / Year:
2 semester/2024-2025
4. Description Preparation Date:
٢٠٢٤-١٠-٢٣
5. Available Attendance Forms:
Lecture are in person at the university only
6. Number of Credit Hours (Total) / Number of Units (Total)
٣Hours /2units
7. Course administrator's name (mention all, if more than one name)
Name: israa mahdi kadhim Email: israa.mahdi@uowa.edu.iq
8. Course Objectives

Course Objectives	**• Introducing students to the basic concepts of construction project management.** **• Identifying the parties involved in the construction project.** **• Studying the methods of planning and programming construction projects using different planning methods** **• Identifying the methods of project delivery** **• Identifying the basic elements of construction management**

	• Programming the construction project using a programs

9. Teaching and Learning Strategies

Strategy	1. Encourage students to participate in exercises while refi expanding their critical thinking skills, through interactiv les thinking about some simple experiments that include s me activities that interest students. 2. Arouse students' curiosity about the best management and methods in projects. 3. Link engineering management to other related subj cts, estimation, construction methods, etc. 4. Link the theoretical side to the practical side and transfer st uder to construction projects. 5. Calculations must be realistic and do not accept incorrect nu nber comparison and intuition.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
16		Cognitive objectiv At the end of t chapter, the stude will be able to: 1. Conduct proj time planning. 2. Conduct proj schedules. 3. Identify t resources needed complete proj activities. Emotional a moral objectives:	1- Introdu ion, constru ion manage ent concep Phases constru ion project, person	1- Lectures 2- Homework 3- Exams 4-Questions a discussions class 5- Extracurricula activities	1- Exa and test 2- Stu nt part pati duri g lect es

		1. Take an interest project management. 2. Stand in front any project a notice the corr ways to manage it 3. Think deep about t importance planning and proj management. 4. Civil engineeri is a broad field th is not limited construction wo only.	involve of constru ion process 2- T basic elemen of constru ion manage ent, go and functio of constru ion manage ent, success factors the constru ion . 3- Plannin stages the plannin the elemen of go plannin the ste applied for t prepara on of t main plannin	6- Field trips	3- Stud nt resp nses to ques onn e abo the curr ulur and the facu y men er 4- Extr urri lar acti ies

			4- Method of t planni Bar chart method 5- Criti path method (arrow diagra nodes diagra 6-PERT method 7- Line balance method 8- Resour s manage ent 9- Planni by usi comput progra		

11. Course Evaluation

1- Exams and tests

2- Student participation during lectures

3- Student responses to a questionnaire about the curriculum and the faculty member 4- Extracurricular activities

12. Learning and Teaching Resources

Programming and Scheduling Techniques (Thomas Euher).2003. Project Management (F. Gray and W. Larson) 7th Edition 2018. Engineering Economics (R. Panneerselvam) 2012.	
Project Management planning and control (Albert Lester) 2006	
Construction Management Principles of construction management By: Roy Pitlcher Modern Construction management By: F. Harris Critical path methods in construction practice By: Antill	

Course Description Form

1. Course Name:
Engineering Analysis
2. Course Code:
WCV-31-06
3. Semester / Year:
Semester
4. Description Preparation Date:
23/9/2024
5. Available Attendance Forms:
In person
6. Number of Credit Hours (Total) / Number of Units (Total)
No. of hours 5/ No. of units 2
7. Course administrator's name (mention all, if more than one name)
Name: Asst.Lect. Sally Mowafaq Email: sallay.muwafaq@uowa.edu.iq

8. Course Objectives	
Course Objectives	- The study of engineering analysis aims to achieve the objectives related to the design and implementation of infrastructure in an effective and sustainable manner. -The course aims to introduce students to differential equations and their solution methods and how they are implemented in various engineering applications. -Students must have knowledge of solving matrices and methods of applying them in engineering as they help in analyzing systems and solving complex problems. -Enabling students to solve linear equations and simultaneous equations.

9. Teaching and Learning Strategies	
Strategy	The student acquires the skill of solving differential equations in addition to distinguishing the formulas of equations, knowledge of engineering applications and their analysis and implementation using differential equations as well as other mathematical and analytical methods. Preparing students to become engineers capable of analyzing and interpreting problems and then providing effective solutions that contribute to the development of various engineering systems.

10. Course Structure

Week	Hours	Required Learning	Unit or subject	Learni	Evaluation method

		Outcomes	name	ng metho d	
15	5	1. Students will be able to understand the basic principles of mathematical and engineering analysis including matrices calculations and differential integrals. 2.Students will learn about methods of solving differential equations and their engineering applications. 3. Students will calculate matrices and their field of application. 4. Students will learn about applying numerical methods to solve algebraic and differential equations. 5.Solve partial differential equation problems with finite values numerically.	•First order ordinary differential equations. • Linear differential equations with constant coefficients. • Matrices and their applications. • Simultaneous differential equations. • Numerical solutions of ordinary differential equations. • Finite differences. • Interpolation. • Numerical differentiation • Numerical integration and computer application . • Fourier series. • Finite value partial differential equations. • Numerical solution of partial differential equations.	In person	Exams Home works Class works

11. Course Evaluation

Mid. course exam = 30%
Quiz = 5%
Class and home works = 3%
Daily attendance = 2%
Final exam = 60%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	....
Main references (sources)	Advanced Engineering Mathematics (9th edition, 2006) - kreyszig
Recommended books and references (scientific journals, reports…)	Ordinary Differential Equations: An Elementary Textbook Students of Engineering, Mathematics, and the sciences edition, 1985)- Tenenbaum and pollard.
Electronic References, Websites	https://www.uomustansiriyah.edu.iq/lectures.php?id_dept=148&id_college=5&level=3

Course Description

Course Description Form

1. Course Name:
Engineering Analysis
2. Course Code:
WCV-32-06
3. Semester / Year:
2 Semester
4. Description Preparation Date:
23/10/2024
5. Available Attendance Forms:
In person
6. Number of Credit Hours (Total) / Number of Units (Total)
No. of hours 5/ No. of units 3
7. Course administrator's name (mention all, if more than one name)
Name: Asst.Lect. Sally Mowafaq Email: sallay.muwafaq@uowa.edu.iq
8. Course Objectives

Course Objectives	- The study of engineering analysis aims to achieve the objectives related to the design and implementation of infrastructure in an effective and sustainable manner. -The course aims to introduce students to differential equations and their solution methods and how they are implemented in various engineering applications. -Students must have knowledge of solving matrices and methods of applying them in engineering as they help in analyzing systems and solving complex problems. -Enabling students to solve linear equations and simultaneous equations.
9. Teaching and Learning Strategies	
Strategy	The student acquires the skill of solving differential equations in addition to distinguishing the formulas of equations, knowledge of engineering applications and their analysis and implementation using differential equations as well as other mathematical and analytical methods. Preparing students to become engineers capable of analyzing and interpreting problems and then providing effective solutions that contribute to the development of various engineering systems.

10. Course Structure

Week	Hours	Required Learning	Unit or subject	Learni	Evaluation method

		Outcomes	name	ng metho d	
15	5	1. Students will be able to understand the basic principles of mathematical and engineering analysis including matrices calculations and differential integrals. 2.Students will learn about methods of solving differential equations and their engineering applications. 3. Students will calculate matrices and their field of application. 4. Students will learn about applying numerical methods to solve algebraic and differential equations. 5.Solve partial differential equation problems with finite values numerically.	•First order ordinary differential equations. • Linear differential equations with constant coefficients. • Matrices and their applications. • Simultaneous differential equations. • Numerical solutions of ordinary differential equations. • Finite differences. • Interpolation. • Numerical differentiation • Numerical integration and computer application . • Fourier series. • Finite value partial differential equations. • Numerical solution of partial differential equations.	In person	Exams Home works Class works

11. Course Evaluation

Mid. course exam = 30%
Quiz = 5%
Class and home works = 3%
Daily attendance = 2%
Final exam = 60%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	....
Main references (sources)	Advanced Engineering Mathematics (9th edition, 2006) - kreyszig
Recommended books and references (scientific journals, reports…)	Ordinary Differential Equations: An Elementary Textbook Students of Engineering, Mathematics, and the sciences edition, 1985)- Tenenbaum and pollard.
Electronic References, Websites	https://www.uomustansiriyah.edu.iq/lectures.php?id_dept=148&id_college=5&level=3

UNIVERSITY OF WARITH AL-ANBIYAA
COLLEGE OF ENGINEERING
2017
كلية الهندسة

Course Description Form

1. Course Name:
Irrigation Engineering
2. Course Code:
WCV-31-05
3. Semester / Year:
Semester system
4. Description Preparation Date:
2024-9-24
5. Available Attendance Forms:
presence
6. Number of Credit Hours (Total) / Number of Units (Total)
Total number of hours (48) (32 theoretical hours - 16 Tutorial) Number of units 2
7. Course administrator's name (mention all, if more than one name)
Name: Zainab Naeem GHazi Email: Zainab.Naeem@uowa.edu.iq
8. Course Objectives

Course Objectives	1-Introducing students to the principles of irrigation and drainage engineering 2-Introducing students to the basics used in the field of designing irrigation networks and drainage networks 3- Definition of the relationship between the Persian Empire 3- Identify the mathematical relationships related to water consumption 5-Identify the different methods
9. Teaching and Learning Strategies	
Strategy	1 Arouse the student's curiosity about the nature of irrigation and drainage engineering 2. How to use various topics as a basis for the process of designing narrative channels 3. Linking the theoretical side with the practical side a transferring students' minds to realistic applications

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Introduction in Irrigation and drainage:	Irrigation Engineering	presence	Daily and monthly tests
2–3	6	Soil and water:	Irrigation Engineering	presence	Daily and monthly tests
4–6	9	Irrigation water:	Irrigation Engineering	presence	Daily and
7-8	6	Infiltration and Intake:	Irrigation Engineering	presence	monthly tests
9	3	Methods of irrigation:	Irrigation Engineering	presence	Daily and
10	3	Border Irrigation:	Irrigation Engineering	presence	monthly tests
11	3	urrow Irrigation:	Irrigation Engineering	presence	Daily and
12	3	Basin Irrigation:	Irrigation Engineering	presence	monthly tests
13-16	9	prinkler and trickle Irrigation:	Irrigation Engineering	presence	Daily and

11. Course Evaluation

10 marks (daily preparation, daily and oral exams, homework, and class activities)
30 marks (monthly exams)
60 marks (final exam)

12. Learning and Teaching Resources

Main references (sources)	Michael A. M., "Irrigation Theory and ,Practice" Vikas Publishing House New Del 1981. Chow , V.T. "Open Channel Hydrauli , McGraw-Hill company ,1973.

Course Description

Recommended books and references (scientific journals, reports…)	Waller,P., Yitayew,M. "Irrigation and Drainage Engineering" Springer International Publishing, 2016
Electronic References, Websites	Luthin J.N. "Drainage Engineering", Wiley Eastern Private Limited , New Delhi 1970 The university's official website, whose address is https://elearning.uowa.edu.iq

Course Description Form

1. Course Name:
Irrigation Engineering II
2. Course Code:
WCV-32-05
3. Semester / Year:
2 Semester system
4. Description Preparation Date:
2024-10-24
5. Available Attendance Forms:
presence
6. Number of Credit Hours (Total) / Number of Units (Total)
Total number of hours (4)hours Number of units 3
7. Course administrator's name (mention all, if more than one name)
Name: Zainab Neam GHazi Email: zainab.naeem@uowa.edu.iq
8. Course Objectives

Course Objectives	1-Introducing students to the principles of irrigation and drainage engineering 2-Introducing students to the basics used in the field of designing irrigation networks and drainage networks 3- Definition of the relationship between the Persian Empire 3- Identify the mathematical relationships related to water consumption 5-Identify the different methods
9. Teaching and Learning Strategies	
Strategy	1 Arouse the student's curiosity about the nature of irrigation and drainage engineering 2. How to use various topics as a basis for the process of designing narrative channels 3. Linking the theoretical side with the practical side a transferring students' minds to realistic applications

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	3	Introduction in Irrigation and drainage:	Irrigation Engineering	presence	Daily and monthly tests
2-3	6	Soil and water:	Irrigation Engineering	presence	Daily and monthly tests
4-6	9	Irrigation water:	Irrigation Engineering	presence	Daily and
7-8	6	Infiltration and Intake:	Irrigation Engineering	presence	monthly tests
٩	3	Methods of irrigation:	Irrigation Engineering	presence	Daily and
١٠	3	Border Irrigation:	Irrigation Engineering	presence	monthly tests
١١	3	urrow Irrigation:	Irrigation Engineering	presence	Daily and
١٢	3	Basin Irrigation:	Irrigation Engineering	presence	monthly tests
13-16	9	prinkler and trickle Irrigation:	Irrigation Engineering	presence	Daily and

11. Course Evaluation

10 marks (daily preparation, daily and oral exams, homework, and class activities)
30 marks (monthly exams)
60 marks (final exam)

12. Learning and Teaching Resources

Main references (sources)	Michael A. M., "Irrigation Theory and ,Practice" Vikas Publishing House New Del 1981. Chow , V.T. "Open Channel Hydrauli , McGraw-Hill company ,1973.

Recommended books and references (scientific journals, reports…)	Waller,P., Yitayew,M. "Irrigation and Drainage Engineering" Springer International Publishing, 2016
Electronic References, Websites	Luthin J.N. "Drainage Engineering", Wiley Eastern Private Limited , New Delhi 1970 The university's official website, whose address is https://elearning.uowa.edu.iq

Course Description Form

1. Course Name:
Reinforced Concrete Design
2. Course Code:
3. Semester / Year:
3rd year
4. Description Preparation Date:
28-09-2024
5. Available Attendance Forms:
Regular students
6. Number of Credit Hours (Total) / Number of Units (Total)
120/6
7. Course administrator's name (mention all, if more than one name)
Name: Mustafa Kareem Hamzah Email: Mustafa.k.hamzah@gmail.com
8. Course Objectives

Course Objectives	**1- Designing reinforced concrete beams in terms of bending, shear and torsion.** **2- Determining the deflection in beams** **3- Designing and analyzing of slabs** **4- Analyzing and designing structural columns.** **5- Being able to know the appropriate length of reinforcing steel and the places where the steel is cut practically.**

9. Teaching and Learning Strategies

Strategy	Homework Feedback Brainstorm

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1–5	20	Introducing students to the basic principles of reinforced concrete designs, identifying the properties of concrete and reinforcing steel, knowing the behavior of beams against the stresses imposed on them, designing a single-reinforced beam.	Introduction to Reinforced Concrete Structures Fundamentals of Reinforced concrete Design Concrete and Steel materials Flexural Beam Behavior Single Reinforcement beam	Theoretical + Applied + Movie Show	1. Quizzes 2. Term exams 3.Extracurricular assignments 4. Reports + accounts of various projects
6–10	20	Ability to design Double reinforcement beam , T-beam design, Identify beam behavior against shear stresses, Beam design against shear stress	Double Reinforcement beam T-beam Design Shear behavior in beam Shear design for beam	Theoretical + Applied + Movie Show	1. Quizzes 2. Term exams 3.Extracurricular assignments 4. Reports + accounts of various projects
11–15	20	Calculating the torsional moment and the resulting stresses and designing the beam against torsional stresses, designing the beam against combined stresses between shear and torsion, knowing the effect of deflection on the lintel and how to calculate it	Torsion behavior in beam Torsion design for beam Shear-Torsion Design Serviceability and Deflection	Theoretical + Applied + Movie Show	1. Quizzes 2. Term exams 3.Extracurricular assignments 4. Reports + accounts of various projects
16–20	20	Study of load transfer between structural elements, knowledge of the slab's behavior against the loads imposed on it, knowledge of the	Load transfer in structural members Behavior of Reinforced concrete slabs under loading	Theoretical + Applied + Movie Show	1. Quizzes 2. Term exams 3.Extracurricular assignments 4. Reports + accounts of various projects

		design of a one-way slab	One-way slab design		
21–25	**20**	Knowing the methods of designing a two-way slab	Two-way slab design	Theoretical + Applied + Movie Show	1. Quizzes 2. Term exams 3.Extracurricular assignments 4. Reports + accounts of various projects
26–30	**20**	Knowing the column's behavior towards the loads applied to it, identifying the methods of designing short and long structural columns	Behavior of Reinforced concrete column under loading Short column design Slender Column Design	Theoretical + Applied + Movie Show	1. Quizzes 2. Term exams 3.Extracurricular assignments 4. Reports + accounts of various projects

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	-Design of Reinforced Concrete Structures by Nilson -ACI-Code-318M
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

UNIVERSITY OF WARITH AL-ANBIYAA
COLLEGE OF ENGINEERING
2017
كلية الهندسة

Course Description Form

1. Course Name:
Reinforced Concrete Design II
2. Course Code:
WCV-32-01
3. Semester / Year:
3rd year /2 semester
4. Description Preparation Date:
23-10-2024
5. Available Attendance Forms:
Regular students
6. Number of Credit Hours (Total) / Number of Units (Total)
4 hours/ 3unite
7. Course administrator's name (mention all, if more than one name)
Name: Qassim ail huseen Email: Qassim.ali@uowa.edu.iq
8. Course Objectives

Course Objectives	**1- Designing reinforced concrete beams in terms of bending, shear and torsion.** **2- Determining the deflection in beams** **3- Designing and analyzing of slabs** **4- Analyzing and designing structural columns.** **5- Being able to know the appropriate length of reinforcing steel and the places where the steel is cut practically.**

9. Teaching and Learning Strategies	
Strategy	Homework Feedback Brainstorm

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1–5	**20**	Introducing students to the basic principles of reinforced concrete designs, identifying the properties of concrete and reinforcing steel, knowing the behavior of beams against the stresses imposed on them, designing a single-reinforced beam.	Introduction to Reinforced Concrete Structures Fundamentals of Reinforced concrete Design Concrete and Steel materials Flexural Beam Behavior Single Reinforcement beam	Theoretical + Applied + Movie Show	1. Quizzes 2. Term exams 3.Extracurricular assignments 4. Reports + accounts of various projects
6–10	**20**	Ability to design Double reinforcement beam , T-beam design, Identify beam behavior against shear stresses, Beam design against shear stress	Double Reinforcement beam T-beam Design Shear behavior in beam Shear design for beam	Theoretical + Applied + Movie Show	1. Quizzes 2. Term exams 3.Extracurricular assignments 4. Reports + accounts of various projects
11–15	**20**	Calculating the torsional moment and the resulting stresses and designing the beam against torsional stresses, designing the beam against combined stresses between shear and torsion, knowing the effect of deflection on the lintel and how to calculate it	Torsion behavior in beam Torsion design for beam Shear-Torsion Design Serviceability and Deflection	Theoretical + Applied + Movie Show	1. Quizzes 2. Term exams 3.Extracurricular assignments 4. Reports + accounts of various projects
16–20	**20**	Study of load transfer between structural elements, knowledge of the slab's behavior against the loads imposed on it, knowledge of the design of a one-way slab	Load transfer in structural members Behavior of Reinforced concrete slabs under loading One-way slab design	Theoretical + Applied + Movie Show	1. Quizzes 2. Term exams 3.Extracurricular assignments 4. Reports + accounts of various projects

21–25	**20**	Knowing the methods of designing a two-way slab	Two-way slab design	Theoretical + Applied + Movie Show	1. Quizzes 2. Term exams 3.Extracurricular assignments 4. Reports + accounts of various projects
26–30	**20**	Knowing the column's behavior towards the loads applied to it, identifying the methods of designing short and long structural columns	Behavior of Reinforced concrete column under loading Short column design Slender Column Design	Theoretical + Applied + Movie Show	1. Quizzes 2. Term exams 3.Extracurricular assignments 4. Reports + accounts of various projects

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	-Design of Reinforced Concrete Structures by Nilson -ACI-Code-318M
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

UNIVERSITY OF WARITH AL-ANBIYAA
COLLEGE OF ENGINEERING
2017
كلية الهندسة

Course Description Form

1. Course Name:
Soil Mechanics
2. Course Code:
3. Semester / Year:
2nd Semester/ 2024
4. Description Preparation Date:
18/3/2024
5. Available Attendance Forms:
In-person classes
6. Number of Credit Hours (Total) / Number of Units (Total)
75 hrs
7. Course administrator's name (mention all, if more than one name)
Name: Lecturer Dr. Mustafa Al-saedi Email: Mustafa.al@uowa.edu.iq

8. Course Objectives

Course Objectives	✓ **Studying the seepage behavior under the hydraulic structures** ✓ **Calculate the stresses under the geostatic and structural loading** ✓ **Determine the strength of soils and its parameters** ✓ **Estimating the different types of settlement under the stresses**

9. Teaching and Learning Strategies

Strategy	✓ **Videos and phtted reports about the objectives are the fast and easy strategy to reach the information about the foundation problems and soil behavior.**

10. Course Structure

Week	Hrs	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-4	15	**Learning the seepage under hydraulic structures such as dam**	**Two-Dimensiona Flow**	**Class& laboratory**	**Laboratory reports, daily monthly exams**

5-7	15	**Studying the stresses above soil's layers**	**Stress in a soil mass**	**Class& laboratory**	**Laboratory reports, daily monthly exams**
8-11	15	**Estimating the different types settlement under the effec stresses**	**Compressibilit y of Soil**	**Class& laboratory**	**Laboratory reports, daily monthly exams**
12-14	15	**Determine the Shear Strength of Soil and its parameters**	**Shear Strength of Soil**	**Class& laboratory**	**Laboratory reports, daily monthly exams**
15	15	**Review of the above study**			

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	✓ Soil Mechanics R.F.Graig ✓ Soil Mechanics T.W.Lamb.R.V.Whitman ✓ Soil Mechanics Basic Concepts and Engineering Application. A.Aysen
Main references (sources)	✓ Advanced Soil Mechanics, Das ✓ Soil Mechanics Fundamentals
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	Google schooler; YouTube

Course Description Form

1. Course Name:
Soil Mechanics II
2. Course Code:
WCV-32-02
3. Semester / Year:
2nd Semester/ 2024
4. Description Preparation Date:
23/10/2024
5. Available Attendance Forms:
In-person classes
6. Number of Credit Hours (Total) / Number of Units (Total)
5 hrs. / 3 Unite
7. Course administrator's name (mention all, if more than one name)
Name: Lecturer Dr. Mustafa Al-saedi Email: Mustafa.al@uowa.edu.iq
8. Course Objectives

Course Objectives	✓ **Studying the seepage behavior under the hydraulic structures** ✓ **Calculate the stresses under the geostatic and structural loading** ✓ **Determine the strength of soils and its parameters** ✓ **Estimating the different types of settlement under the stresses**

9. Teaching and Learning Strategies

Strategy	✓ **Videos and photted reports about the objectives are the fast and easy strategy to reach the information about the foundation problems and soil behavior.**

10. Course Structure

Week	Hrs	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-4	15	**Learning the seepage under hydraulic structures such as dam**	**Two-Dimensiona Flow**	**Class& laboratory**	**Laboratory reports, daily monthly exams**

5-7	15	**Studying the stresses above soil's layers**	**Stress in a soil mass**	**Class& laboratory**	**Laboratory reports, daily monthly exams**
8-11	15	**Estimating the different types settlement under the effec stresses**	**Compressibilit y of Soil**	**Class& laboratory**	**Laboratory reports, daily monthly exams**
12-14	15	**Determine the Shear Strength of Soil and its parameters**	**Shear Strength of Soil**	**Class& laboratory**	**Laboratory reports, daily monthly exams**
15	15	**Review of the above study**			

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	✓ Soil Mechanics R.F.Graig ✓ Soil Mechanics T.W.Lamb.R.V.Whitman ✓ Soil Mechanics Basic Concepts and Engineering Application. A.Aysen
Main references (sources)	✓ Advanced Soil Mechanics, Das ✓ Soil Mechanics Fundamentals
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	Google schooler; YouTube

UNIVERSITY OF WARITH AL-ANBIYAA
COLLEGE OF ENGINEERING
2017
كليـــة الهندســـــة

Course Description Form

1. Course Name:
Theory of Structure I
2. Course Code:
WCV-31-04
3. Semester / Year:
1st Semester / 3rd Stage
4. Description Preparation Date:
23/9/2024
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
Theoretical 60 hrs. Credits: 4
7. Course administrator's name (mention all, if more than one name)
Name: Qassim Ali Husain PhD Email: Qassim.ali@uowa.edu.iq
8. Course Objectives

Course Objectives	• Providing students with a general knowledge skill about analyzing statically determinate and indeterminate structures • Teaching the student, the skill of analyzing statically determinate structures (trusses, beams, and frame structures) and drawing the shear forces and bending moment diagrams for beams and frames. • Teaching the student, how to draw the influence line by different methods and recognizing him the purpose of using the influence line. • Teaching him to analyze statically indeterminate structures using approximate methods.

9. Teaching and Learning Strategies

Strategy	Explaining topics and directing continuous questions to students to continue their participation, using electronic means to clarify various topics, conducting surprise and monthly written tests, and giving homework for each topic that is explained.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Introduction	Introduction	Attendance	Discussion
2	4	Types of Structures and Loads	Identify the types of structures and loads	Attendance	Exam
4-3	8	Teaching the criteria of stability and determinacy of structures	Criteria of stability and determinacy of structures	Attendance	Exam
7-5	12	Finding reactions and drawing shear force and bending moments diagrams	Analysis of determinate structures	Attendance	Exam
11-8	16	Teaching the influence lines for statically determinate structures by different methods	Influence Lines for Statically Determinate Structures	Attendance	Exam
15-12	16	Teaching Approximate Analysis of Statically Indeterminate Structures by different methods	Approximate Analysis of Statically Indeterminate Structures	Attendance	Exam

11. Course Evaluation

Quizzes: 5%	Homework: 5%	Class activity: 5%	1st Exam: 12.5%	2nd Exam: 12.5%	Final Exam: 60%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• Structural Analysis by R. C. Hibbeler, Tenth edition
Main references (sources)	
Recommended books and references (scientific journals, reports…)	• Elementary theory of structures by Yuan-Yu Hsieh, second edition. Structural Analysis by Jack C. McCormac.
Electronic References, Websites	• https://www.youtube.com/watch?v=MJL1QPNtwGQ

Course Description Form

1. Course Name:
Theory of Structure II
2. Course Code:
WCV-32-04
3. Semester / Year:
2st Semester / 3rd Stage
4. Description Preparation Date:
23/١٠/202٣
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
4 hrs. 3 Unite.
7. Course administrator's name (mention all, if more than one name)
Name: Qassim Ali Husain PhD Email: Qassim.ali@uowa.edu.iq
8. Course Objectives

Course Objectives	• Providing students with a general knowledge skill about analyzing statically determinate and indeterminate structures • Teaching the student, the skill of analyzing statically determinate structures (trusses, beams, and frame structures) and drawing the shear forces and bending moment diagrams for beams and frames. • Teaching the student, how to draw the influence line by different methods and recognizing him the purpose of using the influence line. • Teaching him to analyze statically indeterminate structures using approximate methods.

9. Teaching and Learning Strategies

Strategy	Explaining topics and directing continuous questions to students to continue their participation, using electronic means to clarify various topics, conducting surprise and monthly written tests, and giving homework for each topic that is explained.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٤	Introduction	Introduction	Attendance	Discussion
٢	٤	Types of Structures and Loads	Identify the types of structures and loads	Attendance	Exam
٤-٣	8	Teaching the criteria of stability and determinacy of structures	Criteria of stability and determinacy of structures	Attendance	Exam
٧-٥	١٢	Finding reactions and drawing shear force and bending moments diagrams	Analysis of determinate structures	Attendance	Exam
١١-٨	16	Teaching the influence lines for statically determinate structures by different methods	Influence Lines for Statically Determinate Structures	Attendance	Exam
١٥-١٢	16	Teaching Approximate Analysis of Statically Indeterminate Structures by different methods	Approximate Analysis of Statically Indeterminate Structures	Attendance	Exam

11. Course Evaluation

Quizzes: 5%	Homework: 5%	Class activity: 5%	1st Exam: 12.5%	2nd Exam: 12.5%	Final Exam: 60%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• Structural Analysis by R. C. Hibbeler, Tenth edition
Main references (sources)	
Recommended books and references (scientific journals, reports…)	• Elementary theory of structures by Yuan-Yu Hsieh, second edition. Structural Analysis by Jack C. McCormac.
Electronic References, Websites	• https://www.youtube.com/watch?v=MJL1QPNtwGQ

Course Description Form

1. Course Name:	
Traffic Engineering I	
2. Course Code:	
WCV-31-03	
3. Semester / Year:	
Semester	
4. Description Preparation Date:	
23 / 9 / 2024	
5. Available Attendance Forms:	
Students that are interested in learning	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3 hours per week / number of units (3 units)	
7. Course administrator's name (mention all, if more than one name)	
MSc. Ghazi Jalal Kashesh Ghazi.alsady@uowa.edu.iq	
8. Course Objectives	
Course Objectives	This course discusses the fundamental concepts of traffic engineering by introduce students to cover the technical details of traffic characteristics, elements of roads and highways, and analysis and design the highway section according to vehicle operation.
9. Teaching and Learning Strategies	
Strategy	1. Providing a comprehensive introduction to each study topic and connecting the current topic to previous ones. 2. Delivering theoretical lectures. 3. Presenting short scientific films. 4. Providing and explaining sufficient examples. 5. Using brainstorming to convey the material.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1+2	6	1. Demonstrate understanding of the need for developing highway engineering. 2. Outline the behaviour of drivers and vehicle characteristics on roads and highways. 3. Outline the principal means of speed, sight distances on roads and highways. 4. Roadways and their geometric characteristics. 5. Outline the principal means of Traffic stream characteristics (relations of speed-flow-density). 6. Illustrate the ethics of traffic design. 7. Demonstrated the responsibility of traffic operators.	**Introduction to traffic engineering** • General definitions • Objectives of traffic engineering • Responsibility, ethics, and liability in traffic engineering • Transportation systems and their function • Concepts of mobility and accessibility • Transportation modes • Elements of traffic engineering • Modern problems for the traffic engineer	Theoretical	1. Participation within the classroom. 2. Short written tests. 3. Assigning homework at the end of each topic. 4. Presenting posters about some taffic problems and their solutions. 5. Attendance. 6. Monthly written exams. 7. Final semester exam.
3+4+5	9		**Road user and vehicle characteristics** • Overview of traffic stream components • Dealing with diversity • Road users ▪ Visual characteristics of drivers ▪ Perception-reaction time ▪ Reaction distance ▪ Pedestrian characteristics • Vehicles ▪ Concept of the design vehicle ▪ Turning characteristics of vehicles ▪ Low-speed turns ▪ High-speed turns ▪ Braking characteristics ▪ Acceleration characteristics ▪ Decision sight distance ▪ Passing sight distance ▪ Intersection sight distance	Theoretical	
6+7+8+9	12		**Roadways and their geometric characteristics** • Highway functions and classification ▪ Highway classification ▪ Preserving the function of a facility • Highway design elements • Horizontal alignment ▪ Quantifying the severity of horizontal curves: radius and degree of curvature ▪ Review of trigonometric functions ▪ Critical characteristics of horizontal curves ▪ Superelevation of horizontal curves ▪ Spiral transition curves ▪ Sight distance on horizontal curves	Theoretical	

			▪ Compound horizontal curves: ▪ Reverse horizontal curve • Vertical alignment of highways ▪ Grades ▪ Geometric characteristics of vertical curves ▪ Sight distance on vertical curves ▪ Other minimum controls on length of vertical curves • Cross-section elements of highways ▪ Travel lanes and pavement ▪ Shoulders ▪ Side-slopes for cuts and embankments ▪ Guardrail		
10+11	6		**Traffic stream characteristics** • Types of facilities • Traffic stream parameters ▪ Volume and rate of flow ▪ Speed and travel time ▪ Density and occupancy ▪ Spacing and headway: microscopic parameters • Relationships among flow rate, speed, and density	Theoretical	
12+13+ 14+15	12		**Volume, speed, travel time and delay studies and characteristics** • Volume ▪ Critical volume parameters ▪ Volume, demand, and capacity ▪ Volume characteristics ▪ Intersection volume studies ▪ Types of volume counts ▪ Traffic volume data presentation • Spot speed studies • Locations for spot speed studies ▪ Time of day and duration of spot speed studies ▪ Sample size for spot speed studies ▪ Methods for conducting spot speed studies ▪ Presentation and analysis of spot speed data • Travel time and delay studies ▪ Methods for conducting travel time and delay studies • Its advanced technologies	Theoretical	

11. Course Evaluation

1. **Participation within the classroom 5%.**
2. **Short written tests 5%.**
3. **Assigning homework at the end of each topic 5%.**
4. **Attendance 5%.**
5. **Monthly written exams 20%.**
6. **Final semester exam 60%.**

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• R. P. Roess, E. S. Prassas, and W. R. McShane " Traffic Engineering", 4th edition • N.J. Garber & L.A. Houel "traffic & Highway engineering" 4th edition • Traffic Engineering Handbook, 6th edition
Main references (sources)	• Uniform Vehicle Code and Model Traffic Ordinance • Manual on Uniform Traffic Control Devices, 2003(new edition anticipated in 2009-2010) • Highway Capacity Manual, 4th edition (5th edition anticipated in 2010) • A Policy on Geometric Design of Highways and Streets (The AASHTO Green Book), 7th edition • Traffic Signal Timing Manual, 1st edition • Transportation Planning Handbook, 3rd edition • Trip Generation, 8th edition • Parking Generation, 3rd edition
Recommended books and references (scientific journals, reports…)	Ministry of housing and construction " Highway design Manual'' 2003
Electronic References, Websites	-------

Course Description Form

1. Course Name:
Traffic Engineering II
2. Course Code:
WCV-32-03
3. Semester / Year:
2 Semester
4. Description Preparation Date:
٢٣ / 10 / 2024
5. Available Attendance Forms:
Students that are interested in learning
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours per week / number of units (٣ units)
7. Course administrator's name (mention all, if more than one name)
MSc. Ghazi Jalal Kashesh Ghazi.alsady@uowa.edu.iq
8. Course Objectives

Course Objectives	This course discusses the fundamental concepts of traffic engineering by introduce students to cover the technical details of traffic characteristics, elements of roads and highways, and analysis and design the highway section according to vehicle operation.
9. Teaching and Learning Strategies	
Strategy	1. Providing a comprehensive introduction to each study topic and connecting the current topic to previous ones. 2. Delivering theoretical lectures. 3. Presenting short scientific films. 4. Providing and explaining sufficient examples. ٥. Using brainstorming to convey the material.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1+2	6	1. Demonstrate understanding of the need for developing highway engineering. 2. Outline the behaviour of drivers and vehicle characteristics on roads and highways. 3. Outline the principal means of speed, sight distances on roads and highways. 4. Roadways and their geometric characteristics. 5. Outline the principal means of Traffic stream characteristics (relations of speed-flow-density). 6. Illustrate the ethics of traffic design. 7. Demonstrated the responsibility of traffic operators.	**Introduction to traffic engineering** • General definitions • Objectives of traffic engineering • Responsibility, ethics, and liability in traffic engineering • Transportation systems and their function • Concepts of mobility and accessibility • Transportation modes • Elements of traffic engineering • Modern problems for the traffic engineer	Theoretical	1. Participation within the classroom. 2. Short written tests. 3. Assigning homework at the end of each topic. 4. Presenting posters about some taffic problems and their solutions. 5. Attendance. 6. Monthly written exams. 7. Final semester exam.
3+4+5	9		**Road user and vehicle characteristics** • Overview of traffic stream components • Dealing with diversity • Road users ▪ Visual characteristics of drivers ▪ Perception-reaction time ▪ Reaction distance ▪ Pedestrian characteristics • Vehicles ▪ Concept of the design vehicle ▪ Turning characteristics of vehicles ▪ Low-speed turns ▪ High-speed turns ▪ Braking characteristics ▪ Acceleration characteristics ▪ Decision sight distance ▪ Passing sight distance ▪ Intersection sight distance	Theoretical	
6+7+8+9	١٢		**Roadways and their geometric characteristics** • Highway functions and classification ▪ Highway classification ▪ Preserving the function of a facility • Highway design elements • Horizontal alignment ▪ Quantifying the severity of horizontal curves: radius and degree of curvature ▪ Review of trigonometric functions ▪ Critical characteristics of horizontal curves ▪ Superelevation of horizontal curves ▪ Spiral transition curves ▪ Sight distance on horizontal curves	Theoretical	

			▪ Compound horizontal curves: ▪ Reverse horizontal curve • Vertical alignment of highways ▪ Grades ▪ Geometric characteristics of vertical curves ▪ Sight distance on vertical curves ▪ Other minimum controls on length of vertical curves • Cross-section elements of highways ▪ Travel lanes and pavement ▪ Shoulders ▪ Side-slopes for cuts and embankments ▪ Guardrail		
10+11	6		**Traffic stream characteristics** • Types of facilities • Traffic stream parameters ▪ Volume and rate of flow ▪ Speed and travel time ▪ Density and occupancy ▪ Spacing and headway: microscopic parameters • Relationships among flow rate, speed, and density	Theoretical	
12+13+ 14+15	12		**Volume, speed, travel time and delay studies and characteristics** • Volume ▪ Critical volume parameters ▪ Volume, demand, and capacity ▪ Volume characteristics ▪ Intersection volume studies ▪ Types of volume counts ▪ Traffic volume data presentation • Spot speed studies • Locations for spot speed studies ▪ Time of day and duration of spot speed studies ▪ Sample size for spot speed studies ▪ Methods for conducting spot speed studies ▪ Presentation and analysis of spot speed data • Travel time and delay studies ▪ Methods for conducting travel time and delay studies • Its advanced technologies	Theoretical	

11. Course Evaluation

1. **Participation within the classroom 5%.**
2. **Short written tests 5%.**
3. **Assigning homework at the end of each topic 5%.**
4. **Attendance 5%.**
5. **Monthly written exams 20%.**
6. **Final semester exam 60%.**

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• R. P. Roess, E. S. Prassas, and W. R. McShane " Traffic Engineering", 4th edition • N.J. Garber & L.A. Houel "traffic & Highway engineering" 4th edition • Traffic Engineering Handbook, 6th edition
Main references (sources)	• Uniform Vehicle Code and Model Traffic Ordinance • Manual on Uniform Traffic Control Devices, 2003(new edition anticipated in 2009-2010) • Highway Capacity Manual, 4th edition (5th edition anticipated in 2010) • A Policy on Geometric Design of Highways and Streets (The AASHTO Green Book), ٧th edition • Traffic Signal Timing Manual, 1st edition • Transportation Planning Handbook, 3rd edition • Trip Generation, 8th edition • Parking Generation, 3rd edition
Recommended books and references (scientific journals, reports…)	Ministry of housing and construction " Highway design Manual'' 2003
Electronic References, Websites	-------

Ministry of Higher Education and Scientific Research - Iraq

University of Warith Al-Anbiyaa
College of Engineering
Civil Engineering Department

MODULE DESCRIPTION FORM

Module Information

Module Title	BUILDING CONSTRUCTION	**Module Delivery**	
Module Type	CORE		☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**
Module Code	CIV042		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	2	**Semester of Delivery**	2
Administering Department	Civil engineering	**College**	Engineering
Module Leader	Abdullah Nassir Jawad	**e-mail**	abdullan97@uowa.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	Ms.C
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	20/10/2024	**Version Number**	1.0

Relation with other Modules

Prerequisite module	Construction Materials	**Semester**	2
Co-requisites module	Engineering Drawing By Auto CAD	**Semester**	1

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	Building Construction is an introduction to the techniques, materials, and structural systems used in the construction process of any Building. Building Construction classes will focus on the main components of the building and their connections. The classes of Building Construction course have two parts, the first part is Theoretical class where all the required information for the practical part will be provided, and the second part is Practical class where the students will be asked to design and draw in the Drawing studios what they have learned during the Theoretical class. Topics of this course include Components, Materials and Techniques used in Building Construction process which include (Masonry walls (Brick & Block), Floors and Slabs (Concrete and Reinforced Concrete), Opening (Doors and Windows), Finishing Materials, and Connection Techniques). During the Course the students will be asked to visit material stores and Construction sites to have a clear idea about the available materials and techniques in the Local Market.
Module Learning Outcomes	1. Identify the concepts and principles associated with the building, environment and technology of simple construction and be able to evaluate and interpret them using sketches, drawings or in written form. 2. Describe building elements and components in specific situations; how, when and where they would be favored; and the construction sequence for simple buildings. 3. Evaluate the appropriateness of different approaches, materials and construction in simple construction in accordance with building, environment and technology theories and sustainability. 4. Communicate accurately and reliably on building, environment and technology issues for simple construction, using structured coherent arguments and theory.
Indicative Contents	Indicative content includes the following. The nature and relevance of the module together with communication methods/ drawing/ measurement Introduces the content of the module and describes how communication is carried out on building projects in the written form and through the use of drawings and sketches.[12 hrs] Site works and foundations : Explains the importance of understanding the implications of basic soil conditions on the design of simple foundations for houses, how these soil conditions are investigated and describes how simple foundations are constructed.[8 hrs] The different methods of construction: Looks at the traditional method of

	building houses in the Iraq and compares and contrasts this with a variety of different methods of construction [8 hrs] Details of the above ground structure: Explores typical details of construction for the floors, walls, roof, windows and doors of a simple building and describes the principles and logic that affect the sequence ofbuilding a house. [12 hrs] Materials: Looks at the properties of common building materials, such as concrete, brick and timber and how these materials are used in buildings. Also explores the properties of a wider range of materials, which can be used in simple buildings. [12 hrs] Sustainability of simple buildings : Describes how the energy implications, in terms of operating energy and the embodied energy of the building, can be minimised, and connects this to the provision of more economic buildings which are better places to live. [10 hrs] Building services and finishes : Explains how internal and external building services, such as water, gas, electricity and drainage are built into the fabric of the building and how the finishes to a building are chosen and fitted. [8 hrs]

Learning and Teaching Strategies	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	32	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**125**		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #3
	Assignments	2	5% (5)	2 and 12	LO #4
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	5% (5)	13	All
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #2
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	- A general introduction with a review of the curriculum and authorized sources and assistance.- Introduction: - stages of the construction of buildings, types of buildings, the development of the construction of buildings.-
Week 2	Earth works: - earth excavations, equipment types of mechanical drilling, rocks excavation, groundwater discharge
Week 3	Earth filling and compaction of the soil. , Foundations: - Definition of the foundation, the depth of the foundation, the nature of the soil and its relationship with foundations and types of foundations. The foundation wall and other continuous-related: the descent foundations, vibrations and foundations.
Week 4	Piles Works: -kinds of piles, drilling piles and hammer piles, hammer Equipment, Test of piles, details and drawing of piles. Bricks Works: -mud bricks, manufacturing methods, engineering properties, types of bricks
Week 5	Types of connectivity in the bricks, walls and types, suture and types. Details of bricks construction, Iraqi Specifications.
Week 6	Stones Works: - Introduction, geological classification of rocks, engineering properties of stone and stone common specifications, preparation of stone for building, linking when building in stone, other details

Week 7	Mid-term Exam
Week 8	Molds and scaffolds: - types of molds, loads carried by the molds. The failure of the Works of the molds, remove molds, graphics molds. Columns: - Classification columns according to slenderness, ends cases of columns, classified columns
Week 9	Floors and ceilings: -loads kinds, wood floors and types and graphics. jack arching, reinforced concrete floors and floor finishing kinds. beams lintels types.
Week 10	Wooden Beams, Steel Beams, Reinforced Concrete Beams Concrete works: -concrete definition, types and components added to the concrete, formwork, concrete production, cranes ,curing for concrete
Week 11	Painting and plastering , cement and gypsum plastering , types of painting .
Week 12	Arches and upper and lower beams: - Introduction to the terminology used inarches, arches forms, the upper and lower beams.
Week 13	Contraindications humidity: -types of anti-moisture and classify, humidity, and damage others. Stairs: -dimensions of stair an degrades and the design method and drawing Types of stair sand graphics, elevators
Week 14	Doors and windows: -timber, dry timber and timber types and graphics. Doors and types of windows and types.
Week 15	Joints in buildings: -structural joints, extension joints and others. General Review
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1&2	Structural plan of wall foundation Structural plan of load-bearing walls
Week 3&4	Structural plan of continuous foundation Structural plan of single foundation
Week 5&6	Structural plan of pile foundation Structural plan of mat foundation
Week 7&8	Drawing of a wall with German tie, Drawing of a wall with English tie
Week 9&10	Reinforced concrete lintel and typical details of reinforcement and a section of a wooden floor
Week 11&12	Concrete floor with one-way main reinforcement and two-way main reinforcement
Week 13&14	Drawing stairs and methods of moving between levels
Week 15	امتحان

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	كتاب انشاء المباني (زهير ساكو و ارتين ليفون)	Yes
Recommended Texts	جميع كتب انشاء او تركيب المباني	No
Websites	-	

Appendix :

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al_Anbiyaa.... civil Department	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	CONCRETE TECHNOLOGY I			**Module Delivery**	
Module Type	CORE			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CIV034				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	2		**Semester of Delivery**	3	
Administering Department	CIV		**College**	ENG	
Module Leader	Asst. Lect. Abdulrasool Th. Abdulrasool+ Asst. Lect. Ghadeer Haitham Hasan		**e-mail**	abdulrasool.th@uowa.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	MS.D	
Module Tutor	Name (if available)		**e-mail**		
Peer Reviewer Name	Asst. Lect. Ghadeer Haitham Hasan		**e-mail**	ghadeer.haitham@uowa.edu.iq.	
Review Committee Approval	2024/9/23		**Version Number**	1	

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	NONE	**Semester**	
Co-requisites module	NONE	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. The course aims to introduce students to the ability to deal with concrete as a construction material. 2. Graduates of the department should have a comprehensive knowledge of concrete and the raw materials that make it up. 3. Graduate engineers who have the ability to design concrete mixes. 4. Gradate engineers who have sufficient knowledge to make all the tests of fresh and hardened concrete. 5. Students should know about all the Iraqi and international standards, and evaluate the results of laboratory tests.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. 1. The student will be familiar with the most important methods used in the cement industry. 2. The student will be familiar with the factors that affect the properties of the different types of cement and all the details of cement. 3. The student will be familiar with the types of aggregates involved in the production of concrete and its properties. 4. The student will be familiar with the methods of concrete mix design. 5. The student will know the properties of concrete in fresh and hardened states. 6. The student will be familiar with the tests of cement, aggregate, fresh and hardened concrete
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Definition of Cement: Portland cement is the name given to a cement obtained by intimately mixing together calcareous and argillaceous, or other silica-, alumina-, and iron oxide bearing materials, burning them at a clinkering temperature, and grinding the resulting clinker. Manufacture of Portland cement: •Calcareous material – such as limestone or chalk, as a source of lime (Cao).

	• Clayey material – such as clay or shale (soft clayey stones), as a source of silica and alumina. Methods of cement manufacturing: 1 - Wet process: grinding and mixing of the raw materials in the existence of water. 2 - Dry process: grinding and mixing of the raw materials in their dry state. Chemical Composition of Cement: The silicates, C3S and C2S, are the most important compounds, which are responsible for the strength of hydrated cement paste. Hydration of cement: It is the reaction (series of chemical reactions) of cement with water to form the binding material. In other words, in the presence of water, the silicates (C3S and C2S) and aluminates (C3A and C4AF) form products of hydration which in time produce a firm and hard mass. Types of Cement: •Ordinary Portland cement - Type I • Modified cement - Type II • Rapid-hardening Portland cement - Type III • Low heat Portland cement - Type IV • Sulfate-resisting Portland cement - Type V Aggregate: **Coarse aggregate**: Aggregates predominately retained on a No. 4 (4.75 mm) sieve with percent of (95-100%), are classified as coarse aggregate. **Fine aggregate** (sand): Aggregates passing through a No. 4 (4.75 mm) sieve with percent of (95-100%), and predominately retained on a No. 200 (75 µ m) sieve are classified as fine aggregate. .
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The student acquires the skill of differentiating between the different types of cement, as well as the different types of aggregates involved in the production of concrete. The student acquires the skill of identifying the methods of producing concrete, methods of dealing with it on the site, and the problems facing concrete in hot weather. Also, the student will Know the skill of concrete mix design.

Student Workload (SWL)

الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**125**		

Module Evaluation
تقييم المادة الدراسية

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	5% (5)	5 and 10	LO #1, #2 and #3, #4
	Assignments	2	5% (5)	2 and 12	LO #5, and #6
	Projects / Lab.	1	15% (10)	Continuous	All
	Report	1	5% (5)	13	LO #1, #2 and #3, #4
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	PORTLAND CEMENT
Week 2	Chemical Composition of Cement
Week 3	Hydration of cement
Week 4	Soundness of cement
Week 5	Test of Fineness
Week 6	Structure of hydrated cement , Types of Cement
Week 7	MID TERM EXAM
Week 8	Pozzolanic Cement Production
Week 9	AGGREGATE
Week 10	Classification of aggregates
Week 11	Mechanical Properties of Aggregate

Week 12	Bulking of Aggregate
Week 13	Admixtures: admixtures, types, necessity and benefit Mineral Admixture, Chemical admixtures - Accelerator, retarder, water reducing elements, plasticizer and
Week 14	super-plasticizer, their functions and dosage.
Week 15	Admixtures: Mineral admixture - Fly ash, silica fume, blast furnace slag, and other pozzolanic materials.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Test Of Cement: Test Method for Consistency of the Cement
Week 2	Test Of Cement: Test Method for Setting Time of the Cement
Week 3	Test Of Cement: Compressive Strength of Cement Mortars
Week 4	Test Of Coarse Aggregate: Quartering Dividing Method for Aggregate
Week 5	Test Of Coarse Aggregate: Riffling Dividing Method for Aggregate
Week 6	Test Of Coarse Aggregate: Sieve Analysis for Fine Aggregate
Week 7	Test Of Coarse Aggregate: Sieve Analysis for Coarse Aggregate
Week 8	Test Of Coarse Aggregate: Clay and Fine Materials Content

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1- Required textbooks (curricular books, if any) NEVILLE, A. M. 2005 "PROPERTIES OF CONCRETE (5TH EDITION)" 2- Main references (sources) NEVILLE, A. M. 2005 "PROPERTIES OF CONCRETE (5TH EDITION)"	YES
Recommended Texts	Recommended books and references (scientific journals, reports...) Mehta, P. K. & Monteiro, P. J. M. 2006. Concrete: Microstructure, properties and materials, McGraw-Hill.	YES

Websites	Electronic References, Websites	American Concrete Institute (ACI)

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

Ministry of Higher Education and Scientific Research - Iraq

University of Warith Al-Anbiyaa
College of Engineering
Civil Engineering Department

MODULE DESCRIPTION FORM

Module Information

Module Title	CONCRETE TECHNOLOGY II	**Module Delivery**	
Module Type	CORE		☒ **Theory** ☒ **Lecture** ☒ **Lab**
Module Code	CIV044		
ECTS Credits	7		
SWL (hr/sem)	175		

Module Level	2	**Semester of Delivery**	2
Administering Department	Civil engineering	**College**	Engineering
Module Leader	Abdulrasool Thamer Abdulrasool	**e-mail**	abdulrasool.th@uowa.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	Ms.C
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	20/10/2024	**Version Number**	1.0

Relation with other Modules

Prerequisite module	CONCRETE TECHNOLOGY I	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	1. The course aims to introduce students to the ability to deal with concrete as a construction material. 2. Graduates of the department should have a comprehensive knowledge of concrete and the raw materials that make it up. 3. Graduate engineers who have the ability to design concrete mixes. 4. Gradate engineers who have sufficient knowledge to make all the tests of fresh and hardened concrete. 5. Students should know about all the Iraqi and international standards, and evaluate the results of laboratory tests.
Module Learning Outcomes	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. 1. The student will be familiar with the most important methods used in the cement industry. 2. The student will be familiar with the factors that affect the properties of the different types of cement and all the details of cement. 3. The student will be familiar with the types of aggregates involved in the production of concrete and its properties. 4. The student will be familiar with the methods of concrete mix design. 5. The student will know the properties of concrete in fresh and hardened states. 6. The student will be familiar with the tests of cement, aggregate, fresh and hardened concrete
Indicative Contents	Indicative content includes the following. <u>Fresh Concrete:</u> Methods of mixing, transporting and placing of concrete. Workability – Definition and requirement, factors affecting workability, various tests as IQ Standard. Segregation and bleeding, stiffening, re-tempering. Curing: necessity and various methods, micro-cracking. <u>Strength of Concrete:</u>

	The compressive strength of concrete is one of the most important and useful properties of concrete. In most structural applications concrete is employed primarily to resist compressive stresses. Elasticity, Creep and Shrinkage: Volume change is one of the most detrimental properties of concrete, which affects the long-term strength and durability. Durability and permeability of concrete: Definitions, causes, carbonation, cracking, Concrete in aggressive environment: Alkali – aggregate reaction, sulphate attack, chloride attack, acid attack, effect of sea water, special coating for water proofing, sulphate chloride and acid attack, concrete for hot liquids. Special Concrete: Review of behavior and characteristics of high strength concrete, high performance concrete, fiber reinforced concrete, mass concrete, light weight and heavy weight concrete, Precast concrete. Special concreting techniques: Pumped concrete, concrete, underwater concrete, pre-placed concrete, vacuum dewatered concrete, hot and cold weather concreting, Ready mixed concrete. Concrete Mix Design under ACI code: Mix design is the proportioning of the various constituents of concrete to produce the desired properties in both the fresh and hardened states.

Learning and Teaching Strategies	
Strategies	The student acquires the skill of differentiating between the different types of cement, as well as the different types of aggregates involved in the production of concrete. The student acquires the skill of identifying the methods of producing concrete, methods of dealing with it on the site, and the problems facing concrete

	in hot weather. Also, the student will Know the skill of concrete mix design.

Student Workload (SWL)

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	82	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**175**		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	5% (5)	3, 6 and8, 10	LO #1, #2 and #3, #4
	Assignments	2	5% (5)	2 and 12	LO #5, and #6
	Projects / Lab.	1	15% (10)	Continuous	All
	Report	1	5% (5)	13	LO #1, #2 and #3, #4
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Fresh concrete : Methods of mixing, transporting and placing of concrete.
Week 2	Fresh concrete: Workability – Definition and requirement, factors affecting workability, various tests, Segregation and bleeding, stiffening, re-tempering. Curing: necessity and various methods, micro-cracking.

Week 3	Hardened concrete: Compressive and tensile strength and their relationship, various tests, Factors affecting strength – water cement ratio, gel space ratio, aggregate cement ratio, properties of ingredients, effect of age, maturity, aggregate cement-paste inter-face, various finishes of concrete.
Week 4	Hardened concrete: Introduction to aspects of elasticity, shrinkage and creep. Tests for strength of concrete: Destructive, semi destructive and nondestructive tests with their limitations, test methods
Week 5	Hardened concrete: Durability and permeability of concrete: Definitions, causes, carbonation, cracking
Week 6	, Concrete in aggressive environment: Alkali – aggregate reaction, sulphate attack, chloride attack, acid attack, effect of sea water, special coating for water proofing, sulphate chloride and acid attack, concrete for hot liquids.
Week 7	Mid-term exam
Week 8, 9	Special Concrete: Review of behavior and characteristics of high strength concrete, high performance concrete, fiber reinforced concrete, mass concrete, light weight and heavy weight concrete, Precast concrete.
Week 10, 11, 12	Special concreting techniques: Pumped concrete, concrete, underwater concrete, pre-placed concrete, vacuum dewatered concrete, hot and cold weather concreting, Ready mixed concrete.
Week 13 , 14	Concrete mix design: Principles of mix proportioning, probabilistic parameters, factors governing selection of mix. British and ACI method of concrete mix design,
Week 15	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Test on Design concrete- fresh concrete : workability of concrete
Week 2	Test on Design concrete- fresh concrete : compacting factors
Week 3	Test on Design concrete- fresh concrete : VEE-BEE time test
Week 4	Test on Design concrete- fresh concrete Kelly ball test also called as a ball penetration test.
Week 5	Test On Designed Concrete, Hardened Concrete, Compressive Strength of Concrete Cubes Test
Week 6	Test On Designed Concrete , Hardened Concrete, Compressive Strength of Concrete Cylinder Test
Week 7	Test On Designed Concrete , Hardened Concrete, Splitting Tensile Strength Test Method
Week 8	Test On Designed Concrete , Hardened Concrete, Flexural Test

Week 9	Test On Designed Concrete , Hardened Concrete, Rebound Hammer Test
Week 10	Test On Designed Concrete , Hardened Concrete, Rebound Hammer Test
Week 11, 12	Trail mixes for normal concrete .
Week 13, 14	Trail mixes for Special kind concrete .
Week 15	Lab exam

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Concrete Technology	Yes
Recommended Texts	Properties of concrete by A.M. Neville. Concrete technology by A.M. Neville and Brook J.J 2nd Edition.	No
Websites	https://www.cement.org/learn/concrete-technology	

Appendix

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

Ministry of Higher Education and Scientific Research - Iraq

University of Warith Al-Anbiyaa
College of Engineering
Civil Engineering Department

MODULE DESCRIPTION FORM

Module Information					
Module Title	ENGINEERING DRAWING BY AUTOCAD			**Module Delivery**	
Module Type	BASIC			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CIV046				
ECTS Credits	3				
SWL (hr/sem)	75				
Module Level		2	**Semester of Delivery**		2
Administering Department		Civil engineering	**College**		Engineering
Module Leader	Hibatallah abd alameer		**e-mail**	Hiba.allah@uowa.edu.iq	
Module Leader's Acad. Title		Assistant Lecturer	**Module Leader's Qualification**		Ms.C
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date		20/10/2024	**Version Number**		1.0

Relation with other Modules			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. Develop proficiency in using AutoCAD software for creating accurate and precise engineering drawings in civil engineering projects. 2. Familiarize students with the fundamental principles and standards of engineering drawing and their application in civil engineering design and construction. 3. Enhance students' understanding of different types of civil engineering drawings, including architectural plans, structural drawings, site plans, and details, and enable them to create these drawings using AutoCAD. 4. Enable students to interpret and analyze engineering drawings, including dimensioning, scaling, and annotation, to accurately convey design and construction information. 5. Develop students' ability to collaborate effectively with other professionals, such as architects and structural engineers, through the exchange of engineering drawings in a standardized format using AutoCAD.
Module Learning Outcomes	1. Demonstrate proficiency in using AutoCAD software to create accurate and precise engineering drawings in civil engineering projects. 2. Apply the fundamental principles and standards of engineering drawing to produce high-quality civil engineering drawings using AutoCAD. 3. Interpret and analyze engineering drawings, including dimensioning, scaling, and annotation, to accurately convey design and construction information. 4. Create different types of civil engineering drawings, such as architectural plans, structural drawings, site plans, and details, using AutoCAD. 5. Collaborate effectively with other professionals, such as architects and structural engineers, by exchanging engineering drawings in a standardized format using AutoCAD.
Indicative Contents	Introduction to AutoCAD: Overview of AutoCAD software and its applications in civil engineering User interface and basic commands in AutoCAD File management and project organization in AutoCAD Engineering Drawing Principles and Standards:

	Introduction to engineering drawing principles and standards Drawing conventions, line types, and line weights Standard symbols and notations used in civil engineering drawings Creating 2D Civil Engineering Drawings: Creating and editing basic geometric shapes in AutoCAD Drawing techniques for architectural plans, structural drawings, and site plans Incorporating dimensions, scales, and annotations in engineering drawings Advanced Drawing Techniques: Working with layers and layer management in AutoCAD Advanced editing tools and techniques for modifying drawings Creating and managing blocks and attributes for efficient drawing production Civil Engineering Drawing Types: Detailed exploration of architectural plans, including floor plans, elevations, and sections Structural drawings, including foundation plans, framing plans, and reinforcement details Site plans and land development drawings, including grading plans and utility layouts Dimensioning and Scaling: Dimensioning techniques and best practices in civil engineering drawings Scaling and plotting drawings to various scales for printing and presentation purposes Using dimension styles and annotation tools for consistent and clear communication Collaboration and Standards: Understanding engineering drawing standards and practices Importing and exporting drawings between different software and file formats Collaborating with other professionals through the exchange of standardized engineering drawings Practical Applications and Case Studies: Applying AutoCAD and engineering drawing skills to real-world civil engineering projects Analyzing and interpreting existing engineering drawings for design modifications or construction purposes

	Case studies highlighting the importance of accurate and precise engineering drawings in civil engineering projects Project Work: Applying the acquired skills and knowledge to a comprehensive engineering drawing project Creating a set of civil engineering drawings using AutoCAD, following the appropriate standards and practices Presenting the project work and discussing the rationale behind design decisions

Learning and Teaching Strategies	
Strategies	The module employs a range of strategies to facilitate effective learning and teaching of engineering drawing using AutoCAD in the civil engineering department. These strategies include engaging lectures and demonstrations, hands-on practice sessions, group discussions and peer learning, practical workshops and tutorials, industry guest lectures and site visits, utilization of online resources and virtual learning, assessments with timely feedback, and promoting continuous learning and updates. By integrating these strategies, the module aims to provide students with a comprehensive understanding of AutoCAD and its application in creating accurate and precise engineering drawings, while fostering collaboration, critical thinking, and practical skills development in the civil engineering context.

Student Workload (SWL)			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3.2
Unstructured USWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	27	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	3, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	2	10% (10)	Continuous	All
	Report	0	0% (0)	none	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	20% (20)	7	LO # 1- 7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to program (Start Program; Interface; Command Enter; Start New Draw& Save File, Model & Layout, Command Window, Mouse Options, Keyboard, Helpers, Select object, Status Bar Enhancements, Workspace)
Week 2	Draw Command **part-one** (Line, Circle, Line & Circle **Practice**)
Week 3	Modifying on drawing **part-one** (Erase, Ray, Move, Copy, **Practice**)
Week 4	Draw Command **part-two** (Arc, Construction Line, Rectangle, Polyline, Polygon, Donut, Spline, **practice**)
Week 5	Modifying on drawing **part-two** (Rotate, Trim, Offset, Extend, **practice**)
Week 6	Draw Command **part-three** (Multiline, Point, Revcloud, Ellipse, **practice**)
Week 7	Modifying on drawing **part-three** (Fillet, Chamfer, Mirror, **practice)**
Week 8	Draw Command **part-four** (Hatch, **practice)**
Week 9	Modifying on drawing **part-four** (Array, Stretch, Scale, **practice)**
Week 10	Table, Text Command
Week 11	Block characteristics, Annotation

Week 12	Drawings properties
Week 13	Layers principles
Week 14	Annotation formation and editing
Week 15	Output properties and print options (Model & Layout)

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Lab 1: General Principles and draw commend
Week 2,3	Lab 2: Draw option and modify options (part one)
Week 4,5	Lab 3: Draw option and modify options (part-two)
Week 6,7	Lab 4: Draw option and modify options (part-three)
Week 8,9	Lab 5: Draw option and modify options (part-four)
Week 10,11	Lab 6: Table, Text Command, Block characteristics, Annotation
Week 12,13	Lab 7: Drawings properties, Layers principles
Week 14,15	Lab 8: Annotation formation and editing ,Output properties and print options

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts		No
Recommended Texts		No
Websites	https://www.autodesk.com/training	

Appendix

Grading Scheme				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al-Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	ENGINEERING SURVEY I	**Module Delivery**	
Module Type	CORE		**Theory** **lab** **Tutorial**
Module Code	CIV035		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	3	**Semester of Delivery**	1
Administering Department	Civil engineering	**College**	Engineering
Module Leader	Thaer Taher Atshan	**e-mail**	thaertahir@uowa.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	M.Sc.
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Review Committee Approval	2024/9/26	**Version Number**	2024

Relation With Other Modules

Prerequisite module	None	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. Defining the basics of surveying and how to use measuring tools and avoid measurement obstacles. 2.Defining surveying devices and their uses such as level and theodolite. 3.Measuring and determining levels and determining heights for buildings and land uses. 4. Learning how to record readings in the surveyor's notebook. 5.Learning how to correct levelling errors. 6. Drawing longitudinal and transverse sections and calculating the areas and volumes of regular and irregular shapes. 7.Introducing the student to contour maps and types of surveying and linking them to contemporary technology. 8.Teaching the student to calculate areas and volumes from contour maps.
Module Learning Outcomes	1.Know the details and methods of surveying and leveling and the steps followed for each type. 2.The learner will be able to project maps on the ground or transfer the image to a natural location on the map. 3.Determine the heights of the land above sea level and link them to the height of neighboring buildings. 4.The learner will be able to calculate areas, quantities and volumes for civil works of projects. 5.Enabling the student to use surveying and measuring devices. 6.Increase the ability and engineering sense and speed of decision-making.
Indicative Contents	1.Definition of surveying, its importance, measuring tools, units and errors in measuring distances and sources of errors (5 hours) 2.Leveling and sources of errors in leveling, identifying the level, its components and types, the staff and its types and how to read them (7 hours) 3.The method of rising and falling and the method of raising the device in recording staff readings in the surveyor's notebook and reading the revised staff and balancing obstacles (10 hours) 4.The method of two pegs to correct the line of sight in the leveling device / applications on leveling (3 hours) 5.Longitudinal and transverse sections and drawing them, finding the depth of excavation and burial and calculation methods (8 hours) 6.Topographic surveying and contour lines and their properties and methods of fixing them and how to number them and calculate quantities from them (7 hours) Areas and how to calculate them for regular and irregular shapes (8 hours)
Learning and Teaching Strategies	
Strategies	1. Explain the lectures and discussions in the classroom to deliver the

	scientific information to the student. 2. Directing questions and inquiries that are distinguished by accuracy. 3. Developing self-learning by deducing solutions to the problems. 4. Extracurricular assignments and solving classroom examples. 5. Field exercises within the university to apply measuring dimensions and levels. 6. Performing the tests specified for the subject at the times specified for them. 7. Reviewing the books and references indicated by the subject teacher.

Student Workload (SWL)

Structured SWL (h/sem)	77	**Structured SWL (h/w)**	5
Unstructured SWL (h/sem)	48	**Unstructured SWL (h/w)**	3
Total SWL (h/sem)	125		

Module Evaluation

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	5	5 % (5)	3,5, 6,10,14	LO #3, 4 and 5
	Assignments	5	5 % (5)	2, 12	LO # 3, 4, 5,6 and 7
	Projects / Lab.	10	20 % (20)	Continuous	All
	Report	10	10 % (10)	Continuous	All
Summative assessment	**Midterm Exam**	2 hr	10 % (10)	7	LO # 1-5
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Definition of surveying, its importance, measuring tools, units and errors in measuring distances and sources of errors
Week 2	Identifying the level, its components, types, staff, types of staffs, and how to read them
Week 3	The rising and falling method of recording staff readings in the surveyor's notebook
Week 4	How to use the level to record staff readings in the surveyor's notebook
Week 5	Errors in direct differential levelling and correction of closure error
Week 6	Obstacles in levelling and how to avoid them and read the revised staff
Week 7	The two-peg method for correcting the line of sight in the leveling device (level)

Week 8	Applications on levelling
Week 9	Longitudinal sections, drawing them, finding the depth of excavation, filling height and calculation methods
Week 10	Cross sections and calculation methods
Week 11	Topographic survey, contour lines and their properties
Week 12	How to make contour lines, how to install them and how to number them
Week 13	Areas and how to calculate them for regular and irregular shapes
Week 14	Volumes How to calculate the volume of works for roads, rivers and sewers
Week 15	Square grid method for calculating areas and volumes
Week 16	Preparatory week before the final exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الأسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Tools used in surveying, adjusting direction in measurement, calculating flat and inclined distances, and correcting measurements
Week 2	Lab 2: Learn about level, its types and accessories / types of adjustment/ reading the staff
Week 3	Lab 3: Levelling by rising and falling method
Week 4	Lab 4: Levelling by height of instrument
Week 5	Lab 5: Inverted levelling and checking the level of the building ceiling
Week 6	Lab 6: The wedge method for correcting the line of sight
Week 7	Lab 7: Setting the levels for a school yard, 11 cm thick
Week 8	Lab 8: Methods of erecting and setting columns
Week 9	Lab 9: Setting boundaries and dropping a building using tape only
Week 10	Lab 10: Tape Measure Obstacles, Barriers and Barriers

Learning and Teaching Resources

	Text	**Available in the Library?**
Required Texts	1.المساحة الهندسية-ياسين عبيد -عبيد احمد- كلية الهندسة – جامعة البصرة – 1990 وزارة التعليم العالي العراقية.	Yes
Recommended Texts	2. هندسة المساحة – للدكتور عباس زيدان – قسم البناء واالنشاءات – الجامعه التكنولوجية – الطبعة الاولى – 2009 A text Book of Surveying and Leveling, R. Agor, -3 Delhi,2012	2-No 3- Yes

Websites	

APPENDIX:

GRADING SCHEME				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al-Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTION FORM

Module Information					
Module Title	ENGINEERING SURVEY II			**Module Delivery**	
Module Type	CORE			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CIV045				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		2	**Semester of Delivery**		2
Administering Department		Civil engineering	**College**		Engineering
Module Leader	Thaer Taher Atshan		**e-mail**		thaertahir@uowa.edu.iq
Module Leader's Acad. Title		Assistant Lecturer	**Module Leader's Qualification**		Ms.C
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date		20/10/2024	**Version Number**		1.0

Relation with other Modules			
Prerequisite module	Engineering Survey I	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. Definition of directions, calculation of coordinates, shading, angles of deviation, map orientation and types of north 2. Definition of the theodolite in engineering projects and its types and how to use it 3. In methods and their types and Definition of horizontal curves in determining and projecting it 4. Learning how to avoid measurement and orientation obstacles 5. Teaching the student the methods of projection and signature of horizontal curves 6. In methods and their determination and projection Definition of vertical curves and their types in 7. Teaching the student the methods of projection and signature of vertical curves 8. Definition of indirect surveying And calculating building heights 9. Introducing the student to the total station device and how to use it in work
Module Learning Outcomes	1. The learner will be able to determine directions and orient maps 2. The learner will be able to calculate coordinates of points and angles of deviation of polygons. 3. The learner will be able to use all types of theodolite. 4. The learner will be able to project and sign it on the ground The horizontal Calculate the lengths of the elements of the curve 5. The learner will be able to use alternatives to the projection Avoid the obstacles of projecting the curve 6. The learner will be able to project and sign it on the ground Calculate the lengths of the elements of the curve 7. The learner will be able to calculate the heights of buildings directly and in an unusually high way 8. The learner will be able to use the total station device 9. Increase the ability and sense of geometry and the speed and accuracy of decision-making.
Indicative Contents	The instructional contents include: • Types of north, directions, coordinates, ribbing and angles of deviation (6 hours) • Theodolite, its components, use, teaching erection and its porosity (6 hours)

	• Theorem, its elements, how to project it and projection methods Theorem Curves (12 hours) • Theorem, its equation, types, elements and projection methods Curves (10 hours) • Theorem and beams Tachometer surveying, surveying methods and calculating heights for buildings (8 hours) • Total station and its use (6 hours)

Learning and Teaching Strategies	
Strategies	1. Giving lectures in person and in the classroom to discuss the scientific material for the student. 2. Asking questions and inquiries that are characterized by depth and accuracy. 3. Developing the learning process by deducing solutions to the problems raised. 4. Extracurricular assignments and solving classroom examples. 5. Field exercises inside the university to apply measuring dimensions and levels. 6. At the times specified for them. Performing the tests specified for the subject in 7. As directed by the subject teacher. Reviewing books and other resources 8. Following the subject teacher's YouTube channel to view the electronic lectures.

Student Workload (SWL)			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	77	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured USWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	48	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	4	6 % (6)	4, 10,11,13	LO # 2, 4, 6 and 7
	Assignments	4	4 % (4)	2, 12	LO # 2, 4, 5,6 and 7
	Projects / Lab.	10	20 % (20)	Continuous	All
	Report	0	0% (0)	none	
Summative assessment	**Midterm Exam**	2 hr	30 % (20)	7	LO # 1-4
	Final Exam	3hr	40% (40)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Geographic North and Magnetic North S and Declinations 1 Bearing and Azimuth
Week 2	Types of polygons Traversing and its types
Week 3	Calculate directions, deflection angle and coordinates
Week 4	Theodolite, its types, composition, and how to install and use it
Week 5	Reading horizontal and vertical angles with theodolite
Week 6	Definition of horizontal curves and their types
Week 7	How to drop the curve and calculation methods
Week 8	Methods of projecting the curve on the ground 8 thousand riyals
Week 9	obstacles to the horizontal curve projection
Week 10	Definition of vertical curves and their types
Week 11	Exercises on the calculations of projecting the vertical curve onto the ground
Week 12	Tachymetric surveying, its methods and uses
Week 13	Exercises on calculating building heights using quick surveying
Week 14	TOTAL STATION device

Week 15	Using the total station in horizontal curve projection
Week 16	Preparing week before the exam

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Lab 1: Learn about the theodolite, its parts, accessories and types of adjustment
Week 2	Lab 2: Reading horizontal angles by repetition
Week 3	Lab 3: Reading vertical angles
Week 4	Lab 4: Find the height of the theodolite building and the bar.
Week 5	Lab 5: Theodolite and strip plot boundary setting and closure error correction
Week 6	Lab 6: Determine the sides of a road by knowing the center line of the road.
Week 7	Lab 7: Projecting a curve using only a tape measure
Week 8	Lab 8: Projecting a horizontal curve using a measuring rod and theodolite
Week 9	Lab 9: Tachymetric surveying, stadia hair method, finding elevations and levels
Week 10	Lab 10: Get to know the total station device

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	وزارة التعليم العالي العراقية. 1990 – جامعة البصرة – كلية الهندسة -ياسين عبيد -عبيد احمد-المساحة الهندسية	نعم
Recommended Texts	2- هندسة المساحة – للدكتور عباس زيدان – قسم البناء والانشاءات – الجامعه التكنولوجية – الطبعة الاولى – 2009 3- A text Book of Surveying and Leveling, R. Agor, 2012,Delhi	1- كلا 2- نعم
Websites	https://www.autodesk.com/training	

Appendix

Grading Scheme				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
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	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al-Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	ENGLISH LANGUAGE II		**Module Delivery**	
Module Type	CORE		**Theory** **lecture** **practical**	
Module Code	UoW031			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	3	**Semester of Delivery**	1	
Administering Department	Civil engineering	**College**	Engineering	
Module Leader	Sally Muwafaq Talib	**e-mail**	Sallay.muwafaq@uowa.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	M.Sc.	
Module Tutor		**e-mail**		
Peer Reviewer Name		**e-mail**		
Review Committee Approval	2024/9/26	**Version Number**	1	

Relation With Other Modules

Prerequisite module	Academic English I	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	• **To review essential grammar of the language.** • **To develop writing skills in engineering topics with focus on enhancing students' abilities to deliver ideas clearly according to academic writing structure, including introduction paragraph, body paragraphs and a conclusion.** • **To improve students' reading and comprehension skills in engineering topics.** • **To enhance students' vocabulary in engineering topics, through reading and listening activities.** • **To improve students' ability to listen effectively to different listening materials in engineering topics, understand the basic ideas, and summarize key points.** • **To improve students' ability to speak and present ideas in front of the class.** **To enhance students' ability to engage and participate in classes through group reading or discussion.**
Module Learning Outcomes	1. Punctuality. 2. Pay attention to the lecturer during class and write down the information provided. 3. To be calm and respectful during classes and answer questions in a scientific manner. To understand the importance of fluid mechanics and the impact of the subject on his future career in this field.
Indicative Contents	

Learning and Teaching Strategies	
Strategies	•Strategies that are used in delivering this module is to train the students on reading, listening and writing, and that is achieved through class exercises and assignments to improve those skills. • Communicative strategy: Encourage students to engage in authentic language use through pair and group work, discussions, role-plays, and real-life engineering scenarios. • Multimodal Instruction: Utilize a variety of teaching resources and materials, including audiovisual materials, interactive online platforms. Incorporate visual aids, diagrams, and multimedia tools to enhance comprehension and engage visual and auditory learners. .

Student Workload (SWL)			
Structured SWL (h/sem)	32	**Structured SWL (h/w)**	6.0
Unstructured SWL (h/sem)	30	**Unstructured SWL (h/w)**	4

Total SWL (h/sem)	62

Module Evaluation
تقييم المادة الدراسية

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10%	5 and 10	LO #1, 2, 10 and 11
	Assignments	2	10%	2-12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10%	Continuous	
	Report	1	10%	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2hr	10%	7	LO # 1-7
	Final Exam	3hr	50%	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	It's a wonderful world! Grammar: Auxiliary verbs, naming tenses, questions and negative. Vocabulary: Social expressions, sport and Leisure. Reading: Wonders of the modern world. Writing: Topic sentences. Listening: My wonders exercise.
Week 2-3	Get happy! Grammar: Present tenses, simple and continuous, and present passive. Vocabulary: Numbers and dates, money and fractions Reading: The clown doctor. Writing: Developing paragraphs with descriptive details. Listening: Sports exercise
Week 4-6	Doing the right thing Grammar: Modal verbs – obligation and permission. Reading: A world guide to good manners. Vocabulary: Nationality words, countries and adjectives. Writing: Review of descriptive vocabulary. Listening: Come round to my place exercise.
Week 7- 8	Types of loads

Week 9-12	Roads
Week 13-14	Pavement Design
Week 15-16	Thesis writing

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	

Learning and Teaching Resources

	Text	**Available in the Library?**
Required Texts	New Headway Plus Intermediate Student Book, Liz and Hohn Soars, 2006, Oxford University Press. Writing in Paragraphs, Dorothy E Zemach and Calos Islam, 2010, Macmillan.	yes
Recommended Texts	…	
Websites	News – Biomedical Engineering at the University of Michigan (umich.edu) TED-Ed - YouTube BBC Learning English - 6 Minute English	

APPENDIX:

GRADING SCHEME				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al-Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	FLUID MECHANICS	**Module Delivery**	
Module Type	BASIC	**Theory lecture**	
Module Code	CIV036		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	3	**Semester of Delivery**	1
Administering Department	Civil Engineering	**College**	Engineering
Module Leader	Wurood Husieen Qhban	**e-mail**	wurood.hussien@uowa.ed.iq
Module Leader's Acad. Title	Assist Lecturer	**Module Leader's Qualification**	Master
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Review Committee Approval	15/09/2024	**Version Number**	1.0

Relation With Other Modules

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. To review essential grammar of the language. 2. To develop writing skills in engineering topics with focus on enhancing students' abilities to deliver ideas clearly according to academic writing structure, including introduction paragraph, body paragraphs and a conclusion. To improve students' reading and comprehension skills in engineering topics, especially in prosthetics and orthotics engineering, and help them extract relevant information and summarize key points accurately. 4. To enhance students' vocabulary in engineering topics, through reading and listening activities. 5. To improve students' ability to listen effectively to different listening materials in engineering topics, understand the basic ideas, and summarize key points. 6. To improve students' ability to speak and present ideas in front of the class. 7. To enhance students' ability to engage and participate in classes through group reading or discussion.
Module Learning Outcomes	1. Knowledge of the properties of fluid . 2. Knowledge of methods of measuring and calculating atmospheric and absolute pressure, and laboratory pressure. 3. Calculating the hydrostatic forces generated by the fluid at rest 4. Calculating the hydraulic forces generated by the fluid in the flow. 5. Determine the type of the flow. 6. Calculating major and secondary losses. Knowledge of open channel flow and the major equation.
Indicative Contents	Indicative content includes the following. 1- <u>Fluid Properties and Type of Fluid</u> This part will explain • Weight Density. • Mass Density. • Specific gravity. • Viscosity.

	• Surface Tension. • Vapor pressure. 2- Pressure and its Measurements includes following concepts • Fluid Pressure at Point. • Pressure Variation in a Fluid at a Rest. • Absolut, Gauge, Atmospheric and Vacuum Pressure. • Piezometer. 3- Hydrostatic Forces on Surface • Vertical and Horizontal Plan Surface Submerge in Liquid. • Inclined Plan Surface Submerge in Liquid. • Curved Surface Submerge in Liquid. 4- Dimensional Analysis and Similarity • The Principle of Dimensional Homogeneity. • The Pi Theorem 5- Real Fluid Flow in Pipe • Flow Classification. • Head Loss—The Friction Factor. • Major Losses. • Mainor Losses. 6- Flow in Open Channel • Chezy Equation. • Manning Equation. • Hydraulic Jump.

Learning and Teaching Strategies	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)			
Structured SWL (h/sem)	122	**Structured SWL (h/w)**	8
Unstructured SWL (h/sem)	53	**Unstructured SWL (h/w)**	3.5
Total SWL (h/sem)	175		

Module Evaluation

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	10% (10)	5 , 9 and 13	LO #3, 5 and 6
	Assignments	2	10% (10)	2, 12	LO # 3,4,6, and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10%(10)	-	-
Summative assessment	Midterm Exam	2 hr	20% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100%(100)		

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	Fluid Properties.
Week 2	Pressure variation in static fluid.
Week 3	Forces on plane surfaces.
Week 4	Forces on curved surfaces.
Week 5	Continuity equation.
Week 6	Energy equation (Ideal fluid).
Week 7	Mid-term Exam + Application of Energy equation.
Week 8	Application of Energy equation.
Week 9	Momentum equation.
Week 10	Flow of real fluid.
Week 11	Dimensional analysis
Week 12	Fluid flow in pipes: Friction losses
Week 13	Fluid flow in pipes: Minor losses.
Week 14	Flow in open channels
Week 15	Flow in open channels
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	Lab 1: (Viscosity), Capillary property measurement (Capillary)
Week 2	Lab 2: Determination the Centre of Pressure for a Plane Surface
Week 3	Lab 3: (Bernoulli's Equation)
Week 4	Lab 4: (Impact of jet)
Week 5	Lab 5: (Bernoulli's Equation)
Week 6	Lab 6: (Orifice)
Week 7	Lab 7: (Reynolds)

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Elementary fluid mechanics" by Johan K. Vennard,Robert L. Street.	Yes
Recommended Texts	Fluid Mechanics and Hydraulics", by Shaum Series.	No
Websites	https://library.uoh.edu.iq/admin/ebooks/53960-fluid-mechanics-4th-ed---f.-white.pdf	

APPENDIX:

GRADING SCHEME				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al-Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	MATHEMATICS I I I		**Module Delivery**	
Module Type	BASIC		**Theory** **lecture** **practical**	
Module Code	ENG032			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	3	**Semester of Delivery**	1	
Administering Department	Civil engineering	**College**	Engineering	
Module Leader	Noor Ul-Huda Kadhim Hussein	**e-mail**	nooralhuda@uowa.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	M.Sc.	
Module Tutor		**e-mail**		
Peer Reviewer Name		**e-mail**		
Review Committee Approval	2024/9/26	**Version Number**	1	

Relation With Other Modules

Prerequisite module	mathematics I I	**Semester**	2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	The module aims to provide students with a solid understanding of the fundamental concepts and techniques of linear algebra. This includes the study of linear equations. Students will also learn how to apply these concepts to solve real-world problems in various fields such as engineering, physics, economics, and computer science. By the end of the module, students should be able to manipulate and analyze mathematical models using linear algebraic tools and communicate their findings effectively.
Module Learning Outcomes	On completion of this module, students are expected to be able to: 1. Differentiate functions using the chain rule, product rule, quotient rule, and differentiation formula. 2. Formulate and solve first, second and higher order differential equations by algebraic methods. 3. Apply Fourier series to solving ordinary differential equations. 4. Test a given series for convergence, Determine whether a given sequence converges or not. 5. Differential Equations: Ordinary differential equations (ODEs) and partial differential equations (PDEs) are extensively used to describe dynamic systems and phenomena in engineering. They play a crucial role in fields such as fluid mechanics, heat transfer, structural analysis, and electrical circuits. 6. Apply methods of general and particular solutions to ordinary differential equations. 7. Formulation of a mathematical problem, mathematical formulation and use of mathematical methods in solving. 8. Find the Laplace transform of a function from the definition of a Laplace transform. 9. Find the Laplace transform of derivatives and integrals.
Indicative Contents	The Indicative Contents of a Mathematics module will depend on the level and scope of the course. However, some common topics that may be covered in a mathematics module include: 1. Arithmetic: Basic mathematical operations such as addition, subtraction, multiplication, and division. 2. Algebra: The study of mathematical symbols and the rules for manipulating these symbols to solve equations and represent real-world situations. 3. Geometry: The study of shapes, sizes, positions, and measurements of objects in space. 4. Calculus: The study of mathematical concepts such as limits, derivatives, and integrals. 5. Number theory: The study of properties of numbers and their relationships with each other. Overall, the Indicative Contents of a Mathematics module aims to provide students with a comprehensive

	understanding of mathematical concepts and their applications 3 in various fields of study.

Learning and Teaching Strategies

Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)

Structured SWL (h/sem)	78	**Structured SWL (h/w)**	6.0
Unstructured SWL (h/sem)	72	**Unstructured SWL (h/w)**	4
Total SWL (h/sem)	150		

Module Evaluation تقييم المادة الدراسية

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10%	5 and 10	LO #1, 2, 10 and 11
	Assignments	2	10%	2-12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10%	Continuous	
	Report	1	10%	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2hr	10%	7	LO # 1-7
	Final Exam	3hr	50%	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Ordinary differential Equations: First order (variables separable, homogeneous, linear, Bernoulli and exact). Second order (Homogeneous and non-homogeneous). Higher order differential equations
Week 2	
Week 3	
Week 4	
Week 5	Partial Differentiation: Function of two or more variables, Partial derivatives, Directional derivative, Gradient, divergence, curl, Tangent plane and normal line, Maxima, minima & saddle point.
Week 6	
Week 7	

Week 8	Laplace Transform: Unit step function, Gamma function, Definition of L.T. and Properties, Inverse Laplace Transform, partial fractions, solution of differential equations using Laplace transform.
Week 9	
Week 10	
Week 11	Sequences and series: Sequences, convergence, Series, geometric series, nth partial sum, test of convergence, alternating series, Power and Taylor's series.
Week 12	
Week 13	Fourier Series: Periodic functions, Fourier series, Even and odd functions, Half -Range expansions, Complex notation for Fourier series
Week 14	
Week 15	
Week 16	

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week7	

Learning and Teaching Resources

	Text	**Available in the Library?**
Required Texts	Erwin Kreyszig, "Advanced Engineering Mathematics", 10th Ed.	yes
Recommended Texts	1. George B. Thomas Jr., "CALCULUS", 14th Ed 2.Schaum's Outline of College Mathematics, Fourth Edition 3. Mary Attenborough, "Mathematics for Electrical Engineering and Computing", 1st Ed.	No
Websites	Topics in a Calculus -Wolfram Mathworld	

APPENDIX:

GRADING SCHEME				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al-Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information			
Module Title	STRENGTH OF MATERIALS I	**Module Delivery**	
Module Type	Core	**Theory**	
Module Code	CIV033	**Lecture**	
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	3	**Semester of Delivery**	1
Administering Department	Civil Engineering	**College**	Engineering
Module Leader	Wail Asim Mohammad	**e-mail**	wael.essam@uowa.edu.iq
Module Leader's Acad. Title	Asst. Prof.	**Module Leader's Qualification**	PHD
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	2024/9/26	**Version Number**	1

Relation With Other Modules			
Prerequisite module	Engineering Mechanics	**Semester**	2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. To develop problem solving skills and understanding of materials theory through the application of techniques. 2. To understand the relation between the forces and the stresses. 3. This course deals with the basic concept of stresses and strains. 4. This is the basic subject for all types of determinate structures. 5. To understand the methods of solving stresses, strains, and deflections problems.
Module Learning Outcomes	1. Recognize how determinate structures works under various types of loading. 2. List the various loading associated with determinate structures. 3. Summarize what is meant by a stresses and strains. 4. Describe the stress, the strains and the deflection. 5. Define Hook's law. 6. Identify the basic structural elements and their applications. 7. Discuss the various properties of beams, columns.
Indicative Contents	Indicative content includes the following Fundamental Principles of Mechanic: - Concept of force, units of force (SI units), Moment of force, conditions of equilibrium - Forces and Moments: Differential equilibrium relationship, Shear force and bending moment diagrams. Stresses. - Concept of stresses, Stresses due to axial stress, Average shearing stress. Stresses in beams. - Bending stresses, Shearing stresses, Compound stresses Strains. - Definition, Hook,s Low, Poisson,s ratio, Thermal strain, Stress-strain diagram, Linear relation between E,G and V. Transformation of stress and strain. - Equation for the transportation of plane stress, Principal stress, Mohr, s Circle of stress, Equations for transportation of plane strain Mohr,s Circle of stress. Torsion. - The torsion formula for solid circular shaft, Design of circular members in torsion, Angle of twist of circular members in torsion, Thin- walled hollow members, Solid non circular sections. Deflection of Beams.

	- Governing differential equation for deflection of elastic beam, Double Integration method, Moment area method. Columns. - Natural of the beam column problem, Euler buckling load

Learning and Teaching Strategies	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials that are interesting to the students.

Student Workload (SWL)			
Structured SWL (hr/sem)	63	**Structured SWL (h/w)**	4
Unstructured SWL (hr/sem)	62	**Unstructured SWL (h/w)**	4
Total SWL (h/sem)	125		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 , 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2 , 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	All	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Fundamental principles of mechanic: - Concept of force, units of force (SI units).
Week 2	Fundamental principles of mechanic: - Moment of force, conditions of equilibrium.
Week 3	Forces and moments: - Differential equilibrium relationship.
Week 4	Forces and moments: Shear force and bending moment diagrams
Week 5	Forces and moments: Shear force and bending moment diagrams
Week 6	Forces and moments: Shear force and bending moment diagrams
Week 7	Torsion: - The torsion formula for solid circular shaft, Design of circular members in torsion
Week 8	Torsion: - Angle of twist of circular members in torsion.
Week 9	Torsion: - Thin- walled hollow members, Solid non-circular
Week 10	Stresses: - Concept of stresses, Stresses due to axial stress.
Week 11	Stresses: - Stresses due to axial stress.
Week 12	Stresses: - Average shearing stress, Thin-walled pressure vessels.
Week 13	Stresses in beam: - Bending stresses
Week 14	Stresses in beam: - Shearing stresses.
Week 15	Stresses in beam: - Compound stresses.
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	
Week 2	

Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	
Week 9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Strength of Materials, by: Singer.	Yes
Recommended Texts	1- Introduction to Mechanics of Solid, by: E. Popov. 2- Elements of Strength of Materials, by: Timoshenko 3- Mechanics of Materials by: Russell C. Hibbeler. 3- Mechanics of materials by: Ferdinand Beer et al. 4- Mechanics of Materials by: Manua Gere. 6- Strength of Materials, J. P. Den Hartog	yes
Websites		

Appendix :

Grading Scheme				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al-Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTION FORM

Module Information			
Module Title	STRENGTH OF MATERIALS II	**Module Delivery**	
Module Type	CORE		☒ **Theory**
Module Code	CIV043		☒ **Lecture**
ECTS Credits	5		☐ **Lab**
SWL (hr/sem)	125		☒ **Tutorial**
Module Level	2	**Semester of Delivery**	2
Administering Department	Civil engineering	**College**	Engineering
Module Leader	Wail Asim Mohammad	**e-mail**	wael.essam@uowa.edu.iq
Module Leader's Acad. Title	Assist.prof.doctor	**Module Leader's Qualification**	Ph.D.
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	20/10/2024	**Version Number**	1.0

Relation with other Modules			
Prerequisite module	Strength of Materials I	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. To develop problem solving skills and understanding of materials theory through the application of techniques. 2. To understand the relation between the forces and the stresses. 3. This course deals with the basic concept of stresses and strains. 4. This is the basic subject for all types of determinate structures. 5. To understand the methods of solving stresses, strains, and deflections problems.
Module Learning Outcomes	1. Recognize how determinate structures works under various types of loading. 2. List the various loading associated with determinate structures. 3. Summarize what is meant by a stresses and strains. 4. Describe the stress, the strains and the deflection. 5. Define Hook's law. 6. Identify the basic structural elements and their applications. 7. Discuss the operations of sinusoid and phasors in an electric circuit. 8. Discuss the various properties of beams, columns.
Indicative Contents	Indicative content includes the following. **Strains**: - Definition, Hook's Low, Poisson's ratio, Thermal strain, Stress-strain diagram, Linear relation between E,G and V. **Transformation of stress and strain**: - Equation for the transportation of plane stress, Principal stress, Mohr' s Circle of stress, Equations for transportation of plane strain Mohr's Circle of stress. **Deflection of Beams**: - Governing differential equation for deflection of elastic beam, Double Integration method, Moment area method. **Columns:** - Natural of the beam column problem, Euler buckling load

Learning and Teaching Strategies	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	62	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	132		

Module Evaluation					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	-	-	-	-
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	**Strain**: - Definition, Hook's Low, Poisson ' s ratio.
Week 2	**Strain**: - Thermal strain.
Week 3	**Strain**: - Stress-strain diagram.
Week 4	**Strain**: - Linear relation between E,G and V
Week 5	**Transformation of stress and strain**: -Equation for the transportation of plane stress.
Week 6	**Transformation of stress and strain**: -Principal stress, Mohr' s Circle of stress.
Week 7	**Transformation of stress and strain**: -Equations for transportation of plane strain Mohr ' s Circle of stress
Week 8	**Transformation of stress and strain**: -Equations for transportation of plane strain Mohr ' s Circle of stress
Week 9	**Deflection of beams**: - Governing differential equation for deflection of elastic beam.
Week 10	**Deflection of beams**: - Double Integration method, Multiple Equation Methods.
Week 11	**Deflection of beams**: - Double Integration method, General Equation Method.
Week 12	**Deflection of beams**: - Moment area method
Week 13	**Columns:** -Natural of the beam column problem, Euler buckling load
Week 14	**Columns:** -Natural of the beam column problem, Euler buckling load
Week 15	**Columns:** -Natural of the beam column problem, Euler buckling load
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	

Week 7	

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Strength of Materials, by: Singer.	Yes
Recommended Texts	Introduction to Mechanics of Solid, by: E. Popov. Elements of Strength of Materials, by: Timoshenko Mechanics of Materials by: Russell C. Hibbeler. Mechanics of materials by: Ferdinand Beer et al. Mechanics of Materials by: Manua Gere. Strength of Materials, J. P. Den Hartog	yes
Websites		

Appendix :

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound works with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

Course Description Form

1. Course Name:
Design of Steel structure
2. Course Code:
WCV-41-04
3. Semester / Year:
First semester / 2024-2025
4. Description Preparation Date:
28/09/2024
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
2/3
7. Course administrator's name (mention all, if more than one name)
Name: Dr.Salam Razaq Jasim Email: salam.razaq@uowa.edu.iq
8. Course Objectives

Course Objectives	• Understanding Steel as a Construction Material • Design Principles and Methodologies • Structural Components Design • Analysis of Steel Structures
9. Teaching and Learning Strategies	
Strategy	The strategy for designing steel structures encompasses a systematic approach to ensure struct safety, efficiency, and cost-effectiveness, while adhering to codes and standards. Here' structured strategy for the design of steel structures: • Define Design Requirements and Scope • Preliminary Design and Conceptual Planning • Structural Analysis • Detailed Structural Design • Use of Design Codes and Standards • Optimization of Design

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Introduction Steel Structur	• Properties of structural steel (strength, ductility, weldability, etc.) • Advantages and disadvantages of using steel in construction • Types of structural steel and steel product	Thermotical	
2	3	Basics of Struct Analysis	Fundamental Principles of Structural Analysis Analysis Methods for Steel Structures		
3 4	3	Design Tension Members	Introduction to Tension Members		
5	3		Applications		
6		Mid exam			
7 8 9	3	Design of Compres Members (Columns)	Behavior of Compression Members Design of Steel Columns Applications		
10 11 12	3	Design of Beams	Flexural strength and shear strength		
13 14	3	Design of S Connections			
15	3	Final Exam			

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Steel Design by Segui, Fourth Edition, 2007 Structural Steel Design by Mc Cormac and
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Csernak, Fifth Edition, 2012. 3- AISC-LF Manual. Handbook and Specifications
Electronic References, Websites	

Course Description Form

1. Course Name:
Design of Reinforced Concrete Structures I
2. Course Code:
WCV-41-06
3. Semester / Year:
First Semester / 2024-2025
4. Description Preparation Date:
23/09/2024
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
Theoretical 45 hrs. Credits: 4
7. Course administrator's name (mention all, if more than one name)
Name: Waleed khaleel nayel--- PhD Email: waleed.k@uokerbala.edu.iq
8. Course Objectives

Course Objectives	1. Introducing students to the types of roofs used in different buildings. 2. Introducing students to calculating the minimum slab thickness of a concrete slab. 3. Direct Design Method. 4. Equivalent Frame Method. 5. Learn about the design and analysis of pre-stressed concrete members. 6. Using the theory of yield lines to analyze and design concrete slab.

9. Teaching and Learning Strategies

Strategy	Explaining the topics, and linking it to the practical reality of engineering projects, directing continuous questions to students for the purpose of continuing their participation, using electronic means to clarify various topics, conducting surprise and monthly written tests, and giving homework for each topic that is explained.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Introduction	Introducing students to the different types of roofs and when to use each type Introduction	Attendance	Discussion
6-2	9	Minimum slab thickness to control deflection by using ACI-code	Minimum slab thickness to control deflection	Attendance	Exam
10-7	7	Direct Design Method	Direct Design Method	Attendance	Exam
11	9	Equivalent Frame Method	Equivalent Frame Method	Attendance	Exam
12	8	Yield Line Method	Yield Line Method	Attendance	Exam
15-13	9	Pre-stress concrete beam	Simple basic principles of pre-stressed concrete beam design	Attendance	Exam

11. Course Evaluation

Quizzes: 5%	Homework: 2.5 %	Class activity: 2.5%	1st Exam: 15%	2nd Exam: 15%	Final-Exam: 60%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• Design of Reinforced Concrete Structures I and Design of Reinforced Concrete Structures II
Recommended books and references (scientific journals, reports…)	Building Code Requirements -ACI- for Structural Concrete (318-14,19)

Course Description Form

1. Course Name:	
Foundation Engineering II	
2. Course Code:	
WCV-42-01	
3. Semester / Year:	
Second Semester / 2024-2025	
4. Description Preparation Date:	
23/9/2024	
5. Available Attendance Forms:	
In-present	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Total tuition hours: 60 hrs/semesterTheory: 3 hrs/week Tut. : 1 hr/week Units: 3	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Hadeel Challoob Dekhn Email: hadeel.ch@uowa.edu.iq	
8. Course Objectives	
Course Objectives	• Chapter One:Pile Foundations • Chapter Two:Lateral Earth Pressure • Chapter Three:Retaining Wall • Chapter Four: Sheet Pile
9. Teaching and Learning Strategies	
Strategy	Preparation of practical engineers in the field of deep foundations and other structural members underground surface who are characterized by a high level of knowledge and technological innovation, and work in with internationally approved discreet standards of quality assurance and academic accreditation of corresponding engineering programs with a commitment to ethics of engineering career. Enable students to learn and understand the various applications for deep foundations and other structural members underground surface according to the aims of the course.

10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1	4	Definition, Types of Piles and Their Structural Characteristics	Chapter One: Pile Foundations	Theoretical lectures, discussion and dialogue, brain storming, examples and questions used to achieve the goals	Daily exams, quizzes, documented examinations, quarterly exams, final exams, oral questions and discussions during the lectures, and home works
2	4	Estimating Pile Length, Point Bearing Piles, Friction Piles			
3	4	Methods of installation of piles, load transfer mechanism, point load and friction piles.			
4	4	Pile capacity: in cohesion less soil, in cohesive soil (alpha, beta, and lambda equations)			
5	4	Examples on item of third week, bearing capacity of pile in mixed soil (c-ϕ) Pile			
6	4	Pile capacity from in situ tests (SPT, load test). Negative skin friction			
7	4	Group of piles: capacity (two modes of failure: single and block) and efficiency			
8	4	continuous			
9	4	Settlement of pile group.			
10	4	Introduction to lateral earth pressure theory, active and passive lateral pressure by Rankine theory for horizontal surface.	Chapter Two: Lateral Earth Pressure		
11	4	Active and Passive lateral pressure by Rankine theory for inclined surface.			
12	4	Coulomb theory for active and passive lateral pressures.			
13	4	Definitions and types of retaining walls, geotechnical proportioning against overturning, sliding and base shear failure.	Chapter Three: Retaining Wall		
14	4	Analysis and design of retaining walls.			
15	4	Sheet piles: function and types, installation. Cantilever sheet pile.	Chapter Four: Sheet Pile		

11.Course Evaluation	
Daily exams, quizzes, documented examinations, quarterly exams, final exams, o questions and discussions during the lectures, and home works.	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Braja M. Das and Sivakugan N, (2019) Principles of Foundation Engineering, Ninth edition, SI edition.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Foundations Engineering 1st
2. Course Code:
3. Semester / Year:
First Semester 2023−2024
4. Description Preparation Date:
24\9\2024
5. Available Attendance Forms:
In person
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hrs (15 weeks and 4 hrs/week)
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Hadeel Challoob Dekhn Email: hadeel.ch@uowa.edu.iq
8. Course Objectives

Course Objectives	To learn about types and purposes of different foundation systems structures. To provide students with exposure to the systematic methods for designing foundations. To discuss and evaluate the feasibility of foundation solutions to different types of soil conditions considering the time e on soil behavior. To build the necessary theoretical background for design and construction of foundation systems.

9. Teaching and Learning Strategies

Strategy	Foundation engineering courses require effective learning and teaching strategies toensure students develop a strong understanding of complex concepts and their practical applications. The range of strategies that can enhance the learning experience for students in foundation engineering courses. These strategies include lecture-based teaching, practical applications, problem-solving assignments, group work and discussions, technology integration, field trips and site visits, guest speakers, assessments and feedback, continuous learning, and encouraging self-directed learning. By incorporating these strategies, educators can create an engaging and comprehensive learning environment that equips students with the knowledge, skills, and critical thinking abilities necessary for success in the field of foundation engineering.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-3	12	• Definition and aims • Steps • Number and depth of borin • Sampling • Laboratory tests • Field tests • Report	Site Investigation	Powerpoint presentations (Hand-out). Video for explana each lecture. Photos and videos more explanation	-Daily oral questions and quick written tests. -Discussion and with students. -Small projects -Attendance. -Monthly written tests. -Final exam.
4-9	24	•Introduction • Terzaghi's bearing capacity equation and BC factors • Meyerhof 's equation and shape factors • SPT used for BC • Eccentricity loading (one axes and bi-axes) • BC of non-homogeneous so • Uplift Capacity	Bearing capacity for shallow foundation		
10-15	24	Elastic Theory Immediate settlement Settlement Consideration Consolidation settlement Secondary settlement	Settlement for saturated soil		

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc
15% Monthly Exam 1
15% Monthly Exam 2
10% Quizzes and participation
60% Final Exam

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	-DAS B. M., "Principles of Foundation Engineering", Seventh Edition, 2011. 5. -DAS B. M., "Principles of Geotechnical engineering" Seventh Edition, 2010. 6. -Bowles J. E. "Foundation Analysis and Design", F Edition, 2006.
Recommended books and references (scientific journals, reports…)	Huang A. B. and Yu H. S., "Foundation Engineering Analysis and Design" First Edition, 2018. 2. -Couto D. P., Kitch W. A., Yeung M. R., "Foundation design : principles and practices" Third Edition, 2016. -Briaud J. L., "Geotechnical Engineering: Unsaturated Saturated Soils" First Edition, 2013.
Electronic References, Websites	-Videos by YouTube or any other sources relating to the course. -Websites on the WWW for furnishing more explanation the themes of this course.

Course Description Form

1. Course Name:
Highway Engineering/ 4th
2. Course Code:
WCV−41−03
3. Semester / Year:
2023-2024 (Semester System)
4. Description Preparation Date:
22/09/2024
5. Available Attendance Forms:
By person
6. Number of Credit Hours (Total) / Number of Units (Total):
30 hrs. (theoretical) + 30 hrs. (practical)
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof Dr. Anmar Falih Diekan Email: a.f.dulaimi@uowa.edu.iq
8. Course Objectives

Course Objectives	a) Familiarity with the development of road construction. b) Study of site and alignment of roads. c) Introducing students to the technical details of highway engineering and its types. d) Understanding the materials used in road construction. e) Describing the structure and function of the road. f) Study of asphalt and concrete road layers. g) Study of flexible and concrete road design. h) Familiarizing students with road defects and their treatment. i) Course outcomes and teaching, learning, and assessment methods.

9. Teaching and Learning Strategies

Strategy	1. Providing a comprehensive introduction to each study to and connecting the current topic to previous ones.

	2. Delivering theoretical lectures. 3. Presenting short scientific films. 4. Providing and explaining sufficient examples. 5. Conducting experiments in the road laboratory. 6. Using brainstorming to convey the material.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2 2-6 6-10 10-15 15-20 20-25 25-30	6 24 24 30 30 30 30	**Cognitive goals: the student has to be able to:** 1. Demonstrating the understanding of the need for the development of highway engineering. 2. Identifying the soil behavior beneath road structures. 3. Determining the fundamental behavior of materials used in roads. 4. Identifying the main methods for designing asphalt mixtures. 5. Identifying the main methods for designing road layers. 6. Clarifying the details of r failure and appl road maintenance **Acquired skills from the course** 1. Understanding the layers of the asphalt and concrete road structure. 2. Designing asphalt concrete mixtures for road	Road Construction Development Pavement Structures Highway Location - Highway Alignment Requirements of the Highway Alignment Factors controlling alignment Survey and Plans Available Techniques of survey EARTHWORKS AND MASS-HAUL DIAGRAM Determining the Earthwork Volumes The Mass-Haul Diagram Pavement Materials Flexible Pavement Layers Rigid Pavement Layers Bituminous Material (Bitumen Bituminous Mixes Types of Asphalt Mixes Aggregate Combination and Separation to Meet Job mix Load Carrying Mechanism Bituminous Mixture Technologies Requirements for a Bituminous Mixes Design of Bituminous Mixe Rigid Pavement reinforcement and joints Reinforcing Steel Joints in concrete pavements Types of rigid high pavements Design of highway pavement Design Approaches Pavement Types and Materials	1. Providing a comprehensive introduction to each study topic and connecting the current topic to previous ones. 2. Delivering theoretical lectures. 3. Presenting short scientific films. 4. Providing and explaining sufficient examples. 5. Conducting experiments in the road laboratory. 6. Using brainstorm to convey the mater	1. Participation within the classroom. 2. Short written tests. 3. Discussion and dialogue with students. 4. Assigning homework at the end of each topic. 5. Presenting posters about some road problems and their solutions. 6. Attendance. 7. Monthly written exams. 8. Final seme exam.

			Thickness Design of Flexible Pavements AASHTO Thickness Desig Rigid Highway Pavements		

11. Course Evaluation

1. Participation within the classroom 2%.
2. Short written tests 3%.
3. Assigning homework at the end of each topic 5%.
4. Attendance 5%.
5. Monthly written exams 35%.
6. Final semester exam 50%.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Traffic and Highway Engineering, Nicholas Garber & Lester A. Houel (4 Edition 2010)
Main references (sources)	Principles of Pavement Engineering, by Nicholas Thom (2nd Edition 2014). Highway engineering, by P. H. Write & K.K. Dixon, 7th edition Highway engineering, by Olgesby & Hicks Highways, The Location, Design, Construction and Maintenance of Road Pavements. By Coleman O'Flaherty (4th Edition 2009) . General specification for road and bridge, by Ministry of housing and construction (revised edition, 2003) AASHTO Guide for Design of Pavement Structures, by AASHTO (1993), American Association of State Highway and Transportation Officials, Washington, D.C. Principles of Pavement Engineering, by Nicholas Thom (2nd Edition 2014). Highway engineering, by P. H. Write & K.K. Dixon, 7th edition Highway engineering, by Olgesby & Hicks Highways, The Location, Design, Construction and Maintenance of Road Pavements. By Coleman O'Flaherty (4th Edition 2009) . General specification for road and bridge, by Ministry of housing and construction (revised edition, 2003) AASHTO Guide for Design of Pavement Structures, by AASI (1993), American Association of State Highway and Transporta Officials, Washington, D.C.
Recommended books and references (scientific journals, reports…)	Construction and Building Materi Journal https://pavementinteractive.org
Electronic References, Websites	https://www.highwaysmagazine.co.uk/

UNIVERSITY OF WARITH AL-ANBIYAA
COLLEGE OF ENGINEERING
2017
كلية الهندسة

Course Description Template

1. **Module Name:**	
Hydraulic Structures I	
2. **Module Code:**	
WCV−41−07	
3. **Semester / Year:**	
FIRST semester / 2024-2025	
4. **Date of Preparation of this Description:**	
15/9/2024	
5. **Available Attendance Formats:**	
In-person only	
6. **Total Credit Hours / Total Units:** Total units 2	
Total hours 48 (30 theoretical + 15 practical)	
7. Name of the Course Coordinator (if there are multiple names):	
Assist lecturer Wurood Hussein Qhban Email: wurood.hussien@uowa.ed.iq	
8. Module Objectives:	
• Identify and understand the basic terms and concepts related to hydraulics and hydraulic structures, such as pressure and discharge, etc. • Understand the process of designing and constructing hydraulic structures, including material selection, dimensions, capacities, and determining suitable locations for hydraulic projects. • Evaluate the performance of hydraulic structures and examine the factors that may affect their efficiency and sustainability. • Assess the costs and benefits of hydraulic projects and examine the economic aspects of their implementation. • Develop the ability to think analytically and solve problems related to hydraulics and hydraulic structures. • Achieving these objectives contributes to qualifying students or professionals to understand and apply the principles and techniques of	**Module Objectives**

hydraulics in practical projects.	

9. Teaching and Learning Strategy

Presentations **Paper lectures and scientific resources** **Practical lectures at work sites**	**Strategy:**

10. Module Structure

Assessment Method	Learning Method	Unit or Topic Name	Required Learning Outcomes	Hours	Week
Exams Assignments Reports Exams + Participation	In-person	Hydraulic Structures	Introduction to Hydraulic Structures	2	2-1
			Seepage under Hydraulic Structures -Bligh's Creep Theory -Lane's Weighted Creep Theory -Khosla's Theory -thickness of floor-	8	7-3
			The Regulators -Type of regulator -The hydraulic design of regulator	4	9-7
			Hydraulic Jump	2	10
			Drop structure -Vertical drop -Inclined drop -Piped drop	4	12-10
			Stilling Basins -Advantages, Froud , Types	4	14-12
			Protection of approaches for concrete floors -Downstream Protection. -up stream Protection.	4	16-14

11. Module Evaluation

10 points (Daily preparation, daily and oral exams, homework, and classroom activities)
30 points (Monthly exams)
60 points (Final exam)

12. Learning and Teaching Resources.

San Tosh, Kumar Garg,1998: Irrigation Engineering and Hydraulic Structures.	Required Textbooks (if applicable)

Course Description

Chow.V.T.1960: Open Channel Hydraulic. Mcgraw-Hill, New York	Main References (Sources)
	Recommended Supporting Books and References (current journals, reports, etc.)
	Electronic References, Websites

1. Course Name:	
Hydraulic Structures II	
2. Course Code:	
WCV-42-07	
3. Semester / Year:	
Second Semester 2024/-2025	
4. Description Preparation Date:	
20/Mar/2024	
5. Available Attendance Forms:	
In presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Number of hours: 45 hr (30 hr theoretical, 15 hr Tutorial) Number of units: 2 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Safa'a Sabry Mohammed Email: safaa.sabry@uowa.edu.iq	
8. Course Objectives	
Course Objectives	• Identify and understand basic terms and concepts related to hydraulics and hydraulic installations, such as pressure, discharge etc... • Understand the design and construction process of hydraulic facilities, including selecting materials, dimensions, capacities, and determining appropriate locations for hydraulic projects. • Evaluate the performance of hydraulic installations and examine factors that may affect efficiency and sustainability. • Evaluate the cost and benefits of hydraulic projects, and examine the economic aspects of their implementation. • Develop the ability to think analytically and solve problems related to hydraulics and hydraulic installations. • Achieving these goals contributes to qualifying students or professionals to understand and apply hydraulics principles and techniques in practical projects.

9. Teaching and Learning Strategies

Strategy	• Presentations • Paper lectures and scientific sources • Practical lectures at work sites

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
2-1	6	Hydraulic Jump	Hydraulic structures	Presence	Exams + participation + attendance
3	3	Vertical Drops & Chutes	Hydraulic structures	Presence	Exams + participation + attendance
5-4	6	Stilling Basins	Hydraulic structures	Presence	Exams + participation + attendance
7-6	6	Protection Of Approaches for Horizontal Floor	Hydraulic structures	Presence	Exams + participation + attendance
9-8	6	Box Culverts	Hydraulic structures	Presence	Exams + participation + attendance
11-10	6	Aqueduct Structures	Hydraulic structures	Presence	Exams + participation + attendance
13-12	6	Inverted Siphon	Hydraulic structures	Presence	Exams + participation + attendance
15-14	6	Design Of Gates	Hydraulic structures	Presence	Exams + participation + attendance

11.Course Evaluation

10 marks (daily preparation, daily and oral exams, homework, and classroom activities)
30 marks (monthly exams)
60 marks (final exam)

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	San Tosh, Kumar Garg,1998: Irrigation Engineering and Hydraulic Structures.
Main references (sources)	Chow.V.T.1960: Open Channel Hydraulic. Mcgraw-Hill, New York
Recommended books and references (scientific journals, reports...)	-
Electronic References, Websites	-

Course Description Form

1. Course Name:
Hydrology I
2. Course Code:
WCV-41-05
3. Semester / Year:
First semester/ 2024-2025
Description Preparation Date:
23/9/2024
4. Available Attendance Forms:
Lectures are in person at the university only
5. Number of Credit Hours (Total) / Number of Units (Total)
Number of Credit Hours (Total) 3 / Number of Units (Total) 2
6. Course administrator's name (mention all, if more than one name)
Name: Asst. Lect. Zahraa Kareem Kadhim Email: zahraa.kareem@uowa.edu.iq
7. Course Objectives

Course Objectives	• Introduce and learn about the movement of water in nature • The hydrological cycle and its components • Rain, storms and formation methods • Rainfall measurement methods and monitoring stations and their spatial distribution • Measurement of evaporation from water surfaces • Bio evapotranspiration of forest and living organisms • Infiltration process and base flow formation • Surface runoff formation and its equations • Methods for measuring surface runoff • Follow the flood wave routing • Ground water hydrology

8. Teaching and Learning Strategies	
Strategy	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering a type of simple experiments involving some sampling at homework section.

9. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
16	3	1. What are the rains and how does it affect public life 2. How to calculate the amount of rain expected	1. Introduction: Definition of hydrology, Engineering hydrology; Hydrologic cycle and its elements; Water budget concept, world water	Lectures are in person at the university only	(exam1 = 15), (exam2 = 15) (Quizzes = 4%), (Activities= 4%), (Attendance=2%) (Final exam = 60%)

		from a rainstorm 3. Methods of measuring the diameters of the network planned to deal with the amount of rainfall 4. Flood wave movement and routing its track 5. Ground water formation 6. Removing ground water from site work	budget; Applications of hydrology in engineering. 2. Weather and Hydrology: Definition of climate and weather; Solar and earth radiation, measurements, thermal circulation; Temperature, measurements, terminology; Humidity, measurements, vapor pressure, latent heat; Wind, measurements of speed and direction. 3. Precipitation: Definition of precipitation and its occurrence; Forms of condensation and precipitation; Types of precipitation; Measurements, rain gage networks, density, and adequacy; Preparation of data, missing data, test of consistency records; Average precipitation over area; Analysis of rainfall data, IDF relationship, Hydrograph. 4. Evaporation: Definition of evaporation and evapotranspiration; Estimation of evaporation (analytical solution — water budget, energy budget), Dalton equation; Empirical equations, Thornthwaite and Penman formula; Estimation of reservoir evaporation, Pan evaporation and Pan coefficient. 5. Abstraction losses: Infiltration and infiltration losses; infiltration index φ and W- index. 6. Stream flow: Stream gage, manual, automatic and recorded gages; Estimation of stream discharge, direct and indirect measurements; Current meter, Calculation of discharge using area-velocity methods; Stage discharge relationship; Permanent and shifting control stages. 7. Runoff: Direct runoff and base flow; Water year; Runoff volume; Rainfall-runoff correlation; Flow mass curve; droughts.		

10. Course Evaluation

(exam1 = 15),
(exam2 = 15),
(Quizzes = 4%),

(Activities= 4%), (Attendance=2%), (Final exam = 60%)
11. Learning and Teaching Resources

Main references (sources)	1. K. Subramanya, 2009 Engineering Hydrology.
	2. Bedient P B Huber, W C And Vieux, B E 2008 Hydrology And Floodplain Analysis.
	3. Gupta, R.S., 2016 Hydrology And Hydraulic Systems.

Course Description Form

1. Course Name:
Hydrology
2. Course Code:
Hydrology II
3. Semester / Year:
2023-2024 (Semester System)
4. Description Preparation Date:
1/10/2023
5. Available Attendance Forms:
Theory
6. Number of Credit Hours (Total) / Number of Units (Total)
45 hours (2 theoretical + 1 applied)/4 units
7. Course administrator's name (mention all, if more than one name)
Name: Ghaida Najim Hanish Email: ghaida.najim@uowa.edu.iq
8. Course Objectives

Course Objectives: Understand the behavior fluids when at rest or flowing through a syst (statics and the student's ability to recognize general principles of water science (hydrology) describing the state of formation, distribution transfer of water in its three forms (liquid, solid gaseous) in all parts of the biosphere within hydrological cycle. The curriculum also inclu modern methods of clarifying and describing e element of the hydrological cycle and perform calculations. It is necessary to estimate and exp the environmental factors affecting each elemen the cycle. The curriculum also included comprehensive explanation of the most import practical methods for measuring the hydrolog properties of surface water, along with	**A. Cognitive goals: the student has to be able to** **1. Identify the foundations of water science (hydrology).** **2. Identify the formation, distribution and transp of water in all environments within the hydrologi cycle.** **3. Identify the theoretical and practical foundatio of hydrological measurements for each element the hydrological cycle.** **4. Knowledge of the environmental conditions affecting the elements of the hydrological cycle.** **5. Identify the water budget for surface groundwater.** **B. Acquired skills from the course**

explanation of the special computational meth for estimating them.	**1. Acquiring the skill of performing mathemat calculations to estimate the hydrological conditi for each element of the hydrological cycle.** **2. Acquiring the skill of planning and designing locations of measuring stations for hydrolog elements, such as the possibility of knowing optimal number of stations to measure the amo of rain in a specific area and distributing them in accurate scientific manner within the required ar**

9. Teaching and Learning Strategies

Strategy	1. The student acquires important information about hydrology. 2. The student's knowledge of the relationship of the topics of this subject with other subjects. 3. The student's knowledge of the applied aspects of the subject topics. 4. The student acquires knowledge of using different sources for subject topics.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
16-19	12	1. Characteristics of the Hydrograph 2. Stream Flow Recession 3. Hydrograph Separation 4. Hydrograph Synthesis 4. The Unit Hydrograph 5. Derivation of Unit Hydrograph 6. The Conversion of U-H Duration 7. Synthetic UH	HYDROGRAPHS	1. Lectures and illustrations: Data Show. 2. Multimedia using the e-learning system. 3. Delivering a lecture, answering students' questions, and discussing with students aspects that are not clear to them.	1. Daily oral questions 2. Discussion an dialogue with students. 3. Attendance. 4. Bi-monthly or exams. 5. Monthly writt tests. 6. A final annual exam.
20-21	6	1. Routing in Reservoir 2. Routing in River Chan	FLOOD ROUTING		
22-24	9	1. Movement of Groundwater 2. Discharge of Groundwater 3. The Wells 4. Equilibrium Hydraulics of Wells (steady flow)	GROUNDWATER (Subsurface Water)		

		5. No equilibrium Hydrau of Wells (unsteady flow)			
25-27	9	1. Chow Method Solution 2. Recovery Test 3. Unsteady Radial Flow in an Unconfined Aquifer 4. Unsteady Radial Flow Leaky Aquifer	GROUNDWATER (Subsurface Water)		
28-30	9	1. Well Flow Near Aquifer Boundaries 2. Well Flow Near a Stream 3. Well Flow Near an Impermeable Boundary 4. Well Losses	GROUNDWATER (Subsurface Water)		

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	• Bedient P B Huber, W C and Vieux, B E 2008 Hydrology and Floodplain Analysis. • Gupta, R.S., 2016 Hydrology and hydraulic systems. • K. Subramanya, 2009 Engineering Hydrology.
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Highway Engineering
2. Course Code:
WCV-42-03
3. Semester / Year:
Second semester /2024-2025
4. Description Preparation Date:
23 / 9 / 2024
5. Available Attendance Forms:
Students that are interested in learning
6. Number of Credit Hours (Total) / Number of Units (Total)
4 hours per week / number of units (3 units)
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof Dr. Anmar Falih Diekan Email: a.f.dulaimi@uowa.edu.iq
8. Course Objectives

Course Objectives	1. Familiarity with the development of road construction. 2. Study of site and alignment of roads. 3. Introducing students to the technical details of highway engineering and its types. 4. Understanding the materials used in road construction. 5. Describing the structure and function of the road. 6. Study of asphalt and concrete road layers. 7. Study of flexible and concrete road design. 8. Familiarizing students with road defects and their treatment. 9. Course outcomes and teaching, learning, and assessment methods.
9. Teaching and Learning Strategies	
Strategy	1. Providing a comprehensive introduction to each study topic and connecting the current topic to previous ones . 2. Delivering theoretical lectures . 2 3. Presenting short scientific films .

	4. Providing and explaining sufficient examples. 5. Conducting experiments in the road laboratory. 6. Using brainstorming to convey the material

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2 2-6 6-10 10-15 15-20 20-25 25-30	6 24 24 30 30 30 30	Cognitive objectives 1- Demonstrate understanding of the need for highway engineering development. 2- Identify the behavior of soil under road structures. 3- Identify the basic behavior of materials used in roads. 4- Identify the main means of designing asphalt mixtures. 5- Identify the main means of designing road layers. Explain the details of road failure and the application of road maintenance B-Skill objectives of the course 1- Know the layers of asphalt and concrete road structure. Design of asphalt and concrete mixtures for roads.	Road Construction Development Pavement Structures Highway Location - Highway Alignment Requirements of the Highway Alignment Factors controlling alignment Survey and Plans Available Techniques of survey EARTHWORKS AND MASS-HAUL DIAGRAM Determining the Earthwork Volumes The Mass-Haul Diagram Pavement Materials Flexible Pavement Layers Rigid Pavement Layers Bituminous Material (Bitumen Bituminous Mixes Types of Asphalt Mixes Aggregate Combination and Separation to Meet Job mix Load Carrying Mechanism Bituminous Mixture Technologies Requirements for a Bituminous Mixes Design of Bituminous Mixes Rigid Pavement reinforcement and joints Reinforcing Steel Joints in concrete pavements Types of rigid highway pavement Design of highway pavement Design Approaches Pavement Types and Materials Thickness Design of Flexible Pavements AASHTO Thickness Design for Rigid Highway Pavements	1. Providing a comprehensive introduction to each study topic and connecting the current topic to previous ones . 2. Delivering theoretical lectures . 3. Presenting short scientific films . 4. Providing and explaining sufficient examples . 5. Conducting experiments in the road laboratory . 6. Using brainstorming to convey the material. .	1. Participation within the classroom. 2. Short written tests. 3. Discussion and dialogue with students . 4. Assigning homework at the end of each topic. 5. Presenting posters about some road problems and their solutions . 6. Attendance . 7. Monthly written exams. 8. Final semester exam.

10. Course Evaluation

1. Participation within the classroom 2%.
2. Short written tests 3%.
3. Assigning homework at the end of each topic 5%.
4. Attendance 5%.
5. Monthly written exams 35%.
6. Final semester exam 50%.

11. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Traffic and Highway Engineering, by Nicholas Garber & Lester A. Houel (4th Edition 2010)
Main references (sources)	Principles of Pavement Engineering, by Nicholas Thom (2nd Edition 2014) . Highway engineering, by P. H. Write & K.K. Dixon, 7th edition Highway engineering, by Olgesby & Hicks Highways, The Location, Design, Construction and Maintenance of Road Pavements. By Coleman O'Flaherty (4th Edition 2009) . General specification for road and bridge, by Ministry of housing and construction (revised edition, 2003) AASHTO Guide for Design of Pavement Structures, by AASHTO (1993), American Association of State Highway and Transportation Officials, Washington, D.C. Principles of Pavement Engineering, by Nicholas Thom (2nd Edition 2014) . Highway engineering, by P. H. Write & K.K. Dixon, 7th edition Highway engineering, by Olgesby & Hicks Highways, The Location, Design, Construction and Maintenance of Road Pavements. By Coleman O'Flaherty (4th Edition 2009) . General specification for road and bridge, by Ministry of housing and construction (revised edition, 2003) AASHTO Guide for Design of Pavement Structures, by AASHTO (1993), American Association of State Highway and Transportation Officials, Washington, D.C .
Recommended books and references (scientific journals, reports…)	Construction and Building Materials Journal https://pavementinteractive.org
Electronic References, Websites	https://www.highwaysmagazine.co.uk/

Course Description Form

1. Course Name:	
Method of Construction and Estimation	
2. Course Code:	
WCV-42-08	
3. Semester / Year:	
Second semester /2024-2025	
4. Description Preparation Date:	
23 / 9 / 2024	
5. Available Attendance Forms:	
Students that are interested in learning	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3 hours per week / number of units (2 units)	
7. Course administrator's name (mention all, if more than one name)	
Name: assist lecturer Ghadeer Haitham Hassan mailto:ghadeer.haitham@uowa.edu.iq	
8. Course Objectives	
Course Objectives	1. Understanding of cost and its types. 2. Illustrating funding requirements. 3. Understand construction phases and project life cycle. 4. Learning planning sciences in construction industry. 5. Familiarize students to basic concepts of construction equipment's productivity. 6. To understand resource allocation and how pre-plan labor requirements scheduling. 7. To prepare construction projects' Bill of quantities. 8. Definition general conditions for works of civil engineering.
9. Teaching and Learning Strategies	
Strategy	1. Providing a comprehensive introduction to each study topic and connecting the current topic to previous ones . 2. Delivering theoretical lectures 3. Presenting short scientific films . 4. Providing and explaining sufficient examples.

	5. Conducting experiments in the road laboratory. 6. Using brainstorming to convey the material

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2 2-6 6-10 10-15 15-20 20-25 25-30	6 24 24 30 30 30 30		Introduction Construction equipment The cost of owning and operating construction equipment Engineering fundamentals Earth work equipment Soil stabilization and compaction Equipment for production and transportation of concrete Forms for concrete structures Calculation of construction materials quantity Quantities of construction materials Calculation of the steel reinforcement quantity in concrete Bill of quantities, and calculating of construction works	1. Providing a comprehensive introduction to each study topic and connecting the current topic to previous ones . 2. Delivering theoretical lectures . 3. Presenting short scientific films . 4. Providing and explaining sufficient examples .	1. Participation within the classroom. 2. Short written tests. 3. Discussion and dialogue with students . 4. Assigning homework at the end of each topic. 5. Presenting posters about some road problems and their solutions . 6. Attendance . 7. Monthly written exams. 8. Final semester exam.

10. Course Evaluation

1. Participation within the classroom 2%. 2. Short written tests 3%. 3. Assigning homework at the end of each topic 5%. 4. Attendance 5%. 5. Monthly written exams 35%. 6. Final semester exam 50%.

11. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Guessing - Medhat Fadil - University of Baghdad Construction Planning, Equipment , and Methods (L. Peurifoy) Estimating in Building Construction (J. Peterson and R. Dagostion) Estimating and tendering for construction work (Martin Brook)
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Method of Construction and Estimation
2. Course Code:
WCV−41−08
3. Semester / Year:
2023-2024
4. Description Preparation Date:
19/3/2024
5. Available Attendance Forms:
In present
6. Number of Credit Hours (Total) / Number of Units (Total)
90 hrs. (theoretical)
7. Course administrator's name (mention all, if more than one name)
Name: assist lecturer Ghadeer Haitham Hasan Email: ghadeer.haitham@uowa.edu.iq
8. Course Objectives

Course Objectives	• **Understand the different types of fluid flow.** • **Differentiate between the governing equations of flow and their applications.** • **Understand the difference between the statics and dynamics of fluids.** • **Understand the differences of fluid pressure and its measurements,** • **Calculate the forces exerted by fluids motion.**
9. Teaching and Learning Strategies	
Strategy	**Strategies that be adopted to deliver the module is by encourage students' participation to accomplish the exercises.** **Also, refining and expanding critical thinking skills for the students.** **This will be achieved through classes, interactive tutorials, and considering type of simple experiments involving some sampling activities that interest the students.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	1. Punctuality. 2. Pay attention to the lecturer during class and write down the information provided. 3. To be calm and respectful during classes and answe questions in a scientific manner. To understand t importance of fluid mechanics and the impac of the subject on his futu career in this field.	1. Introduction	1 Giving the lecture, answering students' questions, and discussing with the students aspects that are not clear to them 2. Data Show lectures and illustrations Practical tests and experiments using laboratory equipment 3. Multimedia Use of the education syste Electronic	1. Initial evaluation adopting the metho of participation in th lecture 2. Continuous evaluation by conducting a set of exams with multiple options 3. Diagnostic evaluation through conducting schedul tests at specific time and assigning stude to perform specializ projects. 4. Final evaluation
2-3	6		2. Construction equipmer		
4-6	12		3. The cost of owning an operating construction equipment		
7-8	18		Engineering fundamentals 4. Earth work equipment		
9-12	21		5. Soil stabilization and compaction		
13-14	24		6. Equipment for product and transportation of concrete		
15	27		7. Forms for concrete structures		
16-17	30		8. Calculation of construction materials quantity		
18-21	33		9. Quantities of construct materials		

22-23	36		10. Calculation of the stee reinforcement quantity concrete		
2[illegible]2[illegible]	39		11. Bill of quantities, and calculating of construction works		

11. Course Evaluation

1. Oral examination during daily lessons.
2. Joins discussions during lectures.
3. Monthly checks.
4. Mid-year exams.
5. Final years exams.

12. Learning and Teaching Resources

Prescribed books required (textbook)	
Guessing - Medhat Fadil - University of Baghdad	
Construction Planning, Equipment , and Methods (L. Peurifoy) Estimating in Building Construction (J. Peterson and R. Dagostion) Estimating and tendering for construction work (Martin Brook)	Main references
	Web sites and electronic references.

UNIVERSITY OF WARITH AL-ANBIYAA
COLLEGE OF ENGINEERING
2017
كليـــة الهندســـــة

Course Description Form

1. Course Name:	
Sanitary & Environmental Engineering II	
2. Course Code:	
WCV-42-02	
3. Semester / Year:	
Second semester /2024-2025	
4. Description Preparation Date:	
23 / 9 / 2024	
5. Available Attendance Forms:	
Students that are interested in learning	
6. Number of Credit Hours (Total) / Number of Units (Total)	
1. Theoretical Time: 2Hrs/Week / Total: 60Hrs. 2. Lab. Time: 2Hrs / Week / Total: 60Hrs. 3. Tutorial Time: 1Hour / Week / Total: 30Hrs number of units (3 units)	
7. Course administrator's name (mention all, if more than one name)	
Name: Safa'a Sabry Mohammed Email: safaa.sabry@uowa.edu.iq	
8. Course Objectives	
Course Objectives	The Course Objectives are to help 1. Knowing a general Introduction about the Sanitary Engineering. 2. Knowing how to estimate the quantity of water during the design of any waterworks project, and what is necessary to estimate the amount of water, determining the number of people who will be served and their per capita water consumption. 3. The quality of water supplies and their requirements for multi uses of water. 4. Take a look on the water distribution systems in general form ……. 5. Knowing the description of intakes, the general requirements for the location of intakes and design criteria of intake structures. Besides, several types of intakes and the screens. The general requirements for the location and the design criteria of screens. 6. Studying the pumps and pumping stations., the general requirements for the design of pumps and pumping stations. Besides, several types of pumps. 7. Knowing the nature of Coagulation and Flocculation in water, its reasons and removal requirements. 8. Looking for the description of the water clarification (sedimentation) process, the general requirements for the design of the sedimentation

	tank. Besides, the sedimentation theory, the design criteria and the types of sedimentation tanks. 9. Knowing the basic information regarding water filtration process, the general requirements for the design of the filtration unit, the types of filters according to process workability and media. Besides, the design criteria of filtration unit. 10. Knowing all information about the water disinfection, its method, ….etc. 11. Studying the Special treatments of Hardness Removal or Water Softening. 12. Take a general look on introduction to wastewater or sewage, definitions to main terms used with wastewater engineering, the main parts of wastewater collection system and the types of wastewater flowing in the sewer system. Besides, the characteristics of wastewater and the determination of organic matters. 13. Studying all about the quantity of wastewater. 14. Provided by the essential information regarding sewer systems, the components of sewer systems, sewer type and sewer materials. In addition, the flow in sewer systems and the design criteria of sewer network. 15. Obtaining the Appurtenances of the sewer
16. Teaching and Learning Strategies	
Strategy	1. Classic theoretical classes. 2. Practical classes and experimental measurements using laboratory equipment. E-learning. 3. Discussion and responding to students' questions.

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	1. Understanding environmental issues relevant to civil engineering-related activities. 2. Reinforcing the implications of	General concepts of Sanitary & Environmental Engineering	In class	1. Oral examination during daily classes. 2. Joined discussions during lectures.
2	5		Depreciation water	In class	

3	5	processes such as construction within a natural system. 3. Familiarity with preventive and management strategies to combat water, soil, air, and noise pollution. 4. Identifying concepts of water pollution control mechanisms and their impact on	**Expectation population:** Ways and the factors affecting the Expectation population	In class	3. Attendance. 4. Monthly examinations. 5. Mid-year examinations. 6. Final-Year examinations.
4	5		Calculate the required amount of water for fire fighting	In class	
5	5		Types of pipes, valves and accessories	In class	
6	5		Types of systems used in water distribution	In class	

11.Course Evaluation

The score of this material is as follows:
1. (50 of 100) degrees will be divided unequally between the daily attendance, daily preparation, daily oral, monthly examinations, solving problems as H.W., and the reports related to lab. Tests.
(50 of 100) degrees for the final examination.

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Steel, E.W. and McGhee, T.J., 1979. Water supply and sewerage (5th edition). New York: McGraw-Hill. Baruth, E.E. and American Water Works Association, 2005. Water treatment plant design.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Davis, M.L., 2010. Water and wastewater engineering. McGraw-Hill.

Course Description Form

1. Course Name:
Sanitary and Environmental Engineering I
2. Course Code:
WCV-41-02
3. Semester / Year:
First Semester / 2024 - 2025
4. Description Preparation Date:
1 September 2024
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
Number of hours: 75 hours (30 hours theoretical, 15 hours tutorial, and 30 hours practical) Number of units: 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Lec. Safaa Sabry Mohammed **Email: Safaa.sabry@uowa.edu.iq**
8. Course Objectives

Course Objectives	• **Understand the Fundamentals of Water Supply Systems** • **Analyze Water Quality Parameters** • **Design Water Supply Systems** • **Apply Water Treatment Techniques** • **Evaluate Water Demand and Consumption**

	• **Implement Sustainable Water Management Practices**

9. Teaching and Learning Strategies

Strategy	• **Interactive Lectures and Discussions** • **Practical Labs and Field Visits** • **Project-Based Learning and Case Studies**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-3	12	**Quantity of water**	**Sanitary and Environmental Engineering I**	**Presence**	**Exams Participation Attendance**
3-6	12	**Collection and distribution of water**			
6-7	4	**Intakes**			
7-9	4	**Pump and pumping stations**			
9-10	4	**Quality of water supply**			
11-15	20	**Treatment of water**			

11. Course Evaluation

10 marks (daily preparation, daily and oral exams, homework, and classroom activities)
10 marks (Practical aspect: Reporting, discussion and exams)
30 marks (monthly exams)
50 marks (final exam)

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Steel, E.W. and McGhee, T.J., 1979. Water supply and sewerage (5th edition). New York: McGraw-Hill.**
Main references (sources)	**Baruth, E.E. and American Water Works Association, 2005. Water treatment plant design.**
Recommended books and references (scientific journals, reports...)	**Metcalf, I.N.C., 2003. Wastewater engineering; treatment and reuse. McGrawHill.**

Electronic References, Websites	**Davis, M.L., 2010. Water and wastewater engineering. McGraw-Hill.**

Course Description Form

1. Course Name:

Steel structure/ 2nd

2. Course Code:

Steel structure/ 2nd

3. Semester / Year:

(Course System)/2023-2024

4. Description Preparation Date:

20/3/2024

5. Available Attendance Forms:

Theoretical Classes

6. Number of Credit Hours (Total) / Number of Units (Total)

60 hrs./2

7. Course administrator's name (mention all, if more than one name)

Name: Asst. Lect. Tabarak hussein
Email: tabarak.hu@uowa.edu.iq

8. Course Objectives

Course Objectives	• **Introducing students to the basic principles of steel structure designs in civil engineering** • **Introducing students to the applications of steel structures in practice** • **The basics that are adopted in the analysis and design of the structural members** **of the steel structure** • **Identify the analysis and design of members exposed to tensile, compressive,** **bending and shear forces, as well as types of connection……**

9. Teaching and Learning Strategies

Strategy	• **Design and analysis of members exposed to tensile forces of steel sections and manufactured** • **Design and analysis of the members exposed to the compression forces (columns) of the steel sections of the processed and manufactured and as well as the design of the steel base for columns** • **Design and analysis of beams exposed to bending and shearing forces of the rigid steel sections** • **Design and analysis of beams and columns exposed to dual-bending, tensile** **or compressive forces of the steel sections** • **Design and analysis of types of fastening for steel sections (bonding using welding and bolts)** • **Knowing all the steel sections, their applications and specificatio**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
6-19	16	design of beam for moments, shear and deflection	Introduction, plastic behavior (zone1), beam weight estimates, design of beams -zone 1(full plastic moment), lateral supports of beams Inelastic buckling (zone 2), bending coefficients, moment capacities (zone2). Design of beams-zone3, elastic buckling (zone3), AISC Beam design charts, noncompact sections design for shear deflections, unsymmetrical bending, and design of purlins	Theoretical and analytical	
20-24	20	Bending and axial compression (beam-columns	Design of base plates for concentrically loaded columns, Bending and axial compression.		

			Beam Columns, first order and second order moments, analysis. effective length, approximate second order analysis method . magnification factors, moment modification factors, design of beam- columns in braced frames. design of be columns unbraced fran AISC-Part6 Tab and equivalent a load method.		
25-26	8	**Bolted connection**	joints, pretension joints, slip-critical joints, fully pretensioning methods, bearing type connections, slip-resistance connections shear strength and bearing strength for bearing type connections (load pass through center of gravity of connection). strength for critical connect (load pass thro center of gravit connection), s of bolt holes, l transfer, lap jo butt joint, failur bolted joints, minimum maximum		
27-28	8	**Eccentrically loaded bolted connections**	Bolts subjected to eccentric shear, Elastic analysis method, reduced eccentricity method, instantaneous center of rotation method AISC-Part7 Tab bearing-type connections subjected to sh and tension, critical connect subjected to sh and tension.		
29-30	8	**Welded connections**	Welding advantages, types of welding.		

			classification of welds, type of weld, type of joints, fillet welds, plug and slot welds, welding symbols, strength of welds, AISC requirements, size and length limitations of fillet welds, design of simple fillet welds, 8 strength of fillet welds loaded transversely, design of wel connections v both longituc and transverse f welds, design fillet welds for t members, stren of plug and welds.		

11. Course Evaluation

- **Oral examination during daily classes. (4/100)**
- **Joined discussions during lectures. (3/100)**
- **Attendance. (3/100)**
- **Monthly examinations (30/100)**
- **Mid-year examinations. (60/100)**

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	AISC Manual 15th edition Structural Steel Design 5th edition, Jack C. McCormac
Main references (sources)	AISC Manual 15th edition Structural Steel Design 5th edition, Jack C. McCormac
Recommended books and references (scientific journals, reports…)	William T. Segui "Steel Design", 6th Edition, 2018. McCormac, J.C., "Structural Steel Design", 6th Edition, 2018
Electronic References, Websites	William T. Segui "Steel Design", 6th Edition, 2018. McCormac, J.C., "Structural Steel Design", 6th Edition, 2018