Module Information معلومات المادة الدراسية					
Module Title	**Engineering Mechanics I**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☐ **lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ATU22011**				
ECTS Credits	**8**				
SWL (hr/sem)	**200**				
Module Level	UG1		**Semester of Delivery**	1	
Administering Department	**Technical building and Construction**		**College**	**Technical College/ Al Mussaib**	
Module Leader	Dr. Ammar Adil Abdulnabe		**e-mail**	ammaralbakry@atu.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	PHD in Mechanical engineering	
Module Tutor			**e-mail**		
Peer Reviewer Name	Dr.Mohamed Hamza		**e-mail**	mohamed.mussa@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

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 Objectives أهداف المادة الدراسية	1. Teaching the student, the fundamentals of engineering mechanics (Static's & Dynamics) in the engineering applications, the loads analysis, resultants. 2. Equilibrium in 2-D and 3-D, moments and couples. 3. First and second moment of inertia, motion of particles, and their theories.
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. Teaching the student, the fundamentals of engineering mechanics (Static's &

	2. Dynamics) in the engineering applications, the loads analysis, resultants, 3. equilibrium in 2-D and 3-D, moments and couples. 4. first and second moment of inertia, motion of particles, and their theories. 5. Equipment and machinery design. 6. Inspection, installation, operation, maintenance and repair of all kinds of devices, turbocharged machines and equipment.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A -</u> Introduction, Fundamentals concepts, Load Analysis & Vectors, Moments, Couples, Resultant of Force Systems, Equivalent Systems of Forces. <u>Part B -</u> Equilibrium of Rigid Bodies , Centroids of Area, Friction, Center of Gravity, Work, Moment of Inertia.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The primary 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

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	107	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**200**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Project	1	10% (10)	15	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% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction, Fundamentals concepts
Week 2	Load Analysis & Vectors
Week 3	Moments
Week 4	Couples
Week 5	Resultant of Force Systems
Week 6	Resultant of Force Systems
Week 7	Equivalent Systems of Forces
Week 8	Equilibrium of Rigid Bodies
Week 9	Trusses
Week 10	Friction
Week 11	Centroids of Area
Week 12	Center of Gravity
Week 13	Work
Week 14	Moment of Inertia
Week 15	Preparing for the final exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	J. L. Meriam L. G. Kraige	Yes
Recommended Texts	John Wiley & Sons, Inc	yes
Websites		

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.

Module Information معلومات المادة الدراسية					
Module Title	**Engineering Drawing**			**Module Delivery**	
Module Type	**Core**			☐ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ATU22012**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		UGI	**Semester of Delivery**		1
Administering Department		Technical building and Construction	**College**	Technical College/ Al Mussaib	
Module Leader	Hayder saad Oleiwi		**e-mail**	Hayder.rashid@atu.edu.iq	
Module Leader's Acad. Title		Assist. Lecturer	**Module Leader's Qualification**		M.Sc in mechanical engineering
Module Tutor	None		**e-mail**	E-mail	
Peer Reviewer Name		**Dr. Ammar Adel**	**e-mail**	ammaralbakry@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	This course aims to introducing the fundamentals of engineering drawing to the student so that he can be qualified to express his thoughts, draw and execute the projects related to civil engineering.
Module Learning Outcomes	1. A. Knowledge Outcomes: Upon completion of the course, students should be able to: 2. Get information about the important tools for engineering drawing. 3. Learning how to draw the shapes, angels and lines and others which is essential for engineer

	4. Understand the main idea of using dimension for engineering drawing 5. Familiarize with different drawing equipment, technical standards and procedures for construction of geometric figures. 6. Explain the principle of projection and sectioning 7. Understand the intersection, development of surface of body and enclosure Learning the main idea from assembly and detail drawing 8. Student basic knowledge of technical drawings professions and means of communications to others. 9. Ability to draw three dimension objects on the paper. 10. Develop student's imagination and ability to represent the shape size and specifications of physical objects 11. Students will become familiar with office practice and standards. 12. Students will become familiar with Auto Cad two dimensional drawings. Students will develop good communication skills and team work.
Indicative Contents	Introduction to defined the engineering drawing and auto CAD soft wear [6 hrs.] Windows setting ,limits ,grids , snap , object snap [6 hrs.] Draw menu, line, polyline ,ray ,constriction line , polygon [6 hrs.] Circle , arc ,rectangle ,ellipse [6 hrs.] Modify menu [6 hrs.] Dimension menu , hatching [6 hrs.] Perspective ,ortho graphic projection [6 hrs.] The first and the third angle projection method [6 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based 1. Exams 2. Student feedback 3. Body language 4. Home work.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	93	**Structured SWL (h/w)**	6.2
Unstructured SWL (h/sem)	57	**Unstructured SWL (h/w)**	3.8
Total SWL (h/sem)	150		

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

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to defined the engineering drawing and auto CAD soft wear
Week 2	Introduction to defined the engineering drawing and auto CAD soft wear
Week 3	Windows setting ,limits ,grids , snap , object snap
Week 4	Draw menu, line, polyline ,ray ,constriction line , polygon
Week 5	Circle , arc ,rectangle ,ellipse
Week 6	Circle , arc ,rectangle ,ellipse
Week 7	Modify menu
Week 8	Modify menu
Week 9	Dimension menu , hatching
Week 10	Dimension menu , hatching
Week 11	Perspective ,ortho graphic projection
Week 12	Perspective ,ortho graphic projection
Week 13	The first and the third angle projection method
Week 14	The first and the third angle projection method
Week 15	Preparing to final exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Recommended Texts	1- Engineering Drawing (plan and solid geometry) N.D.Bhatt 2- Auto CAD 2009 , 2d training manual \ K.S.Kurland 3- الرسم الهندسي \ هاشم عبود العيسوي ويوسف حسين الراضي 4- الهندسة الوصفية \ د يوسف نيقولا	No
Recommended Texts		
Websites		

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.

Module Information معلومات المادة الدراسية					
Module Title	**Mathematics**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ATU22013**				
ECTS Credits	**8**				
SWL (hr/sem)	**200**				
Module Level		UGI	**Semester of Delivery**		1
Administering Department		**Technical building and Construction**	**College**	**Technical College/ Al Mussaib**	
Module Leader	Ahlam Obaid Hassan		**e-mail**	tcm.ahlam@atu.edu.iq	
Module Leader's Acad. Title		Assist lecturer	**Module Leader's Qualification**		M.Sc in Structural-Civil Engineering
Module Tutor			**e-mail**		
Peer Reviewer Name		Prof.Dr. Nabeel Hameed	**e-mail**	Inm.nbl@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	To teach students the principles of mathematics necessary for undergraduate study and to achieve the desired goal which is the use of the principles and fundamentals of mathematics in solving problems related to engineering in general and civil engineering in particular and linking these principles with other subjects.
Module Learning Outcomes	Upon completion of the course, students should be able to: 1. Skill of thinking 2. Skill of conclusion and evaluation 3. Skill analysis 4. The skill of observation 5. The student's ability to excel and cognitive perception to diagnose theories and general 6. Principles in the study. 7. Future planning to link, what students learn in daily life. 8. Practice different patterns in mathematical proofs. 9. Self-reliance in getting to the idea and how to manage solving the scientific problem. 10. Statistical concepts and applications in civil engineering. 11. Critical Thinking 12. Analytical methods in solving problems 13. Identify operational problems to carry out civil engineering studies and evaluate alternative solutions.
Indicative Contents	Introduction to engineering mathematics, study of the some mathematics preliminaries, course description, student learning outcomes, course outline (Syllabus), grading units, typical grading and references of the course. [3 hrs.] Limit & Continuity [4 hrs.] Slope of the straight line , Slope of the curve [3 hrs.] Derivatives of algebraic functions, Chain rule, Second and higher order derivative, Application in mechanics [3 hrs.] Trigonometric functions [3 hrs.] Derivatives of trigonometric functions [3 hrs.] Inverse of trigonometric function , The exact value of trigonometric functions Derivatives of inverse of trigonometric functions [3 hrs.] Logarithmic and exponential functions , Logarithmic method in derivatives [3 hrs.] Derivative of logarithmic and exponential functions , Derivative of au , loga u [3 hrs.] Hyperbolic functions, Relation between the hyperbolic functions and exponential functions [3 hrs.] Derivative of hyperbolic functions [3 hrs.]

	Applications of derivatives , Rate of change [3 hrs.] Integration of algebraic functions [3 hrs.] Applications of indefinite integration and finite integration [3 hrs.] Integration of trigonometric functions and inverse Trigonometric functions [3 hrs.] Integration of lnx,u-1,au,eu [3 hrs.] Methods of integration [4 hrs.] Area by calculus (Rectangular method ,Trapezoidal rule, Simpson rule) [4 hrs.] Area under curve , Area between two curves [4 hrs.] Volume by revolution (Disk strip ,Washer strip, Shell strip) [4 hrs.] Length of the plane curve , Area of surface of revolution [4 hrs.] Matrices (Inverse Matrix) [4 hrs.] Matrices (Grammar Method) [4 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 1. Exams. 2. Student feedback. 3. Preparation of scientific reports.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	78	**Structured SWL (h/w)**	5.2
Unstructured SWL (h/sem)	122	**Unstructured SWL (h/w)**	8.1
Total SWL (h/sem)	200		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	3 ,10	
	Seminar	1	10% (10)	6	
	Assignments	2	10% (10)	7, 8	
	Tutorial	1	10% (10)	11	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد	
	Material Covered
Week 1	Limits
Week 2	Slope of the straight line , Slope of the curve
Week 3	Derivatives of algebraic functions , Chain rule , Second and higher order derivative , Application in mechanics, Trigonometric functions
Week 4	Derivatives of trigonometric functions Inverse of trigonometric function , The exact value of trigonometric functions
Week 5	Derivatives of inverse of trigonometric functions Logarithmic and exponential functions , Logarithmic method in derivatives
Week 6	Logarithmic and exponential functions , Logarithmic method in derivatives Derivative of logarithmic and exponential functions , Derivative of a^u , $\log_a u$
Week 7	Hyperbolic functions , Relation between the hyperbolic functions and exponential functions Derivative of hyperbolic functions
Week 8	Applications of derivatives , Rate of change Integration of algebraic functions
Week 9	Applications of indefinite integration and finite integration Integration of trigonometric functions and inverse Trigonometric functions
Week 10	Integration of trigonometric functions and inverse Trigonometric functions, Integration of $\ln x, u^{-1}, a^u, e^u$
Week 11	Methods of integration
Week 12	Area by calculus (Rectangular method ,Trapezoidal rule, Simpson rule) Area under curve , Area between two curves
Week 13	Volume by revolution (Disk strip ,Washer strip, Shell strip)
Week 14	Length of the plane curve , Area of surface of revolution Matrices (Inverse Matrix) Matrices (Grammar Method)
Week 15	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1.Calculus "Seven Edition" By H. Anton , I.Bivens , S. Davis 2.Advanced Engineering Mathematics , By C.R. Wylie , 3.Calculus , By Thomas	
Recommended Texts		
Websites		

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.

Module Information معلومات المادة الدراسية					
Module Title	**Human rights and democracy**			**Module Delivery**	
Module Type	**Support learning activity**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ATU22014**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		UGI	**Semester of Delivery**		1
Administering Department		**Technical building and Construction**	**College**	Technical College / Al Mussaib	
Module Leader	Hasan Omran Al-keif		**e-mail**	hasanalkeif@gmail.com	
Module Leader's Acad. Title		Assist. lecturer	**Module Leader's Qualification**		MSc in art
Module Tutor	None		**e-mail**		
Peer Reviewer Name		Dr.Shaimaa Haded	**e-mail**		
Scientific Committee Approval Date			**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-زيادة معرفة الطالب بالجانب المفاهيمي النظري والتطور التاريخي لمادة حقوق الانسان والديمقراطية 2- تنمية مهارات الطالب التحليلية والنقدية فيما يتعلق بواقع ومستقبل حقوق الانسان والديمقراطية 3- تدريب الطالب على اهمية المشاركة الفاعلة في جوانب الحياة العامة كتعزيز احترام مبادى حقوق الانسان العامة والمشاركة الفاعلة في الحياة السياسية والثقافية. 4- تمكين الطلاب من فهم اهمية التعليم ودوره في نشر ثقافة حقوق الإنسان والديمقرلطية في بناء مجتمع حضاري يقوم على أساس الحكم الصالح الذي من اهم مقوماته الإيمان بحقوق الإنسان والتربية عليها والمشاركة الفاعلة في الحكم عبر الانتخابات الحرة والعادلة
Module Learning Outcomes	1- يفهم معنى حقوق الانسان وأشكالها 2- يعرف المواثيق والعهود الدولية لحقوق الانسان 3- يعرف مفهوم الحريات وتصنيفها

مخرجات التعلم للمادة الدراسية	4- اهم مبادئ وتطبيقات نظم الديمقراطية
Indicative Contents المحتويات الإرشادية	1- التعامل مع الانتهاكات الحاصلة لحقوق الانسان 2- يفهم حقوقه وواجباته اتجاه المجتمع 3- فهم ممارسة التطبيقات الديمقراطية

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1- التحضير اليومي للمادة والمناقشة الفاعلة وبطريقة او اسلوب التفكير النقدي 2-استخدام اسلوب مجموعات التركيز المصغرة لمناقشة مفردات المادة 3-كتابة اوراق تحليلة لمفردات المادة او خارجها والتي لها علاقة مباشرة بمواضيع حقوق الانسان والديمقراطية 4- الامتحانات التحريرية اليومية والنصف الشهرية 5- الامتحانات الفصلية والنهائية او المشاركة اليومية-2 اختبارات يومية-3 اختبارات فصلية-4 الاختبارات النهائية-5 الحضور اليومي 6-تقديم تقارير كنشاط فصلي

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10%	4,8	
	Assignments	1	10%	9	
	seminar	1	10%	11	
	Report	1	10%	13	
Summative assessment	**Midterm Exam**	2 hr	10%	7	
	Final Exam	3hr	%50	15	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	حقوق إنسان، تعريفها، أهدافها. حقوق اإلنسان في الشرائع السماوية مع التركيز على حقوق الانسان في الاسلام
Week 2	حقوق الانسان في التاريخ المعاصر الحديث المنظمات غير الحكومية العاملة بحقوق الانسان
Week 3	حقوق الانسان في الدساتير العراقية
Week 4	العلاقة بين حقوق الانسان والحريات العامة حقوق الانسان الاقتصادية والاجتماعية والسياسية
Week 5	حقوق الانسان الحديثة ضمانات احترام وحماية حقوق الانسان على الصعيد الوطني
Week 6	دور المنظمات الاقليمية العاملة بحقوق الانسان النظرية العامة للحريات
Week 7	القاعدة الشرعية لدولة القانون تنظيم الحريات من قبل السلطة العامة
Week 8	الديمقراطية وتعريفها وانواعها مفاهيم الديمقراطية
Week 9	الديمقراطية في العالم الثالث ألانظمة الديميقراطية في العالم الثالث
Week 10	مفهوم الحريات و تصنيف الحريات العامة الحريات ألاساسية، الحريات الفكرية والاقتصادية والاجتماعية
Week 11	حرية االامن والشعور باالطمئنان وحرية الذهاب واالياب حرية التعليم والصحافة والتجمع
Week 12	حرية الجمعيات والعمل حرية التملك
Week 13	حرية التجارة والصناعة حرية المرأة
Week 14	الحريات السياسية والحريات العامة
Week 15	التقدم العلمي والتقين والحريات العامة مستقبل الحريات العامة
Week 16	الامتحان النهائي

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	هادي, رياض عزبز. (2005). حقوق الانسان (تطورها ـ مضامينها ـ حمايتها) (بغداد.(الدليمي, حافظ علوان. (2009). قراءة معاصرة لموضوعة حقوق الانسان.	
Recommended Texts		
Websites		

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.

Module Information معلومات المادة الدراسية					
Module Title	**English skills**			**Module Delivery**	
Module Type	**Support learning activity**			☒ **Theory** ☐ **Lecture** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ATU22015**				
ECTS Credits	**2.00**				
SWL (hr/sem)	**50**				
Module Level	UGI		**Semester of Delivery**	**1**	
Administering Department	**Technical building and Construction**		**College**	**Technical College/ Al Mussaib**	
Module Leader	**Alaa Abid Al-Kadhim**		**e-mail**		
Module Leader's Acad. Title			**Module Leader's Qualification**	MSC in construction material	
Module Tutor					
Peer Reviewer Name	Dr. Abass K. Al Rekabi		**e-mail**	Dr.abbas.rikabi@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**		

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	The goal is to study English language and gain knowledge of it as benefit engineers in general, and to develop speaking skills and understand its basic rules taking the way to the acquisition of the ability to use technical key words in their work and the capability of communicating with other engineers correctly
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Developing speaking skills and understanding its basic rules to take the way to the acquisition of the ability to use technical keywords in their work and the capability of communicating with other engineers correctly .
Indicative Contents	

المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: 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) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation
تقييم المادة الدراسية

		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
	Report	1	10% (10)	13	LO # 5, 8 and 10
	seminar	1	10% (10)	continuous	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Parts of speech, vocabulary and comprehension
Week 2	Verb to be, present simple, vocabulary and comprehension.
Week 3	Possessive adjective, possessives, verb to have, verb to do, vocabulary and comprehension.
Week 4	Definite Indefinite articles, pronouns, subject, object,
Week 5	This and that, expletive there, prepositions, vocabulary and comprehension
Week 6	Plurals, , expressions of quantity, , vocabulary and comprehension
Week 7	Simple past, modal verbs, auxiliary verbs,
Week 8	Question words, asking questions, vocabulary and comprehension.
Week 9	Negative and interrogative, I would like and I like, vocabulary and comprehension.
Week 10	Writing a composition, punctuation, vocabulary and comprehension.
Week 11	Present continues, vocabulary and comprehension
Week 12	Types of questions, (yes -no) questions and (wh) questions
Week 13	Simple past, vocabulary and comprehension
Week 14	Simple past, **revision**
Week 15	**Final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Headway plus for beginners	Yes
Recommended Texts	Any Grammar and comprehension for technical learning	No
Websites	1- https://www.coursera.org/browse/physical-science-and-engineering/electrical-e ngineering 2- https://link.springer.com/book/10.1007/978-981-10-8624-3 3- https://progressivecollege.ie/courses/early-learning-and-care-qqi-level-5-major-award/?gad=1&gclid=EAIaIQobChMI_Nqu2tqA_wIVZ4VoCR2O0woLEAAYASAAEgI9WvD_BwE	

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.

Module Information معلومات المادة الدراسية					
Module Title	**Arabic Language**			**Module Delivery**	
Module Type	**Support learning activity**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ATU22016**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		UGI	**Semester of Delivery**		1
Administering Department		**Technical building and Construction**	**College**	**Technical College/ Al Mussaib**	
Module Leader	Shaima Haded Dana		**e-mail**		
Module Leader's Acad. Title		lecturer	**Module Leader's Qualification**		PHD in Arabic languge
Module Tutor	None		**e-mail**	E-mail	
Peer Reviewer Name		Assist Prof. Raida Hussain	**e-mail**		
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	1- تعميق معرفة الطالب بقواعد اللغة والاملاء التي تعلمها سابقا؛ ليتحاشى الوقوع في الأخطاء الغوية والاملائية، وليسهل عليه كتابة التقارير وجميع الأعمال الكتابية بصورة صحيحة نحويا ولغويا. 2- توسيع نطاق الوعي اللغوي والأدبي ليشمل جميع الطلبة والمجتمع المحلي من خلال المحاضرات والندوات والدورات التدريبية المختلفة، والأخذ بيد المبدعين من اصحاب المواهب.
Module Learning Outcomes	المعرفة والفهم والتطبيق من خلال إلقاء المحاضرات النظرية الصفية وحث الطلبة على قراءة كتاب معين في المادة، إضافة إلى تكليف الطلبة بواجبات بحثية و/أو تقارير مكتبية وذلك في مستوى السنة الأولى من الدراسة.

Indicative Contents	يتكون المقرر من جزء واحد يتناول تعليم الطلبة القواعد العامة للكتابة باللغة العربية بما يضمن عدم الاخلال بأساسيات هذه اللغة.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	واجب بيتي ، اختبارات صفية ، عروض تقديمية ، امتحان.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	33	**Structured SWL (h/w)**	2.2
Unstructured SWL (h/sem)	17	**Unstructured SWL (h/w)**	1.1
Total SWL (h/sem)	50		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	3, 10	
	Assignments	2	10% (10)	7, 8	
	Seminar	1	10% (10)	11	
	report	1	10% (10)	13	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد	
	Material Covered
Week 1	- مفهوم الاخطاء اللغوية - قواعد كتابة التاء المربوطة والتاء المفتوحة
Week 2	- الالف الممدودة والمقصورة - الحروف الشمسية والقمرية
Week 3	الضاد والظاء
Week 4	كتابة الهمزة:

	- همزة الوصل والقطع - الهمزة المتوسطة - الهمزة المتطرفة
Week 5	علامات الترقيم
Week 6	الاسم والفعل والتفريق بينهما
Week 7	المفاعيل: - المفعول به - المفعول المطلق - المفعول لأجله - المفعول فيه - المفعول معه
Week 8	العدد
Week 9	تطبيقات الأخطاء اللغوية الشائعة
Week 10	تطبيقات الأخطاء اللغوية الشائعة
Week 11	- معاني حروف الجر - قاعدة الالف الفارقة - قاعدة النون والتنوين
Week 12	الجوانب الشكلية للخطاب الاداري
Week 13	لغة الخطاب الاداري
Week 14	لغة الخطاب الاداري
Week 15	امتحان

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1. كتاب الاملاء الفريد: نعوم جرجيس زرازير، نقحه: د. مصطفى جواد – مطابع النعمان النجف الاشرف – ط6- 1973م. 2. كتاب الاملاء للمرحلة المتوسطة: عبد الجبار عبد الله الآلوسي واخرون – وزارة التربية المديرية العامة للمناهج – ط18 – 2014م. 3. دروس فب اللغة والنحو والاملاء لموظفي الدولة: إسماعيل حمود عطوان واخرون – مطبعة وزارة التربية (3) بغداد – ط2 – 1984م. 4. اللغة العربية العامة لأقسام غير الاختصاص: عبد القادر حسن امين واخرون – وزارة التعليم العالي والبحث العلمي – ط2 – 2000م.	نعم
Recommended Texts		
Websites		

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.

Module Information معلومات المادة الدراسية					
Module Title	**Workshop**			**Module Delivery**	
Module Type	**Support learning activity**			☐ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ATU22017**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		UGI	**Semester of Delivery**		1
Administering Department		**Technical building and Construction**	**College**	**Technical College/Al Mussaib**	
Module Leader	Talib Hardan		**e-mail**		
Module Leader's Acad. Title		Engineer	**Module Leader's Qualification**		BSC. of Mechanical Engineering
Module Tutor	None		**e-mail**	E-mail	
Peer Reviewer Name		**Dr. Ammar Adel**	**e-mail**	ammaralbakry@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	Gain manual skills in manual equipment, measurement apparatus, operating machine, and building items in construction engineering.
Module Learning Outcomes	Upon completion of the course, students should be able to: 1. Clear statements of the skills, knowledge, and attitudes that participants will develop as a result of participating in your workshop. 2. Understand various manufacturing processes in machine shop and perform basic operations of welding, fitting, smithy and carpentry work a) perform basic operations of welding, fitting, smithy and carpentry work b) Explain various manufacturing processes in machine shop

	3. Discuss application of plumbing fitting, masonry items and about plastic molding and glass cutting for various engineering application 4. Measure different electrical quantities and trouble shoot electrical and electronics appliances. 5. Conduct experiments with various kits such as Raspberry and Arduino for embedded system development 6. Use basic commands of computer operating systems
Indicative Contents	Carpentry workshop. [6 hrs.] Casting workshop. [6 hrs.] Welding workshop. [6 hrs.] Plumbing workshop. [6 hrs.] Auto-mechanics workshop. [6 hrs.] The manner of writing an engineering technical report. [6 hrs.] Civil engineering: definition, importance, and types. [6 hrs.] Construction safety. [6 hrs.] Engineering maps. [6 hrs.] The stage of engineering project execution: preparation of site, planning, construction materials, construction equipment, foundation, concrete works, formworks, reinforcement, stairs, doors and windows, insulation works, finishing works, plumping works. [6 hrs.] Introduction to an engineering reports and discussion. [3 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on Exams

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	33	**Structured SWL (h/w)**	2.2
Unstructured SWL (h/sem)	17	**Unstructured SWL (h/w)**	1.1
Total SWL (h/sem)	50		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	4	10% (10)	3,5,6,10	
	Assignments	2	10% (10)	7, 8	
	Projects / Lab.	1	10% (10)	Continuous	
	report	1	10% (10)	Continuous	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Carpentry workshop.
Week 2	Casting workshop.
Week 3	Welding workshop.
Week 4	Welding workshop.
Week 5	Plumbing workshop.
Week 6	Auto-mechanics workshop
Week 7	Auto-mechanics workshop
Week 8	The manner of writing an engineering technical report.
Week 9	Civil engineering: definition, importance, and types. Construction safety.
Week 10	Civil engineering: definition, importance, and types. Construction safety.
Week 11	Engineering maps.
Week 12	The stage of engineering project execution: preparation of site, planning, construction materials, construction equipment, foundation, concrete works, formworks, reinforcement, stairs, doors and windows, insulation works, finishing works, plumping works.
Week 13	The stage of engineering project execution: preparation of site, planning, construction materials, construction equipment, foundation, concrete works, formworks, reinforcement, stairs, doors and windows, insulation works, finishing works, plumping works.
Week 14	Introduction to an engineering reports and discussion.
Week 15	Preparing to final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1. انشاء المباني / زهير ساكو , ارتين ليفون 2. Building design and construction hand book / Fredericks S. Merritt and Jonathan T. Ricketts. 3. The civil engineering handbook / W. F. Chen. 4. Building services handbook / Fred Hall and Roger Greeno. 5. المرشد لامتلاك وبناء المنازل / محمد علي بن عبد العزيز حلواني 6. اعمال البناء / المؤسسة العامة للتعليم الفني والتدريب المهني / المملكة العربية السعودية 7. اعمال التنفيذ / المؤسسة العامة للتعليم الفني والتدريب المهني / المملكة العربية السعودية 8. دليلك لعالم التنفيذ / عماد حامد حسان 9. The construction of building / R. Barry. 10. الكتاب الشامل في الموقع / احمد متولي السنجهاوي 11. الموسوعة الهندسية لانشاء المباني والمرافق العامة / عبد اللطيف البقري	
Recommended Texts		
Websites		

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.

Module Information معلومات المادة الدراسية					
Module Title	**Engineering Mechanics II**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☐ **lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ATU22021**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	1 UG1		**Semester of Delivery**	2	
Administering Department	**Technical building and Construction**		**College**	**Technical College/ Al Mussaib**	
Module Leader	Dr. Ammar Adil Abdulnabe		**e-mail**	ammaralbakry@atu.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	PHD in Mechanical engineering	
Module Tutor			**e-mail**	E-mail	
Peer Reviewer Name	Dr.Mohamed Hamza		**e-mail**	mohamed.mussa@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	4. Teaching the student, the fundamentals of engineering mechanics (Static's & Dynamics) in the engineering applications, the loads analysis, resultants. 5. Equilibrium in 2-D and 3-D, moments and couples. 6. First and second moment of inertia, motion of particles, and their theories.
Module Learning Outcomes	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. 7. Teaching the student, the fundamentals of engineering mechanics (Static's

مخرجات التعلم للمادة الدراسية	& 8. Dynamics) in the engineering applications, the loads analysis, resultants, 9. equilibrium in 2-D and 3-D, moments and couples. 10. first and second moment of inertia, motion of particles, and their theories. 11. Equipment and machinery design. 12. Inspection, installation, operation, maintenance and repair of all kinds of devices, turbocharged machines and equipment.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A -</u> Introduction, Particles Motion, Absolute Motion, Force, Mass and Acceleration. <u>Part B -</u> Relative Motion: Translating and Angular, Rigid Bodies Motion, Work and Energy, Impulse and Momentum, Plaines of Bodies Motion

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The primary 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.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ **15** اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Seminar	1	10% (10)	Continuous	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% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction
Week 2	Principles of dynamics
Week 3	Particles Motion
Week 4	Absolute Motion
Week 5	Force, Mass and Acceleration
Week 6	Force, Mass and Acceleration
Week 7	Relative Motion: Translating and Angular
Week 8	Relative Motion: Translating and Angular
Week 9	Rigid Bodies Motion
Week 10	Work and Energy
Week 11	Work and Energy
Week 12	Impulse and Momentum
Week 13	Impulse and Momentum
Week 14	Plaines of Bodies Motion
Week 15	Preparing for the final exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	J. L. Meriam L. G. Kraige	Yes
Recommended Texts	John Wiley & Sons, Inc	yes
Websites		

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.

Module Information معلومات المادة الدراسية					
Module Title	**Construction Materials**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ATU22022**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		UGI	**Semester of Delivery**		2
Administering Department		**Technical building and Construction**	**College**	**Technical College/Al Mussaib**	
Module Leader	Lamyaa Ghanim		**e-mail**	lamyaa@atu.edu.iq	
Module Leader's Acad. Title		Assis. lecturer	**Module Leader's Qualification**		M.Sc. in Civil Engineering - Materials (Building & Construction)|
Module Tutor	None		**e-mail**	E-mail	
Peer Reviewer Name		Dr.Zahraa Fakhri	**e-mail**	dr_zahraajawad@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	1. Describe the physical and mechanical properties of different types of brick, source and its manufacturing process. 2. Describe the physical and mechanical properties of bonding materials, source and its manufacturing process. 3. Name the constituents of Portland cement and its types. 4. Describe the constituents of different types of blocks, properties and uses. 5. Describe the different types of clay tiles, specification, properties and uses.

	6. Describe the structural axis of wood properties of timber and seasoning properties of timber. 7. Describe different types of metals, properties, specification and uses. 8. Describe the field work and inspection necessary for successful results in concrete construction. 9. Conduct and document laboratory investigation. 10. work in small team with individual of diverse backgrounds.
Module Learning Outcomes	Upon completion of the course, students should be able to: 13. An ability to apply knowledge of mathematics, science, and engineering. 14. An ability to design and conduct experiments and to analyse and interpret data. 15. An ability to design a system, component, or process to meet desired need. 16. An ability to identify, formulates, and solves engineering problems. 17. An ability to communicate effectively 18. Understanding the impact of engineering solutions on global and societal context 19. Using the techniques, skills, and modern tools necessary for engineering practice 20. Present laboratory findings in a clear, concise laboratory report. 21. Using technical methods and scientific approach with knowledge of specification and properties. 22. Managing of critical situation findings of the projects. 23. Ability to control projects on site through right decision with materials. 24. Critical Thinking.
Indicative Contents	Physical properties and standard specifications for construction materials, types of metallic materials and non-metallic materials. [4 hrs.] Clay bricks [4 hrs.] Sand-lime bricks, glass bricks, Concrete bricks [4 hrs.] Concrete blocks, cellular concrete blocks. [4 hrs.] Building stones. [4 hrs.] Bonding materials, cement mortar, cement lime mortar, gypsum. [4 hrs.] Flooring materials, tiles and concrete flags. [4 hrs.] Water proofing materials [4 hrs.] Polymers [4 hrs.] Epoxy, Steel. [4 hrs.] Metallic materials (non-ferrous) [4 hrs.] Timber (wood), insulation materials. [4 hrs.] Acoustical materials, protective coating (paints). [4 hrs.] Glass, bituminous materials (asphalt). [4 hrs.] Plastic. [4 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 2. Homework problem sets, 3. Exams 4. Lab reports

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	78	**Structured SWL (h/w)**	5.2
Unstructured SWL (h/sem)	72	**Unstructured SWL (h/w)**	4.8
Total SWL (h/sem)	150		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	3, 10	
	Assignments	1	10% (10)	7, 8	
	Seminar	1	10% (10)	11	
	Lab report	4	10% (10)	continuous	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد	
	Material Covered
Week 1	Physical properties and standard specifications for construction materials, types of metallic materials and non-metallic materials.
Week 2	Clay bricks
Week 3	Sand-lime bricks, glass bricks, Concrete bricks
Week 4	Concrete blocks, cellular concrete blocks.
Week 5	Building stones.
Week 6	Bonding materials, cement mortar, cement lime mortar, gypsum.

Week 7	Flooring materials, tiles and concrete flags.
Week 8	Water proofing materials
Week 9	Polymers
Week 10	Epoxy, Steel.
Week 11	Metallic materials (non-ferrous)
Week 12	Timber (wood), insulation materials.
Week 13	Acoustical materials, protective coating (paints).
Week 14	Glass, bituminous materials (asphalt).
Week 15	Plastic.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Recognition of laboratory , Using of balances .
Week 2	Clay brick tests : Density , Dimension , Absorption , Compressive strength , Efflorescence , Analysis of soluble salts , Porosity
Week 3	Sand-lime brick tests : (Density , Absorption , Compressive strength) .
Week 4	Concrete bricks & block tests : (Density , Absorption , Compressive strength) .
Week 5	Cellular concrete block tests : (Density ,Absorption , Compressive strength) .
Week 6	Bonding materials (gypsum) tests : , Fineness , Standard consistency ,Time of setting of gypsum, Compressive strength , Tensile strength of gypsum .
Week 7	Tile tests : (Dimension , Total absorption, Face absorption, Modulus of rupture) .
Week 8	Concrete flags :(Absorption , Fracture strength) .
Week 9	Standard specification for water proofing materials Standard specification of epoxy .
Week 10	Timber (wood) : Compressive strength parallel & perpendicular to fiber test , Modulus of rupture .
Week 11	Steel : (Tensile strength test) .
Week 12	Standard specification for insulating materials . Standard specification for acoustical materials .
Week 13	Standard specification for paints . Standard specification for glass .

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1- Materials of Construction / R. C. Smith. 2- Civil Engineering Materials / N. Jackson. 3- Iraqi Standards Specifications. 4- American Society for Testing Materials (ASTM). 5- انشاء المباني / يوسف الدواف 6- انشاء المباني / زهير ساكو , ارتين ليفون	
Recommended Texts		
Websites		

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.

Module Information معلومات المادة الدراسية					
Module Title	**Plane Surveying**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	**ATU22023**				
ECTS Credits	**8**				
SWL (hr/sem)	**200**				
Module Level		UGI	**Semester of Delivery**		2
Administering Department		Technical building and Construction	**College**	Technical College/ Al Mussaib	
Module Leader	Fatin Mizher Radhi		**e-mail**	faten.mz@atu.edu.iq	
Module Leader's Acad. Title		Assis. lecturer	**Module Leader's Qualification**		M.Sc . in Survey engineering
Module Tutor	None		**e-mail**	E-mail	
Peer Reviewer Name		Porf.Dr.Maki Jafar	**e-mail**	maki_jafar@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	The aims of this course are to: 1. Understanding the basic principles of plane surveying. 2. Being familiar with the basic tools and surveying equipment. 3. Practicing field training related to engineering applications. 4. Acquiring some skills that help students in their future work.
Module Learning Outcomes	A graduate of this major should be able to: 1. General basics of surveying,foundemetals of surveying, units of measurements, plotting scale . 2. Explain the difference between plane and geodetic surveying .

	3. Linear measurements ,mean for measuring distances ,direct method of horizontal distance measurements . 4. Explain the principles of Electronic distance measurements. 5. Errors in surveying , types of errors ,Accuracy and precision, Principles of errors scattering theory**.** 6. Obstacles to measuring. 7. Leveling. Types of leveling , Leveling instrumentation , Leveling by taping, Trigonometric leveling , Sources of errors in leveling (vertical, horizontal). 8. Skills of using Level Instrument efficiently 9. The students should be able to make a levelling Survey and calculate the results relative to some chosen datum. 10. The students should be able to make a levelling survey along a predetermined line set out on the ground. Process the data and draw longitudinal sections and cross sections from the results. 11. The students should be able to select the most appropriate method of measuring horizontal and vertical angles. 12. Vertical sections , Longitudinal sections ,Calculation of cut and fill. 13. The students should be able to compute the quantities of cut and fill in any kind of sections for Roads 14. Contour lines: Method of drawing and construction. 15. Areas and volumes: Volume computation from cross-section , Volume from topographic maps and grid net , Volume computation from contour maps.
Indicative Contents	Basic fundamentals of surveying, Using tape and chain in the linear [3 hrs.] measurement and perpendicular construction. [3 hrs.] Details survey by measuring tape and obstacles to measuring. [3 hrs.] Traversing, types of traverses. [3 hrs.] Training how to use leveling instrument. [3 hrs.] Height difference between two points from one station of level. [3 hrs.] Height difference between two points from one station of level. [3 hrs.] Trigonometric leveling. [3 hrs.] Trigonometric leveling. [3 hrs.] Close leveling. [3 hrs.] Topographic survey using level instrument. [3 hrs.]

	Level test by two pegs methods. [3 hrs.] Area computation. [6 hrs.] Details survey by stadia method. [3 hrs.] Details survey using alidade and polarimetry. [3 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on: 1. Exams 2. Student feedback 3. Body language 4. Laboratory reports / studies 5. Movies and pictures.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	93	**Structured SWL (h/w)**	6.2
Unstructured SWL (h/sem)	107	**Unstructured SWL (h/w)**	7.1
Total SWL (h/sem)	200		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	3,5,6,10	
	Assignments	2	10% (10)	7, 8	
	Seminar	1	10% (10)	11	
	report	4	10% (10)	continuous	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد	
	Material Covered
Week 1	General basics of surveying, fundamentals of surveying, units of measurements, Plotting scale.
Week 2	Linear measurements. Means for measuring distances, Direct method of horizontal distances measurement, Target survey, Details, Electronic distance measuring instruments.
Week 3	Errors in surveying. Types of errors, Accuracy and precision, Principles of errors scattering theory.
Week 4	Obstacles to measuring.
Week 5	**Traversing. Types of traverse, Coordinates measurement, Traverse adjustment.**
Week 6	Traversing. Types of traverse, Coordinates measurement, Traverse adjustment.
Week 7	Bearing and angles. Methods of angles measurement and bearing calculation.
Week 8	Leveling. Types of leveling , Leveling instrumentation , Leveling by taping, Trigonometric leveling , Sources of errors in leveling (vertical, horizontal).
Week 9	Vertical sections , Longitudinal sections ,Calculation of cut and fill.
Week 10	Vertical sections , Longitudinal sections ,Calculation of cut and fill.
Week 11	Contour lines: Method of drawing and construction
Week 12	Contour lines: Method of drawing and construction
Week 13	Areas and volumes: Volume computation from cross-section , Volume from topographic maps and grid net , Volume computation from contour maps.
Week 14	Areas and volumes: Volume computation from cross-section , Volume from topographic maps and grid net , Volume computation from contour maps.
Week 15	**Preparing to final exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Basic fundamentals of surveying, Using tape and chain in the linear measurement and perpendicular construction.
Week 2	Details survey by measuring tape and obstacles to measuring.
Week 3	**Traversing, types of traverses (Open traverse)**
Week 4	**Traversing, types of traverses (Closed traverse)**
Week 5	Training how to use leveling instrument.
Week 6	Height difference between two points from one station of level.
Week 7	Trigonometric leveling.
Week 8	**Close leveling.**
Week 9	Close leveling.

Week 10	Topographic survey using level instrument.
Week 11	Level test by two pegs methods.
Week 12	Area computation.
Week 13	Area computation.
Week 14	Details survey by stadia method.
Week 15	**Contour maps using leveling instrument**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1. المساحة المستوية والمائية د علي شكري – كلية الهندسة –جامعة الاسكندرية 2. المساحة المستوية د فوزي الخالصي – وزارة التعليم العالي والبحث العلمي 3. Text book of surveying / S.K.Husain M.S.Naga Raj. 4. Surveying / Narinder Singh 5. Surveying for construction / William Irvin	
Recommended Texts		
Websites		

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.

Module Information معلومات المادة الدراسية					
Module Title	**Engineering Geology**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ATU22024**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level		UGI	**Semester of Delivery**		2
Administering Department		**Technical building and Construction**	**College**	**Technical College/ Al Mussaib**	
Module Leader	Rusul Jaber Ghayyib		**e-mail**	rusuljaber@atu.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		MSc in construction management
Module Tutor	None		**e-mail**	E-mail	
Peer Reviewer Name		Prof.dr.Maki Jafar	**e-mail**	maki_jafar@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	1. To understand the Engineering geology and relevance with Civil engineering. 2. To understand the mineral and crystal systems. 3. To understand the earth envelopes, solid earth and rocks cycle in a nature. 4. To understand the types of rocks (Igneous, Sedimentary and Metamorphic). 5. To understand the Soils and the types of Soil in Iraq. 6. To understand the physical and mechanical (engineering) properties. 7. To study the structural geology (folds, components and classification). 8. To recognize the topographic and geologic map. 9. To know the surface and subsurface and its applications. 10. To estimate the water table and Darcy law.

	11. To use the site investigation and geological techniques.
Module Learning Outcomes	1. An ability to apply knowledge of mathematics, science, and engineering. 2. An ability to design and conduct experiments and to analyse and interpret data. 3. An ability to design a system, component, or process to meet desired need. 4. An ability to identify, formulates, and solves engineering problems 5. An ability to communicate effectively 6. Understanding the impact of engineering solutions on global and societal context 7. Using the techniques, skills, and modern tools necessary for engineering practice 8. Present laboratory findings in a clear, concise laboratory report.
Indicative Contents	Indicative content includes the following. Introduction to the earth science, crust and interior of the earth, minerals and physical properties. [2 hrs.] Factor effecting on the mineral physical properties, mineral classification [2 hrs.] Clay minerals, mineral expansive soil, rocks, classification of rocks, igneous rocks [2 hrs.] Sedimentary rocks, classification of sedimentary rocks. [2 hrs.] Metamorphic rocks, stabilization of rock slopes, an engineering classification of rock materials. [2 hrs.] Weathering and erosion, weathering agents on structures, soil, soil profile, soil forming processes. [2 hrs.] Properties of engineering soil, properties of engineering rocks. [2 hrs.] Geological structure, dipping layer, folds, conformities and disconformities. [2 hrs.] Faults, joints, effect of faults and joints on structures. [2 hrs.] Surface water and underground water. [2 hrs.] Site investigation [2 hrs.] Mass movement, causes of mass movement, classification of mass movement, creep causes treatment. [2 hrs.] Landslides, causes of landslides, earthquake due to landslides, geological investigation. [2 hrs.] Geological sites of reservoirs, ground reservoirs, underground reservoirs, dams and tunnels, types of dams. [2 hrs.] Loads on dams, classification of tunnels and nomenclature, construction of tunnels. [2 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 1. Homework problem sets, 2. Exams 3. Lab reports

Student Workload (SWL) الحمل الدراسي للطالب

Structured SWL (h/sem)	33	**Structured SWL (h/w)**	2.2
Unstructured SWL (h/sem)	42	**Unstructured SWL (h/w)**	2.8
Total SWL (h/sem)	75		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	3, 10	
	Assignments	2	10% (10)	7, 8	
	Seminar	5	10% (10)	11	
	report	1	10% (10)	continuous	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد	
	Material Covered
Week 1	Introduction to the earth science, crust and interior of the earth, minerals and physical properties.
Week 2	Factor effecting on the mineral physical properties, mineral classification
Week 3	Clay minerals, mineral expansive soil, rocks, classification of rocks, igneous rocks
Week 4	Sedimentary rocks, classification of sedimentary rocks.
Week 5	Metamorphic rocks, stabilization of rock slopes, an engineering classification of rock materials.
Week 6	Weathering and erosion, weathering agents on structures, soil, soil profile, soil forming processes.
Week 7	Properties of engineering soil, properties of engineering rocks.
Week 8	Geological structure, dipping layer, folds, conformities and disconformities.
Week 9	Faults, joints, effect of faults and joints on structures.
Week 10	Surface water and underground water.
Week 11	Site investigation
Week 12	Mass movement, causes of mass movement, classification of mass movement, creep causes treatment.
Week 13	Landslides, causes of landslides, earthquake due to landslides, geological investigation.

Week 14	Geological sites of reservoirs, ground reservoirs, underground reservoirs, dams and tunnels, types of dams.
Week 15	Loads on dams, classification of tunnels and nomenclature, construction of tunnels.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1. Plummer C., Diane H., 2007, "Physical Geology", Mc-Graw Hill, 11th Edition. 2. نز دنكان. ترجمة كنانة محمد ثابت, 1980, "الجيولوجيا الهندسية وميكانيك الصخور", المكتبة الوطنية بغداد 3. كنانة محمد ثابت و محمد عمر العشو, 1993 "اسس الجيولوجيا للمهندسين" الموصل, جامعة الموصل	
Recommended Texts		
Websites		

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.

Module Information معلومات المادة الدراسية					
Module Title	**Engineering Physics**			**Module Delivery**	
Module Type	**Support Learning activity**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ATU22025**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level		UGI	**Semester of Delivery**		2
Administering Department		**Technical building and Construction**	**College**	**Technical College/ Al Mussaib**	
Module Leader	dr.Haider fawzi mahmood		**e-mail**	haider.fawzi@atu.edu.iq	
Module Leader's Acad. Title			**Module Leader's Qualification**		Ph.D
Module Tutor	None		**e-mail**	E-mail	
Peer Reviewer Name		Maher Abd Al Ameer	**e-mail**	maher Kadim@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	After successful completion of this course the student will be able to understand: 1. student's knowledge of Units, Physical Quantities and Vectors. 2. Demonstrates knowledge of Standards and Units, Utilization of Units and conversions. 3. definition of linear motion equation . 4. He will be able compute 2-D and 3-D Motion. 5. definition of Newton's Law. 6. Implements the Applications of Newton's Law. 7. knowledge and calculation of work and Kinetic Energy. 8. He will be able calculation of the Potential Energy and Conservation of Energy knowledge and calculation of the Momentum, Impulse and

	Collisions. 9. definition of and calculation of the Rotational motion of Rigid Bodies and calculation of the Rotational Kinematics.
Module Learning Outcomes	The ability to convert units in various systems Distinguish between different physical quantities and the standards that define these quantities The ability of the student to solve the problems of the linear equation and the two- and three-dimensional kinetic equations. Implementing applied problems on Newton's law and solving potential energy and momentum issues And how to solve the problems of rotational motion of solid bodies
Indicative Contents	Preparing the student to continue self-learning, acquiring skills and developing his potential

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 1. Exams. 2 Student feedback. 3 Homework's

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	63	**Structured SWL (h/w)**	4.2
Unstructured SWL (h/sem)	37	**Unstructured SWL (h/w)**	2.5
Total SWL (h/sem)	100		

Module Evaluation تقييم المادة الدراسية					
As		**Time/Number**	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	3,5,6,10	
	Assignments	2	10% (10)	7, 8	
	Projects / Lab.	1	10% (10)	Continuous	
	report	1	10% (10)	13	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد	
Week	**Material Covered**
Week 1	Demonstrates knowledge about the introduction and Scope of Physics 1, Units,1 Physical Quantities and Vectors
Week 2	Demonstrates knowledge of Standards and Units, Utilization of Units and conversions.
Week 3	Demonstrates knowledge and implementation of the Linear Motion.
Week 4	Demonstrates knowledge and compute 2-D and 3-D Motion.
Week 5	Demonstrates knowledge about Newton's Law.
Week 6	Review and solution of the homework.
Week 7	Demonstrates knowledge and calculation of work and Kinetic Energy.
Week 8	Demonstrates knowledge and calculation of work and Kinetic Energy.
Week 9	Demonstrates knowledge and calculation of the Potential Energy and Conservation of Energy.
Week 10	Demonstrates knowledge and calculation of the Momentum, Impulse and Collisions.
Week 11	Demonstrates knowledge and calculation of the Rotational motion of Rigid Bodies.
Week 12	Demonstrates knowledge and calculation of the Rotational Kinematics.
Week 13	Demonstrates knowledge and calculation of the Rotational Kinematics.
Week 14	general review
Week 15	prepare to final exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Lectures prepared by the teacher	
Recommended Texts	book_Bueche,_Frederick_Hecht,_Eugene_Schaums_Outline_of College_	
Websites		

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.

Module Information معلومات المادة الدراسية					
Module Title	**Computer Principles**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	**ATU22026**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	UGI		**Semester of Delivery**	2	
Administering Department	**Technical building and Construction**		**College**	**Technical College/ Al Mussaib**	
Module Leader	Mostafa Satea Alhamdany		**e-mail**	mustafasatea894@gmail.com	
Module Leader's Acad. Title			**Module Leader's Qualification**	M.Sc . in civil Enguneering	
Module Tutor	None		**e-mail**	E-mail	
Peer Reviewer Name	Assist.prof.dr.Haider fawzi mahmood		**e-mail**	haider.fawzi@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	1. The student must know the use of engineering software programs related to its rules and theories has been taught to student previously. 2. To prepare them to carry out experimental investigation and analysis at later stages of graduation.
Module Learning Outcomes	Upon completion of the course, students should be able to: 25. Using a computer operating system. 26. Using computer software to solve mathematical problems. 27. Using Microsoft office to write reports, Tables, graphical diagrams and other works.

	28. Ability to write basic computer codes (Programming). 29.
Indicative Contents	Introduction to computer , computer component (hardware , software) [4 hrs.] Operating system (windows) , installing windows (formatting), Start menu , desktop , taskbar , mouse applications. [4 hrs.] My computer , My documents , drivers , folders , files , cut , copy , paste , shortcut , right click menu, Setting menu , control panel. [4 hrs.] Microsoft word 2007 (program view , office button), Menu (home icons), Menu (insert icons). [4 hrs.] Menus (page layout , review , view , design), Icons (symbols , equation) Microsoft excel 2007 (program view , office button). [4 hrs.] Home icons, Insert icons, Page layout icons, Formula icons , view icons, Data icons , chart wizard. [4 hrs.] Microsoft power point 2007 (program view , office button). [4 hrs.] Insert icons , design icons, Animations icons , slid show icons. [4 hrs.] Internet , internet explorer , starting , menus of internet explorer . [4 hrs.] E-mail : yahoo , Hotmail. [4 hrs.] Search engines , google , yahoo , search information [4 hrs.] Surfer [2 hrs.] Practical exercise. [2 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 2. Exams. 3. Student feedback. 4. Homework’s

Student Workload (SWL) الحمل الدراسي للطالب			
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 تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	3,5,6,10	
	Assignments	2	10% (10)	7, 8	
	Projects / Lab.	1	10% (10)	Continuous	
	report	1	10% (10)	13	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد	
	Material Covered
Week 1	Introduction to computer , computer component (hardware , software)
Week 2	Operating system (windows) , installing windows (formatting), Start menu , desktop , taskbar , mouse applications
Week 3	My computer , My documents , drivers , folders , files , cut , copy , paste , shortcut , right click menu, Setting menu , control panel
Week 4	Microsoft word 2007 (program view , office button), Menu (home icons), Menu (insert icons),
Week 5	Menus (page layout , review , view , design), Icons (symbols , equation)
Week 6	Microsoft excel 2007 (program view , office button)
Week 7	Home icons, Insert icons, Page layout icons, Formula icons , view icons, Data icons , chart wizard
Week 8	Microsoft power point 2007 (program view , office button),
Week 9	Insert icons , design icons, Animations icons , slid show icons
Week 10	Internet , internet explorer , starting , menus of internet explorer
Week 11	E-mail : yahoo , hotmail
Week 12	Search engines , google , yahoo , search information
Week 13	Surfer
Week 14	Practical exercise
Week 15	Preparing for final exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Practical exercises
Week 2	Microsoft excel 2007 (program view , office button)
Week 3	Home icons
Week 4	Insert icons
Week 5	Page layout icons
Week 6	Formula icons , view icons
Week 7	Data icons , chart wizard

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1. Golden Software, Inc.2012.User Manual, Version 12, CO,80401-1866, USA. 2. 2.PROKON, Ltd.2005.User Manual, Version 2.1 3. Crane, R. (1997) A Simplified Approach to Image Processing: Classical and Modern Techniques in C. Prentice Hall PTR, Upper Saddle River, NJ, 317pp.ISBN:0-13-226416-1. 4. 4.Pitas, I. (2000) Digital Image Processing Algorithms and Applications, John Wiley and Sons, New Yourk,419pp.ISBN:0-471-37739-2.	
Recommended Texts		
Websites		

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.

1- Concrete Technology 1

Module Information معلومات المادة الدراسية					
Module Title	**Concrete Technology 1**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ATU22031				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	UGII		**Semester of Delivery**	3	
Administering Department	**Technical building and Construction**		**College**	**Technical College/Al Mussaib**	
Module Leader	Dr. Zahraa Fakhri		**e-mail**	Dr_zahraajawad@atu.edu.iq	
Module Leader's Acad. Title	Assist professor		**Module Leader's Qualification**	PHD in Materials engineering	
Module Tutor	None		**e-mail**	E-mail	
Peer Reviewer Name	**Zahraa fakhri**		**e-mail**	Dr_zahraajawad@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims	1. The student must be to learn the chemical characteristics of the main component of concrete and their effect on the properties of concrete 2. The student must be to learn the physical mechanical and cheical characteristics of the main component of concrete, as well as accomplishing all the related laboratory tests.
Module Learning Outcomes	1. The course is the basis for the use of concrete, with emphasis on requirements and possibilities within the standard for consultants, concrete producers, contractors and owners. 2. Proportioning of concrete including principles for self-compacting concrete taking into account fresh (rheology, stability) and hardened concrete (strength, durability, economy, sustainable development). 3. This also includes giving the student an understanding of the importance of the constituents (cement, pozzolana/additives, admixtures and aggregates/fines including alkali aggregate reactivity) and composite theory (the Particle Matrix model). 4. Introduction to simple calculations of volumetric relations and pore structure (gel/capillary) in hydration products. The basis for the use of curing technology models (maturity, property development etc) for control and verification of hardening at winter concreting will be learnt. 5. Understanding of mechanisms causing volume change from fresh (plastic settlement, -shrinkage), via early age (temperature, autogenous shrinkage) to hardened concrete (drying shrinkage) is also given. 6. The student shall know the mechanisms for volume change in the different phases (stability, bleeding, temperature change, self-desiccation) as basis to understand cracking problems in fresh/young concrete (choice of constituents and proportions, importance of drying/keeping fresh concrete wet, temperature control etc). 7. Concrete strength; know and understand constituent materials and hydration products importance for strength properties, fracture mechanisms and the strength requirements of the standard for structural concrete. 8. Prediction and control of strength during concrete production therefore is central. 9. Finally transport properties and durability issues are treated (frost, corrosion, ASR) 10. .Knowledge: - Understanding of constituent materials for properties of fresh and hardened concrete properties- Composite models for proportioning (particle/patrix) and transport/durability issues (paste/aggregate)- Basic understanding of hydration as well as important physical and chemical properties of the hydration products- Basic curing technology models (maturity, property development)- 11. Know the different mechanisms causing volume change from fresh (plastic settlement, -shrinkage) via young (temperature, autogeneous shrinkage) to hardened concrete (drying shrinkage).

Indicative Contents	Composition of concrete, function of the paste and aggregate, general properties of ordinary cement, Portland cement, making materials, chemical formulas and processes. [4 hrs.] Manufacture of Portland cement ,Chemical analysis of Portland cement, major and minor compounds of Portland cement. [4 hrs.] Properties of Portland cement, Fineness of cement ,Consistency of cement paste, Hydration reactions of cement ,Heat of hydration ,Setting and hardening of cement ,time of setting. [4 hrs.] Soundness of cement, Strength of cement , Influence of the compound composition on properties of cement (strength development). [4 hrs.] Types of cement, Ordinary Portland Cement (TYPE I), Modified Cement (Type II), Rapid-Hardening Portland Cement (Type III), Ultra-High Early Strength Cement, Low Heat Portland Cement (Type IV), Sulfate-Resisting Cement (Type V), White Cement and Pigments, Portland Blast-furnace Cement, Super-Sulfated Cement, Pozzolana, Anti-bacterial cement, Masonry cement, Natural cement, Hydrophobic cement. [8 hrs.] Aggregate, Classification of aggregate, According to the size, According to the source, According to the unit weight, Physical properties of aggregate, Practical shape and texture, Bond of aggregate. [4 hrs.] Specific Gravity, Porosity and Absorption ,Gradation, sieve analysis , max size of aggregate, fineness modulus, Gap- graded aggregate, Oversize and undersize aggregate, All- in aggregate, bulking of sand. [4 hrs.] Soundness of aggregate, Handling and storage aggregate, Deleterious substances organic impurities, Alkali- aggregate reaction , Alkali- carbonate reaction. [4 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 5. Exams. 6. Student feedback. 7. Preparation of scientific reports.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	63	**Structured SWL (h/w)**	4
Unstructured SWL (h/sem)	87	**Unstructured SWL (h/w)**	5
Total SWL (h/sem)	150		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	4	10% (10)	3,5,6,10	
	Assignments	2	10% (10)	7, 8	
	Report	1	10% (10)	11	
	Class work	4	10% (10)	2,4,8,11	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد	
	Material Covered
Week 1	Definition of concrete, constitutes of concrete , function of the concrete's constitutes
Week 2	Cement raw materials of cement .Manufacture of cement ,
Week 3	Chemical analysis of Portland cement, major and minor compounds of Portland cement

Week 4	Properties of Portland cement, Fineness of cement ,Consistency of cement paste, Hydration reactions of cement ,Heat of hydration ,Setting and hardening of cement ,time of setting
Week 5	Soundness of cement, Strength of cement , Influence of the compound composition on properties of cement (strength development)
Week 6	Calculation of gel and hydration product paste
Week 7	Types of cement, Ordinary Portland Cement (TYPE I), Modified Cement (Type II), Rapid-Hardening Portland Cement (Type III), Ultra-High Early Strength Cement, Low Heat Portland Cement (Type IV), Sulfate-Resisting Cement (Type V),
Week 8	White Cement and Pigments, Portland Blast-furnace Cement, Super-Sulfated Cement, Pozzolana, Anti-bacterial cement, Masonry cement, Natural cement, Hydrophobic cement
Week 9	Aggregate, definition, function, requirements, Classification of aggregate,
Week 10	Physical properties of aggregate, Practical shape and texture, Bond of aggregate,
Week 11	Specific Gravity, Porosity and Absorption ,Gradation, sieve analysis , max size of aggregate, fineness modulus, Gap- graded aggregate, Oversize and undersize aggregate, All- in aggregate, bulking of sand
Week 12	Soundness of aggregate, Handling and storage aggregate, Deleterious substances organic impurities, Alkali- aggregate reaction , Alkali- carbonate reaction .
Week 13	Water in concrete, function of water, requirement of water in concrete, impurities limitation and effect
Week 14	Mixing water, curing water, sea water
Week 15	Preparing for final exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Cement tests , consistency of cement paste
Week 2	Initial and final setting times of cement paste
Week 3	Compressive strength of cement mortar
Week 4	Fineness of cement by blain method and by sieving
Week 5	Sampling of coarse and fine aggregate

Week 6	Unit weight and voids of coarse aggregate
Week 7	Unit weight and voids of coarse aggregate
Week 8	Sieve analysis for fine aggregate
Week 9	Sieve analysis for coarse aggregate
Week 10	Specific gravity and absorption for fine aggregate
Week 11	Specific gravity and absorption for coarse aggregate
Week 12	Moisture content in coarse and fine aggregate , bulking of sand
Week 13	Los-angeles abrasion test for coarse aggregate
Week 14	Water test

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	4. Properties of concrete, A ,M. NEVILLE 5. تكنولوجيا الخرسانة , د احمد علي العريان	
Recommended Texts	1- تكنولوجيا الخرسانة محمود امام	
Websites		

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.

2- **Strength of Materials 1**

Module Information معلومات المادة الدراسية				
Module Title	**Strength of Materials 1**		**Module Delivery**	
Module Type	**Core**		☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ATU22032			
ECTS Credits	**6**			
SWL (hr/sem)	**150**			
Module Level	UGII	**Semester of Delivery**	3	
Administering Department	**Technical building and Construction**	**College**	**Technical College/Al Mussaib**	
Module Leader	Dr. Ammar Adil Abdulnabe	**e-mail**	ammaralbakry@atu.edu.iq	
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph.D. in mechanical Engineer -	
Module Tutor		**e-mail**		
Peer Reviewer Name	Prof.Dr.Hussam Ali	**e-mail**	com.hus@atu.edu.iq	
Scientific Committee Approval Date		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	1,2
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	1. To understand effect of forces and loads on materials. 2. To understand how materials deforms due to external forces 3. to understand the safest way in using material in engineering applications and construction purposes 4. to understand how beams deforms due to loads and what type of stresses occur 5. to understand composite material and its behavior and deformation 6. to realize the meaning of compound stresses on material and to compute it.
Module Learning Outcomes	At the end of this course: 1. Solve engineering problems relating to stress and strain analysis. 2. Develop the student's ability to deal with normal force, shear force and bending moment in statically determinate beam assemblies with internal hinges. 3. An ability to calculate stresses and deformations of object under external forces 4. An ability to analyze a given problem in a simple manner. 5. An ability to apply the knowledge of strength of material on engineering application and design problems. 6. An ability to communicate effectively 7. Understanding the impact of engineering solutions on global and societal context 8. Using the techniques, skills, and modern tools necessary for engineering practice 9. Designing concepts and applications in engineering mechanics of material . 10. Critical Thinking 11. Analytical methods in solving problems
Indicative Contents	Simple stress: Analysis of internal forces, Simple stress, shearing stress, Bearing stress. [8 hrs.] Simple Strain: Stress-strain diagram, Hooke's law, Axial deformation, Poisson's ratio, Biaxial & Tri-axial deformations, statically indeterminate members, Thermal stresses. [8 hrs.] Combined Stresses:

	Combined axial & flexural loads, Kern of a section, Loads applied off axes of symmetry, Stress at a point, Mohr's circle, Transformation of strain components. [8 hrs.] Torsion: Derivation of torsion formulas, Longitudinal shearing stress, Shear flow. [8 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 8. Exams. 9. Student feedback.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	63	**Structured SWL (h/w)**	4.2
Unstructured SWL (h/sem)	87	**Unstructured SWL (h/w)**	5.8
Total SWL (h/sem)	150		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	4	10% (10)	3,5,6,10	
	reports	2	10% (10)	4,10	
	Assignments	2	10% (10)	7, 8	
	Seminar	1	10% (10)	11	
	Midterm Exam	2 hr	10% (10)	12	

Summative assessment	**Final Exam**	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد	
	Material Covered
Week 1	Simple stress: Analysis of internal forces, Simple stress, shearing stress, Bearing stress.
Week 2	Simple stress: Analysis of internal forces, Simple stress, shearing stress, Bearing stress.
Week 3	Simple stress: Analysis of internal forces, Simple stress, shearing stress, Bearing stress.
Week 4	Riveted & Welded Connections: Types of riveted joints , Strength of a simple lap joint , Structural riveted joints , Welded constructions.
Week 5	Riveted & Welded Connections: Types of riveted joints , Strength of a simple lap joint , Structural riveted joints , Welded constructions
Week 6	Riveted & Welded Connections: Types of riveted joints , Strength of a simple lap joint , Structural riveted joints , Welded constructions
Week 7	Simple Strain: Stress-strain diagram, Hooke's law, Axial deformation, Poisson's ratio, Biaxial & Tri-axial deformations, statically indeterminate members, Thermal stresses.
Week 8	Simple Strain:

	Stress-strain diagram, Hooke's law, Axial deformation, Poisson's ratio, Biaxial & Tri-axial deformations, statically indeterminate members, Thermal stresses.
Week 9	Simple Strain: Stress-strain diagram, Hooke's law, Axial deformation, Poisson's ratio, Biaxial & Tri-axial deformations, statically indeterminate members, Thermal stresses.
Week 10	Simple Strain: Stress-strain diagram, Hooke's law, Axial deformation, Poisson's ratio, Biaxial & Tri-axial deformations, statically indeterminate members, Thermal stresses.
Week 11	Torsion: Derivation of torsion formulas, Longitudinal shearing stress, Shear flow.
Week 12	Torsion: Derivation of torsion formulas, Longitudinal shearing stress, Shear flow.
Week 13	Shear and Moment in Beams: Shear & moment, Shear & moment diagrams, Relations between load ; shear & moment.
Week 14	Shear and Moment in Beams: Shear & moment, Shear & moment diagrams, Relations between load ; shear & moment.
Week 15	Preparing for the final exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	6. Strength of Materials / Ferdinand L. Singer & Andrew Pytel. 7. Strength of Materials / R. S. Khurmi. 8. Mechanics of Materials" R.C. Hibbeler	
Recommended Texts		
Websites		

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.

3- **Fluid Mechanics 1**

Module Information معلومات المادة الدراسية					
Module Title	**Fluid Mechanics 1**			**Module Delivery**	
Module Type	**suport**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ATU22035				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	UGII		**Semester of Delivery**	3	
Administering Department	**Technical building and Construction**		**College**	**Technical College/Al Mussaib**	
Module Leader	Maher Abd Al Ameer		**e-mail**	maher Kadim@atu.edu.iq	
Module Leader's Acad. Title	Assist.Prof		**Module Leader's Qualification**	MSc in Water resources engineering	
Module Tutor			**e-mail**		
Peer Reviewer Name	Prof.Dr. Issam Isaa		**e-mail**	inm.asm@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims	1. To understand the science of fluid in rest and motion 2. To understand the types and methods of pressure measurement 3. To understand the behaviors of forces on submerged gates 4. To determine the behavior of fluid in rigid body movement 5. To understand flow of ideal fluid 6. To derive the continuity equation 7. To derive the energy equation for real fluid 8. To classified the type of the flow in pipes. 9. To determine the losses in pipes 10. study the momentum equation and dimensional analysis with model simulates 11. Study the open channel flow with their characteristics
Module Learning Outcomes	1. An ability to apply knowledge of mathematics, science, and engineering. 2. An ability to design and conduct experiments and to analyze and interpret data. 3. An ability to design a system, component, or process to meet desired need. 4. An ability to identify, formulate, and solve engineering problems. 5. An ability to communicate effectively 6. Understanding the impact of engineering solutions on global and societal context 7. Using the techniques, skills, and modern tools necessary for engineering practice 8. Present laboratory findings in a clear, concise laboratory report. 9. Statistical concepts and applications in fluid mechanics engineering 10. Critical Thinking 11. Analytical methods in solving problems 12. Identify operational problems to carry out fluid mechanics engineering studies and evaluate alternative solutions.
Indicative Contents	SI Units, dimensions, symbols , abbreviations [2 hrs.] Development of fluid mechanics, properties of fluids; density, specific weight, viscosity, compressibility, surface tension, capillarity etc. Characteristics of flow; discharge, velocity, pressure, shear etc. [3 hrs.] Fluid static's; absolute and gauge pressure, pressure measurement; Bourdon gauge, piezometer column, simple manometer, differential manometers. Hydrostatic forces on plane and curved surfaces, center of pressure. [3 hrs.] Fluid static's; absolute and gauge pressure, pressure measurement; Bourdon gauge, piezometer column, simple manometer, differential manometers. Hydrostatic forces on plane and curved surfaces, center of pressure. [3 hrs.] Energy equation for steady flow; potential, kinetic and flow energy; hydraulic grade line and energy line; cavitations; power; solution of flow problems; jet trajectory. [3 hrs.]

	. Momentum in fluid flow; impulse momentum principle; momentum correction factor ; forces on pressure conduits ; forces on stationary blades ; forces on moving blades ;jet reaction ; application of momentum equation to fluid flow problems . [3 hrs.] Steady flow in pressure conduits ; laminar and turbulent flow; critical flow ; general equation for conduit friction ;friction for laminar flow ; friction for turbulent flow ; pipe roughness ; friction factor charts ; empirical equations for pipe flow; economical diameter of pipes. [3 hrs.]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Assessment is based on 10. Exams. 11. Student feedback.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem)	63	**Structured SWL (h/w)**	4.2
Unstructured SWL (h/sem)	62	**Unstructured SWL (h/w)**	4.1
Total SWL (h/sem)	125		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	10% (10)	3,5,6,10	
	Assignments	2	10% (10)	7, 8	
	reports	2	10% (10)		
	Seminar	1	10% (10)	11	

Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد

	Material Covered
Week 1	SI Units, dimensions, symbols , abbreviations
Week 2	SI Units, dimensions, symbols , abbreviations
Week 3	Development of fluid mechanics, properties of fluids; density, specific weight, viscosity, compressibility, surface tension, capillarity etc. Characteristics of flow; discharge, velocity, pressure, shear etc.
Week 4	Development of fluid mechanics, properties of fluids; density, specific weight, viscosity, compressibility, surface tension, capillarity etc. Characteristics of flow; discharge, velocity, pressure, shear etc.
Week 5	Fluid static's; absolute and gauge pressure, pressure measurement; Bourdon gauge, piezometer column, simple manometer, differential manometers. Hydrostatic forces on plane and curved surfaces, center of pressure.
Week 6	Fluid static's; absolute and gauge pressure, pressure measurement; Bourdon gauge, piezometer column, simple manometer, differential manometers. Hydrostatic forces on plane and curved surfaces, center of pressure.
Week 7	Fluid static's; absolute and gauge pressure, pressure measurement; Bourdon gauge, piezometer column, simple manometer, differential manometers. Hydrostatic forces on plane and curved surfaces, center of pressure. Fluid static's; absolute and gauge pressure, pressure measurement; Bourdon gauge, piezometer column, simple manometer, differential manometers. Hydrostatic forces on plane and curved surfaces, center of pressure.
Week 8	Fluid static's; absolute and gauge pressure, pressure measurement; Bourdon gauge, piezometer column, simple manometer, differential manometers. Hydrostatic forces on plane and curved surfaces, center of pressure.
Week 9	Energy equation for steady flow; potential, kinetic and flow energy; hydraulic grade line and energy line; cavitations; power; solution of flow problems; jet trajectory.
Week 10	Energy equation for steady flow; potential, kinetic and flow energy; hydraulic grade line and energy line; cavitations; power; solution of flow problems; jet trajectory.

Week 11	Momentum in fluid flow; impulse momentum principle; momentum correction factor ; forces on pressure conduits ; forces on stationary blades ; forces on moving blades ;jet reaction ; application of momentum equation to fluid flow problems .
Week 12	Momentum in fluid flow; impulse momentum principle; momentum correction factor ; forces on pressure conduits ; forces on stationary blades ; forces on moving blades ;jet reaction ; application of momentum equation to fluid flow problems .
Week 13	Steady flow in pressure conduits ; laminar and turbulent flow; critical flow ; general equation for conduit friction ;friction for laminar flow ; friction for turbulent flow ; pipe roughness ; friction factor charts ; empirical equations for pipe flow; economical diameter of pipes.
Week 14	Steady flow in pressure conduits ; laminar and turbulent flow; critical flow ; general equation for conduit friction ;friction for laminar flow ; friction for turbulent flow ; pipe roughness ; friction factor charts ; empirical equations for pipe flow; economical diameter of pipes.
Week 15	Preparing to final exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	General looking for the instruments in the fluid laboratory; How to write the practical report.
Week 2	Properties of fluid; a- density measurement b- viscosity measurement
Week 3	Pressure measurement devices ; a- barometers b- Manometers; 1.piezometers, 2.open U-tube manometer, 3.inclined manometer, 4. Differential manometer. c- Balancing of the force; 1.piston type, 2.bell type, 3.ring type. d- Borden gauge.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. Douglas, J.F. et al; 2011 (Fluid Mechanics). Prentice Hall. 2. Durgaiah D. R.; 2002 (Fluid Mechanics and Machinery). New Age international publishers. 3. White, F. M.; 1994 (Fluid Mechanics).3rd ed. McGraw-Hill, New York. 4. Khurmi, R.S.; 1994 (Hydraulics, Fluid Mechanics and Hydraulic Machines). S. Chand and Co. Ltd.	
Recommended Texts		
Websites		

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.

4- Applied surveying

Module Information

معلومات المادة الدراسية					
Module Title	**Applied Survey 1**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	ATU22034				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	UGII		**Semester of Delivery**	3	
Administering Department	**Technical building and Construction**		**College**	**Technical College- Al Mussaib**	
Module Leader	Fatin mizher radhi		**e-mail**	faten.mz@atu.edu.iq	
Module Leader's Acad. Title	Assis. lecturer		**Module Leader's Qualification**	M.Sc . in survey engineering	
Module Tutor	None		**e-mail**	E-mail	
Peer Reviewer Name	Porf.Dr.Maki Jafar		**e-mail**	maki_jafar@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	ATU22023	**Semester**	1
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	The students should be able to: a- Measuring angles : Select the most appropriate method of measuring horizontal and vertical angles. b- Measuring and record these angles and determine their most probable values. c- Understand the errors that affect angle measurement and minimize their effects. d- Measuring corrected coordinates of points and setting out of different lands.

	e- Learning traversing and computations for different type of traverses f- Tacheometry , stadia tacheometry , Inclined sights g- Skills of using theodolite efficiently h- Electromagnetic distance measurement(EDM), basic concept, systems.
Module Learning Outcomes	The student will be able to: 13. Measuring angles : a. Select the most appropriate method of measuring horizontal and vertical angles. b. Measuring and record these angles and determine their most probable values. c. Understand the errors that affect angle measurement and minimize their effects. d. Measuring directions ,whole circle bearing ,reduce bearing. e. Measuring corrected coordinates of points and setting out of different lands. 14. Skills of using theodolite efficiently 15. Traversing : types of traversing (closed and open traverse) 16. Tacheometry , stadia tacheometry , Inclined sights 17. Electromagnetic distance measurement(EDM), basic concept, systems.
Indicative Contents	Theodolites , Principle of construction [8 hrs.] Measuring Horizontal angles [2 hrs.] Measuring angles in vertical plane [2 hrs.] Directions , Whole circle bearing , Reduce Bearing [2 hrs.] Traverse Surveys , Bearings , forward & Back bearing [2 hrs.] Close circle traverse, coordinates calculations [2 hrs.] Close connected traverse , coordinates calculations [2 hrs.] Tacheometry , stadia tacheometry , Inclined sights [2 hrs.] Electromagnetic distance measurement(EDM), basic concept, systems [2 hrs.]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 12. Exams. 13. Student feedback.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	78	**Structured SWL (h/w)**	5.2
Unstructured SWL (h/sem)	47	**Unstructured SWL (h/w)**	3.1
Total SWL (h/sem)	125		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	20% (20)	3,5,6,10	
	Assignments	2	10% (10)	7, 8	
	Seminar	1	10% (10)	11	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد

	Material Covered
Week 1	Theodolites , Principle of construction
Week 2	Measuring Horizontal angles , Measuring angles in vertical plane
Week 3	Directions , Whole circle bearing , Reduce Bearing
Week 4	Traverse Surveys , Bearings , forward & Back bearing
Week 5	Close circle traverse, coordinates calculations
Week 6	Close connected traverse , coordinates calculations
Week 7	Tacheometry , stadia tacheometry , Inclined sights
Week 8	Electromagnetic distance measurement(EDM), basic concept, systems
Week 9	Total station, Field Techniques, point location, missing line measurements
Week 10	Resection , Azimuth, elevation , Layout Positions and area computation ,Motorized Total stations, Automatic ,remote control, computerized
Week 11	Horizontal Curves , Kinds , computations
Week 12	Horizontal Curves , Kinds , computations
Week 13	Setting out of horizontal curves.
Week 14	Setting out of horizontal curves
Week 15	Preparing to final exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Measuring horizontal & vertical angles by using different kinds of theodolites.
Week 2	Construct close connected & close circle traverses to survey small area.
Week 3	Computations of the coordinates of stations traverse & plotting a traverse , Problems in inverse computation.

Week 4	Measuring H. distances & vertical distances by using tachometer .
Week 5	Measuring slope , Horizontal & vertical distances, Resection , Azimuth, elevation , Layout Positions and motorized Total stations, Automatic ,remote control, computerized and by using Total station instrument.
Week 6	Measuring area by using total station , Solve problems , Standard deviation.
Week 7	Setting out curves & calculation , Curves field work surveying.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	5. Surveying for construction / William Irvine , FRICS. 6. Text book of surveying / S.K. Husain , M.S. Naga. Raj. 7. Elements of photogrammetry / Wolf , Pual R. 8. المساحة المستوية / د . فوزي الخالصي 9. المساحة المستوية والمائية / د . علي شكري	
Recommended Texts		
Websites		

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.

5- Probability & Statistics

Module Information معلومات المادة الدراسية		
Module Title	Engineering Statistics	**Module Delivery**
Module Type	suport	☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**
Module Code	ATU22035	
ECTS Credits	**4**	
SWL (hr/sem)	**100**	

Module Level		**JGII**	**Semester of Delivery**		3
Administering Department		Engineering Building and Construction Technique	**College**	Technical College/Al Mussaib	
Module Leader	**Dr.Hayer fawzi**		**e-mail**	Haider.fawzi@atu.edu.iq	
Module Leader's Acad. Title		**Assist. Prof.**	**Module Leader's Qualification**		**PHD in.**
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Prof.Dr.Nabeel Hameed	**e-mail**		
Scientific Committee Approval Date			**Version Number**	1.0	

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	This course description provides a brief summary of the most important characteristics of the course and the expected learning outcomes of students to demonstrate whether they have made the most of the available learning opportunities. It must be linked to the description of the program.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	upon completion of this course the students will: 1- distinguish types of studies and their limitations and strengths, Describe a data set including both categorical and quantitative variables to support or refute a statement. 2- Apply laws of probability to concrete problems. 3- Perform statistical inference in several circumstances and interpret the results in an applied context. 4- Use mathematical tools, including calculus and linear algebra.

	5- study probability and mathematical statistics and in the description and development of statistical procedures. 6- Use a statistical software package for computations with data. 7- Use a computer for the purpose of simulation in probability and statistical inference. 8- Communicate concepts in probability and statistics using both technical and non-technical language.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Statistics-Types of Statistics [2hr] Data-Population-Sample-Variable[2hr] Frequency Distribution [2hr] Class boundaries-Class Width-Class Mark[2hr] Relative and Percentage Frequency[2hr] Graphical Presentation I[2hr] Graphical Presentation II[2hr] Statistical Notations I[2hr] Statistical Notations II[2hr] Measures of Central Tendency I[2hr] Measures of Central Tendency II[2hr] Measures of Variation I[2hr] Measures of Variation II[2hr] Measures of Skewed [2hr] Correlation[2hr]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 1- Qu**izzes** 2- Student feedback.

	3- Seminars

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	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation تقييم المادة الدراسية					
		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)		
	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 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Statistics-Types of Statistics
Week 2	Data-Population-Sample-Variable
Week 3	Frequency Distribution
Week 4	Class boundaries-Class Width-Class Mark
Week 5	Relative and Percentage Frequency
Week 6	Graphical Presentation I
Week 7	Graphical Presentation II
Week 8	Statistical Notations I
Week 9	Statistical Notations II
Week 10	Measures of Central Tendency I
Week 11	Measures of Central Tendency II
Week 12	Measures of Variation I
Week 13	Measures of Variation II
Week 14	Measures of Skewed. Correlation
Week 15	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts		Yes
Recommended Texts		No

	1-Elementary Statistics, Author Allan G. Bluman, Printed by McGraw-Hill, 1997. 2- المدخل الى الاحصاء- تأليف د.خاشع محمود الراوي- طباعة جامعة الموصل	
Websites		

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.

6- Advanced mathematics

Module Information معلومات المادة الدراسية		
Module Title	**Advanced Mathematics**	**Module Delivery**
Module Type	**suport**	☒ **Theory** ☒ **Lecture**
Module Code	ATU22036	
ECTS Credits	**4**	

SWL (hr/sem)	**100**		☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**		
Module Level	UGII		**Semester of Delivery**	3	
Administering Department	**Technical building and Construction**		**College**	**Technical College/ Al Mussaib**	
Module Leader	Dr. Abbas K.Alrekabi		**e-mail**	Dr.abbas.rikabi@atu.edu.iq	
Module Leader's Acad. Title	Assist. Professor		**Module Leader's Qualification**	PHD in chemical engineering	
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	**Applied Mathematics**	**Semester**	L 1 S1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims	The student must know the advanced theories in mathematics needed in construction engineering .

Module Learning Outcomes	Upon completion of the course, students should be able to: 14. Skill of thinking 15. Skill of conclusion and evaluation 16. Skill analysis 17. The skill of observation 18. The student's ability to excel and cognitive perception to diagnose theories and general 19. Principles in the study. 20. Future planning to link, what students learn in daily life. 21. Practice different patterns in mathematical proofs. 22. Self-reliance in getting to the idea and how to manage solving the scientific problem. 23. Statistical concepts and applications in civil engineering. 24. Critical Thinking 25. Analytical methods in solving problems 26. Identify operational problems to carry out civil engineering studies and evaluate alternative solutions.
Indicative Contents	Multiple integrals ,double integrals , area by double integration , triple integrals , volume by double and triple integrations. [4 hrs.] Polar coordinates , curves by polar coordinates ,area by polar double integrations , cylindrical and spherical coordinates, equations of solids Ordinary differential equations of first order ,separable , homogeneous , exact and not exact , linear and Bernoulli first order equations , general and condition solutions , applications. [4 hrs.] Linear differential equations with constant coefficients, homogeneous and non-homogeneous equations , equation of higher order , general and condition solutions , applications. [4 hrs.] Partial derivatives with two and more two variables , higher- order partial derivatives , chain rule for partial derivatives , maxima & minima of function of two variables , saddle point and relative extrema. [4 hrs.] Vector analysis , dot and cross product of vector functions , velocity and acceleration ,gradient of vector fields,divergance and curl of vector fields . Equations of the lines and surfaces in space , intersection of lines and surfaces using vectors , lagrange multipliers with two and more constraints. Complex numbers and functions , demoivres theorem, roots ,argand diagram, cauchy – rehmann equations. [4 hrs.]

	Limits , Infinite sequences , convergence and divergence , infinite series , geometric and ordinary series , positive and alternative series , test of convergences. [4 hrs.] Power series , maclaurin series taylor and trigonometric series . Fourier series for periodic function , euler coefficients , applications Green,s theorem for enclosed curves , line integral. [4 hrs.] Matrices , Adjoins & inverses , solving linear equations using the inverse of matrix , determinants and cramer method to solve linear equations , Gaussian elimination and gauss-seidel elimination. [4 hrs.] Improper integration and Laplace transform of some common functions , properties of Laplace transform. [4 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 14. Exams. 15. Student feedback. 16. Preparation of scientific reports.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	63	**Structured SWL (h/w)**	4.2
Unstructured SWL (h/sem)	37	**Unstructured SWL (h/w)**	2.5
Total SWL (h/sem)	100		

Module Evaluation تقييم المادة الدراسية				
	Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**

Formative assessment	**Quizzes**	4	10% (10)	3,5,6,10	
	reports	1	10% (10)	10	
	Assignments	2	10% (10)	7, 8	
	Seminar	1	10% (10)	11	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد

	Material Covered
Week 1	Multiple integrals ,double integrals , area by double integration , triple integrals , volume by double and triple integrations.
Week 2	Polar coordinates , curves by polar coordinates ,area by polar double integrations , cylindrical and spherical coordinates, equations of solids
Week 3	Ordinary differential equations of first order ,separable , homogeneous , exact and not exact , linear and Bernoulli first order equations , general and condition solutions , applications
Week 4	Linear differential equations with constant coefficients, homogeneous and non-homogeneous equations , equation of higher order , general and condition solutions , applications.
Week 5	Partial derivatives with two and more two variables , higher- order partial derivatives , chain rule for partial derivatives , maxima & minima of function of two variables , saddle point and relative extrema.
Week 6	Vector analysis , dot and cross product of vector functions , velocity and acceleration ,gradient of vector fields,divergance and curl of vector fields .
Week 7	Equations of the lines and surfaces in space , intersection of lines and surfaces using vectors , lagrange multipliers with two and more constraints.
Week 8	Complex numbers and functions , demoivres theorem, roots ,argand diagram, cauchy – rehmann equations.
Week 9	Limits , Infinite sequences , convergence and divergence , infinite series , geometric and ordinary series , positive and alternative series , test of convergences
Week 10	Power series , maclaurin series taylor and trigonometric series .
Week 11	Fourier series for periodic function , euler coefficients , applications

Week 12	Green's theorem for enclosed curves , line integral
Week 13	Matrices , Adjoins & inverses , solving linear equations using the inverse of matrix , determinants and cramer method to solve linear equations , Gaussian elimination and gauss-seidel elimination.
Week 14	Improper integration and Laplace transform of some common functions, properties of Laplace transform.
Week 15	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	9. Advanced Engineering Mathematics /C. Ray Wylie 10. Engineering mathematics / G. S . Sharma &I . J. S . Sarna 11. Applied Mathematics for Engineers & physicists / Pipes & Harvill .	
Recommended Texts		

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.

7- **Strength of Materials 2**

Module Information معلومات المادة الدراسية			
Module Title	**Strength of Materials 2**	**Module Delivery**	
Module Type	**Core**	☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ATU22041		
ECTS Credits	**6**		
SWL (hr/sem)	**150**		
Module Level	UGII	**Semester of Delivery**	4

Administering Department		**Technical building and Construction**	**College**	**Technical College/ Al Mussaib**	
Module Leader	Dr. Ammar Adil Abdulnabe		**e-mail**	ammaralbakry@atu.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		Ph.D. in mechanical Engineer -
Module Tutor			**e-mail**		
Peer Reviewer Name		Prof.Dr.Hussam Ali	**e-mail**	com.hus@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	ATU22032	**Semester**	3
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims	1. To understand effect of forces and loads on materials. 2. To understand how materials deforms due to external forces 3. to understand the safest way in using material in engineering applications and construction purposes 4. to understand how beams deforms due to loads and what type of stresses occur 5. to understand composite material and its behavior and deformation 6. to realize the meaning of compound stresses on material and to compute it.
Module Learning Outcomes	At the end of this course: 1. Solve engineering problems relating to stress and strain analysis. 2. Develop the student's ability to deal with normal force, shear force and bending moment in statically determinate beam assemblies with internal hinges. 3. An ability to calculate stresses and deformations of object under external forces 4. An ability to analyze a given problem in a simple manner.

	5. An ability to apply the knowledge of strength of material on engineering application and design problems. 6. An ability to communicate effectively 7. Understanding the impact of engineering solutions on global and societal context 8. Using the techniques, skills, and modern tools necessary for engineering practice 9. Designing concepts and applications in engineering mechanics of material . 10. Critical Thinking 11. Analytical methods in solving problems
Indicative Contents	Stresses in Beams: Derivation of flexure formulas, Economic sections, Unsymmetrical beams, Analysis of flexure action, Formula for horizontal shear stress. [8 hrs.] Beams Deflections: Theorem of area-moment method, Double integration method. [8 hrs.] Stresses: Combined axial & flexural loads , Kern of a section , Loads applied off axes of symmetry , Stress at a point , Mohr's circle , Transformation of strain components. [8 hrs.] Columns: Critical loads , Long columns by Euler's formula , Intermediate columns , Empirical formulas. [8 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 1. Exams. 2. Student feedback.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	63	**Structured SWL (h/w)**	4.2

Unstructured SWL (h/sem)	87	**Unstructured SWL (h/w)**	5.8
Total SWL (h/sem)	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	10% (10)	3,5,6,10	
	Assignments	2	10% (10)	7, 8	
	reports	2	10 % (10)	4,9	
	Seminar	1	10% (10)	11	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد

	Material Covered
Week 1	Stresses in Beams: Derivation of flexure formulas, Economic sections, Unsymmetrical beams, Analysis of flexure action, Formula for horizontal shear stress.
Week 2	Stresses in Beams: Derivation of flexure formulas, Economic sections, Unsymmetrical beams, Analysis of flexure action, Formula for horizontal shear stress.

Week 3	Stresses in Beams: Derivation of flexure formulas, Economic sections, Unsymmetrical beams, Analysis of flexure action, Formula for horizontal shear stress.
Week 4	Stresses in Beams: Derivation of flexure formulas, Economic sections, Unsymmetrical beams, Analysis of flexure action, Formula for horizontal shear stress.
Week 5	Beams Deflections: Theorem of area-moment method, Double integration method.
Week 6	Beams Deflections: Theorem of area-moment method, Double integration method.
Week 7	Beams Deflections: Theorem of area-moment method, Double integration method.
Week 8	Beams Deflections: Theorem of area-moment method, Double integration method.
Week 9	Combined Stresses: Combined axial & flexural loads , Kern of a section , Loads applied off axes of symmetry , Stress at a point , Mohr's circle , Transformation of strain components.
Week 10	Combined Stresses: Combined axial & flexural loads , Kern of a section , Loads applied off axes of symmetry , Stress at a point , Mohr's circle , Transformation of strain components.
Week 11	Combined Stresses: Combined axial & flexural loads , Kern of a section , Loads applied off axes of symmetry , Stress at a point , Mohr's circle , Transformation of strain components.
Week 12	Columns: Critical loads , Long columns by Euler's formula , Intermediate columns , Empirical formulas.
Week 13	Columns: Critical loads , Long columns by Euler's formula , Intermediate columns , Empirical formulas.
Week 14	Columns: Critical loads , Long columns by Euler's formula , Intermediate columns , Empirical formulas.
Week 15	Preparing for the final exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. Strength of Materials / Ferdinand L. Singer & Andrew Pytel. 2. Strength of Materials / R. S. Khurmi. 3. Mechanics of Materials" R.C. Hibbeler	
Recommended Texts		
Websites		

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.

8- **Fluid Mechanics 2**

Module Information معلومات المادة الدراسية				
Module Title	**Fluid Mechanics 2**		**Module Delivery**	
Module Type	**suport**		☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ATU22042			
ECTS Credits	**4**			
SWL (hr/sem)	**100**			
Module Level	UGII	**Semester of Delivery**	4	
Administering Department	**Technical building and Construction**	**College**	**Technical College/Al Mussaib**	

Module Leader	Maher Abd Al Ameer	**e-mail**	maher Kadim@atu.edu.iq
Module Leader's Acad. Title	Assist. Prof	**Module Leader's Qualification**	MSc in Water resources engineering
Module Tutor	None	**e-mail**	E-mail
Peer Reviewer Name	Prof.Dr.Issam Issa	**e-mail**	inm.asm@atu.edu.iq
Scientific Committee Approval Date		**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	**ATU22033**	**Semester**	3
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims	1. To understand the science of fluid in rest and motion 2. To understand the types and methods of pressure measurement 3. To understand the behaviors of forces on submerged gates 4. To determine the behavior of fluid in rigid body movement 5. To understand flow of ideal fluid 6. To derive the continuity equation 7. To derive the energy equation for real fluid 8. To classified the type of the flow in pipes. 9. To determine the losses in pipes 10. study the momentum equation and dimensional analysis with model simulates 11. Study the open channel flow with their characteristics
Module Learning Outcomes	1. An ability to apply knowledge of mathematics, science, and engineering. 2. An ability to design and conduct experiments and to analyze and interpret data. 3. An ability to design a system, component, or process to meet desired need. 4. An ability to identify, formulate, and solve engineering problems. 5. An ability to communicate effectively 6. Understanding the impact of engineering solutions on global and societal context

	7. Using the techniques, skills, and modern tools necessary for engineering practice 8. Present laboratory findings in a clear, concise laboratory report. 9. Statistical concepts and applications in fluid mechanics engineering 10. Critical Thinking 11. Analytical methods in solving problems 12. Identify operational problems to carry out fluid mechanics engineering studies and evaluate alternative solutions.
Indicative Contents	Minor head losses; loss at entrance, losses due to contraction; losses due to expansion ; loss in pipe fittings ; loss in bend and elbows, etc . [3 hrs.] Solution of practical pipeline problems; pipeline with pump Equivalent pipes; branching pipes; pipes in series; pipes in parallel. Hazen- Williams's formula. [3 hrs.] Pipe networks; Hardy cross method; computer aided pipe - network analysis. [3 hrs.] Fluid measurements ; measurement of fluid properties ; measurement of static pressure ; velocity measurement by different methods ; measurements of discharge ; nozzles ; coefficients of contraction ; coefficients of velocity; coefficients of discharge; Venture tube ;nozzle meter ; elbow meter; rote meter. Hydraulic similitude; geometric similarity; kinematics similarity ; dynamic similarity; Reynolds number , Froude number , Mach number , Weber number, Euler number; scale ratios ; models ; dimensional analysis . [1
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 3. Exams. 4. Student feedback.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	63	**Structured SWL (h/w)**	4.2
Unstructured SWL (h/sem)	37	**Unstructured SWL (h/w)**	2.5
Total SWL (h/sem)	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	10% (10)	3,5,6,10	
	Assignments	2	10% (10)	7, 8	
	reports	2	10 % (10)	5,10	
	Seminar	1	10% (10)	11	
Summative assessment	Midterm Exam	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد

	Material Covered
Week 1	Minor head losses; loss at entrance, losses due to contraction; losses due to expansion ; loss in pipe fittings ; loss in bend and elbows, etc .
Week 2	Minor head losses; loss at entrance, losses due to contraction; losses due to expansion ; loss in pipe fittings ; loss in bend and elbows, etc .
Week 3	Solution of practical pipeline problems; pipeline with pump
Week 4	Solution of practical pipeline problems; pipeline with pump
Week 5	Equivalent pipes; branching pipes; pipes in series; pipes in parallel. Hazen- Williams's formula.
Week 6	Equivalent pipes; branching pipes; pipes in series; pipes in parallel. Hazen- Williams's formula.
Week 7	Pipe networks; Hardy cross method; computer aided pipe - network analysis.

Week 8	Pipe networks; Hardy cross method; computer aided pipe - network analysis.
Week 9	Fluid measurements ; measurement of fluid properties ; measurement of static pressure ; velocity measurement by different methods ; measurements of discharge ; nozzles ; coefficients of contraction ; coefficients of velocity; coefficients of discharge; Venture tube ;nozzle meter ; elbow meter; rote meter.
Week 10	Fluid measurements ; measurement of fluid properties ; measurement of static pressure ; velocity measurement by different methods ; measurements of discharge ; nozzles ; coefficients of contraction ; coefficients of velocity; coefficients of discharge; Venture tube ;nozzle meter ; elbow meter; rote meter.
Week 11	Hydraulic similitude; geometric similarity; kinematics similarity ; dynamic similarity; Reynolds number , Froude number , Mach number , Weber number, Euler number; scale ratios ; models ; dimensional analysis .
Week 12	Hydraulic similitude; geometric similarity; kinematics similarity ; dynamic similarity; Reynolds number , Froude number , Mach number , Weber number, Euler number; scale ratios ; models ; dimensional analysis .
Week 13	Open channel
Week 14	Open channel
Week 15	Preparing to final exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Calibration of pressure gauges.
Week 2	Center of pressure of submerged surface in liquid
Week 3	Hydrostatic forces on submerged surfaces; a- hydrostatic force on a horizontal plane b- hydrostatic force on a vertical plane c- hydrostatic force on inclined plane.
Week 4	Flow measurements; a- Pitot-Static tube b- Venture meter

	c- orifice meter

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. Douglas, J.F. et al; 2011 (Fluid Mechanics). Prentice Hall. 2. Durgaiah D. R.; 2002 (Fluid Mechanics and Machinery). New Age international publishers. 3. White, F. M.; 1994 (Fluid Mechanics).3rd ed. McGraw-Hill, New York. 4. Khurmi, R.S.; 1994 (Hydraulics, Fluid Mechanics and Hydraulic Machines). S. Chand and Co. Ltd.	
Recommended Texts		
Websites		

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.

9- **Building Constructions**

Module Information معلومات المادة الدراسية				
Module Title	**Building Constructions**		**Module Delivery**	
Module Type	**Core**		☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ATU22043			
ECTS Credits	**4**			
SWL (hr/sem)	100			
Module Level	UGII	**Semester of Delivery**	4	
Administering Department	**Technical building and Construction**	**College**	**Technical College/Al Mussaib**	
Module Leader	Zainab Sabah Rasoul	**e-mail**	zainab.rasoul@atu.edu.iq	
Module Leader's Acad. Title	Assis. lecturer	**Module Leader's Qualification**	M.Sc in civil engineering (construction materials)	
Module Tutor		**e-mail**		
Peer Reviewer Name	Dr. Zahraa Fakhri	**e-mail**	Dr_zahraajawad@atu.edu.iq	
Scientific Committee Approval Date		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	1. In this subject student will learn soil investigation and soil bearing capacity, foundation types, building of wall by many types of materials, types of beam and columns, isolation location and materials, finishing works. 2. To prepare them to carry out experimental investigation and analysis at later stages of graduation.
Module Learning Outcomes	The student will able to explain basic concepts related building. 1. The student explains type of buildings and their usage aims. 2. The student explains construction stages. 3. The student explains functions of building elements. 4. The student explains types and properties of foundations . 5. The student prepares foundation plans of buildings. 6. The student expresses properties of different structures walls. 7. The student expresses properties of different structures floors. 8. The student draws details of foundation, walls and floors. 9. The student explains properties of mass buildings. 10. The student defines building elements of mass building. 11. The student explains principles of mass building and uses them in project drawings. 12. The student defines isolation materials using for heat, water, noise and fire insulation and explains their usage place.
Indicative Contents	Site investigation and methods. Bearing capacity of soil and filed test. [2 hrs.] Excavation and supporting. [2 hrs.] Types of Foundation, excavation .reinforcing and concrete casting, dry of site ,Pile foundation, sheet piles and capping. [2 hrs.] Masonry stone work ,stone building,under ground and above. [2 hrs.] Brick and block works ,British and Flemish arrangements. [2 hrs.]

	Thermal insulation materials ,types and specifications and component. [2 hrs.] Concrete Forms, Timber forms , bracing for roofs and columns. [2 hrs.] Scaffolding types ,components. [2 hrs.] Columns classification and shape of failures. [2 hrs.] Beams types steel and timber,pre-cast, pre-stress. [2 hrs.] Damp proofing materials ,application and treatment of roof ,basement, wall. [2 hrs.] Floor and Finishing. [2 hrs.] Inner wall finishing by Gypsum ,paints ..etc. External wall finishing materials ;cement, stone, painting. [2 hrs.] Doors and windows and upstairs [2 hrs.] Type of maintenances, type of failure in building and treatment failures of building[2 hrs.].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 5. Exams. 6. Student feedback.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	48	**Structured SWL (h/w)**	3.2
Unstructured SWL (h/sem)	52	**Unstructured SWL (h/w)**	3.5
Total SWL (h/sem)	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	20% (20)	3,5,6,10	
	Assignments	2	10% (10)	7, 8	
	Seminar	1	10% (10)	11	
Summative assessment	Midterm Exam	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد

	Material Covered
Week 1	Site investigation and methods. Bearing capacity of soil and filed test. Excavation and supporting.
Week 2	Types of Foundation, excavation .reinforcing and concrete casting, dry of site
Week 3	,Pile foundation, sheet piles and capping
Week 4	Masonry stone work ,stone building,under ground and above
Week 5	Brick and block works ,British and Flemish arrangements
Week 6	Thermal insulation materials ,types and specifications and component
Week 7	Concrete Forms, Timber forms , bracing for roofs and columns
Week 8	Scaffolding types ,components
Week 9	Columns classification and shape of failures
Week 10	Beams types steel and timber,pre-cast, pre-stress

Week 11	Damp proofing materials ,application and treatment of roof ,basement, wall.
Week 12	Floor and Finishing
Week 13	Inner wall finishing by Gypsum ,paints ..etc.External wall finishing materials ;cement,stone,painting.
Week 14	Doors and windows and upstairs
Week 15	Type of maintenances, type of failure in building and treatment failures of building

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. زهير زاكو/انشاء المباني 2. Handbook of building construction 2006 3. Internet s references	
Recommended Texts		
Websites		

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.

10- **Engineering Surveying**

Module Information معلومات المادة الدراسية					
Module Title	**Engineering Surveying**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	ATU22044				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		UGII	**Semester of Delivery**		4
Administering Department		**Technical building and Construction**	**College**	**Technical College/Al Mussaib**	
Module Leader	**Faten Mezher Radhi**		**e-mail**	faten.mz@atu.edu.iq	
Module Leader's Acad. Title		Assist.Lecturer	**Module Leader's Qualification**		MSc. in survey engineering
Module Tutor	None		**e-mail**	E-mail	
Peer Reviewer Name		Porf.Dr.Maki Jafar	**e-mail**	maki_jafar@atu.edu.iq	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	ATU22034	**Semester**	3
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	13. Introducing the fundamentals of horizontal and vertical curves ,elements ,the required calculations, types of horizontal curves . Skills of using Total Station Instrument efficiently .Setting out constructions, small &large building .&methods of setting out . Explain Arial photogrammetric surveying , Global Positioning System (GPS) and geographic information system(GIS)
Module Learning Outcomes	upon completion of this course the students will: 14. To apply the knowledge of horizontal and vertical curves. 15. Types Horizontal curves , Kinds (simple ,compound reverse and transition curve), Computations 16. Vertical Curves , Kinds , Computations 17. Tunnel surveying . 18. Setting out of horizontal curves 19. Skills of using Total Station Instrument efficiently 20. Setting out constructions, small &large building . 21. Arial photogrammetric surveying 22. Photogrammetric traditional surveying 23. Photogrammetric Instruments &Flight design 24. Global Positioning System (GPS)
Indicative Contents	Horizontal curves , Kinds , Computations [3 hrs.] Vertical Curves , Kinds , Computations [6 hrs.] Tunnel surveying [3 hrs.] Total station principles , intersections , distance measurements (2hrs) Total station, Field Techniques, point location, missing line measurements [2 hrs.] Resection , Azimuth, elevation , Layout Positions and area computation [2 hrs.] Motorized Total stations, Automatic ,remote control, computerized [2 hrs.] Arial photogrammetric surveying [3 hrs.] Photogrammetric traditional surveying [3 hrs.] Photogrammetric Instruments &Flight design [3 hrs.] Global Positioning System (GPS) [3 hrs.] Geographic Information system (GIS) [3 hrs.] Field measurements by using total station and calculations, for for certain pro
Learning and Teaching Strategies	

استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 7. Exams. 8. Student feedback.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem)	63	**Structured SWL (h/w)**	4.2
Unstructured SWL (h/sem)	87	**Unstructured SWL (h/w)**	5.8
Total SWL (h/sem)	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	10% (10)	3,5,6,10	
	Assignments	2	10% (10)	7, 8	
	reports	5	10% (10)	2,4,6,8,10	
	Seminar	1	10% (10)	11	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد

	Material Covered
Week 1	Vertical Curves , Kinds , Computations
Week 2	Vertical Curves , Kinds , Computations
Week 3	Setting out construction , small & large building
Week 4	Tunnel surveying
Week 5	Arial photogrammetric surveying
Week 6	Photogrammetric traditional surveying
Week 7	Photogrammetric Instruments &Flight design
Week 8	Terrestrial Photogrammetry
Week 9	Global Positioning System (GPS)
Week 10	Global Positioning System (GPS)
Week 11	Geographic Information system (GIS)
Week 12	Applications of the photogrammetry
Week 13	Field measurements by using total station and calculations, for for certain projects
Week 14	Field measurements by using total station and calculations, for for certain projects
Week 15	Preparing to final exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Setting out of the vertical curves
Week 2	Setting out small building & roadway.
Week 3	**Practical problems in tunnel surveying.**
Week 4	Basic measurements of photograph using pocket stereo-scope , Using mirror stereoscope.

Week 5	**Global Poisoning system (GPS) basic concept, systems**
Week 6	**Appling Arc Map (GIS)**
Week 7	Field measurements or lab calculation for certain project.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	5. Surveying for construction / William Irvine , FRICS. 6. Text book of surveying / S.K. Husain , M.S. Naga. Raj. 7. Elements of photogrammetry / Wolf , Pual R. 8. المساحة المستوية / د . فوزي الخالصي 9. المساحة المستوية والمائية / د . علي شكري	

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.

11- Technology of Construction materials industry and Sustainable materials

Module Information

معلومات المادة الدراسية					
Module Title	Technology of Construction materials industry and Sustainable materials			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ATU22045				
ECTS Credits	**4**				
SWL (hr/sem)	100				
Module Level	UGII	**Semester of Delivery**	4		
Administering Department	**Technical building and Construction**	**College**	**Technical College/Al Mussaib**		
Module Leader	Ahlam Obaid	**e-mail**	zainab.rasoul@atu.edu.iq		
Module Leader's Acad. Title	Assis. lecturer	**Module Leader's Qualification**	M.Sc in civil engineering		
Module Tutor		**e-mail**			
Peer Reviewer Name	Dr. Zahraa Fakhri	**e-mail**	Dr_zahraajawad@atu.edu.iq		
Scientific Committee Approval Date		**Version Number**	1.0		

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims	The student must know the industry & production operation for almost materials used in construction , materials employed in production , choosing site of factory planning , & productivity
Module Learning Outcomes	The student will able to explain basic concepts related building. 13. The student explains the industry & production operation. 14. The student explains construction stages. 15. The student explains functions of building elements. 16. The student explains types and properties of foundations . 17. The student explains types and materials used in construction 18. The student explains and could define the sustainable and its application in civil engineering field
Indicative Contents	

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Assessment is based on 9. Exams. 10. Student feedback.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem)	63	**Structured SWL (h/w)**	4
Unstructured SWL (h/sem)	37	**Unstructured SWL (h/w)**	3
Total SWL (h/sem)	100		

Module Evaluation

تقييم المادة الدراسية

	Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome

Formative assessment	**Quizzes**	4	20% (10)	3,5,6,10	
	Assignments	2	10% (10)	7, 8	
	Seminar	1	10% (10)	11	
	Report	2	10%(2)	5&13	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد	
	Material Covered
Week 1	**Factory , Factors affecting choose site , Planning device & equipment.**
Week 2	**Production & industry operations for several types of clay bricks.**
Week 3	**Production of sand-lime brick.**
Week 4	**Manufacturing of gypsum (Ordinary gypsum , Plaster of Paris , Keen's cement).**
Week 5	**Lime production.**
Week 6	**Manufacturing of ordinary & Terrazzo tiles , Concrete tiles.**
Week 7	**Production of floor structural clay tile , Backed brick.**
Week 8	**Production of bituminous materials.**
Week 9	**Production of ferrous metals (steel).**
Week 10	**Production of pipes with several materials.**
Week 11	**Industrialized wood , Production.**
Week 12	**Manufacturing of paints.**

Week 13	Sustainable engineering
Week 14	Renewable Energy
Week 15	Preparation For Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	4. زهير زاكو/انشاء المباني 5. Handbook of building construction 2006 6. Internet s references	
Recommended Texts		
Websites		

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.

12- Concrete technology (2)

Module Information معلومات المادة الدراسية			
Module Title	**Concrete Technology 2**	**Module Delivery**	
Module Type	**Core**	☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ATU22046		
ECTS Credits	**4**		
SWL (hr/sem)	**100**		
Module Level	UGII	**Semester of Delivery**	4
Administering Department	**Technical building and Construction**	**College**	**Technical College/Al Mussaib**
Module Leader	Dr. Zahraa Fakhri	**e-mail**	Dr_zahraajawad@atu.edu.iq

Module Leader's Acad. Title	Assist professor	**Module Leader's Qualification**	PHD in Materials engineering
Module Tutor	None	**e-mail**	E-mail
Peer Reviewer Name	**Zahraa fakhri**	**e-mail**	Dr_zahraajawad@atu.edu.iq
Scientific Committee Approval Date		**Version Number**	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	ATU 22031	**Semester**	3
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	1. The student must be to learn the chemical characteristics of admixtures and their effect on the properties of concrete 2. The student must be to learn the process related to making of concret 3. The student must be to learn the physical and mechanical characteristics of fresh concrete, as well as accomplishing all the related laboratory tests.
Module Learning Outcomes	1. The course is the basis for the use of concrete, with emphasis on requirements and possibilities within the standard for consultants, concrete producers, contractors and owners. 2. Types of admixture their function in concrete 3. This also includes giving the student an understanding of the importance of the constituents each types of admixturs 4. Introduction to simple fresh concrete 5. Understanding of mechanisms causing volume change from fresh (plastic settlement, -shrinkage), via early age (temperature, autogenous shrinkage) to hardened concrete (drying shrinkage) is also given. 6. The student shall know the mechanisms for volume change in the different phases (stability, bleeding, temperature change, self-desiccation) as basis to understand cracking problems in fresh/young concrete (choice of constituents and proportions, importance of drying/keeping fresh concrete wet, temperature control etc). 7. Concrete strength; know and understand constituent materials and

	hydration products importance for strength properties, fracture mechanisms and the strength requirements of the standard for structural concrete. 8. Prediction and control of strength during concrete production therefore is central. 9. Finally transport properties and durability issues are treated (frost, corrosion, ASR) 10. .Knowledge: - Understanding of constituent materials for properties of fresh and hardened concrete properties- Composite models for proportioning (particle/patrix) and transport/durability issues (paste/aggregate)- Basic understanding of hydration as well as important physical and chemical properties of the hydration products- Basic curing technology models (maturity, property development)- 11. Know the different concrete making process
Indicative Contents	Admixture, types of admixture [4 hrs.] Function of admixture. [4 hrs.] Fresh concrete, Properties and requirement. [4 hrs.] Properties of fresh concrete, bleeding, segregation, consistency [4 hrs.] Workability definition, tests. [8 hrs.] Making of concrete limitation and recommendation. [4 hrs.] Batching and mixing of concrete. [4 hrs.] Transporting, compacting, finishing and curing [4 hrs.] Properties of hardened concrete (strength and durability) [8hr)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 11. Exams. 12. Student feedback. 13. Preparation of scientific reports.

Student Workload (SWL) الحمل الدراسي للطالب

Structured SWL (h/sem)	63	**Structured SWL (h/w)**	4.2
Unstructured SWL (h/sem)	37	**Unstructured SWL (h/w)**	2.5
Total SWL (h/sem)	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	10% (10)	3,5,6,10	
	Assignments	2	10% (10)	7, 8	
	Report	1	10% (10)	11	
	Class work	4	10% (10)	2,4,8,11	
Summative assessment	**Midterm Exam**	2 hr	10% (10)	12	
	Final Exam	3hr	50% (50)	16	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري محتوى كل اسبوع يجب ان يغطي الوقت المحدد

	Material Covered
Week 1	Admixture Definition and requirement
Week 2	Types of admixtures , Retarders ; Water – Reducing Admixture; super plasticizers ;Workability admixtures ; Air –entraining Admixtures ;
Week 3	Expansion –producing Admixtures; Pozzolanic materials ;Bonding admixtures; Curing aids ; Water Proofers ; Colouring agents ; Surface hardeners
Week 4	Specification of admixture
Week 5	Fresh concrete, Definition and requirement

Week 6	Properties of fresh concrete :(Workability; Consistency ; Segregation ; Bleeding ; Unit weight)
Week 7	Measurement of workability and Consistency
Week 8	Factors affecting workability .
Week 9	Making of concrete , general
Week 10	Batching and mixing of concrete ,
Week 11	Transporting and placing of concrete
Week 12	Compaction , finishing and curing of concrete
Week 13	Under water concreting .
Week 14	Hardened concrete properties , strength of concrete
Week 15	Preparing for final exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Tests related with admixtures and their effects on fresh and hardened concretes, accelerator and retarder
Week 2	Tests related with admixtures and their effects on fresh and hardened concretes, air entering
Week 3	Tests related with admixtures and their effects on fresh and hardened concretes, pozzolanic materials
Week 4	Measurement of Workability, slump test
Week 5	Measurement of Workability, compact factor test
Week 6	Ve-be test
Week 7	Flow test
Week 8	Bleeding test
Week 9	Ball penetration test
Week 10	Unit weight and Air – content tests

Week 11	Remoulding test

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	4. Properties of concrete, A ,M. NEVILLE 5. تكنولوجيا الخرسانة , د احمد علي العريان	
Recommended Texts	1- تكنولوجيا الخرسانة محمود امام	
Websites		

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.

13- The crimes of the extinct Baath Party

Module Information معلومات المادة الدراسية					
Module Title	**The crimes of the extinct Baath Party**			**Module Delivery**	
Module Type	suport			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ATU22047				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		**JGII**	**Semester of Delivery**		4
Administering Department		Engineering Building and Construction Technique	**College**	Technical College/Al Mussaib	
Module Leader	**Shaimaa Haded**		**e-mail**	Shaimaahaded@atu.edu.iq	
Module Leader's Acad. Title		**lecturer**	**Module Leader's Qualification**		**PHD in Arabic languge**
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Prof.Dr.Nabeel Hameed	**e-mail**		
Scientific Committee Approval Date			**Version Number**	1.0	

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	إن الجرائم الشنيعة التي اقترفها نظام البعث في العراق لاتكاد تحصى ولو ان اقلام الباحثين تعقبتها بالتوثيق والتحليل والدراسة لما اتت على حقيقة ما جرى في بلدنا الجريح لذا كان الهدف من هذا المنهاج تبصرة الشباب الجامعي بحقيقة نظام البعث ومنهجه المحاط بمختلف الجرائم الانسانية لكل لا يضللوا بالاكاذيب الاعلامية.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	upon completion of this course the students will:
Indicative Contents المحتويات الإرشادية	Indicative content includes the following.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 1- Qu**izzes** 2- Student feedback. 3- Seminars

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2.2

Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation

تقييم المادة الدراسية

		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)	10	
	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 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Statistics-Types of Statistics
Week 2	Data-Population-Sample-Variable
Week 3	Frequency Distribution
Week 4	Class boundaries-Class Width-Class Mark

Week 5	Relative and Percentage Frequency
Week 6	Graphical Presentation I
Week 7	Graphical Presentation II
Week 8	Statistical Notations I
Week 9	Statistical Notations II
Week 10	Measures of Central Tendency I
Week 11	Measures of Central Tendency II
Week 12	Measures of Variation I
Week 13	Measures of Variation II
Week 14	Measures of Skewed. Correlation
Week 15	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts		Yes
Recommended Texts	1-Elementary Statistics, Author Allan G. Bluman, Printed by McGraw-Hill, 1997. 2- المدخل الى الاحصاء- تأليف د.خاشع محمود الراوي- طباعة جامعة الموصل	No
Websites		

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
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	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
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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.