Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department
Al-Furat Al-Awsat Technical University
Karbala Technical Institute/ Mechanical Technologies Department

Academic Program and Course Description Guide

2025

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Description of the academic program:The academic program description provides a brief summary of its vision, mission, and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course description:It provides a necessary summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he has made the most of the learning opportunities available. It is derived from the program description.

Program vision: An ambitious picture for the future of the academic program to be an advanced, inspiring, motivating, realistic and applicable programme.

Program message: It briefly explains the objectives and activities necessary to achieve them, and also identifies the program's development paths and directions.

Program Goals: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum structure: All courses/study subjects included in the academic program are in accordance with the approved learning system (semester, annual, Bologna track), whether it is a requirement (ministry, university, college, or scientific department), along with the number of study units.

Learning Outcomes:A compatible set of knowledge, skills, and values that the student has acquired after the successful completion of the academic program. The learning outcomes for each course must be determined in a way that achieves the program objectives.

Teaching and learning strategies: They are the strategies used by the faculty member to develop the student's teaching and learning, and they are plans that are followed to reach the learning goals. That is, it describes all curricular and extracurricular activities to achieve the learning outcomes of the programme.

Academic program description form

University Name: Al-Furat Al-Awsat Technical University
the college/Institute: Technical Karbala
scientific department: Department of Mechanical Technologies
Name of the academic or professional program: Mechanical techniques/production
Name of the final certificate: Technical Diploma
School system: annual
Date the description was prepared:15/2/2025
File filling date:3/3/2025

signature:
Head of Department Name:
Lec. Dr. Mohammad A. Naser
Date:10/3/2025

signature:
scientific Associate Name:
Assit. pro. Dr. Mohammed. Al-yassery
Date: 17/3/2025

Check the file before
Division of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department :

Signature: Assit. pro. Ali Neamah Hasan
Date: /3/2025

Fadil M. Dahir

Signature: 27-3-2025
Approval of the Dean
Prof. Dr. Fadil M. Dahir

1. See the program

The Department of Mechanical Technology is one of the main technological departments that aims to create a technical system in the field of mechanics / production and metals branch to be a pioneer in providing reliable technical services with a solid scientific basis in service to society. Creating a sustainable environment by relying on artificial intelligence.

2. Program message

The Department of Mechanical Technology adopts a general mission based on providing advanced technical education that combines theoretical knowledge with practical application, to qualify specialized cadres capable of keeping pace with modern industrial developments and solving technical problems using innovative and sustainable methods, with a focus on meeting the needs of the local and global market.

The special message includes the following:

- Using computer and Internet technologies in education and training
- Activating the relationship with the private sector in the areas of training
- Follow up on the development of training plan curricula and then update laboratories and workshops.
- Interaction with the labor market and community needs for qualification and training.

3. Program Goals

The Mechanical Technology Department/Production Branch aims to achieve a number of objectives, including:

• Providing a curriculum that keeps pace with the latest developments in mechanical technology.
• Providing an educational environment that integrates practical training in workshops and laboratories with real-life projects.
• Instilling the values of sustainability and social responsibility in the design and implementation of engineering projects.
• Enhance communication and presentation skills to enable effective presentation of ideas and solutions.
• Encourage students to conduct graduation projects that serve various industrial sectors.
• Graduate technical personnel qualified to operate various mechanical processing machines and conduct laboratory tests on metals and alloys to determine their

physical and mechanical properties.

4. **Program accreditation**
No, the program does not have program accreditation

5. **Other external influences**
No/ There is no external party sponsoring the program A government program affiliated with the Karbala Technical Institute - one of the formations of the Al-Furat Al-Awsat Technical University?

6. **Program structure**

Program structure	Number of courses	Study unit	percentage	comments *
Enterprise requirements				
College requirements				
Department requirements	**22**	**122**	**100%**	
summer training				
Other				

* Notes may include whether the course is core or elective.

7. Program description

Year/level	Course or course code	Name of the course or course	Credit hours	
			theoretical	practical
First year	**METE139**	**Human Rights & Democracy**	**1**	
	METE1310	**English Language 1**	**1**	
	METE126	**Computer Application 1**	**1**	
	METE125	**Mathematics**	**2**	
	METE127	**Engineering Drawing**		**3**
	METE113	**Workshops 1**		**8**

	METE124	**Mechanics**	**2**	**3**
	METE111	**Manufacturing Processes 1**	**2**	**2**
	METE112	**Material Properties**	**2**	
	METE128	**Electrical Technique**	**1**	**2**
	-	**Arabic Language 1**	**1**	
Second Year	**METE211**	**Technique Machine Parts**	**3**	
	METE212	**Manufacturing Processes 2**	**2**	**2**
	METE213	**Metallurgy**	**2**	**2**
	METE214	**Workshops 2**		**8**
	METE215	**Project**		**2**
	METE216	**Industrial Drawing**		**3**
	METE227	**Management & Occupational Safety**	**2**	
	METE228	**Computer Application 2**	**1**	
	METE239	**English Language 2**	**1**	
	/	**Arabic Language2**	**1**	
	/	**The crimes of the Baath regime in Iraq**	**1**	

8. Expected learning outcomes of the programme	
Knowledge	
1- To be familiar with choosing the appropriate metals for products and types of heat treatments.	Learning Outcomes1

2- To be familiar with the industrial drawing of various mechanical installations. 3- To be familiar with the various metal manufacturing processes for various products. 4- To be familiar with all mechanical and metallurgical testing methods. 5- To become familiar with all types of measuring devices and surface quality devices. 6- To be able to organize the technological path of production processes	
Skills	
1 - Skill in using all mechanical operating machines 2- Skill in using all measuring and testing devices 3 - Skill in performing various welding and plumbing works and conducting microscopic examinations.	Learning Outcomes2
1- Skill in working on all machines. 2- The skill of planning and preparing a technological path for production processes. 3- The skill of planning and implementing emergency and periodic maintenance of machines and machines. 4- The skill of preparing a training lecture and delivering it to the trainees.	Learning Outcomes3
Value	
1- Offering a product design and asking to think about developing an integrated program for its production 2 - Encouraging the development of thought in memorization and speculation and stimulating it towards critical thinking. 3- Developing Internet research skills to expand the cognitive horizon. 4- Using brainstorming to produce creative ideas for some gifted students.	Learning Outcomes4

9. **Teaching and learning strategies**
Participatory education Student-centered education Using PowerPoint

Show scientific films
Use an oil board
Divide students into groups
Using deadlock-breaking methods through a set of intellectual exercises and games
Lecture, professional training, laboratory, project
Field visits

10. Evaluation methods

- Daily exams
- Quarterly exams
- final exams
- Laboratory reports
- Scientific projects

11.education institution

Faculty members

Preparing the teaching staff			Special requirements/skills (if any)		Specialization		Scientific rank
	lecturer	Permanent teaching			private	general	
1) Dr. Mahir Hameed Majeed		✓			Applied mechanics	Mechanical Engineering	
2) Dr. Sanaa Ali Hamza		✓			Industrial engineering	Production and metallurgy engineering	
3) Dr.Mohammad Abdul Kadhim Naser		✓			Applied mechanics	Mechanical Engineering	
4) Hussein younus razzaq		✓			Machine design	Mechanical Engineering	
5) Dr. Ahmed Abdulameer Subeh		✓			Polymer engineering	Materials engineering	
6) Rania Ali Hamoody	عقد				Metal	Materials	

					engineering	engineering	
7) Hamzah Kadhim Hassan		✓			Machine design	Mechanical Engineering	
8) Intisar Rasheed Saleh		✓			capacity	Mechanical Engineering	
9) Zainab Abdul Rahem Abdul Hassan Nasser		✓			Polymers and composite materials	Materials engineering	
10) SATTAR JABBAR METTIB		✓			Machine design	Mechanical Engineering	
11) Hussein Mohammed Sadeq Jafar		✓			Materials engineering	Materials engineering	
12)Hussein Mohammed Ali Hammood		✓			Electrical engineering	Electrical engineering	

12) Professional development

Orienting new faculty members

- Seminars on administrative work
- Seminars on examination instructions

(Briefly describes the process used to orient new, visiting, full-time, and part-time faculty at the institution and department levels.)

Professional development for faculty members

- Teaching methods courses
- Specialized courses

(Briefly describes the academic and professional development plan and arrangements for faculty members such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.)

13.Acceptance criterion

(Developing regulations related to admission to the college or institute, whether central admission or others mentioned)

Chapter One: Conditions and controls for central admission to Iraqi universities:

1-1 - General conditions for admission

A student who is accepted into universities is required to be:

1. Iraqi nationality.
2. Possessor of an Iraqi preparatory school certificate supported by certification from the General Directorate of Education in the governorate or an equivalent certificate.
3. The student must be born1999 onwards.
4. Successful in the medical examination according to the conditions specific to each study, and students accepted into colleges and institutes are required to examine (CBC) or (Hb-Electrophoreis) in the relevant examination centers, provided that the blind student who meets the conditions for applying for appropriate humanitarian studies must submit it through central admission.
5. Full-time study, and it is not permissible to combine work and study (at the same time in colleges and morning institutes. This includes employees of all government institutions. In order for them to continue studying, they must obtain a study leave from their departments, starting in accordance with the instructions in force. It is not permissible to combine two studies either, and if it is proven otherwise, write To the Ministry to cancel his admission. As for students who have two different admissions for the same year, the student has the option of canceling one of them.
6. Of our graduates:

a. Current academic year.

B. The previous academic year is not accepted centrally into any college or institute, and they are accepted within the channel of accepting students from graduates of the previous academic year according to the minimum limits for their year of graduation, provided that they do not enroll in one of the private evening studies, private government morning education, one of the colleges affiliated with the two endowments, or affiliated institutes. to other ministries).

7. International students for the academic year (202/2023) have the right to apply through the electronic portal of the Department of Studies, Planning and Follow-up and through their electronic form. The electronic application is approved after submitting a temporary equivalence certificate from the Ministry of Education, Directorate of Equivalency and Certificates. As for graduates of the previous year, the application is For admission through the Central Admissions Department, Expatriates Division.

8. Non-Iraqi students who hold an Iraqi preparatory certificate and are accepted centrally will be notified

In writing, review the Central Admissions Department, Expatriates Division, stating their exemption or request for tuition fees in foreign currency in accordance with the controls contained in Chapter Seven of the Student Affairs Procedures Manual and admission controls and conditions.

a-2- The general principles adopted by the central admission system:
Nomination of students for admission to colleges and institutes shall be done according to the central admission system implemented electronically
According to
The following foundations:
1. The student is accepted according to the choices stated in the application form through the electronic portal of the Department of Studies, Planning and Follow-up and on the basis of competition in the aggregate.
2. Students must:
a. Graduates of the biological and applied branches: fill out (50) choices in the electronic form, provided that the number of institutes is not less than (10).
B. Graduates of the literary branch: fill out at least (25) choices and up to (50) choices in the electronic form, provided that the number of institutes is not less than (10).
C Graduates of the Arts Branch: fill out (10) Choices in the electronic form, provided that the number of institutes is not less than (2).

3. The student submitting the admission form is not obligated to accept him according to the choices presented by him once and for all, as his acceptance depends on his competition with the rest of the students according to the established principles.
4. Application to the College of Law (Law) is limited to residents of the governorate exclusively, and the student is not entitled to apply to the aforementioned college in universities located outside his governorate.
5. Application to engineering colleges is through the electronic form according to the departments.
6. Application to the English Language Department in the Colleges of Education and Human Sciences is through the electronic form according to the department.
7. For the purposes of differentiation in admission:
a. The percentage is calculated (8) of the added foreign languages degree and is added to the student's total
B. An additional mark is calculated on top of the average for first-year graduates (except for students included in the system).
attempts).
requester.
8. The principle of differentiation lessons does not apply except in the case of competition for the last seats in the admission plan
Approved.

14.The most important sources of information about the program

- Similar programs locally and regionally
- Labor market need
- Modern methodological books

15. Program development plan

- Studies on curriculum development
- Seminars with employers
- Labor market opinion questionnaires on school curricula
- Increasing practical training in workshops and laboratories using modern equipment.
- Cooperating with industrial companies to provide field training opportunities for students.
- Implementing applied projects that simulate the real work environment.
- A proposal to teach (engineering project management) to ensure students' readiness for the labor market

Program skills chart

				Outputs Learning required from the program											
the year / the level	**Code The decision**	**name The decision**	**decision type (major or assistant)**	**Knowledge**				**Skills**				**Value**			
				a 1	**a 2**	**a 3**	**a 4**	**B 1**	**B 2**	**B 3**	**B 4**	**C1**	**C2**	**C3**	**C4**
The First year	**METE139**	**Human Rights & Democracy**	**General**	✓	✓			✓	✓	✓		✓			
	METE1310	**English Language 1**	**General**	✓	✓			✓	✓	✓		✓			
	METE126	**Computer Application 1**	**assistant**	✓	✓			✓	✓	✓		✓			
	METE125	**Mathematics**	**assistant**	✓	✓			✓	✓	✓		✓			
	METE1	**Engineeri**	**major**	✓	✓			✓	✓	✓		✓			

	27	ng Drawing													
	METE113	Workshops 1	major	✓	✓			✓	✓	✓		✓			
	METE124	Mechanics	major	✓	✓			✓	✓	✓		✓			
	METE111	Manufacturing Processes 1	major	✓	✓			✓	✓	✓		✓			
	METE112	Material Properties	major	✓	✓			✓	✓	✓		✓			
	METE128	Electrical Technique	assistant	✓	✓			✓	✓	✓		✓			
	-	Arabic Language 1	General	✓	✓			✓	✓	✓		✓			
the Second year	METE211	Technique Machine Parts	major	✓	✓			✓	✓	✓		✓			
	METE212	Manufacturing Processes 2	major	✓	✓			✓	✓	✓		✓			
	METE213	Metallurgy	major	✓	✓			✓	✓	✓		✓			
	METE214	Workshops 2	major	✓	✓			✓	✓	✓		✓			
	METE215	The project	major	✓	✓			✓	✓	✓		✓			
	METE216	Industrial Drawing	major	✓	✓			✓	✓	✓		✓			
	METE227	Management & Occupatio	assistant	✓	✓			✓	✓	✓		✓			

	nal Safety													
METE228	Computer Application 2	assistant	✓	✓			✓	✓	✓		✓			
METE239	English Language 2	General	✓	✓			✓	✓	✓		✓			
-	Arabic Language 2	General	✓	✓			✓	✓	✓		✓			
-	The crimes of the Baath regime in Iraq	General	✓	✓			✓	✓	✓		✓			

- **Please situation Signal in Squares the interview For outputs Learning Individuality from the program Submissive For evaluation**

Course Description Form

1. Course Name:					
"Properties of Materials"					
2. Course Code:					
METE112					
3. Semester / Year:					
quarterly					
4. Description Preparation Date:					
2/3/2025					
5. Available Attendance Forms:					
"Daily attendance according to the weekly attendance schedule."					
6. Number of Credit Hours (Total) / Number of Units (Total)					
30 hours each course					
7. Course administrator's name (mention all, if more than one name)					
Name: Mahir Hameed Majeed Email: dr.mahir@atu.edu.iq					
8. Course Objectives					
Course Objectives	**"Study of the geometric properties of crystalline and non-crystalline materials, identification of the mechanical properties of metals and alloys, electrical properties engineering materials, magnetic properties of engineering materials, and study of general properties and characteristics of ceramic and polymer materials."**				
9. Teaching and Learning Strategies					
Strategy	1. Inductive Methods (Lecture Delivery Style) 2. Dialogical Methods (Dialogue Style/Question and Answer) 3. Exploratory Methods (Stimulating Ideas Related to the Topic to Fos Creativity) 4. Activity Methods (Homework Activity Style)				
10. Course Structure					
First course					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1st	**2**	"The Concept of Engineering Materials	Definition of Engineering Materials	**Presentation and discussion**	**Written and oral exam**

2nd	**2**	Describing what atoms and elements are	Atom, Element, Types	**Presentation and discussion**	**Written and oral exam**
3rd	**2**	Understanding bonds	Bonds in Engineering Materials	**Presentation and discussion**	**Written and oral exam**
4th	**2**	Distinguishing between crystalline and non-crystalline materials	Crystalline and Non-crystalline Materials	**Presentation and discussion**	**Written and oral exam**
5th	**2**	"Understanding the mechanical properties of materials	Crystalline Shapes	**Presentation and discussion**	**Written and oral exam**
6th	**2**	Identifying hardness and its tests	(H.C.P) (F.C.C.)	**Presentation and discussion**	**Written and oral exam**
7th	**2**	Understanding toughness concept and its tests	(B.C.C.)	**Presentation and discussion**	**Written and oral exam**
8th	**2**	Understanding thermal properties and measurements	Mechanical Properties of Materials (Stress, Strain, Stress-Strain Curve, Ductility)	**Presentation and discussion**	**Written and oral exam**
9th	**2**	Understanding electrical properties of materials and influencing factors	Hardness and Hardness Testing	**Presentation and discussion**	**Written and oral exam**
10th	**2**	Understanding magnetic properties of materials and influencing factors	Continuation	**Presentation and discussion**	**Written and oral exam**
11th	**2**	Identifying chemical properties of materials and influencing factors	Durability and Durability Tests	**Presentation and discussion**	**Written and oral exam**
12th	**2**	Understanding properties of iron and its extractions	Thermal Properties of Materials	**Presentation and discussion**	**Written and oral exam**
13th	**2**	Understanding carbon steel and its applications	Electrical Properties of Materials	**Presentation and**	**Written and oral exam**

				discussion	
14th	**2**	Identifying various types of alloy steel, their properties, and applications"	Magnetic Properties of Materials	**Presentation and discussion**	**Written and oral exam**
15th	**2**	"Understanding the mechanical properties of materials	Chemical Properties of Materials	**Presentation and discussion**	**Written and oral exam**
Second course					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1st	**2**	Identifying Cast Iron, its Types, Properties, and Uses.	Gray cast iron, its types, properties, and uses.	**Presentation and discussion**	**Written and oral exam**
2nd	**2**	Continuing	Copper, its alloys, properties, and uses.	**Presentation and discussion**	**Written and oral exam**
3rd	**2**	Understanding Copper, its Alloys, Properties, and Uses.	Aluminum, its alloys, properties, and uses.	**Presentation and discussion**	**Written and oral exam**
4th	**2**	Understanding Aluminum, its Alloys, Properties, and Uses.	Nickel, its alloys, properties, and uses.	**Presentation and discussion**	**Written and oral exam**
5th	**2**	Understanding Nickel, its Alloys, Properties, and Uses.	Tin, its alloys, properties, soldering, and uses.	**Presentation and discussion**	**Written and oral exam**
6th	**2**	Understanding Tin, its Alloys, Properties, Soldering, and Uses.	Non-ferrous alloys	**Presentation and discussion**	**Written and oral exam**
7th	**2**	Identifying Non-Ferrous Alloys.	Metallurgy	**Presentation and discussion**	**Written and oral exam**
8th	**2**	Understanding Metallurgy and Powders.	Powders	**Presentation and discussion**	**Written and oral exam**

9th	**2**	Understanding the Compression of Powders, Sintering Process.	Powder compaction, sintering process	**Presentation and discussion**	**Written and oral exam**
10th	**2**	Identifying Ceramic Materials.	Ceramic materials	**Presentation and discussion**	**Written and oral exam**
11th	**2**	Understanding Glass, its Types, Manufacturing, and Uses.	Glass, its types, manufacturing, and uses	**Presentation and discussion**	**Written and oral exam**
12th	**2**	Identifying Concrete, Industrial Uses.	Concrete, industrial uses	**Presentation and discussion**	**Written and oral exam**
13th	**2**	Understanding Polymers, Polymer Particles, Types.	Polymers, polymer particles, types, properties, and uses	**Presentation and discussion**	**Written and oral exam**
14th	**2**	Understanding the Applications and Properties of Rubbers.	Plastics	**Presentation and discussion**	**Written and oral exam**
15th	**2**	Understanding the Applications and Properties of Plastics.	Gray cast iron, its types, properties, and uses.	**Presentation and discussion**	

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	"The prescribed curriculum (Materi Properties book) authored by Engineer Ma Yahya Al-Hamdani and Engineer Hash Kazem Al-Jawahiri. Second Edition - 2000 AI
Main references (sources)	"The prescribed curriculum (Materi Properties book) authored by Engineer Ma Yahya Al-Hamdani and Engineer Hash Kazem Al-Jawahiri. Second Edition - 2000 AI
Recommended books and references (scientific journals, reports…)	"Books and specialized research in the field engineering materials properties."
Electronic References, Websites	"Arabic articles issued by academic a professional entities."

Course Description Form

1.Course Name:
Manufacturing Processing 1
2.Course Code:

METE111					
3. Semester / Year:					
Semester/ First					
4. Description Preparation Date:					
14/2/2025					
5. Available Attendance Forms:					
Daily attendance according to the weekly schedule					
6. Number of Credit Hours (Total) / Number of Units (Total)/					
60 hours per semester					
7. Course administrator's name (mention all, if more than one name)					
Name: assistant teacher/ Zainab Abdulrahem Abdulhasan Email: zainab_abdulraheem@atu.edu.iq					
8. Course Objectives					
Course Objectives	Preparing the student to be able to work on all measuring devices and tools for mechanical operation operations, in addition to his ability to conduct tests for plumbing sand and tests that are concerned with the quality of products manufactured in the molding and welding processes. The course also aims to provide the student with skills in the formation and operation of metals by plumbing, welding, blacksmithing and calculations required to reach the highest accuracy in production				
9. Teaching and Learning Strategies					
Strategy	1) Lecture presentation methods 2) Discussion and dialogue 3) Practical teaching in the laboratory				
10. Course Structure					
First Course					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1	2	Definition of measurement	Measurement	1) Giving the	1)Daily test

		and units of measurement, error and its causes, main dimension measurement Measuring devices	and methods of measuring dimensions	lecture 2)Laboratory experiments	2)Discussions 3) Conduct an experiment
2	**2**	Measurement Introductions (Varnies) Its parts and uses , Types .	Measurement Footers	1) Giving the lecture 2) Laboratory experiments	1)Daily test 2)Discussions 3) Conduct an experiment
3	**2**	macrometers, their types, Its uses, parts, business idea Micrometer .	Micrometer	1) Giving the lecture 2) Laboratory experiments 3) View videos about the measurement method	1)Daily test 2)Discussions 3) Conduct an experiment
4	**2**	Measurement molds, their uses, types, How to use it .	Measurement Templates	1) Giving the lecture 2) Laboratory experiments 3) View educational videos for using measurement templates	1)Daily test 2) Conduct an experiment
5	**2**	Measuring angles and side shapes , tools measurement Angles & Scales Measurement (hyenas) types.	Angle measuring instruments	1) Giving the lecture 2) Laboratory experiments	1)Daily test 2) Conduct an experiment
6		Method of measuring screw elements, diameters external, internal, step gauge and step diameter, Electronic mechanical comparators .	Mechanical Comparator	1) Giving the lecture 2) Laboratory experiments 3) Presentation of videos of the way the device works	1)Daily test 2) Conduct an experiment
7		Photovoltaic device, some measurement methods Modern) acoustic frequency measuring devices -Digital photonic) .	Photovoltaic device	1) Giving the lecture 2) Laboratory experiments	1)Daily test 2) Conduct an experiment
8		Barrada and its role in development industrial, shankara process, The tools used and the processes involved in the cold process Used files and their specifications, Machines and	Chips	1) Giving the lecture 2) Laboratory experiments	1)Daily test 2) Discussion

		their types and ways to link artifacts to them , Uses of Files, Cleaning Method Files .			
9		Cutting with a saw, the conditions that must be met in the sawing process, the saw weapon, the crowns and their types, the blades, the method of sharpening and maintaining them, the types of manual hammer heads and the method of installing them.	**sawing process**	1) Presentation of the lecture 2) View sample exercises	1)Daily test 2) Discussion
10		Drilling, grinding, types of drills, types of primers, How to perform a piercing And bulgur.	Drilling	1) Presentation of the lecture 2) View sample exercises	1)Daily test 2)
11		Crown surgery, types of crown pens and their angles	Crown	1) Presentation of the lecture 2) View sample exercises	1)Daily test 2) Discussion
12		Wood sources and uses, hand tools and their uses, carpentry machinery, model carpentry, types of models	Carpentry	1) Presentation of the lecture 2)Practical experiences	1)Daily test 2) Discussion
13		Plumbing, history , methods Main Plumbing) Casting Casting , Sand Plumbing - PlumbingWith metal molds, other ways For plumbing (Advantages of plumbing process .	Plumbing	1) Presentation of the lecture 2)Practical experiences	1)Daily test 2) Discussion
14		Sand plumbing, sands plumbing specifications , their components, plumbing sand and appliances Used and additives on plumbing sand .	Plumbing	1) Presentation of the lecture 2)Practical experiences	1)Daily test 2) Discussion
15		Molding and tools used in the processing of molds Sandblasting, process Simple model and last seat, molds Tafila and the molds used	Plumbing	1) Presentation of the lecture 2)Practical experiences	1)Daily test 2) Discussion
Second Course					

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Pulp, its types, pulp sand, mixture ratios and materials added to it, stages of its work (mixing and preparing sand, making ball mills, drying it) The benefit of the oven drying process or methods of drying balls and their equipment	Plumbing	1) Presentation of the lecture 2)Practical experiences	1)Daily test 2) Discussion
2	2	metal mold plumbing, Its types, centrifugal plumbing, and its types.	Plumbing	1) Presentation of the lecture 2)Practical experiences	1)Daily test 2) Discussion
3	2	lost wax plumbing, Continuous plumbing, plumbing Corticosteroids.	Plumbing	1) Presentation of the lecture 2) View sample exercises	1)Daily test 2) Discussion
4	2	Metal smelting and its foundations, types of smelting furnaces, blast furnace, main dimensions and method of operation, blast furnace, arc furnace Electric furnace, reverberatory furnace, rotary furnace	Plumbing	1) Lecture presentation 2) Explanatory videos	1)Daily test 2) Discussion
5	2	Casting castings, their equipment and its foundations, cleaning castings, casting defects – Examination Castings .	Plumbing	1) Presentation of the lecture 2) View sample exercises	1)Daily test 2) Discussion
6	2	welding, metal welding foundations, Clarification of the main method of welding and which) welding pressure arc smelting welding, knock .Others for smelting welding, welding Tabrs and caustic welding (types of welding joints) .	weld	1) Presentation of the lecture 2) View sample exercises 3) Presentation of explanatory videos	1)Daily test 2) Discussion
7	2	Hot pressure welding Including resistance welding Electrical, including spot welding In-line welding, flash welding (cold pressure	welding		

		welding, explosive pressure welding, ultrasonic pressure welding			
8		Fusion welding and gas welding, oxy-hydrogen welding and oxy-acetylene welding, types of flame, right-hand welding and left-hand welding, cutting with oxy-acetylene.	welding		
9		Arc welding, welding current, direct and reverse polarity method, types of electrodes, packaging of metal electrodes and their types.	welding		
10		Electrode movement, isolation methods Electrodes and welding area, electric arc welding using shielding gases (CO2 welding, pallacon welding,) (TIG) and (MIG) welding	welding		
11		Electric arc welding Atomic hydrogen, arc welding, fusion welding.	welding		
12		Tempering and caustic welding (mortar welding and plumbing welding (and some modern types of welding), laser welding, welding with electron beam).	welding		
13		Welding defects, welding tests	welding		
14		Metal forming, the theory of forming, the foundations of cold and hot forging, blacksmithing, the foundations of blacksmithing and its methods (manual, mechanical), blacksmithing equipment, manual and mechanical, elements Blacksmithing stables.	welding		
15		Special blacksmithing methods, blacksmithing molds and their manufacture, effective force, explanation of the different blacksmithing operations	welding		

		(contact, methods of different geometric sections in cutting operations, making simple grades, shaping artifacts miscellaneous).			

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1) Metal operations of the past: Abd Khaleq Abdel Hassan 2) Down to the metal: Dhia Issa Kazem
Main references (sources)	Introduction to production engineering Introduction to production engineering Principles of metal casting Principles of precision in design a production
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	1) Methods of manufacturing plumbi and welding for: By Dr. Arif Abba Safiya And Dr. Abdul Razzaq Ismail Khadr 2)Forming mechanics/forming technolo 3) Department of Productive Efficien and Vocational Training

Practical vocabulary	
the week	**Vocabulary details**
1	The student is familiar with the various measurement tools and devices in the laboratory, and the precautions that must be followed In work, the conditions that must be met in measurement laboratories.
2	Measurement Using a caliper foot, identify the types of feet in terms of accuracy and use And how much Measurement, how to measure using feet, measuring procedures for different models.
3	Measurement using a micrometer, learning about the types of micrometers in terms of accuracy, use, and scope of measurement, measuring using micrometers for different models.
4	Measuring templates, learning about the different groups of measuring templates, how to group them to obtain a specific dimension, how to check the accuracy of a micrometer using measuring templates.
5	Comparison devices: Identify the different comparison devices (mechanical, electronic, and optical) and perform different measurements on each of them.
6	Measuring angles, identifying the devices and tools used to measure angles, using them to make different measurements of specific angles.
7	Manual projection device, identifying the parts of the device and their uses, measuring longitudinal dimensions, measuring angles for different models.
8	The electronic projection device, identifying the parts of the

	device and their uses, measuring the longitudinal dimensions, and measuring the angles of different models.
9	Measuring tubes, identifying different measuring tubes, using them to make measurements.
10	Measuring screws (threads), identifying the devices and tools used, making measurements of the various screw elements (external diameter, inside diameter, step diameter, tooth pitch).
11	Getting to know sand laboratory equipment, standard sand sample conditions, and using a standard sand sample preparation device to prepare samples for various tests (compression, tension, bending).
12	Measuring the moisture content of sand (by drying method, by chemical reaction method)
13	Testing the degree of permeability of plumbing sand and comparing the results calculated by experiment with the results calculated from the tables.
14	Testing the proportion of binder (clay) with sand.
15	Testing the degree of fineness in relation to the size of sand particles, calculating the fineness number
	Chapter two
	Vocabulary details
1	Testing sand grains in relation to the shape of the grain: magnifying and examining the shapes of the grains and calculating the percentage of each shape.
2	Tests Durability of sand to withstand stress, resistance of sand (green and dry) to pressure And the cut.
3	a test Sand resistance to tensile and bendingY.
4	a test Sand resistance to shocks.
5	a test TaThiR Adding other additives to the specifications of plumbing sand Yserious relationship bYN degree Enforcement YHAnd additives.
6	Identify Learn about different types of welding and welding devices YBWelding some crafts.
7	Welding line tests (external examinations): checking the width and height of the welding line in terms of the shape and consistency of the weld - Matching the welding joint with its specified standards using special measuring sticks. - Detection of nicks, pits, pores and cracks. - The welding line runs to the opposite side.
8	Testing the tightness of welded joints - penetration of liquids and gases (use of kerosene, use of water or air pressure).

9	Mechanical durability tests (tensile, bending, shock tests)
10	Testing for internal defects in the weld joint (making a section through the weld joint and examining the section). Testing for internal defects using one of the other available methods or observing them during scientific visits.
11,12,13	Identify the number of models produced, the method of making them, the materials from which they are made, and the machines Used in making the model, making a simple model and a simple core box
14,15	Identifying the types of drills and the tools used in the drilling process, the technical principles in the drilling processes and the types of holes, performing integrated exercises in terms of drilling, reamer and countersink.

Sources:

-1 Introduction to Production Engineering

Authorship – Hassan HbadNFahMiJalal Shawq((1966)

2-Principles of metal casting

translation- Dr. Salah DYNMuhammad Al-MahanY

3-Ch methodsin order totoMetals

Authorship - Dr. Anwar Abdul Wahid((1963)

4-Manufacturing methods

Authorship - Dr. Arif Abu Safia Dr Abdul Razzaq Ismail Khadr

5-Metalworking - technological foundations

Authorship - Abdel Moneim Akef ((1977)

6-Business principles translation :Mohamed Abdel Rahim Al-Rifai

Course Description Form

1. Course Name:	
Mathematics	
2. Course Code:	
METE125	
3. Semester / Year:	
First/annual	
4. Description Preparation Date:	
2025/02/15	
5. Available Attendance Forms:	
Theoretical lectures	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 / 2	
7. Course administrator's name (mention all, if more than one name)	
Name: Mohammed Abdul Kadhim Naser Email: Muhamad.alrakkabi@atu.edu.iq	
8. Course Objectives	
Course Objectives	• Understand the concept of determinants and the concept of functions (algebraic, trigonometric, exponential, logarithmic, implicit differentiation, and the chain rule) • Learn how to graph functions and critical points.

	• Learn about definite and indefinite integration, integration methods, and their applications in finding length, area under a curve, and volumes. • Identify discrete, homogeneous and linear differential equations and how to solve them. • Learn about vectors and how to multiply them. • How to analyze, conclude, tabulate and organize data into frequency tables and how to display them in graphical charts, in addition to studying probability to reach the best decision.

9. Teaching and Learning Strategies

Strategy	• Interactive lectures. Simulations and practical demonstrations. • Brainstorming. Training the student how to derive ideas and definitions. • Dialogue and discussion. Asking questions at the beginning of each lecture in order to link the previous lecture with the current lecture.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First Second	2 2		Determinants and their properties, solving simultaneous equations using the determinant method (Cramer).	the blackboard	Homework
Third Fourth and Fifth	2 2 2	Learn the laws of differentiation	differentiation, algebra of derivatives, multiple functions.	the blackboard	Homework
Sixth Seventh Eighth	2 2 2	Learn the laws of differentiation	Trigonometric, logarithmic and exponential functions and their derivatives and implicit functions, the chain rule.	the blackboard	Homework And surprise exams
Ninth Tenth and Eleventh	2 2 2		drawing of functions, drawing of the trigonometric function,	the blackboard	Homework And surprise exams

			and maximum and minimum limits.		
Twelfth Thirteenth	2 2		Physical differential applications, velocity and acceleration, and geometric differential applications.	the blackboard	Homework
Fourteenth Fifteenth	2 2		Integration, laws, and its relationship to differentiation, definite and indefinite integration.		Homework And surprise exams
Sixth Seventh Eighth and Nineteenth	2 2 2 2		Implicit integration, geometric applications of integration (Length of arc, areas and volumes) and physics.		Homework And surprise exams
Twenty and Twenty-first	2 2		general methods of integration, substitution and partial integration, and the use of exponential and logarithmic partial fractions.		Homework
Third, Fourth, Fifth, and Twenty-sixth			discrete, homogeneous, and linear differential equations with their various applications.	the blackboard	Homework
Twenty-seventh Twenty-eighth	2 2		Vectors (direct and quantitative multiplication and calculating angles between vectors.	the blackboard	Homework
Twenty-nine Thirty	2 2		Statistics (principles) and probability theory.	the blackboard	Homework And surprise exams

11. Course Evaluation

The degree is distributed
1- 20 marks for the first semester for practical.
2- 20 marks for the second semester for practical
3 - 10 marks for student activities
4 - 50 marks final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. Calculus by (Thomas) 2. Engineering Mathematics 3. Engineering Mathematics advanced
Main references (sources)	

Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
English Language
2. Course Code:
METE1310
3. Semester / Year:
First-year
4. Description Preparation Date:

25/2/2025
5. Available Attendance Forms:
Direct
6. Number of Credit Hours (Total) / Number of Units (Total)
30 Hr. /2 U
7. Course administrator's name (mention all, if more than one name)
Name: Hamzah kadhim hasan Email: inkr.hamz@atu,edu.iq
8. Course Objectives
Course Objectives
9. Teaching and Learning Strategies

Strategy	

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	
1& 2	2	Cognitive	Hello	Lecture and discussion	
3&4	2	Cognitive	Your word	Lecture and discussion	
5&6	2	Emotional and cognitive	Personal information	Lecture and discussion	
7&8	2	Emotional and cognitive	Family and friends	Lecture and discussion	
9&10	2	Emotional and cognitive	It's my life	Lecture and discussion	
11&12	2	Emotional and cognitive	every day	Lecture and discussion	
13&14	2	Emotional and cognitive	Places I like	Lecture and discussion	
15&16	2	Emotional and cognitive	Where I live	Lecture and discussion	
17&18	2	Emotional and cognitive	Happy birthday	Lecture and discussion	
19&20	2	Emotional and cognitive	We had a good time	Lecture and discussion	
21&22	2	Emotional and cognitive	We can do it	Lecture and discussion	
23&24	2	Emotional and cognitive	Thank you very much	Lecture and discussion	
25&26	2	Emotional and cognitive	Here and now	Lecture and discussion	
27&28	2	cognitive	It's time to go	Lecture and discussion	
29&30	2	Emotional and cognitive	Grammar) present simple, past simple, present continuous, present continuous for future)	Lecture and discussion	

11. Course Evaluation

The first and second-semester exams are evaluated of 20 points and 10 points for the work of the year including the daily exams, the attendance, and the assignments. For the final exam, the evaluation is of 50 points.	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	New Headway Beginner Student book
Main references (sources)	New Headway Beginner Student book
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	https://elt.oup.com/student/headway/beg/?cclobal&selLanguage=en

Course Description Form

1. Course Name:	
Computer engineering drawing	
2. Course Code:	
METE127	
3. Semester / Year:	
Semester	
4. /Description Preparation Date:	
2/3/2025	
5. Available Attendance Forms:	
Live (in person)	
6. Number of Credit Hours (Total) / Number of Units (Total)	
45 (per semester)	
7. Course administrator's name (mention all, if more than one name)	
Name: Rania Ali Hamoody Email: rania.hamoody.ikr1@atu.edu.iq	
8. Course Objectives	
Course Objectives	**• Learn how to draw using AutoCAD** **• Learn about drawing and editing tools in AutoCAD** **• Learn two- and three-dimensional drawing in AutoCAD** **• Acquire the necessary skill to implement and read technical drawings, know engineering symbols and terms, standard specifications, and draw simple and complex assembled mechanical parts.**
9. Teaching and Learning Strategies	
Strategy	Drawing methods are explained using AutoCAD by explaining some ideas theoretically and then applying the subject practically via the computer by drawing a specific exercise an listening to students' questions and inquiries about the subje After that, the exercise is applied by all students.
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-	3	Learn about AutoCAD for computer drawing and learn about engineering lines, projections, and sections.	General review of engineering drawing topics, engineering lines, projections, and setting dimensions using AutoCAD.	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
2-	3	Using the computer to learn how to draw types of lines and geometric operations.	Methods of drawing different engineering operations and types of lines, with drawing a board.	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
3-	3	Learn how to draw lines using the draw command in AutoCAD	Drawing a drawing using AutoCAD that shows the types of lines and engineering operations.	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
4-	3	Learn about the types of auxiliary commands in AutoCAD using a computer	Drawing a board using drawing and editing commands in AutoCAD	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
5-	3	Learn about the types of paper measurements and sizes. Layout the board using the computer.	Draw a board, frame it, and provide all the information using AutoCAD	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
6-	3	Learn the commands for drawing circles and arcs and drawing a board on the computer	1- An application board for a mechanical geometric shape containing circles 2- Drawing a board for a shape containing arcs.	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
7-	3	Learn the drawing commands for rectangles and squares and draw a board on the computer	Drawing an application board	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
8-	3	Learn about the Offset,	Drawing an	Continuous	By drawing a

		Mirror and Move commands in AutoCAD	application board	guidance of students by the professor during daily lectures.	daily painting
9-	3	Learn how to draw isometrically using AutoCAD	Drawing an application board	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
10	3	Drawing simple isometric shapes	Drawing an application board	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
11-	3	Advanced isometric drawing	Drawing an application board	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
12-	3	Learn how to put dimensions on different drawings.	Drawing an application board	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
13-	3	Learn how to draw different projections using AutoCAD	Drawing an application board	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
14-	3	Learn how to draw sections and plots on the computer.	Drawing an application board	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
15-	3	Explanation of a complete board containing perspective, projections, front sections, and dimensioning	Drawing an application board	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
16-	3	Draw the three main projections with even angles and note the difference between them.	Draw the three main projections with even angles and note the	Continuous guidance of students by the professor	By drawing a daily painting

			difference between them.	during daily lectures.	
17-	3	Draw the three main projections at even angles and note the difference between them.	Draw the three main projections with even angles and note the difference between them.	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
18-	3	The third projection conclusion from the two projections	The third projection conclusion from the two projections	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
19-	3	The third projection conclusion from the two projections	The third projection conclusion from the two projections	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
20-	3	Perspective deduction from t or three projections	Perspective deductic from two or three projections	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
21-	3	Perspective deduction from t or three projections	Perspective deductic from two or three projections	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
22-	3	Section theory, shapes and li of sections according to the type of material, drawing sectional projections.	Section theory, shap and lines of sections according to the typ of material, drawing sectional projections	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
23-	3	Section theory, shapes and li of sections according to the type of material, drawing sectional projections.	Section theory, shap and lines of sections according to the typ of material, drawing sectional projections	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
24-	3	Drawing cut-off projections from a single specified projection	Drawing cut-off projections from a single specified projection	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
25-	3	Drawing cut-off projections	Drawing cut-off	Continuous	By drawing a

		from a single specified projection	projections from a single specified projection	guidance of students by the professor during daily lectures.	daily painting
26-	3	Drawing cut-off projections from a single specified projection	Drawing cut-off projections from a single specified projection	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
27-	3	Partially cut Muscat drawing	Partially cut Muscat drawing	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
28-	3	Partially cut Muscat drawing	Partially cut Muscat drawing	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
29-	3	Half-cut drawing, zigzag drawing	Half-cut drawing, zigzag drawing	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting
30-	3	Half-cut drawing, zigzag drawing	Half-cut drawing, zigzag drawing	Continuous guidance of students by the professor during daily lectures.	By drawing a daily painting

11. Course Evaluation

The grade is distributed out of 100 according to the tasks assigned to the student, such as:
1- Daily exam by drawing exercises
2- Semester exams
3- Final exams.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Curriculum
Main references (sources)	Engineering drawing book + lectures of subject teacher
Recommended books and references (scientific journals, reports…)	Engineering Drawing Book Engineer Operations by the author Professor Ab Rasoul Al-Khafaf
Electronic References, Websites	Electronic references, websites

Course Description Form

1. Course Name:	
Mechanic	
2. Course Code:	
METE124	
3. Semester / Year:2023-2024	
First Year	
4. Description Preparation Date:	
2/3/2025	
5. Available Attendance Forms:	
Quarterly	
6. Number of Credit Hours (Total) / Number of Units (Total)	
150 hour 10 unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Hussein Mohammed Sadeq Email: hussein.sadeq@atu.edu.iq	
8. Course Objectives	
Course Objectives	The student will learn about mechanics and its types The student will be required to identify the types of forces acting on objects. The student will learn about the types of moments.

	It will attract the student to learn about the types of balance and enhance muscle strength. The student will learn about the types of stresses and strains that occur as a result of loads

9. Teaching and Learning Strategies

Strategy	Explain the idea of the topic orally, taking some examples from our daily lives to clarify and simplify the topic, and then begin practicing the topic through drawings and diagrams that are written on the board. After all students understand, scientific and mathematical examples are taken for each topic.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	**2**	Definition of mechanics and its divisions - statics - measurement systems – units	Mechanical	The lecture presented examples of exercises	General discussion questions
2	**2**	Scald quantities and vectors Add and subtract vectors	Mechanical	The lecture presented examples of exercises	General discussion questions
3	**2**	Forces, force systems, force representation, force analysis	Mechanical	The lecture presented examples of exercises	General discussion questions
4	**2**	Resultant forces	Mechanical	The lecture presented examples of exercises	General discussion questions
5	**2**	The resultant	Mechanical	The lecture presented	General discussion

		of several con-verging		examples of exercises	questions
6	**2**	moment	Mechanical	The lecture presented examples of exercises	General discussion questions
7	**2**	Coupling mo-ment - transfer of moments	Mechanical	The lecture presented examples of exercises	General discussion questions
8	**2**	Resolution of a force into a force and a couple	Mechanical	The lecture presented examples of exercises	General discussion questions
9	**2**	Resultant of a non-concurrent, coplanar force system	Mechanical	The lecture presented examples of exercises	General discussion questions
10	**2**	Free body dia-grams	Mechanical	The lecture presented examples of exercises	General discussion questions
11	**2**	Equilibrium	Mechanical	The lecture presented examples of exercises	General discussion questions
12	**2**	Friction	Mechanical	The lecture presented examples of exercises	General discussion questions
13	**2**	Center of gravi center of area	Mechanical	The lecture presented examples of exercises	General discussion questions
14	**2**	Moment of inertia	Mechanical	The lecture presented	General discussion

				examples of exercises	questions
15	**2**	Moment of inertia for composite area	Mechanical	The lecture presented examples of exercises	General discussion questions
16	**2**	Newton's second law	Mechanical	The lecture presented examples of exercises	General discussion questions
17	**2**	Linear motion with constant acceleration	Mechanical	The lecture presented examples of exercises	General discussion questions
18	**2**	Angular motion Angular velocity	Mechanical	The lecture presented examples of exercises	General discussion questions
19	**2**	Work-Power-Energy	Mechanical	The lecture presented examples of exercises	General discussion questions
20	**2**	Hooke's Law Stress-Strain Curve Types of Stresses Vertical Stresses on the Cross-Sectional Area and on Different Areas	Mechanical	The lecture presented examples of exercises	General discussion questions
21	**2**	Vertical stresses	Mechanical	The lecture presented examples of exercises	General discussion questions
22		Shear stress	Mechanical	The lecture presented examples of exercises	General discussion questions
23		Tensile stress	Mechanical	The lecture presented	General discussion

				examples of exercises	questions
24		Thermal stresses	Mechanical	The lecture presented examples of exercises	General discussion questions
25	**2**	Thresholds and types of applied loads	Mechanical	The lecture presented examples of exercises	General discussion questions
26	**2**	Shear stress on beams	Mechanical	The lecture presented examples of exercises	General discussion questions
27	**2**	Shear stress on the lintel	Mechanical	The lecture presented examples of exercises	General discussion questions
28	**2**	Bending moment for axial loads	Mechanical	The lecture presented examples of exercises	General discussion questions
28	**2**	Torsional shearing stress	Mechanical	The lecture presented examples of exercises	General discussion questions
30	**2**	Bending moment for distributed loads	Mechanical	The lecture presented examples of exercises	General discussion questions

11. Course Evaluation

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

12. Learning and Teaching Resources

Required text–books (curricular books, if any)	

Main references (sources)	Engineering Mechanics Stats Abdel Karim M.B.AL - Shamaa Dynamics - new issues in linear motion / Nashed Muhammad Ahmed Schaum summaries
Recommended books and references (scientific journals, reports…)	Static Hibler Engineering Mechanics Engineering Mechanics Miriam Hepler materials Nelson engineering mechanics
Electronic References, Websites	https://www.youtube.com/watch?v=XbCdh7h-Nx0 https://www.youtube.com/watch?v=gZF2wdhj https://www.youtube.com/watch?v=Ug818THEVE0 https://www.youtube.com/watch?v=XkQM3z3

Course Description Form

1. Course Name:
Computer applications 1
2. Course Code:
METE126
3. Semester / Year:
QUARTERLY / FIREST SEMESTER
4. Description Preparation Date:
2/3/2025
5. Available Attendance Forms:

PRESENCE(1 HOUR)
6. Number of Credit Hours (Total) / Number of Units (Total)
30 HOUR
7. Course administrator's name (mention all, if more than one name)
Name: Hussein younus razzaq Email: inkr.hus.@atu.edu.iqs
8. Course Objectives

Course Objectives	Teaching the student to be familiar with the rules to be able to use the computer and its circuit to help him complete basic projects, printing matters, preparing graphic statistics, creating presentations and designs for engineering models, etc.

9. Teaching and Learning Strategies

Strategy	The theoretical method and explanation, which is to present the material on the PowerPoint program in the form of diagrams and pictures, in order to attract the student's attention and help him not to feel bored, and the practical method, which is to apply what was presented on the computer and conduct written and oral exams daily and weekly throughout the year.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	**1**	Getting to know the computer: the concept of hardware and its components	Introduction to computer : concept of hardware and software with their components	The lecture presented theoretical	General discussion questions
2	**1**	Understand the concept of computing, data and information, application of communicating information to input/output device, and peripherals of the central	Introduction to computer: concept of computing ,data and information ,application of information connection input/output device ,and peripherals to cpu.	The lecture presented theoretical	General discussion questions

		processing unit			
3	**1**	Computer Components Knowledge: Computer Parts, Hardware Parts, 1/0 Units.	Computer component :computer portions ,hardware parts,1/o units.	The lecture presented theoretical	General discussion questions
4	**1**	Learn about: Types of memory: volatile memory, non-volatile memory, secondary storage	Computer component :memory types: volatile and non-volatile memory ,secondary storage.	The lecture presented theoretical	General discussion questions
5	**1**	Identify the components of a computer: CPU component; Control Unit (CU), Arithmetic Logic Unit (ALU) and Registers.	Computer component :cpu component ; control unit(cu), arithmetic logic unit (alu)and registers.	The lecture presented theoretical	General discussion questions
6	**1**	Computer Ports, PC (Features and Types)	Computer component: computer ports, personal computer(features and types)	The lecture presented theoretical	General discussion questions
7	**1**	Familiarization with Operating System and GUI: Operating System; Common Operating System Basics; User Interface, Using Mouse Techniques.	Operation system and graphical user interface gui: operation system ;basics of common operation system ; the user interface ,using mouse techniques.	The lecture presented theoretical	General discussion questions
8	**1**	Familiarize yourself with the operating system and the graphical user interface: Using common icons, status bar, usage bar, using the menu and menu selection	Operation system and graphical user interface gui : Use of common icons ,status bar ,using bar,using menu and menu-selection .	The lecture presented theoretical	General discussion questions
9	**1**	Knowledge of operating system and GUI: folder concept and orientation, opening and closing different windows; creating shortcuts	Operation system and graphical user interface gui: concept of folder and direction ,opening and closing of different windows ;creating short cuts.	The lecture presented theoretical	General discussion questions
10	**1**	Understanding Operating System and GUI: Customizing and Personalizing GUIs, Accessibility in GUIs, and User	Operation system and graphical user interface gui :customization and personalization of guis, accessibility feature in guis, user experience(ux)	The lecture presented theoretical	General discussion questions

		Experience (UX)			
11	**1**	Learn the basics of word processing; the basic feature of word processors, opening and closing a document	Word processing: word processing basic; basic feature of word processors, opening and closing of document.	The lecture presented theoretical	General discussion questions
12	**1**	Learn to create and manipulate text; format text and paragraphs, and use templates to create documents.	Word processing : text creation and manipulation; formatting text and paragraph ,using templates for document creation .	The lecture presented theoretical	General discussion questions
13	**1**	Learn how to create and manage tables, and use styles.	Word processing: creating and managing tables, utilizing styles and themes.	The lecture presented theoretical	General discussion questions
14	**1**	Learn about spelling and grammar checking tools, using headers and footers.	Word processing : spell check and grammar tools ,using, headers and footers .	The lecture presented theoretical	General discussion questions
15	1	Introduction to spreadsheet programs, creating and formatting worksheets.	Spread sheet: introduction to spreadsheet software ,creating and formatting worksheets.	The lecture presented theoretical	General discussion questions
16	1	How to sort and filter data using formulas and functions.	Spread sheet: sorting and filtering data, using formulas and functions.	The lecture presented theoretical	General discussion questions
17	1	Learn how to use formulas and functions, and use pivot tables to analyze data.	Spread sheet: using formulas and functions ,using pivot tables for data analysis.	The lecture presented theoretical	General discussion questions
18	1	Data validation and error checking. Visualization	Spread sheet: data validation and error checking data visualization: creating charts and graphs.	The lecture presented theoretical	General discussion questions
19	1	Getting to Know Presentation Software: Introduction to Presentation Software, Overview of Common Presentation Tools, Cre-	Presentation software: introduction to presentation software, overview of popular presentation tools, creating a new presentation .	The lecture presented theoretical	General discussion questions

		ating a New Presentation			
20	1	Learn about presentation software: using templates and themes, inserting and formatting text and images, transition effects and animations.	Presentation software: using templates and themes, inserting and formatting text and images, transition and animation effects.	The lecture presented theoretical	General discussion questions
21	1	Learn how to use speaker notes and timers, advanced features: hyperlinking and action buttons.	Presentation software: using speaker notes and timers ,advanced feature : hyperlink and action buttons .	The lecture presented theoretical	General discussion questions
22	1	Troubleshoot common presentation problems, and future trends in presentation technology.	Presentation software: troubleshooting common presentation issues, future trends in presentation technology .	The lecture presented theoretical	General discussion questions
23	1	Introduction to the Internet and Web Browsers: Computer Networking Basics; LAN, WAN.	Introduction to internet and web browsers: computer network basic ; lan,wan.	The lecture presented theoretical	General discussion questions
24	1	Thermal stresses	Introduction to internet and web browsers: concept of internet and applications, connecting to internet.	The lecture presented theoretical	General discussion questions
25	1	Thresholds and types of applied loads	Introduction to internet and web browsers: world wide web; web browsing software's, search engines.	The lecture presented theoretical	
26	1	Introduction to the Internet and Web Browsers: Understanding URL; Domain Name; IP Address.	Introduction to internet and web browsers: understanding url; domain name; ip address.	The lecture presented theoretical	General discussion questions
27	1	Communications and Email: Send and receive email; access sent email; use email; collaborate on documents.	Communication and emails : basics of electronic mail ; getting an email account ;sending and receiving emails; accessing sent emails; using emails; document collaboration .	The lecture presented theoretical	General discussion questions

28	1	Communications and Email: Send and receive email; access sent email; use email; collaborate on documents.	Communication and emails: sending and receiving emails; accessing sent emails; using emails; document collaboration.	The lecture presented theoretical	General discussion questions
29	1	Introduction to Cloud Computing Services: Cloud Computing Definition and Concept - Cloud-Based Office Suite (Office 365 and Google Workspace).	Introduction to could computing services: Definition of cloud computing and its concept cloud –based office suites (office 365 and google workspace).	The lecture presented theoretical	General discussion questions
30	1	Introduction to Cloud Computing Services: Google Workspace: Google Docs, Google Sheets, Google Drive, Google Meet.	Introduction to could computing services: google workspace : google docs, google sheets, google drive ,google meet.	The lecture presented theoretical	General discussion questions

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	الخضر علي الخضر بحاث , اساسيات الحاسوب ٢٠١٦
Main references (sources)	الدكتور عادل عبد النور , مدخل الى عالم الذكاء الاصطناعي ٢٠٠٥
Recommended books and references (scientific journals, reports…)	Ahmed banafa introduction to artificial intelligence 2024 Microsoft office 2019 step by step 1 st edition by Curtis frye &joan lambert
Electronic References, Websites	

Course description form.

1. Course name:
Electrical Technology.
2. Course code
METE128.
3. Semester/year/semester.

First year					
4. The date this description was prepared is					
27/2/2025.					
5. Attendance forms available directly.					
6. Number of study hours (total)/number of units (total).					
7. Name of the course administrator (if more than one name is mentioned).					
Name: Hussein Mohammed Ali Hammood Alwakeel hussain.alwakeel@atu.edu.iq					
8. Course objectives.					
Objectives of the study subject.	• Electricity Technology We aim to: study the basic laws of electricity technology Electricity is the study of electromagnetic properties and its foundations Various electric motors and transformers, their theory of operation and operation Operating it and repairing electrical faults and performing maintenance on it .				
9. Teaching and learning strategies.					
The strategy	1. Theoretical lectures and practical experiments. 2. Presentations. 3. Assessing students individually by giving them an opportunity to participate in the class by answering questions 4. Students are evaluated collectively through daily exams with practical and theoretical questions. 5. Exams for the first and second semesters and final exams for the first and second semesters. 6. Using modern means to present the theoretical and practical aspects, such as various electronic display devices. To attract the attention of students so that the idea reaches the student better.				
10. Course structure					
The week	**The hours**	**Required learning outcomes.**	**Name of the unit or topic.**	**Learning method.**	**Evaluation method.**

First.	3	Recognizing electrical symbols, realizing Ohm's law, and finding the equivalent resistance of resistors and their connection characteristics (mixed parallel series)	Electrical units and symbols, simple electrical circuit, electromotive force current, potential difference	Lectures presented in PowerPoint format	Lectures presented in PowerPoint format
Second.	3		Ohm's law, methods of connecting resistors (Mixed parallel series Ways to obtain alternating current, types of electrical power plants	Lectures offered In the form of a PowerPoint format Continuous guidance of students by the professor during the daily lecture	Daily exams And monthly And annual exams general questions And discussions
Third.	3	Learn about the methods of generating alternating current, its wave form, and the laws related to (current, frequency, wave time, alternating voltage)	Ohm's law, methods of connecting resistors (Mixed parallel series Ways to obtain alternating current, types of electrical power plants	Lectures offered In the form of a PowerPoint format Continuous guidance of students by the professor during the daily lecture	Daily exams And monthly And annual exams general questions And discussions
Forth.	3		The sine wave, the	Lectures presented in	Exams Evening diary Annual

			waveform of the current with time and frequency, defining the effective value of alternating current and voltage	PowerPoint format	
Fifth.	3		Ways to obtain alternating current, types of electrical power plants	Lectures in the form PowerPoint	general questions And exams monthly And annually
Sixth.	3		Sine wave, the waveform of current with time and frequency, definition of the effective value of alternating current and voltage	Lectures on PowerPoint format	general questions And exams monthly And annually
Seventh	3	Identify the effect of power factor in alternating current	Knowledge of power factors and factors, applications and examples of the use of alternating current in practical life	Lectures on PowerPoint format	general questions And exams monthly And annually
eighth	3	Explain how the magnetic field, magnetic flux, and the magnetic effect of electric current are generat-	Magnetic field, field properties, properties of magnetism, types of magnetic materials, definitions (field	Lectures presented in PowerPoint format	general questions And exams monthly And annually

		ed	intensity, field intensity, driving force		
Ninth	3	Identify alternating quantities	The magnetic effect of electric current. Applications on the use of the property of the magnetic force of attraction	Lectures presented in PowerPoint format	general questions And exams monthly And annually
Tenth	3	Identify the types of alternating current and ways to distinguish between them	Single-phase alternating current, three-phase alternating current, three-phase alternating current	Lectures presented in PowerPoint format	general questions And exams monthly And annually
eleventh	3		How to distinguish the faces, the system for connecting the wires to the external parts	Lectures presented in PowerPoint format	general questions And exams monthly And annually
twelveth	3	Learn about connection methods in motors	Star (Y) connection method, face current and line current from the star, face voltage and line voltage from the star, power in the case of a three-phase system	**Lectures presented in PowerPoint format**	general questions And exams monthly And annually
Thirteen	3		How to connect electrical loads	Lectures presented in PowerPoint format	general questions And exams monthly And an-

					nually
fourteen	3	Learn about connection methods for motors	How to connect face current and line current in In the case of delta	Lectures presented in PowerPoint format	general questions And exams monthly And annually
Fifteen			Applications and examples of conduction of current and voltage, star and delta, and line current in the case of Delta	Lectures presented in PowerPoint format	general questions And exams monthly And annually
sixteen	3	Learn about the types of engines, their parts, how to install the engines, and how to start the movement	Types of motors, three-phase induction motors, their types and uses	Lectures presen ed in PowerPoi format	general questions And exams monthly And annually
seventeenth	**3**		Installation of impact motors (three-phase induction motors) and methods of starting movement in three-phase induction motors, principle of rotating magnet theory, principle of motor operation theory	Lectures presented in PowerPoint format	general questions And exams monthly And annually

eighteen	3	How to control and change the speed of induction motors	Methods of starting movement in three-phase induction motors and methods of control and control in changing the speed of three-phase induction motors (changing poles, changing source voltage, changing oscillation and change the direction of rotation)	Continuous guidance of students by the professor during the daily lecture	general questions And exams monthly And annually
nineth	3	Learn how to reverse rotation for single- and three-phase induction motors	Impact motors are one-sided, their types, installation, use, and reverse cycle	Lectures presented in PowerPoint format	general questions And exams monthly And annually
twenty	3		Single-phase capacitor-starting motors, their installation, and uses.	Lectures presented in PowerPoint format	general questions And exams monthly And annually
Twenty one	3		Single-face split-face motors, their installation and uses	Lectures presented in PowerPoint format	general questions And exams monthly And annually
Twenty two	3		Single-face split-face motors, their installation and	Lectures presented in PowerPoint format	general questions And exams monthly And annually

			uses		
Twenty three	3		Cycle breakers, thermal monitor against overload	Lectures presented in PowerPoint format	general questions And exams monthly And annually
Twenty four	3	How to identify engine malfunctions and what are their causes	Methods used to identify malfunctions: The engine is unable to rotate. The engine is rotating at a speed less than its ideal speed.	Lectures presented in PowerPoint format	general questions And exams monthly And annually
twenty five	3	How to identify engine malfunctions and what are their causes	Engine temperature rises during rotation Engine is noisy	Lectures presented in PowerPoint format	general questions And exams monthly And annually
Twenty six	3		How to treat and repair each of the previous malfunctions	Lectures presented in PowerPoint format	general questions And exams monthly And annually
Twenty seven	3	Learn about control circuits and control of motors, both manual and automatic	Command and control circuits Engine maintenance methods, types of engines	Lectures presented in PowerPoint format	general questions And exams monthly And annually
Twenty eight	3	How to maintain and lubricate engines	Working methods Maintenance For engines	Lectures presented in PowerPoint format	general questions And exams monthly And annually
Twenty nine	3		Lubrication lubrication Cleaning Hub chairs	Lectures presented in PowerPoint format	general questions And exams monthly And annually
thirty		Learn about	Industrial	Lectures pre-	general questions

		professional safety methods and maintenance of engines	Safety During operation Maintenance	sented in PowerPoint format	And exams monthly And annually

11. Course evaluation
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.
First semester exams 10 marks ------ theoretical 10 marks ------ Practical 5 marks ------ Daily evaluation Second semester exams 10 marks ------ theoretical 10 marks ------ Practical 5 marks ------ Daily evaluation final exam 40 degrees------- theoretical 10 marks------ Practical

12. Learning and teaching resources	
Required textbooks (methodology, if any)	Methodical books/electrical technology
Main references (sources) Electrical technology + lectures by subject teacher / Lecturer Fatima Kazem Abd	Main references (sources) Electrical technology + lectures by subject teacher / Lecturer Fatima Kazem Abd
Recommended supporting books and references (scientific journals, reports...) Books and magazines related to the subject of electricity technology and its types	Recommended supporting books and references (scientific journals, reports...) Books and magazines related to the subject of electricity technology and its types
Electronic references, Internet sites, Al-Mahd website, various Internet sources	Electronic references, Internet sites, Al-Mahd website, various Internet sources

Course description form.

1. Course name:	
the practical electrical technology	
2. Course code	
METE128.	
3. Semester/year/semester.	
First year	
4. The date this description was prepared is	
27/2/2025.	
5. Available forms of attendance weekly attendance	
6. Number of hours (total)] \ number of units (total)	
7. Name of the course administrator (if there more then one name, write).	
Name: Hussein Mohammed Ali Hammood Alwakeel hussain.alwakeel@atu.edu.iq	
8. Course objectives.	
Objectives of the study subject.	Electrical technology aims to: study the basic laws of electri technology, study electromagnetic properties, study the founc tions of various electric motors and transformers, the theory their operation, methods of operation, and how to repair elec cal faults and perform maintenance on them…….
9. Teaching and learning strategies	
The straegy.	1. Theoretical lectures and practical experiments 2 .Presentations 3. Assessing students individually by giving them an c portunity to participate in the class by answering qu tions 4. .Students are evaluated collectively through daily ams with practical and theoretical questions 5 .Exams for the first and second semesters and final ams for the first and second semesters. 6 .Using modern means to present the theoretical a practical aspects, such as various electronic display c vices. To attract the attention of students so that the id

	reaches the student better.

10. Structure of the practical course.

The week.	The hours.	Required learning out	Name of the unit or topic.	Learning method.	Evaluation method.
First.	2		Getting to know the laboratory and electrical power sources, studying the ohmmeter (AVO) and how to use it to measure electric current, potential difference and resistance.		
second	2		Learn about the terminology of the color resistance system.		
Third.	2		Realizing Ohm's law in practice		
Forth.	2		Connect the resistors in series Parallelism and finding resistance Reward		
Fifth.	2		Different electrical circuits (series, parallel) and studying their properties, finding resistance.		
Sixth.	2		Study the effect of high temperature on resistance		
Seventh.	2		Measuring electrical power from direct current circuits		
Eighth	2		Measuring electrical power from direct current circuits		
Ninth	2		Using an electric iron and training on welding methods and making electrical connections.		

Tenth.	2		Training in establishing an electrician and doing exercises to establish a light bulb and a switch in a simple electrical circuit.		
Eleventh.	2		Create an inspection and operation panel that contains a socket and a series lamp, a socket and a parallel lamp.		
Twelveth.	2		Starting and operating three-phase induction motors using a manual Star Delta switch		
Thirteenth.	2		Starting motion and automatic operation of three-phase squirrel-cage motors using Star Delta, with an analysis of the starting idea.		
Fourteen. Fifteenth.	2 2		Changing the direction of rotation in motors using a manual switch Establish a lamp in two ways		
Sixteen.	2		Check the triple impact motor Faces and identifying their parts, dismantling them and reassembling them		
Seventeenth.	2		Triple impact motor operation Squirrel cage dials		
Eighteen.	2		The operation of the control circuits used In operating engines using The property of magnetic attraction		
			Starting and operating		

Nineteen.	2		three-phase induction motors using Star delta switch manual operation		
Twenty.	2		Automatic start and operation For triple engines Squirrel cage dials Using star delta with analysis Start-up idea		
Twenty first.	2		Changing the direction of rotation in motors Using a manual switch		
Twenty two.	2		Changing the direction of rotation in motors Automatically using a contour detector		
Twenty third.	2		Emergency stopping of engines Three-phase inductance		
Twenty fourth.	2		Single-sided induction motor inspection Identify its parts and operate it without load		
Twenty fifth.	2		Inspection of engine protection devices electrical		
Twenty sixth.	2		Maintenance work for electric motors is determined Maintenance intervals (lubrication lubrication And clean the axle seats)		
Twenty seventh.	2		Reconditioning of engine faults in general And methods of repair (high temperature / Dawn when turning/lower speed)		
Twenty	2		Complete everything		

eighth. Twenty ninth. Thirty.			that came in the week 27th		

11. Evaluation of the practical course for electrical technology

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

Exam for the second semester----- 10 marks
Final exam ------ 10 marks

12. Learning and teaching resources

Required textbooks (methodology, if any)	Methodical books
Main references (sources)	Electrical technology books + subject teacher's lectur
Recommended supporting books and references (scientific journals, reports….)	Books and magazines related to the subject of electri technology and its types
Electronic references, Internet sites	Specialized websites

نموذج وصف المقرر

١. اسم المقرر	
حقوق الانسان والديمقراطية	
٢. رمز المقرر	
METE139	
٣. الفصل / السنة	
سنوي المرحلة الاولى	
٤. تاريخ إعداد هذا الوصف	
٢٠٢٥/٣/٢	
٥. أشكال الحضور المتاحة	
اسبوعي	
٦. عدد الساعات الدراسية (الكلي)/ عدد الوحدات (الكلي):	
(٣٠) ساعة / (2) وحدة	
٧. اسم مسؤول المقرر الدراسي (اذا اكثر من اسم يذكر)	
الاسم: م.م طلال مظفر غازي الايميل : talal.almasuode@atu.edu.iq	
٨. اهداف المقرر	
اهداف المادة الدراسية	**معرفة حقوق الانسان وهي التي اقرتها القوانين والحضارات القديمة والشرائع السماوية ومن ثم معرفة القوانين الوضعية على كافة مستوياتها الدولي والاقليمية والوطنية .ومعرفة الحريات العامة ومعرفة الانظمة الديمقراطية التي تحكم العالم وايضا التعرف على النظام الديمقراطي الذي تمارسه اغلب دول العالم والذي يعد ضمانه للحقوق والحريات.**
٩. استراتيجيات التعليم والتعلم	
الاستراتيجية	• استراتيجية القاء المحاضرات

	• استراتيجية المجاميع الطلابية • استراتيجية التقارير والدراسات • استراتيجية استخدام وسائل الايضاح وأجهزة العرض الرقمية للمواضيع التي تتطلب ذلك.

١٠. بنية المقرر

الأسبوع	الساعات	مخرجات التعلم المطلوبة	اسم الوحدة او الموضوع	طريقة التعلم	طريقة التقييم
الأول	١	إضافة مخرجات التعلم	حقوق الانسان : تعريفها , اهدافها حقوق الانسان في الحضارات القديمة و خصوصا حضارة وادي الرافدين	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
الثاني	١	إضافة مخرجات التعلم	حقوق الانسان في الشرائع السماوية مع التركيز على حقوق الانسان في الاسلام	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
الثالث	١	إضافة مخرجات التعلم	حقوق الانسان في التاريخ المعاصر و الحديث : الاعتراف الدولي بحقوق الانسان منذ الحرب العالمية الأولى و عصبة الامم المتحدة	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣- طريقة التعبير بالوجوه ٤- التقارير والدراسات
الرابع	١	إضافة مخرجات التعلم	الاعتراف الاقليمي بحقوق الانسان : الاتفاقية الاوربية لحقوق الانسان ١٩٥٠ , الاتفاقية الامريكية لحقوق الانسان ١٩٦٩ , الميثاق الافريقي لحقوق الانسان ١٩٨١ , الميثاق العربي لحقوق الانسان	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣- طريقة التعبير بالوجوه ٤- التقارير والدراسات
الخامس	١	إضافة مخرجات التعلم	المنظمات غير الحكومية و حقوق الانسان (اللجنة الدولية للصليب الاحمر , منظمة العفو الدولية , منظمة مراقبة حقوق الانسان , المنظمات الوطنية لحقوق الانسان)	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣- طريقة التعبير بالوجوه ٤- التقارير والدراسات
السادس	١	إضافة مخرجات التعلم	حقوق الانسان في الدساتير العراقية بين النظرية و الواقع	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
السابع	١	إضافة مخرجات	العلاقة بين حقوق الانسان و الحريات العامة	١- طريقة القاء المحاضرات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من

	التعلم	١- في الاعلان العالمي لحقوق الانسان ٢- في المواثيق الاقليمية و الدساتير الوطنية	٢- المجاميع الطلابية ٣- التقارير والدراسات	الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
الثامن	١	إضافة مخرجات التعلم	حقوق الانسان الاقتصادية و الاجتماعية و الثقافية و حقوق الانسان المدنية و السياسية	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
التاسع	١	إضافة مخرجات التعلم	حقوق الانسان الحديثة : الحق في التنمية , الحق في البيئة النظيفة , الحق في التضامن , الحق في الدين	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
العاشر	١	إضافة مخرجات التعلم	ضمانات احترام و حماية حقوق الانسان على الصعيد الوطني , الضمانات في الدستور و القوانين ,الضمانات في مبدأ سيادة القانون الضمانات في الرقابة الدستورية , الضمانات في حرية الصحافة و الرأي العام, دور المنظمات غير الحكومية في احترام و حماية حقوق الانسان	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
الحادي عشر	١	إضافة مخرجات التعلم	ضمانات و احترام و حماية حقوق الانسان على الصعيد الدولي: - دور الامم المتحدة و وكالاتها المتخصصة في توفير الضمانات - دور المنضمات الاقليمية (الجامعة العربية , الاتحاد الاوربي , الاتحاد الافريقي , منظمة الدول الامريكية ,منظمة اسيان) دور المنظمات الاقليمية غير الحكومية و الرأي العام في احترام و حماية حقوق الانسان	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
الثاني عشر	١	إضافة مخرجات التعلم	النظريات العامة للحرية : اصل الحقوق و الحريات , موقف المشروع من الحقوق و الحريات المعلنة , استخدام مصطلح الحريات العامة	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
الثالث عشر	١	إضافة مخرجات	القاعدة الشرعية لدولة القانون	١- طريقة القاء المحاضرات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من

		التعلم		٢- المجاميع الطلابية ٣- التقارير والدراسات	الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
الرابع عشر	١	إضافة مخرجات التعلم	تنظيم الحريات العامة من قبل السلطات المعلنة	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
الخامس عشر	١	إضافة مخرجات التعلم	المساواة : التطور التاريخي لمفهوم المساواة التطور الحديث لفكرة المساواة - المساواة بين الجنسين المساواة بين الافراد حسب معتقداتهم و عنصرهم	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
السادس عشر	١	إضافة مخرجات التعلم	الديمقراطية , تعريفها , انواعها	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
السابع عشر	١	إضافة مخرجات التعلم	مفاهيم الديمقراطية	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
الثامن عشر	١	إضافة مخرجات التعلم	الديمقراطية في العالم الثالث	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
التاسع عشر	١	إضافة مخرجات التعلم	الانظمة الديمقراطية في العالم	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
عشرون	١	إضافة مخرجات التعلم	مفهوم الحريات , تصنيف الحريات العامة	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
واحد وعشرون	١	إضافة مخرجات التعلم	الحريات الاساسية , الحريات الفكرية , الحريات الاقتصادية و الاجتماعية	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات

				والدراسات	
الثاني والعشرون	١	إضافة مخرجات التعلم	حرية الامن و الشعوب بالاطمئنان حرية الذهاب و الاياب	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
الثالث والعشرون	١	إضافة مخرجات التعلم	حرية التعليم - حرية الصحافة - حرية التجمع.	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
الرابع والعشرون	١	إضافة مخرجات التعلم	حرية الجمعيات - حرية العمل	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
الخامس والعشرون	١	إضافة مخرجات التعلم	حق التملك	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
السادس والعشرون	١	إضافة مخرجات التعلم	حرية التجارة و الصناعة	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
السابع والعشرون	١	إضافة مخرجات التعلم	حرية المرأة	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
الثامن والعشرون	١	إضافة مخرجات التعلم	الاحزاب السياسية و الحريات العامة	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
التاسع والعشرون	١	إضافة مخرجات التعلم	التقدم العلمي و التقني و الحريات العامة	١- طريقة القاء المحاضرات ٢- المجاميع الطلابية ٣- التقارير والدراسات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات
الثلاثون	١	إضافة مخرجات	مستقبل الحريات العامة	١- طريقة القاء المحاضرات	١-الامتحانات بمختلف أنواعها ٢- التغذية المرتجعة من

		التعلم		٢- المجاميع الطلابية ٣- التقارير والدراسات	الطلاب ٣-طريقة التعبير بالوجوه ٤- التقارير والدراسات

١١. تقييم المقرر	
توزيع الدرجة من ١٠٠ على وفق المهام المكلف بها الطالب مثل التحضير اليومي والامتحانات اليومية والشفوية والشهرية والتحريرية والتقارير .... الخ	
١٢. مصادر التعلم والتدريس	
الكتب المقررة المطلوبة (المنهجية أن وجدت)	
المراجع الرئيسة (المصادر)	د. رياض عزيز هادي, حقوق الانسان تطورها, مضامينها, حمايتها. د. حافظ علوان الدليمي, حقوق الانسان. د. ماهر صبري كاظم, حقوق الانسان والديمقراطية والحريات العامة.
الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية، التقارير....)	الكتب القانونية والسياسية في اختصاص حقوق الانسان. الاتفاقيات الدولية.
المراجع الإلكترونية ، مواقع الانترنيت	المواقع الالكترونية المتخصصة. وموقع الامم المتحدة

نموذج وصف المقرر

١. اسم المقرر	
اللغة العربية ١	
٢. رمز المقر	
/	
٣. الفصل / السنة سنوي	
٢٠٢٤ /٢٠٢٥	
٤. تاريخ إعداد هذا الوصف	
٢٠٢٥/٣/٤	
٥. أشكال الحضور المتاحة	
حضوري	
٦. عدد الساعات الدراسية (الكلي) في السنة / عدد الوحدات (الكلي) /	
(٣٠) نظري/١ساعة في الاسبوع _	
٧. اسم مسؤول المقرر الدراسي (اذا اكثر من اسم يذكر)	
الاسم: م.م اثمار حمزة تركي الآيميل : athmar.turki.4@atu.edu.iq	
٨. اهداف المقرر	
اهداف المادة الدراسية	**يكون الطالب بعد انتهاء المحاضرة قادرا على ان:** **١. يميز بين التاء المربوطة والتاء المفتوحة.**

	٢. يذكر بعض الكلمات التي تنتهي بتاء مربوطة . ٣. يفرق بين الالف الممدودة والالف المقصورة. ٤. يميز بين اللام القمرية والشمسية. ٥. يفرق بين كتابة حرفي الضاد والظاء. ٦. يعرف همزة القطع . ٧. يعرف همزة الوصل. ٨. يحدد مواضع همزة القطع في الاسماء ٩. يحدد مواضع همزة الوصل في الافعال ١٠. يعرف كتابة الهمزة المتوسطة ١١. يعرف كتابة الهمزة المتطرفة. ١٢. يذكر سبب رسم الهمزة المتوسطة على الالف ١٣. يستخدم علامات الترقيم. ١٤. يعرف تقسيم الكلمة. ١٥. يحدد علامات الاسم. ١٦. يحدد علامات الفعل. ١٧. يفرق بين الاسم والفعل والحرف. ١٨. يستخرج المفاعيل من الجمل. ١٩. يشرح انواع المفعول المطلق. ٢٠. يعرف معنى المفعول به. ٢١. يعرف انواع العدد. ٢٢. يذكر تميز العدد ٢٣. يعرف انواع العدد. ٢٤. يعرف اهمية لغة الخطاب الاداري. ٢٥. يعرف معاني حروف الجر. ٢٦. يذكر مواضع كتابة الالف الفارقة. ٢٧. يفرق بين النون والتنوين. ٢٨. يتعرف على الجملة الاسمية. ٢٩. يفرق بين المبتدأ والخبر. ٣٠. يعرف كيفية كتابة الصيغ الادارية
٩. استراتيجيات التعليم والتعلم	
الاستراتيجية	طريقة القاء المحاضرة. طريقة المناقشة. طريقة اكتشف الخطاء. تخصيص نسبة من الدرجة للواجبات اليومية والاختبارات.

١٠. بنية المقرر:

الأسبوع	الساعات	مخرجات التعلم المطلوبة	اسم الوحدة / أو الموضوع	طريقة التعليم	طريقة التقييم
الاول والثاني	٢	الفهم المعرفي	الاخطاء اللغوية/التاء المفتوحة والتاء المربوطة	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الثالث	١	الفهم المعرفي	الضاد والظاء	محاضرة نظرية	اختبارات يومية واسئلة

					شفهية
الرابع	١	الفهم المعرفي	الالف القائمة والالف الممدودة	محاضرة نظرية	اختبارات واسئلة شفهية
الخامس	٢	الفهم المعرفي	الحروف الشمسية والقمرية	محاضرة نظرية	اختبارات يومية واسئلة شفهية
السادس والسابع والثامن	٣	الفهم المعرفي	الهمزة والمتوسطة والهمزة المتطرفة	محاضرة نظرية	اختبارات يومية واسئلة شفهية
التاسع	١	الفهم المعرفي	علامات الترقيم	محاضرة نظرية	اختبارات يومية واسئلة شفهية
العاشر- الحادي عشر	٢	الفهم المعرفي	الاسم والفعل والتفريق بينهما	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الثاني عشر عشر- الثالث عشر	٢	الفهم المعرفي	الافعال من حيث البناء والاعراب	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الرابع عشر- الخامس عشر	٢	الفهم المعرفي	المفاعيل: المفعول المطلق, المفعول به	محاضرة نظرية	اختبارات يومية واسئلة شفهية
السادس عشر- السابع عشر	٢	الفهم المعرفي	المفعول لا جله, المفعول فيه	محاضرة نظري	اختبارات يومية واسئلة شفهية
السادس عشر والسابع عشر- الثامن عشر	٢	الفهم المعرفي	الاعداد وتميزها	محاضرة نظرية	اختبارات يومية واسئلة شفهية
التاسع عشر	٢	الفهم المعرفي	تطبيقات الاخطاء اللغوية	محاضرة نظرية	اختبارات يومية واسئلة شفهية

العشرون	١	الفهم المعرفي	معاني حروف الجر	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الحادي والعشرون- الثاني والعشرون	٢	الفهم المعرفي	قاعدة الالف الفارقة, قاعدة النون والتنوين	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الثالث والعشرون- الرابع والعشرون	٢	الفهم المعرفي	المبتدأ والخبر	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الخامس والعشرون- السادس والعشرون	٢	الفهم المعرفي	لغة الخطاب الاداري	محاضرة نظرية	اختبارات يومية واسئلة شفهية
السابع والعشرون- الثامن والعشرون	٢	الفهم المعرفي	الجوانب الشكلية للخطاب الاداري	محاضرة نظرية	اختبارات يومية واسئلة شفهية

١١. تقييم المقرر	
توزيع الدرجة من ١٠٠ على وفق المهام المكلف بها الطالب مثل التحضير اليومي والامتحانات اليومية والشفوية والشهرية والتحريرية والتقارير .... الخ	
١٢. مصادر التعلم والتدريس	
الكتب المقررة المطلوبة (المنهجية أن وجدت)	مقرر منهجي
المراجع الرئيسة (المصادر)	النحو التطبيقي: خالد عبد العزيز ,ط٢٠١٨_٢٠١٩. الاملاء الواضح : عبد المجيد النعيمي, بغدادط٦, ١٩٨٧. اللغة العربية للصف الثاني متوسط: فاطمة ناظم ,ط٢٠١٨. من وحي الادب العربي : هفال محمد , مطبعة السعدون, بغداد
الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية، التقارير....)	-
المراجع الإلكترونية ، مواقع الانترنيت	المواقع الالكترونية المتخصصة

زارة التعليم العالي والبحث العلمي

ينة التعليم التقني

خصصات / التكنولوجية

سم / الميكانيك الفرع / الإنتاج (مستمر)

اسم المادة	السنة الدراسية	الساعات الأسبوعية		
		نظري	عملي	المجموع
المعامل (١)	الأولى	-	٨	٨

هدف المادة : اكتساب المهارة اليدوية لتنفيذ عمليات التشغيل والتصنيع باستخدام مختلف العدد اليدوية وأدوات القياس والمقدرة على العمل وتشغيل مكائن التشغيل بالأسلوب التشغيل بالأسلوب الإنتاجي الأمثل .

المفردات العملية

الأسبوع	تفاصيل المفردات
الأول	**١- نجارة النماذج (٣ أسبوع)** ١- المبادئ الأساسية في نجارة النماذج ، تعريف أنواع الخشب واستعمالاته ، أنواع النماذج ونجارتها واستخداماتها في السباكة . ٢- تصحيح النموذج ، الشروط الواجب توافرها في تصحيح النموذج ، معامل الانكماش ، تمرين على الرسم التنفيذي لنماذج بسيطة ذات حد فاصل واحد وبدون صندوق . ٣- المعدات المستخدمة والعدد اليدوية والمعدات الميكانيكية المستخدمة ،ماكنة الثخانة، منشار الصينية ،منشار الشريط ،ماكنة الرابوة ، ماكنة الصنفرة ، المحولة . ٤- تدريب عملي لشنكرة لأجزاء حسب الرسم التشغيلي على العلامات .
الثاني	أكمال التدريب ، تشطيب أجزاء النموذج وطرق تجميعه ، أبعاده النهائية .

الثالث	النماذج المركبة : شرح الحدود الفاصلة المتعددة ، الفراغات الداخلية .

المفردات العملية

الأسبوع	تفاصيل المفردات
الاول	**٢- سباكة المعادن (٦ أسبوع)** سباكة المعادن وأهميتها ، الغرض من استعمال المسبوكات في الصناعة ، محتويات وحدة السباكة احتياطات الأمن الصناعي بالسبك ، تشكيل قالب رملي لنموذج قطعة واحدة أمام الطلاب ، رمال القوالب والقلوب أنواعها ومصادرها وخواص مواد الإضافة وعمليات الخلط وضبط المقادير ، استعمال خلاط الرمل ، معالجة الرمال . تشكيل القوالب الرملية بالطرق اليدوية لنموذج قطعة واحدة لتشكيل قالب رملي .
الثاني	قالب رملي لنموذج من قطعة واحدة مع تحديد المصبات والمصاعد ، صهر المعادن وصبه في قالب ، استخراج وتنظيف المسبوكات .
الثالث	تشكيل قالب رملي مثل السابق مع صهر المعدن وصبه في قالب وإخراج المسبوك وتنظيفه .
الرابع	سباكة قوالب رملية بطريقة إنتاجية ، تدريب على استخدام لوحات السباكة التي تحوي أكثر من قطعة في القالب الواحد وبها قلوب ، طرق تنظيف المسبوكات بالفرش ، المبارد ، أحجار التجليخ ، كرات الصلب ، الهواء المضغوط ، المكائن الدوارة ، مراجعة وفحص المسبوكات ، تحديد العيوب الظاهرة ومسبباتها ، مراجعة أبعاد المسبوكات ، والتأكد من مطابقتها للأبعاد المطلوبة .
الخامس	سباكة قوالب رملية لنماذج مترجة ومركب لها قلب تكون هذه التمارين ضمن التمارين التي سيقوم بها الطالب باستكمال تشغيلها في المعامل الأخرى .
السادس	أفران صهر المعادن ، أنواعها ، صفاتها ، استخداماتها ، الفرن الدوار ، القلاب، الثابت.

الخامس	أهمية الصيانة للمكائن والمعدات ، توضيح عمليات الصيانة الدورية والشاملة ، كيفية أعداد تقارير الصيانة .
السادس	١-أنواع الحشي وموانع التسرب واستخداماتها وطرق تثبيتها ونزعها ومراجعة عملها ٢-أنواع المحابس وطرق عملها والكشف عليها وإصلاحها .
الاول	**٤-اللحام (٦ أسبوع)** السلامة المهنية واحتياطات الأمن : لحام الغاز ، المعدات المستخدمة وكيفية تركيبها وضبطها العدد الأخرى المساعدة والغازات المستخدمة ومواصفاتها ، أسلاك اللحام وأنواعها وقياساتها ، المواد المساعدة الأخرى ، تجهيزات اللحام ، أنواع اللهب وطريقة إشعال وضبط اللهب المطلوب ، المشغولات شطف وتنظيف الحواف المطلوب لحامها .
الثاني	تدريبات عملية : لحام سطوح متقابلة ، سطوح متعامدة ، سطوح مائلة ، لحام دائرة ، قطع طولي وعرضي
الثالث	تجهيزات اللحام ، تدريب عملي على استخدام القوس الكهربائي في لحام الأسطح المختلفة ، المعدات المستخدمة ، الأقطاب وطريقة تركيبها ، تدريب عملي .
الرابع	اللحام باستخدام غاز CO_2 وعمليات القطع بالغاز ، المعدات المستخدمة والاحتياطات الواجب توافرها عمل تمارين على اللحام مشغولات باستخدام غاز CO_2
الخامس	تدريب على عمليات اللحام بالقوس الكهربائي المحمي بالغاز (Tig,mig) .
السادس	تدريبات تجميعية باستخدام مختلف عمليات القطع واللحام المختلفة .
الاول	**٥-السمكرة والحدادة (٣ أسبوع)** معدات قطع البليت الثني ، ماكنة الدرفلة ،ماكنة الحزوز والعدد اليدوية ،استعمال و تقويس البليت يدوياً ، الدسرة اعتيادية ، القائمة وطريقة الرسم ، الانفرادات البسيطة ، حساب انفراد المشغلات المقطوعة والناقصة .
الثاني	تدريب على حساب انفراد المشغولات المتقاطعة ، عمل تمرين لاسطوانتين متقاطعتين .
الثالث	أنفرادات مخروط و مخروط ناقص .

الاول	٦-الخراطة (٦ أسبوع) المخرطة ومواصفتها واستخداماتها وملحقاتها وطرق تركيبها ، تشغيل المخرطة ، أنواع أقلام المخرطة باستخدام كل منها .
الثاني	عمليات الخراطة : خراطة مستوية ، عدلة ، عمل السنتر ، عمل تمرين مدرج بسيط ، استخدام أدوات القياس.
الثالث	خراطة المسلوب الخارجي بالطرق المختلفة مع شرح القوانين الخاصة بكل طريقة ، عمل تمرين خاص بالمسلوب الخارجي .
الرابع	١-عمل الأسنان المختلفة خارجياً (المثلث) عمل تمرين يشمل سن المثلث ٢-عمل السن مربع خارجي وعمل تمرين .
الخامس	سرعات القطع واختيارها واستعمال الجداول الخاصة بها .
السادس	تنفيذ التدريب على الخراطة اللامركزية واستخدام العينة الرباعية .

ملاحظات:

١- بالنسبة للطلبة الذين يتم قبولهم بعد بداية العام الدراسي يتم تعويض مافاتهم من تمارين وذلك خلال العطلة الربيعية حصرياً وباوامر ادارية من القسم العلمي مؤشراً فيها تاريخ مباشرتهم في المعهد.

٢- بالنسبة للطلبة الذين يرسبون باقل من نصف الوحدات يحق لهم التعويض في الاسبوع الذي يسبق الامتحانات النظرية لنهاية العام حصرياً.

٣- مادة المعامل تقييم مستمر لاوجود لدور ثان فيها وبالتالي فلا احقية للاقسام العلمية ولا لوحدات المعامل بان تقيم دورات تعويضية في العطلة الصيفية خوفاً من انحدار المستوى العلمي في هذه المادة .

٤- يتم ابلاغ القسم العلمي بغيابات الطلبة اسبوعياً لغرض التمكن من تنفيذ المادة (9) من التعليمات الامتحانية والتي تنص (يعتبر الطالب راسباً في اي موضوع اذا تجاوزت غياباته (١٠%) عشرة من المائة من الساعات المقررة لذلك الموضوع بدون عذر مشروع او (١٥%) خمس عشر من المائة بعذر مشروع يقره مجلس الكلية او المعهد) .

٥- تتولى الاقسام العلمية ووحدات المعامل تبليغ الطلبة بممضمون الفقرات اعلاه منذ بداية العام الدراسي .

Course Description Form

1. Course Name:
Machine parts technology
2. Course Code:
METE211
3. Semester / Year:
2023−2024
4. Description Preparation Date:
25/2/2025
5. Available Attendance Forms:
Direct
6. Number of Credit Hours (Total) / Number of Units (Total)
90
7. Course administrator's name (mention all, if more than one name)
Name: Intisar Rasheed Saleh Email: intisarkhursan@atu.edu.iq
8. Course Objectives

Course Objectives	**Machine parts technology aims to:** • **Explains the role of machine parts in the machine system (machine)** • **There is a relationship between them (i.e. the parts of the machines and th system)** • **Finding calculations for designing these parts and determining the factors a fecting them**

9. Teaching and Learning Strategies

Strategy	A- Cognitive objectives Introducing students to how to design machine parts by conducting calculations of stresses and forces affecting them B - The skills objectives of the course. The student's proficiency in using a scientific calculator and using the best, fastest and most accurate methods in engineering calculations to design machine parts

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Use lecture	Review of	Continuous	By solving

		view software	Strength of Materials	guidance of students by the professor during the daily lecture	exercises
2&3	6	Use lecture view software	Riveted Joints. Types of Riveted Joints, Design of Riveted Joints, Efficiency of Riveted Joints.	Continuous guidance of students by the professor during the daily lecture	By solving exercises
4&5	6	Use lecture view software	Welded Joints, Types of Welding Joints, Design of Welding Joints	Continuous guidance of students by the professor during the daily lecture	By solving exercises
6&7	6	Use lecture view software	Screwed Joints, Design of Bolts for Fastening, Design of Bolts for Power Transition	Continuous guidance of students by the professor during the daily lecture	By solving exercises
8&9	6	Use lecture view software	Keyed Joints, Types of Keys, Design of Sunk Key.	Continuous guidance of students by the professor during the daily lecture	By solving exercises
10&11	6	Use lecture view software	Frictional Clutches, Types of Frictional Clutches, Design of Frictional Clutches.	Continuous guidance of students by the professor during the daily lecture	By solving exercises
12&13	6	Use lecture view software	Types of Springs, Design of Springs.	Continuous guidance of students by the professor during the daily lecture	By solving exercises
14&15	6	Use lecture view software	Types of Belts, Design of Belts.	Continuous guidance of students by the professor during the daily lecture	By solving exercises
16&17	6	Use lecture view software	Design of Shafts	Continuous guidance of students by the professor during the daily lecture	By solving exercises
18&19	6	Use lecture view software	Design of Journal Bearings	Continuous guidance of students by the professor during the daily lecture	By solving exercises
20	3	Use lecture view software	Selection of Ball Bearings	Continuous guidance of students by the professor during the daily lecture	By solving exercises
21&22	6	Use lecture view software	Design of Gears by Lewis Equation	Continuous guidance of students by the professor during the daily lecture	By solving exercises
23&24	6	Use lecture view software	Gears Trains	Continuous guidance of students by the professor during the daily lecture	By solving exercises
25&26	6	Use lecture view software	Design of Simple Gears Box	Continuous guidance of students by the	By solving exercises

				professor during the daily lecture	
27&28	6	Use lecture view software	Worm Gears	Continuous guidance of students by the professor during the daily lecture	By solving exercises
29&30	6	Use lecture view software	Cams	Continuous guidance of students by the professor during the daily lecture	By solving exercises

11. Course evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Methodological decision
Main references (sources)	1-Strength of Material by Ferdinal L.Singer 2-Strength of Material by R. S. Khurmi. 3-Machine Design by R. S. Khurmi, J.K. Gupta. 4-Machine Design by Paul H. Black. 5-Schaums Outline Series of Machine Design b Hall, Holowenko ,Laughin
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	Specialized websites

13. Program Development Plan

Machine Parts Technology Program Development Plan

This program provides students with the technical skills needed for machining, CNC programming, toolmaking, and mechanical maintenance. It combines theoretical knowledge with hands-on training to prepare students for careers in advanced manufacturing.

The curriculum covers core topics such as machine parts and manufacturing basics, materials and metal lurgy, machining processes (lathe, milling, grinding), CAD and CNC programming, precision measure-ment, quality control, and workplace safety. Advanced modules include CNC automation, tool and die making, hydraulics, and Industry 4.0 applications.

Training methods include hands-on workshops with CNC and manual machines, simulation-based learn ing using CAD/CAM software, and industry internships. Resources such as CNC machines, lathes, mill equipment, measurement tools, and safety gear will be used to ensure practical learning.

Graduates can earn certifications like NIMS and OSHA Safety and pursue careers as machinists, CNC programmers, toolmakers, and maintenance technicians. Implementation will follow a phased ap-proach: curriculum development and industry partnerships (3-6 months), pilot courses (6-12 months), and full-scale program expansion (1-3 years).

Course Description Form

1. Course Name:
Metallurgy
2. Course Code:
METE213
3. Semester / Year:
2024–2025
4. Description Preparation Date:
February, 2025
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total)
120 Hours /240 Units
7. Course administrator's name (mention all, if more than one name)
Name: Sanaa Ali Hamza **Email: inkr.san@atu.edu.iq**
8. Course Objectives

Course Objectives	• Providing the student with sufficient knowledge of the types of metals and alloys, their mechanical properties, their crystal structure, and the different types of defects that occur in them during the processing and forming processes. • Providing the student with sufficient knowledge and skill in studying heat treatments, how to implement them practically, and their effects on the properties and structure of metals. • Providing the student with sufficient knowledge and skill in identifying material resistance tests, working on their equip-

	ment to implement them practically, and drawing the curves related to them. • Providing the student with sufficient knowledge and skill in working with microscopes to examine and draw the internal structures of metals and alloys. • Providing the student with knowledge and skill in performing all types of surface hardening of metals; Knowing corrosion, its types, the mechanism of its occurrence, and how to conduct corrosion experiments

9. Teaching and Learning Strategies

Strategy	1- Participatory education 2- Student-centered education 3- Using PowerPoint 4- Showing scientific films 5- Using an oil board 6- Dividing the students into groups 7- Using deadlock-breaking methods through a set of intellectual exercises and games

10. Course Structure: **Metallurgy (Theoretical)**

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First week	2	Distinguishing the types of crystallization - knowing the	Definition of mineralogy; crystallization; dendritic	PowerPoint, blackboard, scientific films,	Daily exams, direct questions and discussion

		conditions of the plumbing process	crystallization; The effect of cooling rate on the structure of metals	participatory education	
Second week	2	Know the defects of castings	Installation of billets (casting solidification) Common defects in castings	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
Third week	2	How to derive the crowding factor; Determine the coordinates of the atom and the coordinates of the atomic planes	Atomic crowding coefficient; crystallographic directions; crystal levels; The phenomenon of interconnection	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
Forth week	2	Identify and distinguish the types of defects in crystal lattices	Crystal lattice defects; Raster; Sin	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
Fifth week	2	Know the basic methods of plastic formation and how they occur	Flexible forming and plastic forming (slipping; twinning)	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion

sixth week	2	Know the difference between hot and cold formation and the circumstances in which each occurs	Emotional toughness; cold forming; Hot forming	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
seventh week	2	Learn about the processing of high-hardness metals by the recovery procedure; recrystallization; Crystal growth	restoration; recrystallization; Crystal growth	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
eighth week	2	Study the stress-strain curve, know its importance, and determine its basic points	Stress-strain curves in bending; Extension; fracture; Types of fracture; Transition from ductile to brittle fracture	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
ninth week	2	Study of fatigue as	fatigue; Fatigue	PowerPoint, blackboard, scientific	Daily exams,

		a model for repeated tests and study of the fatigue curve and fatigue fracture	mechanism; Factors affecting fatigue limit; Fatigue resistant materials	films, participatory education	direct questions and discussion
tenth week	2	Familiarize yourself with the creep test and creep curve	Creep; The mechanism of creep; Creep resistant materials	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
eleventh week	2	Study and become familiar with a group of vocabulary related to drawing a heat balance diagram	compound; phase; solid solution; the system; poise; alloy composition; mechanical mixture; Eutectic	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
twelfth week	2	Learn how to create and draw heat equilibrium diagrams for solid-solution and eutectic alloys	Thermal equilibrium diagram for a completely dissolved binary system in the liquid and solid states. Thermal equilibrium	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion

			diagram for a binary system that is completely dissolved in the liquid state and insoluble in the solid state (eutectic)		
thirteenth week	2	Learn how to create and draw heat equilibrium diagrams for alloys with limited melting	Thermal equilibrium diagram for a binary system that has complete solvation in the liquid state and limited solvation in the solid state	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
fourteenth week	2	Learn how to create a heat equilibrium diagram for alloys that form chemical compounds	Thermal equilibrium diagram for a binary system that is completely dissolved in the liquid state and forms a chemical	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion

			compound when frozen		
fifteenth week	2	Identify the iron-carbon diagram and the important phase transitions in it	Iron; Dissolution of carbon in iron; Heat equilibrium diagram for the iron-carbon system; The most important interactions included in the diagram	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
sixteenth week	2	Identify the iron-carbon diagram and the important phase transitions in it	Completion of the heat equilibrium diagram for the iron-carbon system	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
seventeenth week	2	Identify the important phase transitions in the eutectoid part	Austenite formation; Mechanism of transforming perlite into austenite	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion

eighteenth week	2	Identify the (T.T.T) cooling curve at constant temperatures and the (C.C) cooling curve continuously	Austenite transformations by constant temperature and transformations by continuous cooling	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
nineteenth week	2	Identify the basic and important heat treatments for carbon steel	Thermal treatments (annealing; normalizing; hardening)	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
twentieth week	2	Continue learning about the basic and important heat treatments for carbon steel	Completion of thermal treatments (hardening and reviewing); Sub-zero thermal coefficients; Aging	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
Twenty-first week	2	Study and understand surface hardening methods for carbon steel (carburizing,	Surface hardening (carburization of all types and the heat treatments that follow it),	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion

		nitrating, annealing)	nitrating; Sindah		
twenty-second week	2	Study the need to use alloy steel; Its importance; Classification: The effect of adding alloying elements on the properties of steel	alloy steel; The effect of alloying elements on the properties of steel	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
twenty-third week	2	Study and learn about stainless steel and tool steel; Types; Importance and use	stainless steel; Tools steel	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
twenty-fourth week	2	Identifying cast iron; types; Its thermal treatment; The form of carbon and the factors affecting it	Cast iron production and its heat treatments	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
twenty-fifth week	2	Identifying cast iron; types; Its	Supplementing the production of cast	PowerPoint, blackboard, scientific films,	Daily exams, direct

		thermal treatment; The form of carbon and the factors affecting it	iron and its most important types	participatory education	questions and discussion
Twenty-sixth week	2	Corrosion study; The mechanism of its occurrence; The costs associated with its occurrence	Definition of corrosion; Direct and indirect economic costs of corrosion; manifestations of corrosion; Mechanism of corrosion	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
twenty-seventh week	2	negative study; Faraday's law; Some types of corrosion	negativity; Faraday's law; General corrosion; galvanic corrosion; Cavernous erosion	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
twenty-eighth week	2	Complementary to other types of corrosion	Soil erosion; Voluntary corrosion; Corrosion between crystals; Stress	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion

			corrosion		
twenty-ninth week	2	Learn the correct way to choose materials to avoid corrosion	The optimal choice of material; Ocean softening; Design and operation	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion
thirtieth week	2	Study and classify methods of corrosion prevention	Corrosion prevention methods	PowerPoint, blackboard, scientific films, participatory education	Daily exams, direct questions and discussion

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	كتاب مبادئ هندسة المود — د. حسين باقر رحمة الله ملزمة المعادن النظري المنهجية
Main references (sources)	Engineering Metallurgy, (part 1) , Higgins, (Capright 1973, R.A.H) Metallurgy for Engineering-Rollason, (Third Eddi. 1961) Engineering Physical Metallurgy, Prof. Y. Lnthin
Recommended books and references (scientific journals, reports…)	المواد الهندسية واختباراتها– د. قحطان الخزرجي الميتالورجيا الهندسية– د. عارف ابو صفية الميتالورجيا الهندسية — د. عبد الرزاق اسماعيل

	مبادئ علم المعادن– د. عادل محمود حسن
Electronic References, Websites	البحوث المنشورة عبر مواقع الانترنت حسب مواضيع المقرر

13. Course Structure: Metallurgy (Practical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First week	2	Visit existing metal laboratories and learn about the equipment in them	Introduction to the metallurgy laboratory (resistance laboratory, heat treatment laboratory, microscopic examination and sample preparation laboratory)	View existing laboratories	-
Second week	2	Learn how to conduct a tensile test on steel samples. gecko; Copper and drawing the stress-strain curve	Simple tension experiment; elongation curve; Stress-strain curve; Flexible and plastic forming; Modulus of elasticity; Maximum tensile	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation

			strength (U.T.S.); relative elongation; Decrease in cross-sectional area		form
Third week	2	Learn about conducting a pressure experiment on steel samples. Aluminum	pressure experience; load curve; elongation; Stress-strain curve; The relationship of length to cross-sectional area; Factors affecting the experience of stress	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
Forth week	2	Acquire sufficient skill in conducting the Brinell hardness test	Hardness test (Brinnell method)	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
Fifth week	2	Acquire sufficient	Hardness test	PowerPoint;	- Laboratory

		skill in conducting the Vickers hardness test	(Vickers method)	oil board; science films; Conduct the experiment on the device in the laboratory	reports - Student performance examination forms - Gradual evaluation form
sixth week	2	Acquire sufficient skill in conducting the Rockwell-B hardness test	Hardness test (Rockwell-B)	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
seventh week	2	Gain sufficient skill in conducting the Rockwell-C hardness test	Hardness test (Rockwell-C)	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation

					form
eighth week	2	Acquire sufficient skill in performing fatigue using the rotary bending method and drawing the fatigue curve	Fatigue test	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
ninth week	2	Gain sufficient skill in conducting the creep test at room temperature and drawing the creep curve	Creep test	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
tenth week	2	Acquire sufficient skill in performing Impact using the Izod and Charpy methods and	Impact test (Izod-Charpy)	PowerPoint; oil board; science films; Conduct the experiment	- Laboratory reports - Student performance examination

		distinguishing the type of sample crusher		on the device in the laboratory	forms - Gradual evaluation form
eleventh week	2	Acquire sufficient skill in performing sample preparation for the purpose of microscopic examination	Acquire sufficient skill in performing sample preparation operations for the purpose of microscopic examination. Preparing samples for microscopic examination (smoothing, polishing, exposure, examination under a microscope)	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
twelfth week	2	Acquire sufficient skill in creating a heat equilibrium diagram for a solid solution	Establishing a heat equilibrium curve for a fully melted binary alloy in the liquid and solid states	PowerPoint; oil board; science films; Conduct the experiment on the device	- Laboratory reports - Student performance examination forms

				in the laboratory	- Gradual evaluation form
thirteenth week	2	Gain sufficient skill in creating a heat balance diagram for the eutectic	Establishing a heat equilibrium curve for a binary alloy that is completely melted in the liquid state and insoluble in the solid state.	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
fourteenth week	2	Acquire sufficient skill in creating a heat equilibrium diagram for alloys with limited melting	Establishing a heat equilibrium curve for a binary alloy that is completely melted in the liquid state and has limited melting in the solid state.	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
fifteenth week	2	Acquire sufficient skill in creating a heat equilibrium	Establishing a heat equilibrium curve for a binary alloy	PowerPoint; oil board; science films;	- Laboratory reports - Student

		diagram for alloys of chemical compounds	that completely melts in the liquid state and forms a chemical compound when frozen.	Conduct the experiment on the device in the laboratory	performance examination forms - Gradual evaluation form
sixteenth week	2	Acquire sufficient skill to microscopically examine the products of creating heat balance diagrams	Examining different types of (alloys, solid solutions, mechanical mixture, chemical compound) under the microscope	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
seventeenth week	2	Acquire sufficient skill for microscopic examination and determination of the percentage of carbon in non-heat-treated carbon steel	Samples of unheated carbon steel are examined under a microscope and the carbon percentage is calculated	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form

eighteenth week	2	Acquire sufficient skill to microscopically examine samples of cast iron (white, gray, spherical)	Examination of samples of cast iron (white, gray, spherical)	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
nineteenth week	2	Acquire sufficient skill in performing the recovery and recrystallization processes and microscopic examination before and after them	Conduct the recovery and recrystallization process, examine it microscopically, and compare it with the examination before the recovery and recrystallization process.	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
twentieth week	2	Acquire sufficient skill in conducting thermal treatments through the hardening process,	hardening of carbon steel and comparing composition and properties before	PowerPoint; oil board; science films; Conduct the experiment	- Laboratory reports - Student performance examination

		microscopic examination, and comparing properties before and after the hardening procedure.	hardening	on the device in the laboratory	forms - Gradual evaluation form
Twenty-first week	2	Gain sufficient skill in conducting the tempering, measuring hardness, and comparing it before and after the tempering	tempering carbon steel and measuring hardness before and after tempering	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
twenty-second week	2	Acquire sufficient skill in performing the hardening process in different media and comparing the properties and microscopic composition of	Acquire sufficient skill in performing the hardening process in different media and comparing the properties and microscopic composition of	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form

		different liquids	different liquids		
twenty-third week	2	Gain sufficient skill in conducting the Jomney test to measure hardening ability	Conduct a Jomney test to measure hardening ability	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
twenty-fourth week	2	Acquire sufficient skill in performing surface hardening using hard carburizing	Surface hardening using hard carburizing	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
twenty-fifth week	2	Acquire sufficient skill in examining various samples of alloy steel; Stainless steel	Examination of various samples of alloy steel; Stainless steel under a microscope	PowerPoint; oil board; science films; Conduct the experiment	- Laboratory reports - Student performance examination

		under a microscope		on the device in the laboratory	forms - Gradual evaluation form
Twenty-sixth week	2	Gain sufficient skill in examining different samples of copper and gecko under a microscope	Examining various samples of copper and brass under a microscope	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
twenty-seventh week	2	Acquire sufficient skill in microscopic examination of various aluminum samples	Microscopic examination of various samples of aluminum	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
twenty-eighth	2	Gain sufficient skill in conducting a	Conduct a chemical corrosion	PowerPoint; oil board;	- Laboratory reports

week		chemical corrosion experiment; Create a simple corrosion cell	experiment; Create a simple corrosion cell	science films; Conduct the experiment on the device in the laboratory	- Student performance examination forms - Gradual evaluation form
twenty-ninth week	2	Acquire sufficient skill in conducting a corrosion protection experiment using the cathodic protection method	Conducting a corrosion protection experiment using the cathodic protection method	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form
thirtieth week	2	Acquire sufficient skill in conducting the corrosion protection experiment using the anodic protection method	Conducting an experiment on corrosion protection using the anodic protection method	PowerPoint; oil board; science films; Conduct the experiment on the device in the laboratory	- Laboratory reports - Student performance examination forms - Gradual evaluation form

14. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
15. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	• ملزمة المعادن العملي المنهجية • ملزمة معدة من قبل مدرس المادة
Main references (sources)	• كتاب مبادئ هندسة المعادن– د. حسين باقر رحمة الله • المواد الهندسية واختباراتها– د. قحطان الخزرجي
Recommended books and references (scientific journals, reports…)	• الميتالورجيا الهندسية– د. عارف ابو صفية • الميتالورجيا الهندسية – د. عبد الرزاق اسماعيل • مبادئ علم المعادن– د. عادل محمود حسن
Electronic References, Websites	الفيديوات المنشورة عبر النت حول اجراء التجارب العملية الفيديوات المسجلة من قبل تدريسي المادة للتجارب العملية والمنشورة في القناة الخاصة بالمختبر عبر التلكرام

Course Description Form

1. Course Name:	
Industrial computer drawing	
2. Course Code:	
METE216	
3. Semester / Year:	
2024-2025	
4. Description Preparation Date:	
25-2-2025	
5. Available Attendance Forms:	
Direct	
6. Number of Credit Hours (Total) / Number of Units (Total)	
90	
7. Course administrator's name (mention all, if more than one name)	
Name: Intisar Rasheed Saleh Email: intisarkhursan@atu.edu.iq	
8. Course Objectives	
Course Objectives	The Industrial Computer Drawing course aims to: equip students with the skills to create, interpret, and modify technical drawings using computer-aided design (CAD) software. The course focuses on precision, industry standards, and practical applications in mechanical, electrical, and civil engineering fields.
9. Teaching and Learning Strategies	

Strategy	• **Hands-on CAD Training & Project-Based Learning** – Students practice 2D/3D drafting using software like AutoCAD and SolidWorks, working on real-world projects and simulations to enhance technical skills. • **Industry Integration & Assessments** – Guest lectures, case studies, and portfolio-based evaluations ensure students meet industrial standards, with regular feedback and practical exams to track progress.

10. Course Structure

Week	Hours	Required Learning Out–comes	Unit or subject name	Learning method	Evaluation method
1	3	Using AutoCAD in drawing	General review of first grade topics, geometric lines, projections, sections, setting dimensions using AutoCAD	Continuous guidance of students by the professor during the daily lecture	By drawing a daily painting
2 & 3	6	Using AutoCAD in drawing	Methods of connection using screws, types of screws, types of nuts, with a drawing of a board	Continuous guidance of students by the professor during the daily lecture	By drawing a daily painting
4 & 5	6	Using AutoCAD in drawing	Connecting with screws, its types, uses, drawing a group board.	Continuous guidance of students by the professor during the daily lecture	By drawing a daily painting
6&7	6	Using AutoCAD in drawing	Welding connection, welding symbols, assembly drawing.	Continuous guidance of students by the professor during the daily lecture	By drawing a daily painting
8 &9	6	Using AutoCAD in drawing	Rivet connection, rivet shapes, types of rivet connection, assembly drawing.	Continuous guidance of students by the professor during the daily lecture	By drawing a daily painting
10	3	Using AutoCAD in drawing	Application panel for mechanical crane assembly partition	Continuous guidance of students by the professor during the daily lecture	By drawing a daily painting
11	3	Using AutoCAD in drawing	Springs, their types and uses, with a drawing of a compression spring	Continuous guidance of students by the professor during the daily lecture	By drawing a daily painting
12	3	Using AutoCAD in draw-	Drawing of a schematic diagram of the exhaust valve assembly and de-	Continuous guidance of students by the professor during the daily lecture	By drawing a daily painting

		ing	composition		
13	3	Using AutoCAD in drawing	Column connections (couplers) types, drawing an application board	Continuous guidance of students by the professor during the daily lecture	By drawing a da painting
14	3	Using AutoCAD in drawing	Clutches, their types and uses, with an application drawing	Continuous guidance of students by the professor during the daily lecture	By drawing a da painting
15	3	Using AutoCAD in drawing	Bearings, drawing of a friction bearing assembly	Continuous guidance of students by the professor during the daily lecture	By drawing a da painting
16	٣	Using AutoCAD in drawing	Pulleys and belts, their types, uses, with two drawings to assemble parts containing belt wheels of different types	Continuous guidance of students by the professor during the daily lecture	By drawing a da painting
17 &18	٦	Using AutoCAD in drawing	Gears and their types, gearboxes, basic definitions, gearbox drawing, with assembly plate for gearbox engagement	Continuous guidance of students by the professor during the daily lecture	By drawing a da painting
19 &20	٦	Using AutoCAD in drawing	Bevel gears, basic definitions with assembly drawing of bevel gear engagement	Continuous guidance of students by the professor during the daily lecture	By drawing a da painting
21 &22	٦	Using AutoCAD in drawing	Introduction to Autodesk Inventor	Continuous guidance of students by the professor during the daily lecture	By drawing a da painting
23 &24	٦	Using AutoCAD in drawing	2D drawing environment	Continuous guidance of students by the professor during the daily lecture	By drawing a daily painting
25 & 26	٦	Using AutoCAD in drawing	Assembly environment	students by the professor during the daily lecture	By drawing a daily painting
27 & 28	٦	Using AutoCAD in drawing	Dynamic and motion analysis environment	students by the professor during the daily lecture	By drawing a daily painting
29	٣	Using AutoCAD in drawing	Additions to engineering drawings	students by the professor during the daily lecture	By drawing a daily painting
30	3	Using AutoCAD in draw-	A project within the jurisdiction of the relevant department for a part of	students by the professor during the daily lecture	By drawing a daily painting

		ing	any operational system.		

11. Course Evaluation

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

12. Learning and Teaching Resources

Required text–books (curricular books, if any)	
Main references (sources)	Engineering Drawing for Manufacture by Brian Griffiths
Recommended books and references (scientific journals, reports…)	• Manual of Engineering Drawing by Colin H Simmons and Dennis E Maguire. • Engineering Drawing Basics Explained • https://www.sciencedirect.com/science/article/pii/B9780080942421000218
Electronic References, Websites	

13.Program Development Plan

Teaching and Learning Strategies: The course uses **hands-on CAD training** and **project-based learning** to teach 2D/3D drafting with software like AutoCAD and SolidWorks, enabling students to work on real-world projects and simulations. **Industry integration** through guest lectures, case studies, and portfolio assessments ensures students meet professional standards, with regular feedback and practical exams to monitor progress.

Course Description Form

1. Course Name:
English Language 2
2. Course Code:
METE239
3. Semester / Year:
Second year
4. Description Preparation Date:
23/2/2025
5. Available Attendance Forms:
Direct

6. Number of Credit Hours (Total) / Number of Units (Total)
30 Hr. /2 U
7. Course administrator's name (mention all, if more than one name)
Name: SATTAR JABBAR METTIB Email: sattar.mettib@atu.edu.iq
8. Course Objectives
Course Objectives
9. Teaching and Learning Strategies

Strategy	

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	
1& 2	2	Cognitive	**Getting to know you**	Lecture and discussion	
3&4	2	Cognitive	**The way we live**	Lecture and discussion	
5&6	2	Emotional and cognitive	**It all went wrong**	Lecture and discussion	
7&8	2	Emotional and cognitive	**Let's go shopping!**	Lecture and discussion	
9&10	2	Emotional and cognitive	What do you want to do?	Lecture and discussion	
11&12	2	Emotional and cognitive	**Tell me! What's it like?**	Lecture and discussion	
13&14	2	Emotional and cognitive	Review	Lecture and discussion	
15&16	2	Emotional and cognitive	**Famous couples**	Lecture and discussion	
17&18	2	Emotional and cognitive	**Do's and don'ts**	Lecture and discussion	
19&20	2	Emotional and cognitive	**Going places**	Lecture and discussion	
21&22	2	Emotional and cognitive	**Scared to death**	Lecture and discussion	
23&24	2	Emotional and cognitive	**Things that Passives changed the world**	Lecture and discussion	
25&26	2	Emotional and cognitive	**Dreams and reality**	Lecture and discussion	
27&28	2	cognitive	**Earning a living**	Lecture and discussion	
29&30	2	Emotional and cognitive	**Love you and leave you**	Lecture and discussion	

11. Course Evaluation
The first and second-semester exams are evaluated of 20 points and 10 points for the work of the year including the daily exams, the attendance, and the assignments. For the final exam, the evaluation is of 50 points.

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	New headway pre-intermediate level Student book
Main references (sources)	New headway pre-intermediate level Student book New headway pre-intermediate level Work book with key fourth edition Johne and Liz Soars
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	https://www.google.com/search?q=speak+now+3+student+book+pdf+free+download&rlz=1C1GCEA_enIQ1001IQ1001&oq=&gs_lcrp=EgZjaHJvbWUqCQgAEEUYOxjCAzIJCAAQRRg7GMIDMgkIARBFGDsYwgMyCQgCEEUYOxjCAzIJCAMQRRg7GMIDMgkIBBBFGDsYwgMyCQgFEEUYOxjCAzIJCAYQRRg7GMIDMgkIBxBFGDsYwgPSAQsyMzU2ODgzajBqN6gCCLACAQ&sourceid=chrome&ie=UTF-8

Course description form

1. Course Name	
Manufacturing processes 2	
2. CodeDecision:	
METE212	
3. The chapter /the year	
2024−2025	
4. Date this was preparedthe description	
27/2/2025	
5. Attendance forms available	
direct	
6. Number of study hours (total)/number of units (total)	
60	
7. Name of the course administrator(If more than one name is mentioned)	
Hamzah Kadhim Hassan mailto: inkr.hamz@atu.edu.iq	
8. Course objectives	
Goals Subject Scholarship	Preparing the student to be familiar with all manufacturing processes and their various types of machining or shaping Its position, equipment, and products. He has the ability to plan the production of various products by choosing the shapes and sizes of raw materials, machines, and appropriate operating processes, sequencing these processes, and selecting machines, tools, and devices. Measurement and calculations required for this purpose and with accuracy The required efficiency and low cost.
9. Teaching and learning strategies	
The strategy	A- Cognitive objectives A1- The student will be able to understand engineering tolerances, their systems, symbols, and tables, and choose Proper pairings using special tables, various products, and various geometric combinations Mechanical skills and acquisition of skills in solving exercises for models with different tolerances and couplings. A2- The student will be able to understand the quality of surfaces, systems, and symbols with different degrees of surface

	quality Products for different manufacturing processes and different measurement methods. A3- The student will be able to identify the determinants of measurement, their different types, the limits of measurement and their uses. A4- The student will be able to know all the machining operations - lathe, milling, planing, grinding, and - their basic movements, the types and number of pieces used, their various operations and products, operating elements, cutting rates, special tables and how to use them, calculating the operating time for all operations. A5- The student will be able to prepare an operation card for various types of products and for all types of operations, which includes the sequence of operations, a diagram of each operation, the number of pieces used, the number of measurements, cutting rates, and operating time. A6- The student will be able to know all the pressure-forming processes (rolling, drawing, extrusion, forging, pressing, shearing, and punching), the foundations and types of each process, the products of each process, and calculating the forces used for each process. B - The skills objectives of the course. B1- The student will be able to practice measuring tolerances and quality of different surfaces Products with various measuring devices for this purpose with high accuracy. B2 - The student will be able to practice all machining operations and all machines Manufacturing products for various mechanical assemblies with high precision and low cost. B3 - The student will be able to train on all compression molding processes and on all machines for manufacturing various products and mechanical assemblies with high precision and low cost. B4 - The student will be able to maintain various manufacturing process machines with high skill. 7- Presentation methods (lecture). 8-Discussion methods. 9- Practical teaching methods (laboratory and workshops). Evaluation methods First: Test tools, essay tools, number, explain, compare, explain, and solve questions. Second - non-test tools (checklist

	(measurement devices), graduated rating scale, workshop exercises). C: Emotional and value-based goals C-1 Offer to design a product and ask to think about developing an integrated program for its production. C 2- Encouraging the development of thought in memorization and speculation and motivating it towards critical thinking. C-3- Developing Internet research skills to expand the cognitive horizon. C 4- Using brainstorming to produce creative ideas for some gifted students Teaching and learning methods -The student's ability to analyze, apply, and organize knowledge as well as describe solutions. -The ability to learn both simply and deep in exploring knowledge to solve existing problems. -Distinguishing that the test increases the student's motivation towards studying and furthering and is not a means of punishing him. Evaluation methods First - Test tools, essay tools (number, explain, compare, explain, solve questions. Second - Objective tests (true and false questions, multiple choice questions, interview questions -) General and qualifying transferable skills (other skills related to employability and personal development). D1- Communication, communication, and information technology skills in the work team. D2- The tendency to cooperate and work. D3- Possess linguistic skills in the art of listening and the art of persuasion and dialogue. D4- Possessing leadership qualities, strong memory, and the ability to predict and extrapolate.

10. Course structure					
the week	**hours**	**Required learning outcomes**	**Name of the unit or topic**	**the week**Learning method	**Evaluation method**
1	**2**	**Use lecture view software**	Engineering tolerances, dimension tolerances, and their types, tolerance systems and tolerance ranks, tolerance elements, couplings, coupling units, types of couplings	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
2	**2**	**Use lecture view software**	Title basis system, column basis system, symbols of pairings, tolerances for loose dimensions Preferred pairings Selection of pairings, and their economic advantages	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
3	**2**	**Use lecture view software**	Geometric tolerances in shape and position and types of shape and position tolerances	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
4	**2**	**Use lecture view software**	Measurement parameters, design of measurement parameters, types of measurement parameters	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
5	**2**	**Use**	Classification of	**Continuous**	**By**

		lecture view software	metal fabrication, metal working, theory of factors affecting it, formation of the bit, cutting edge, emerging cutting edge, and the theory of its formation, factors that lead to reducing its size, cooling and its importance for cutting operations, various cooling fluids.	**guidance of students by the professor during the daily lecture**	**solving exercises General questions and discussion**
6	**2**	**Use lecture view software**	Measurement parameters, design of measurement parameters, types of measurement parameters The round shape, the incisive edges used, and the longitudinal and transverse feed arrows. Identifying the pens used and how to install them in relation to the workpieces. Forming lathe pens.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
7	**2**	**Use lecture view software**	Classification of the number of pieces in relation to the methods of operation, the number of cutting	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and**

			edges, the metals they are manufactured from, the direction of feeding into them, the geometry of turning pens and the types of pen angles, the effect of pen angles on the cutting process.		**discussion**
8	**2**	**Use lecture view software**	Cutting conditions, cutting elements, uses of cutting speeds, and use of tables and speed maps,	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
9	**2**	**Use lecture view software**	How to perform group operations, calculate their components, and calculate the cutting time for each operation	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
10	**2**	**Use lecture view software**	How to use the operating card to create a process path for the product, factors that affect the choice of cutting speeds (Cutting tool properties, effect of operating elements, impact properties of the worked metal).	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
11	**2**	**Use lecture view**	Automatic turret turning machines, studying the	**Continuous guidance of students by**	**By solving exercises**

		software	processes that can be operated and analyzing the processes on the product, how to prepare the operating card	**the professor during the daily lecture**	**General questions and discussion**
12	**2**	**Use lecture view software**	Types of tools used on the hexagonal, quadrilateral, front, and rear heads.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
13	**2**	**Use lecture view software**	Programming automatic lathes, factors influencing operating steps	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
14	**2**	**Use lecture view software**	The student learns about the milling process, the operations that can be performed on milling machines, the parts and components of horizontal and vertical milling machines, and the nature of the work of each part.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
15	**2**	**Use lecture view software**	The student learns about machine accessories, dividing heads, tools for attaching workpieces, mandrels, and bushings.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**

16	**2**	**Use lecture view software**	Types of disc milling knives Fingers, gear sharpening knives, angle milling knives.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
17	**2**	**Use lecture view software**	The student learns an explanation of the steps for performing milling operations, choosing the appropriate machine, the initial dimensions of the artifacts, and methods of attaching the artifacts.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
18	**2**	**Use lecture view software**	Explain the steps for performing milling operations, choosing the appropriate machine, and the initial dimensions of the artifacts. Methods We are connecting artifacts.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
19	**2**	**Use lecture view software**	How to make a ghanafari mesh, a 7-block mesh	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
20	**2**	**Use lecture**	Operating rates, cutting and	**Continuous guidance of**	**By solving**

		view software	feeding speeds, and the basis for selecting them for different milling operations, using tables	**students by the professor during the daily lecture**	**exercises General questions and discussion**
21	**2**	**Use lecture view software**	The skimming process, the definition of the types of planers, the vertical plane, the operations that take place on the planing machine, the skimming capabilities available in each machine, the methods of attaching the works.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
22	**2**	**Use lecture view software**	Operating rates of cutting speeds and feeds, planer attachments such as dividing heads and special devices, angles of planer pens, and types of acting forces.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
23	**2**	**Use lecture view software**	The planer, clarification of the cutting stroke and the return stroke), methods of connection to the planer machine and operation rates, calculating the cutting time for planing, preparing the planing sequence	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**

			card		
24	**2**	**Use lecture view software**	The grinding process and an introduction to the theory of cutting and the shape of the blade in the grinding process. The grinding stones used are circumferential. Facial, side, cup, external, internal, specifications and uses, connection methods and balances	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
25	**2**	**Use lecture view software**	Different grinding machines and operating capabilities for each type (external and internal cylindrical grinding machines, tool sharpening machines).	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
26	**2**	**Use lecture view software**	Preparing a comprehensive operating card for all cutting operations.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
27	**2**	**Use lecture view software**	Metal forming, forming theory, foundations of cold and hot forming, types of forming	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and**

			processes.		**discussion**
28	**2**	**Use lecture view software**	Rolling: Basics of rolling and its methods, rolled products, sequence of operations in rolling, machines used, and conditions for completing the rolling process. Extrusion, basics of extrusion of metals and used metals, direct extrusion, reverse extrusion, types	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
29	**2**	**Use lecture view software**	Cutting and perforation, the basics of cutting operations, types of molds and their parts, dimensions of the raw material and methods of selecting it, and calculation of shear strength in each case. Drawing and deep drawing, the foundations of drawing and deep drawing operations, calculating the pulling forces and special ratios in each case, types of drawing and their uses.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**

30	**2**	**Use lecture view software**	Study of unconventional methods in metal forming by hydrostatic extrusion. Use of electrical discharge. Electromagnetic fields. Explosive formation and the advantages of this process.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**

11. Course evaluation	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.	
12. Learning and teaching resources	
Methodological decision	Required textbooks (methodology, if any)
AMetal fabrication mills Ali Ibrahim Al-Moussawi 2008	Main references (sources)
	Recommended supporting books and references (scientific journals, reports….)
Specialized websites	Electronic references, Internet sites

Course description form

1. Course Name	
Manufacturing processes 2/practical	
2. CodeDecision:	
METE212	
3. the chapter /the year	
2023−2024	
4. Date this was prepared the description	
27/2/2025	
5. Attendance forms available	
direct	
6. Number of study hours (total)/number of units (total)	
60	
7. Name of the course administrator(If more than one name is mentioned)	
Hamzah Kadhim Hasan mailto: inkr.hamz@atu.edu.iq	
8. Course objectives	
Goals Subject Scholarship	Preparing the student to be familiar with all manufacturing processes and their various types of machining or shaping Its position, equipment, and products. He can plan the production of various products by choosing the shapes and sizes of raw materials, machines, and appropriate operating processes, sequencing these processes, and selecting machines, tools, and devices. Measurement and calculations required for this purpose and with accuracy The required efficiency and low cost.
9. Teaching and learning strategies	
The strategy	A- Cognitive objectives A1- The student will be able to understand engineering tolerances, their systems, symbols, tables, and choose Proper pairings using special tables, various products, and various geometric combinations Mechanical skills and acquisition of skills in solving exercises for models with different tolerances and couplings. A2- The student will be able to understand the quality of surfaces, systems, and symbols with different degrees of surface quality Products for different manufacturing processes and different measurement methods. A3- The student will be able to identify the determinants of

	measurement, their different types, the limits of measurement and their uses. A4- The student will be able to know all the machining operations - lathe, milling, planning and grinding - their basic movements, the types and number of pieces used, their various operations and products, operating elements, cutting rates, special tables and how to use them, calculating the operating time for all operations. A5- The student will be able to prepare an operation card for various types of products and for all types of operations, which includes the sequence of operations, a diagram of each operation, the number of pieces used, the number of measurements, cutting rates, and operating time. A6- The student will be able to know all the pressure-forming processes (rolling, drawing, extrusion, forging, pressing, shearing, and punching), the foundations and types of each process, the products of each process, and calculating the forces used for each process. B - The skills objectives of the course. B1 The student will be able to practice measuring tolerances and quality of different surfaces Products with various measuring devices for this purpose with high accuracy. B2 - The student will be able to practice all machining operations and all machines Manufacturing products for various mechanical assemblies with high precision and low cost. B3 - The student will be able to train on all compression molding processes and on all machines for manufacturing various products and mechanical assemblies with high precision and low cost. B4 - The student will be able to maintain various manufacturing process machines with high skill. 7- Presentation methods (lecture). 8-Discussion methods. 9- Practical teaching methods (laboratory and workshops). Evaluation methods First: Test tools, essay tools, number, explain, compare, explain, and solve questions. Second - non-test tools (checklist (measurement devices), graduated rating scale, workshop exercises). C: Emotional and value-based goals C1- Offer to design a product and ask to think about

	developing an integrated program for its production. C 2- Encouraging the development of thought in memorization and speculation and motivating it towards critical thinking. C3- Developing Internet research skills to expand the cognitive horizon. C 4- Using brainstorming to produce creative ideas for some gifted students Teaching and learning methods -The student's ability to analyze, apply, and organize knowledge as well as describe solutions. -The ability to learn both simply and deep in exploring knowledge to solve existing problems. -Distinguishing that the test increases the student's motivation towards studying and furthering and is not a means of punishing him. Evaluation methods First - Test tools, essay tools (number, explain, compare, explain, solve questions. Second - Objective tests (true and false questions, multiple choice questions, interview questions -) General and qualifying transferable skills (other skills related to employability and personal development). D1- Communication, communication and information technology skills in the work team. D2- The tendency to cooperate and teamwork. D3- Possessing linguistic skills in the art of listening and the art of persuasion and dialogue. D4- Possessing leadership qualities, strong memory, and the ability to predict and extrapolate.

10. Course structure					
the week	**hours**	**Required learning outcomes**	**Name of the unit or topic**	**the week** Learning method	**Evaluation method**
1	**2**	**Use lecture view software**	Measurement, exercises and applications On dualities, modes Tolerance zones, use Tolerance tables	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
2	**2**	**Use lecture view software**	Use special tables With free dimensional deviations, Exercises to use Tables. Exercises on Measuring the quality of finishing Surfaces (for some products measurement laboratory).	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
3	**2**	**Use lecture view software**	Lathing: getting to know Lathe parts and their work, Identify pens used and how to install them For crafts as well Learn how to use Tables and speed maps On the lathe.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
4	**2**	**Use lecture view software**	Lathe stolen in a way The moving crow or Lathe stolen in a way Cloning device or Side ruler.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
5	**2**	**Use lecture view software**	Learn about extensions Lathe and how to install The work on it (the sample Trilogy, Chinese quartet rotary switch, rotary	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**

			switch, Al-Ranaq.		
6	**2**	**Use lecture view software**	stabilizing Things not Regular The clip on Chinese Rotary or Chinese Quartet And its axis.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
7	**2**	**Use lecture view software**	Identify on Shakal Reich The producer And her relationship Deeply Pieces And circumstances Pieces The other And get to know on limit The cutter Emerging And how Its composition during practical Lathing.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
8	**2**	**Use lecture view software**	account time Pieces on Lathe And compare it with method the theory, study Reasons Fur Chat that Appear.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
9	**2**	**Use lecture view software**	Preparation Card Follow-up Processes In the workshops with Procedure an exercise practical on Lathes.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
10	**2**	**Use lecture view software**	milling, Identify machinery Milling And its accessories And specifications Machines with to explain Details on Fares And its parts.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**

11	**2**	**Use lecture view software**	Identify on Knives Milling And also Identify around How a test Speed nutrition And vaccination With a machine milling And choose Follow-up Processes For the job.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
12	**2**	**Use lecture view software**	The procedure is an exercise in milling It includes Processes of the basic And use a head Partition.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
13	**2**	**Use lecture view software**	Milling Species Gears different(Gears Justice, conical, Helical, wormy.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
14	**2**	**Use lecture view software**	Complete the exercise by straightening the hips and shoulders in a group manner.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
15	**2**	**Use lecture view software**	Preparation Card Follow-up Processes In the workshops with Procedure an exercise practical on The gears	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
16	**2**	**Use lecture view software**	Identify on machinery Skimming In the workshop with Its components And accessories Backup she has	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**

			And watch Forms from Processes that Done on The scraper.		
17	**2**	**Use lecture view software**	The procedure an exercise practical on Machine Skimming It includes Use Accessories The machine.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
18	**2**	**Use lecture view software**	Identify on Machines Grinding With a factor Mechanics And watch Forms from Operations Grinding different And from the number, Identify in detail on Machines age the number with Procedure an exercise basic on her.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
19	**2**	**Use lecture view software**	Identify Kind Stones Grinding different and watch Granules Itching (The incisor For stone Grinding under . Microscope study Tags And symbols existing on to forbid Grinding and comparison between them in Species different For stones.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
20	**2**	**Use lecture**	Identify on Devices	**Continuous**	**By solving**

		view software	poise to forbid Grinding and how use it, Unscrew and installation to forbid grinding, Procedure an exercise last on age the number	**guidance of students by the professor during the daily lecture**	**exercises General questions and discussion**
21	**2**	**Use lecture view software**	Counter Card Follow-up Processes In the workshops on machinery Skimming and grinding.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
22	**2**	**Use lecture view software**	Identify on machinery Pieces The programmer In the workshop with Its components And accessories Backup she has And watch Forms from Processes that Done By her.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
23	**2**	**Use lecture view software**	Acquaintances and Skills Operator Machines programmed and His safety and stages the job on her.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
24	**2**	**Use lecture view software**	Programming And running Lathes programmed Automation And the factors Influential steps Employment.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
25	**2**	**Use lecture view software**	Programming And running Fares programmed Automation And the factors Influential steps	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**

			Employment.		
26	**2**	**Use lecture view software**	Operations Formation: Identify on Operations Blacksmithing mechanical, to watch Devices used.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
27	**2**	**Use lecture view software**	Identify on Operation Rolling mill and determining Clips And products different from that produce with this method, Identify on Coins Extrusion Products that Manufactured With this method.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
28	**2**	**Use lecture view software**	Identify on Operations Shearing And perforation And unloading.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
29	**2**	**Use lecture view software**	Identify on Operations Clouds and pressing, Procedure Exercises on her products With this Roads.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**
30	**2**	**Use lecture view software**	Identify on Roads Private With formation Metals And visit Locations that Contains on machinery And devices for this method.	**Continuous guidance of students by the professor during the daily lecture**	**By solving exercises General questions and discussion**

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.	
Learning and teaching resources	
Methodological decision	Required textbooks (methodology, if any)
AMetal fabrication mills Ali Ibrahim Al-Moussawi 2008	Main references (sources)
	Recommended supporting books and references (scientific journals, reports….)
Specialized websites	Electronic references, Internet sites

Course description form

1. Course Name:
Management and occupational safety
2. CodeThe decision
METE227
3. the chapter /the year:
2024 – 2025
4. Date this was preparedthe description:
2–3 – 2025
5. Attendance forms available: Direct presence
6. Number of study hours (total)/number of units (total):
60
7. Name of the course administrator(If more than one name is mentioned)
Name: hussein younus razzaq Email: inkr.hus@atu.edu.iq

8. Course objectives	
Objectives of the study subject	Teach the student the concept of quality control and its importance in various industries It serves to improve productivity and reduce the percentage of spoilage.
9. Teaching and learning strategies	
The strategy	Interactive/active lecture method: In the interactive lecture method, the lecturer is keen to involve the student in the teaching process By arousing his attention and urging him to actively participate at least once in some practices Educational, such as encouraging him to express opinions, observations, inquiries, predictions, etc. Lead those Practice ensures that the student maintains his attention and follows what is going on in the lecture, which improves... The student's mental comprehension level.

10. Course structure

the	hours	Required learning	Name of the unit or	Learning	Evaluation

week		outcomes	topic	method	method
the first	2	Management and its development Stages and development of management Basic principles of management Management characteristics Management levels	Administration	Interactive lecture	Asking questions to students
the second	**2**	**management jobs** **Industrial management** **Its functions** **the industrial engineering** **Characteristics of industrial management**	**Administration**	**Interactive lecture**	Asking questions to students
the third	**2**	**Location and arrangement of the industrial unit** **The main factors affecting the selection of industrial project sites** **Industrial unit arrangement** **Initial arrangement of the plant** **Classification of types of industrial unit arrangements** **Advantages, limitations, and cases in**	**Industrial unit arrangement**	**Interactive lecture**	Asking questions to students

		which it is applied (commodity, func–tional, mixed, and combined arrange–ment).			
Fifth	2	Production planning Production planning concept Objectives of pro–duction planning and control	Production planning	Interactive lecture	Asking questions to students
VI	2	Types of produc–tion, production planning methods, linear programming methods, graphical method and trans–portation method	Production planning	Interactive lecture	Asking questions to students
Sev–enth	2	Discussing some reports	Discussing reports submitted by stu–dents	Read sample reports with discussion	Short test
VIII	2	Work study, work study methods, method study, time study, work meas–urement	Study work and standard time	Interactive lecture	Asking questions to students
Ninth	2	Maintenance, im–portance of mainte–nance, concept of technological sys–tem	Maintenance	Interactive lecture	Asking questions to students
The tenth	2	Types of mainte–nance, types of holidays	Maintenance	Interactive lecture	Asking questions to students
elev–	2	Training	Training	Interactive	Asking

enth		The concept of training, the im–portance of train–ing, training meth–ods		lecture	questions to students
twelv eth	2	Industrial costs and wages costs, Classification of costs, wages	Industrial costs and wages	Interactive lecture	Asking questions to students
Thir–teent h	2	Industrial costs and wages Methods of calcu–lating wages, in–centives, types of incentives	Industrial costs and wages	Interactive lecture	Asking questions to students
four–teent h	2	Purchases, pur–chasing steps, in–ventory, types of stored materials and methods of controlling them	purchase manage–ment	Interactive lecture	Asking questions to students
Fif–teent h	2	Industrial safety, accident, types of accidents Ways to reduce ac–cidents Protective equip–ment and its types	Industrial safety	Interactive lecture	Asking questions to students
six–teen	2	The meaning of control, the mean–ing of quality	Quality control	Interactive lecture	Asking questions to students
seven en–teent	2	Definition of quality Quality specifica–tions	Quality control	Interactive lecture	Asking questions to students

h		Factors controlling quality Develop and im–prove quality Design, quality of fit International and Iraqi standard specifications			
eight een	2	Quality control methods, examina–tion and inspection methods, quality control steps, sam–pling methods, sample inspection tables	Quality control meth–ods and sample in–spection plans	Interactive lecture	Asking questions to students
nine–teent h	2	Operating charac–teristic curve, quality of design, data collection (types and analysis)	Quality control meth–ods and sample in–spection plans Data collection (types and analysis)	Interactive lecture	Asking questions to students
The twen–tieth	2	Control charts	Control charts	Interactive lecture	Asking questions to students
21st	2	Preparing and using a mean chart	Control charts	Draw the dia–gram on the board with explanation	Students draw the di-agram on graph paper during the lecture in order to correct their drawings later
twen–ty	2	Preparing a stand–ard deviation chart,	Control charts	Draw the dia–gram on the	Students draw the di-

tow		**preparing a defect chart**		**board with explanation**	agram on graph paper during the lecture in order to correct their drawings later
twen–ty third	**2**	**Scatterplot, how to prepare a scatter–plot**	**Control charts**	**Draw the dia–gram on the board with explanation**	Students draw the di-agram on graph paper during the lecture in order to correct their drawings later
twen–ty fourth	**2**	**Qualitative control charts for standard deviation and per–centage of defective units, histogram (preparation and use)**	**Control charts**	**Draw the his–togram on the board with explanation**	Students draw the di-agram on graph paper during the lecture in order to correct their drawings later
25th	**2**	**Control charts for variables. Control chart for arithmetic mean**	**Types of control charts**	**Draw the dia–gram on the board with explanation**	Students draw the di-agram on graph paper during the lecture in order to correct their drawings later
twen–ty–sixth	**2**	**Control charts for variables Control chart for range, control chart**	**Types of control charts**	**Draw the two diagrams on the board with explana–**	Students draw the di-agram on graph paper during the

		for standard deviation		**tions**	lecture in order to correct their drawings later
27th	**2**	**Control charts for features (control chart for the percentage of defective units)**	**Types of control charts**	**Draw the diagram on the board with explanation**	Students draw the diagram on graph paper during the lecture in order to correct their drawings later
Twenty-eighth	**2**	**Control charts for features (Control chart for the number of defects in one unit)**	**Types of control charts**	**Draw the diagram on the board with explanation**	Students draw the diagram on graph paper during the lecture in order to correct their drawings later
XXIX	**2**	**Control charts for features (Control chart for the average number of defects in the vocabulary set)**	**Types of control charts**	**Draw the diagram on the board with explanation**	Students draw the diagram on graph paper during the lecture in order to correct their drawings later
thirty	**2**	**Discussing some reports**	**Discussing reports submitted by students with a test**	**Read sample reports with discussion**	**Short test**

11. Course evaluation

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

inal exam	Second semester grade		First semester grade	
50 degrees	Second semester exam	Daily and monthly examinations and reports	First semester exam	Daily and monthly examinations and reports
Total 100	20 degrees	5 degrees	20 degrees	5 degrees

12. Learning and teaching resources

Required textbooks (methodology, if any)	1●Industrial management-Acer Soussan And Fares Jabaz Shalal... Authority of Technical Institutes 1990 2●Production Management - Dr. Abdel Sattar Muhammad Ali 1984
Main references (sources)	1●Dr . Muhammad Aishouni. (Set of lectures)-Hael University-Kingdom of Saudi Arabia . Attributes Control Charts – Statistical Quality Control. ●2 D. C. Montgomery
Recommended supporting books and references (scientific journals, reports….)	●Dr . Saad Sabr Muhammad. Lectures on quality control (control maps)
Electronic references, Internet sites	http://faculty.uoh.edu.sa/m.aichouni/

13.Program Development Plan

- Conducting questionnaires for students and professors to understand their needs.
- Focus on risk management and methods of reducing accidents.
- Organizing practical workshops on the use of personal protective equipment

Course Description Form

1. Course Name:	
Computer Applications 2	
2. Course Code:	
METE228	
3. Semester / Year: Year	
Second year	
4. Description Preparation Date:	
1/3/2025	
5. Available Attendance Forms:	
direct	
6. Number of Credit Hours (Total) / Number of Units (Total) /	
30/60	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Ahmed Abdulameer Subeh Email: ahmed.subeh@atu.edu.iq	
8. Course Objectives	
Course Objectives:	• The relationship between the subject and the specialization • The Internet, e-commerce, and

	computer components • Knowing everything related to artificial intelligence

9. Teaching and Learning Strategies	
Strategy	User definition of how to work on the Internet, implement e-commerce, understand artificial intelligence, etc.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Security and Networking:	What is a network? Types of networks. Basic network components	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports.
2	1	Security and Networking (Cont.):	Basic network components	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
3	1	Security and Networking (Cont.):	network security basics. understanding network threats. network troubleshooting	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
4	1	Security and Networking (Cont.):	Introduction to network troubleshooting. common network issues and symptoms. network troubleshooting tools and utilities	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
5	1	Security and Networking (Cont.):	using command-line tools for diagnostics. identifying and resolving connectivity issues . di-	Classroom lecture, theoretical presentation and elec-	Through homework, attendance, class activities and

			agnosing network performance problem	tronic download	reports
6	1	E – Commerce :	concepts of electronic banking services this include online banking: ATM and debit card services	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
7	1	E – Commerce :	phone banking , SMS banking , electronic alert , mobile banking	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
8	1	computer trouble shooting	introduction to computer troubleshooting , common hardware issue and solution , diagnosing software problem	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
9	1	computer trouble shooting (cont.)	hardware component , diagnosis and repair , using safe mode for troubleshooting	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
10	1	computer trouble shooting (cont.)	troubleshooting operating system issues, identifying and resolving blue screen errors, dealing with slow computer performance	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
11	1	computer trouble shooting (cont.)	virus and malware removal techniques , updating drivers and software	Classroom lecture, theoretical presentation and electronic	Through homework, attendance, class activities and reports

				download	
12	1	Introduction to Al	Definition of Al, History of Al, Al Techniques and Approaches	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
13	1	Introduction to Al(Cont.):	Key Characteristics of Al, Benefits of Al, Challenges and Ethical considerations.	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
14	1	Introduction to Al(Cont.):	Challenges and Limitations of Al, The Role of Data in Al Systems	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
15	1	Introduction to Al(Cont.):	Al Tools and Frameworks	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
16	1	The Role of Al in Modern Smartphones	Al-Driven Mobile Technologies, Virtual Assistants (Siri, Google Assistant, Alexa	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
17	1	The Role of Al in Modern Smartphones (Cont.):	Adaptive Learning, Real-Time Translation Services	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
18	1	The Role of Al in Modern Smartphones (Cont.):	The Future of Al in Smartphone Technology, Challenges of Implementing Al	Classroom lecture, theoretical presentation	Through homework, attendance, class activ-

			in Mobile Devices	and electronic download	ities and reports
19	1	Applications and Tools of Al	Overview of Al Applications in Various Industries, Education and Healthcare	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
20	1	Applications and Tools of Al (Cont.):	Transportation and Advertising	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
21	1	Applications and Tools of Al (Cont.):	Finance, Robotics and Automation Technologies.	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
22	1	Applications and Tools of Al(Cont.):	Al in Marketing: Targeting and Personalization.	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
23	1	Applications and Tools of Al(Cont.):	Al in Image and Video Analysis, Smart Cities	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
24	1	Applications and Tools of Al (Cont.):	Future Trends in Al Applications and Tools.	Classroom lecture, theoretical presentation and electronic	Through homework, attendance, class activities and reports

				download	
25	1	Al and Society	Introduction to Al and Its Societal Impact, The Role of Al in Enhancing Public Safety	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
26	1	Al and Society (Cont.):	Cultural Perspectives on Al Adoption, Al and Governance: Policy Implications	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
27	1	Ethical Challenges in Al:	Introduction to Ethics in Al, Transparency and Explainability of Al Systems, Privacy Concerns in Al Data Usage	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
28	1	Ethical Challenges in Al (Cont.):	The Ethical Implications of Autonomous Systems, Ethics in Al- Driven Marketing and Advertising	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
29	1	Ethical Challenges in Al (Cont.):	Considerations in Education, Human Rights and Al Implementation	Classroom lecture, theoretical presentation and electronic download	Through homework, attendance, class activities and reports
30	1	The Future of Al	Future trends in Al, recent research and emerging technologies.	Classroom lecture, theoretical presentation and elec-	Through homework, attendance, class activities and

				tronic download	reports

11.Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	1. Graham Brown, David Watson, "Cambridge IGCSE Information and Communication Technology", 3rd Edition (2020)
Main references (sources)	2. Alan Evans, Kendall Martin, Mary Anne Poatsy, "Technology In Action Complete", 16th Edition (2020 3. Ahmed Banafa, "Introduction to Artificial Intelligence (AI)", 1st Edition (2024) 4. Microsoft Office 2019 Step by Step 1st Edition by Curtis Frye & Joan Lambert 5. الخضر علي الخضر بحاث " أساسيات الحاسوب 6. الدكتور عادل عبد النور, "مدخل إلى عالم الذكاء الاصطناعي
Recommended books and references (scientific journals, reports...)	Any books within the curriculum
Electronic References, Websites	Search for each title

13.Program Development Plan
- Adopting continuous evaluation through presentations and interaction with real problems - Digital simulation using programs such as ANSYS and Solid Works Simulation. - Providing technical workshops on advanced engineering programs

نموذج وصف المقرر

١. اسم المقرر
جرائم نظام البعث في العراق
٢. رمز المقرر
/
٣. الفصل / السنة
السنة الثانية / النظام السنوي
٤. تاريخ إعداد هذا الوصف
٢٠٢٥/ ٣/٢
٥. أشكال الحضور المتاحة
مباشر /اسبوعي
٦. عدد الساعات الدراسية (الكلي) عدد الوحدات (الكلي) عدد الوحدات
٣٠ ساعة / ٢ ساعة
٧. اسم مسؤول المقرر الدراسي (اذا اكثر من اسم يذكر)
الاسم: طلال مظفر غازي الآيميل : talal.almasuode@atu.edu.iq

٨. اهداف المقرر

اهداف المادة الدراسية	١- تمكين الطالب بمعرفة جرائم نظام البعث وفق توثيق قوانين المحكمة العراقية العليا عام ٢٠٠٥م ٢- تمكين الطالب انواع الجرائم الدولية ٣- تمكين الطالب بمعرفة انتهاكات القوانين العراقية .

٩. استراتيجيات التعليم والتعلم

الاستراتيجية	١_ الشرح ٢_ العصف الذهني ٣_ الحوار والنقاش ٤_ الاستعانة بالمراجع والمصادر ٥_ استخدام وسائل التعليم الحديثة

١٠. بنية المقرر

الأسبوع	الساعات	مخرجات التعلم المطلوبة	اسم الوحدة او الموضوع	طريقة التعلم	طريقة التقييم
الاول	٢	المجال المعرفي والمهاري والوجداني	مفهوم الجرائم وأقسامها.	محاضرة ومناقشة	اختبار شفوي
الثاني	٢	المجال المعرفي والمهاري والوجداني	تعريف الجريمة لغة واصطلاحا .	محاضرة	اختبار شفوي
الثالث الرابع	٢ ٢	المجال المعرفي والمهاري والوجداني	أقسام الجرائم . اقسام و انواع جرائم نظام البعث	محاضرة مناقشة	اختبار شفوي اختبار تحريري
الخامس	٢	المجال المعرفي والمهاري والوجداني	جرائم نظام البعث وفق توثيق قانون المحكمة الجنائية العراقية العليا عام ٢٠٠٥م...	محاضرة	اختبار شفوي
السادس	٢	المجال المعرفي والمهاري والوجداني	الجرائم الدولية.	محاضرة	اختبار شفوي
السابع	٢	المجال المعرفي والمهاري والوجداني	أنواع الجرائم الدولية.	محاضرة	اختبار شفوي
الثامن	٢	المجال المعرفي والمهاري والوجداني	القرارات الصادرة من المحكمة الجنائية العليا.	محاضرة	اختبار شفوي
التاسع	٢	المجال المعرفي والمهاري والوجداني	الجرائم النفسية والاجتماعية وأثارها، وأبرز انتهاكات النظام البعثي في العراق	محاضرة	اختبار شفوي
العاشر	٢	المجال المعرفي والمهاري والوجداني	الجرائم النفسية	مناقشة	اختبار تحريري

الحادي عشر	٢	المجال المعرفي والمهاري والوجداني	آليات الجرائم النفسية.	محاضرة	اختبار شفوي
الثاني عشر	٢	المجال المعرفي والمهاري والوجداني	آثار الجرائم النفسية	مناقشة	اختبار شفوي
الثالث عشر	٢	المجال المعرفي والمهاري والوجداني	الجرائم الاجتماعية	محاضرة	اختبار شفوي
الرابع عشر	٢	المجال المعرفي والمهاري والوجداني	عسكرة المجتمع	محاضرة	اختبار شفوي
الخامس عشر	٢	المجال المعرفي والمهاري والوجداني	موقف النظام البعثي من الدين	محاضرة	اختبار شفوي
السادس عشر	٢	المجال المعرفي والمهاري والوجداني	انتهاكات القوانين العراقية .	مناقشة	اختبار تحريري
السابع عشر		المجال المعرفي والمهاري والوجداني	صور انتهاكات حقوق الإنسان وجرائم السلطة. .	محاضرة	اختبار شفوي
الثامن عشر	٢	المجال المعرفي والمهاري والوجداني	بعض قرارات الانتهاكات السياسية والعسكرية لنظام البعث .	مناقشة	اختبار شفوي
التاسع عشر	٢	المجال المعرفي والمهاري والوجداني	أماكن السجون والاحتجاز لنظام البعث	محاضرة	اختبار شفوي
العشرون	٢	المجال المعرفي والمهاري والوجداني	الجرائم البيئية لنظام البعث في العراق	محاضرة	اختبار شفوي
الحادي و العشرون	٢	المجال المعرفي والمهاري والوجداني	التلوث الحربي والإشعاعي وانفجار الالغام.	محاضرة	اختبار شفوي
الثاني و العشرون	٢	المجال المعرفي والمهاري والوجداني	تدمير المدن والقرى سياسة الأرض المحروقة.	مناقشة	اختبار تحريري
الثالث و عشرون	٢	المجال المعرفي والمهاري والوجداني	تجفيف الأهوار .	محاضرة	اختبار شفوي

الرابع و العشرون	٢	المجال المعرفي والمهاري والوجداني	تجريف بساتين النخيل والأشجار والمزروعات .	مناقشة	اختبار شفوي
الخامس و العشرون	٢	المجال المعرفي والمهاري والوجداني	جرائم المقابر الجماعية .	محاضرة	اختبار شفوي
السادس و العشرون	٢	المجال المعرفي والمهاري والوجداني	أحداث مقابر الإبادة الجماعية المرتكبة من النظام البعثي في العراق	محاضرة	اختبار شفوي
السابع و العشرون	٢	المجال المعرفي والمهاري والوجداني	التصنيف الزمني لمقابر الإبادة الجماعية في العراق للمدة ١٩٦٣م - ٢٠٠٣م	محاضرة	اختبار شفوي
الثامن و العشرون	٢	المجال المعرفي والمهاري والوجداني	مواقع المقابر في العراق	مناقشة	اختبار شفوي
التاسع و العشرون	٢	المجال المعرفي والمهاري والوجداني	إعداد و توزيع المقابر في العراق	محاضرة	اختبار تحريري
الثلاثون	٢	المجال المعرفي والمهاري والوجداني	قاعدة بيانات شهداء المقابر الجماعية	محاضرة	اختبار شفوي

١١. تقييم المقرر

توزيع الدرجة من ١٠٠ على وفق المهام المكلف بها الطالب مثل التحضير اليومي والامتحانات اليومية والشفوية والشهرية والتحريرية والتقارير .... الخ

٤٠ درجة الامتحان الشهري
١٠ درجات التحضير اليومي و الشفوي و كتابة التقارير
٥٠ درجة الامتحان النهائي

١٢. مصادر التعلم والتدريس

الكتب المقررة المطلوبة (المنهجية أن وجدت)	جرائم نظام البعث في العراق
المراجع الرئيسة (المصادر)	1 _ احسان هندي ، الاحتلال الحربي ٢ _ جندي عبد الملك ، الموسوعة الجنائية ٣ _ المقابر الجماعية في العراق لمنظمة هيومن رايت ووتش ٤ _ كتاب التأسيس المعرفي لدراسة جرائم حزب البعث في العراق تأليف د.قيس ناصر والاستاذ عبد الهادي معتوق
الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية، التقارير....)	١.مجلة حقوق الانسان والحريات العامة . .2انطونيو كاسيزي، القانون الجنائي الدولي.
المراجع الإلكترونية ، مواقع الانترنيت	مركز العراقي لتوثيق جرائم التطرف https://iraqicenter-fdec.org/archives/514

نموذج وصف المقرر

١. اسم المقرر
اللغة العربية ٢
٢. رمز المقرر
/
٣. الفصل / السنة سنوي

٢٠٢٤ /٢٠٢٥	
٤. تاريخ إعداد هذا الوصف	
٢٠٢٥/٣/٢	
٥. أشكال الحضور المتاحة	
حضوري	
٦. عدد الساعات الدراسية (الكلي) في السنة / عدد الوحدات (الكلي) /	
(٣٠) نظري/١ساعة في الاسبوع _	
٧. اسم مسؤول المقرر الدراسي (اذا اكثر من اسم يذكر)	
الاسم: م.م اثمار حمزة تركي الآيميل : athmar.turki.4@atu.edu.iq	
٨. اهداف المقرر	
اهداف المادة الدراسية	ان يكون الطالب بعد انتهاء المحاضر ة قادرا على ان : ١. يعرف مفهوم الاخطاء اللغوية. ٢. يميز بين الفعل الذي تتصل به التاء المفتوحة والاسم الذي تتصل به التاء المربوطة. ٣. يفرق بين كتابة الالف القائمة والالف المقصورة. ٤. يبين انواع الهمزة المتوسطة. ٥. يعرف مواضع كتابة الف الوصل وهمزة القطع. ٦. يبين اقسام الكلمة. ٧. يحدد علامات الاسم. ٨. يفرق بين الاسم والفعل والحرف. ٩. يستخرج المثنى وما يلحق به . ١٠. يميز بين المفرد والمثنى والجمع. ١١. يبين شروط جمع المذكر السالم ١٢. يوضح الاشياء التي تلحق بجمع المذكر السالم. ١٣. يبين المقصود بجمع المؤنث السالم. ١٤. يحدد ما لحق بجمع المؤنث السالم, ١٥. يذكر التوابع في اللغة العربية. ١٦. يعرف مفهوم التوكيد وفائدته ١٧. التميز بين نوعي التوكيد. ١٨. يعرف اركان العطف. ١٩. يعرف معاني حروف العطف. ٢٠. يميز بين النعت والمنعوت. ٢١. يذكر انواع البدل ٢٢. يعرف المقصود بالأسماء الخمسة. ٢٣. يستخلص معنى الأفعال الخمسة. ٢٤. يعرف مفهوم النكرة والمعرفة. ٢٥. يميز النكرة من المعرفة. ٢٦. يميز الفاعل بالجملة ٢٧. يتعرف على علامات رفع الفاعل. ٢٨. يعرف اركان اسلوب النداء. ٢٩. يعرف مفهوم القسم. ٣٠. يذكر ادوات القسم. ٣١. يعرف التميز. ٣٢. يذكر اقسام التميز. ٣٣. يعرف الاسم المنقوص والمقصور. ٣٤. يقوم بتثنية الاسم المنقوص والمدود. ٣٥. تصحيح الخطأ اللغوي في بعض الكلمات .
٩. استراتيجيات التعليم والتعلم	

الاستراتيجية	طريقة القاء المحاضرة. طريقة المناقشة. طريقة اكتشف الخطاء. تخصيص نسبة من الدرجة للواجبات اليومية والاختبارات.

١٠. بنية المقرر:

الأسبوع	الساعات	مخرجات التعلم المطلوبة	اسم الوحدة / أو الموضوع	طريقة التعليم	طريقة التقييم
الاول والثاني	١	الفهم المعرفي	مفهوم الاخطاء اللغوية/ التاء المربوطة والتاء المفتوحة	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الثالث	٢	الفهم المعرفي	الالف الممدودة والالف المقصورة	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الرابع	٢	الفهم المعرفي	همزة الوصل	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الخامس والسادس والسابع	٣	الفهم المعرفي	الهمزة المتوسطة والهمزة والمتطرفة	محاضرة نظرية	اختبارات يومية واسئلة شفهية
التاسع والعاشر	٢	الفهم المعرفي	الكلمة/ اقسام الكلام.	محاضرة نظرية	اختبارات يومية واسئلة شفهية
العاشر	١	الفهم المعرفي	المثنى والملحق بالمثنى .	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الحادي عشر- الثاني عشر	٢	الفهم المعرفي	جمع المؤنث السالم ,جمع المذكر السالم	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الثالث عشر- الرابع عشر	٢	الفهم المعرفي	التوابع: التوكيد , العطف	محاضرة نظرية	اختبارات يومية واسئلة شفهية

الخامس عشر و-السادس عشر	٢	الفهم المعرفي	النعت , البدل	محاضرة نظري	اختبارات يومية واسئلة شفهية
السادس عشر والسابع عشر	٢	الفهم المعرفي	النكرة والمعرفة	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الثامن عشر	٢	الفهم المعرفي	حروف القسم	محاضرة نظرية	اختبارات يومية واسئلة شفهية
التاسع عشر	١	الفهم المعرفي	الاسماء الخمسة	محاضرة نظرية	اختبارات يومية واسئلة شفهية
العشرون	١	الفهم المعرفي	النداء	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الحادي والعشرون	١	الفهم المعرفي	الفاعل	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الثاني والعشرون والثالث والعشرون	٢	الفهم المعرفي	النكرة والمعرفة	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الرابع والعشرون	١	الفهم المعرفي	الافعال الخمسة	محاضرة نظرية	اختبارات يومية واسئلة شفهية
الخامس والعشرون	١	الفهم المعرفي	الاسم المنقوص والاسم الممدود	محاضرة نظرية	اختبارات يومية واسئلة شفهية
السادس والعشرون- السابع	٢	الفهم المعرفي	التميز	محاضرة نظرية	اختبارات يومية واسئلة

والعشرون					**شفهية**
الثامن والعشرون التاسع والعشرون- الثلاثون	**٤**	**الفهم المعرفي**	**تطبيقات الاخطاء اللغوي الشائعة**	**محاضرة نظرية**	**اختبارات يومية واسئلة شفهية**

١١. تقييم المقرر	
توزيع الدرجة من ١٠٠ على وفق المهام المكلف بها الطالب مثل التحضير اليومي والامتحانات اليومية والشفوية والشهرية والتحريرية والتقارير .... الخ	
١٢. مصادر التعلم والتدريس	
الكتب المقررة المطلوبة (المنهجية أن وجدت)	**مقرر منهجي**
المراجع الرئيسة (المصادر)	**النحو التطبيقي: خالد عبد العزيز ,ط٢٠١٨_٢٠١٩.** **اللغة العربية للصف الثاني متوسط: فاطمة ناظم ,ط٢٠١٨.**
الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية، التقارير....)	**-**
المراجع الإلكترونية ، مواقع الانترنيت	**المواقع الالكترونية المتخصصة**

هيئة التعليم التقني

التخصصات / التكنولوجية

القسم / الميكانيك

الفرع / الإنتاج (مستمر)

اسم المادة	السنة الدراسية	الساعات الأسبوعية		
		نظري	عملي	المجموع
معامل(٢)	الثانية		٨	٨

هدف المادة : اكتساب المهارة اليدوية لتنفيذ عمليات التشغيل والتصنيع باستخدام مختلف العدد اليدوية وأدوات القياس والمقدرة على العمل وتشغيل مكائن التشغيل بالأسلوب التشغيل بالأسلوب الإنتاجي الأمثل .

المفردات العملية

الأسبوع	تفاصيل المفردات
الأول	١- التفريز (٥ أسبوع) ١- ماكنة التفريز الافقية ، الرئيسية الجامعة . شرح أجزاء الماكنة ووظيفة كل منها ، تشغيل المكائن واختيار السرعات والتغذيات ، الادوات والأجهزة الملحقة بالمكائن واستخداماتها وطرق تثبيتها ، رؤوس التقسيم ، المناكن ، الصينية الدوارة ، رؤوس التفريز الجامعة ، راس عمل الجريدة المسننة ، رأس عمل المجاري . ٢- كترات التفريز : أنواعها (تفريز اسطواني الأسطح ،تفريز اكتاف ، كترات عمل المجاري ،كترات تفتيح التروس،كترات التشكيل الخاصة الاسطوانية ذات الثقب الداخلي أو الطرفية) أستعمالات الكترات،طرق تثبيتها ،تثبيت المشغولات ٣- تفريز الاسطح المستوية : اختياروتركيب الكتر المناسب ،ظبط سرعات القطع والتغذية ، كيفية تثبيت المشغولات ،تتابع عمليات التشغيل ، أجزاء عمليات التفريز لاستعدال سطوح مستوية ومائلة ومتقابلة وعمل مجموعة من المجاري المختلفة

الأسبوع	تفاصيل المفردات
الثاني	١- رؤوس التقسيم وأستخداماتها: جهاز التقسيم وطريقة استخدامه ، التقسيم البسيط ، التقسيم باستخدام دوائر الثقوب ، التقسيم التفاوتي ، تقاسيم الزوايا ، عمل تمارين على انواع التقاسيم المختلفة (تقسيم اجزاء ،تقسيم زوايا). ٢- تفريز التروس المستقيمة على الماكنات العامة والجرائد المسننة العدلة القوانين الخاصة بقطع التروس الكترات المستخدمة ، تجهيزات الخدمات ، واعداد عمليات التجهيز والتشغيل اجزاء عمليات التفريز ، مراجعة الابعاد النهائية ، تدريب على تفريز قوس عدل وجريدة مسننة عدلة .
الثالث	١- تفريز التروس المخروطية على الماكنات العامة : (نفس منهاج تفريز التروس العدلة) ٢- تفريز التروس الحلزونية والجرائد المسننة المائلة على الماكنات العام : (نفس منهاج تفريز التروس العدلة)
الرابع	١- تفريز المشغولات بتقاسيم الزوايا ٢- تفريز المجاري الداخلية . ٣- تفريز المنحنيات ، شرح القوانين العامة بكل عملية ، خطوات تنفيذها ، اعداد الخامات الاولية ، اختيار الكترات اختيار معدلات التشغيل ، اجراء عمليات التفريز ، مراجعة ابعاد المشغولات .
الخامس	صيانة ماكنة التفريز : ١- تفكيك وتركيب عمود الشياق . ٢- فتح منضدة الماكنة وصيانتها وتركيبها . ٣- فتح صندوق سرعات القطع الرئيسية والتعرف على كيفية تغيير السرع واعادة تركيبه . ٤- فتح صندوق سرعات التغذية

	والتعرف على كيفية تغييرها واعادة تركيبه . ٥- اجراء عمليات تغيير السرعات من خلال السيور والبكرات والتعرف على كيفية تحويلها وعملية شدها . ٦- التعرف على دوائر السيطرة الكهربائية الخاصة بتشغيل ماكنة التفريز .
الأسبوع	تفاصيل المفردات
الاول	**٢- التجليخ (٥ اسبوع)** ١- ماكنات التجليخ : (اسطواني داخلي وخارجي ، تجليخ لامركزي ، تجليخ سطحي ، سن العدد) ٢- احجار التجليخ : اشكالها ، انواعها ، مواصفاتها ، استعمال كل منها ، اعداد احجار التجليخ للتشغيل (ضبط الاتزان ، تسوية الاحجار). ٣- ماكنات التجليخ السطحي : شرح اجزاء الماكنة ووظيفة كل منها ، طريقة التشغيل وضبط المشوار ، سرعة التغذية والتطعيم ، طرق تثبيت المشغولات ، استخدام سوائل التبريد وانواعه . ٤- التدريب على تجليخ الأسطح المستوية والمتوازية والمتعامدة والمائلة . ٥- تجليخ المجاري : التدريب على تجليخ المجاري المختلفة ، والمجاري المستديرة .
الثاني	١-التجليخ الاسطواني : اجزاء الماكنة وطريقة تشغيلها وضبط سرعات التشغيل ومعدلاته ، اختبار الحجر المناسب للشغلة ، تثبيت المشغولات ، استخدام سوائل التبريد وادوات القياس . ٢- تمارين على عمليات تجليخ اسطواني خارجي وداخلي .

الثالث	١-التجليخ اللامركزي وتجليخ الكرنكات . ٢-عمليات تجليخ متنوعة باستخدام عمليات التجليخ السابقة ، التدريب عليها .
الرابع	ماكنة سن العدد : ١- تشغيل مكائن سن العدد وكيفية التعامل معها واختيار الماكنة المناسبة لسن الاداة المعينية . ٢- كيفية تثبيت اداة القطع على الماكنة وتحديد الزوايا المطلوبة للحد القاطع . ٣- اجراء عمليات السن لنماذج من عدد القطع (اداة قطع احادية الحد القاطع ثنائية الحد القاطع ، متعددة الحدود .
الخامس	صيانة مكائن التجليخ (ماكنة التجليخ الاسطواني العامة الداخلي والخارجي) ١- كيفية تبديل سائل التبريد وتحديد المستوى المطلوب . ٢- تحديد اماكن التزييت والتشحيم للماكنة ونوع الزيت والشحم المناسبين . ٣- اجراء عملية تبديل سيور نقل السرعات الدوارنية للحجر وللمشغولة .
الأسبوع	تفاصيل المفردات
الاول	**٣-القشط (٥ اسبوع)** ١- المقاشط النطاحة والراسية : الفرق بين استخدام كل منها ، اجزاء الماكنة وطريقة العمل ، المشغولات والاسطح الممكن تشغيلها على كل منها الاقلام المستخدمة ، طرق تثبيتها سرعات القطع والتغذية ومعدلات التطعيم واختيار كل منها . ٢- تمارين لقشط سطوح عدلة ومائلة بزوايا مختلفة . ٣- تمارين لعمل مجاري داخلية وخارجية مختلفة الاشكال .
الثاني	تمارين لقشط اسطح ومشغولات كاملة اجزاء مناكن ،V بلوك ، قواعد مثاقب .
الثالث	تدريبات على قشط الاقواس، عمل المجاري على المشغولات الدائرية باستخدام اجهزة التقسيم على المقاشط .

الرابع	تمارين قشط متنوعه .
الخامس	صيانة ماكنة القشط النطاحة : ١- صيانة ماكنة القشط العربة. ٢- فتح التمساح واجزاء صيانة لاجزاء السيطرة على طول الشوط وكذلك تغيير موقع الشوط . ٣- اجزاء عمليات التزييت والتشحيم المختلفة وفتح مضخة الزيت .
الاول	٤-الخراطة (٥ أسبوع) ١-الخراطة اللامركزية والخراطة باستخدام العيينة الرباعية وطرق تثبيت المشغولات الخاصة . ٢-تمارين على مشغولات لامركزية متنوعة ..
الثاني	١-خراطة الدورانات الخارجية والداخلية وخراطة التشكيل. ٢-تمارين لعمليات خراطة متنوعة مع أستخدام اقلام التشكيل .
الثالث	المخارط البرجية : ١- فكرة عامة عن المخارط البرجية واستخدام جداول السرعات والتغذية . ٢- تتابع عمليات تشغيل المنتجات المختلفة واعداد تتابع عملياتها .
الرابع	١-الاقلام والعدد المستخدمة وطريقة ضبطها والتجهيز لعمل مشغولات متنوعة . ٢-كيفية اعداد خرائط تتباع العمليات .
الأسبوع	تفاصيل المفردات
الخامس	صيانة المخرطة : ١-اجراء عمليات تفكيك للعينات الثلاثية والرباعية وصيانتها . ٢-تفكييك الغراب المتحرك واجراء صيانة . ٣- تفكيك الراسمة الصغرى والكبرى واجراء صيانتها . ٤- صيانة صندوق سرعات القطع

	الرئيسية وحساب سرعة التغذية .
الاول	٥-المكائن المبرمجة باستخدام G-Code ١-نبذة تاريخية عن مكائن CNC ، الفروقات بين المكائن العادية ومكائن CNC ، مراحل عمل على المكائن المبرمجة . ٢-تعريف اجزاء الماكنة ، محاور الحركة ، لوحة التحكم ، تعريف وتشغيل الماكنة عملياً .
الثاني	١- البرنامج ، هيكلية البرنامج ، كيفية برمجة مكائن التفريز ، الدوال المستخدمة في المكائن المبرمجة ، نقطة صفر الماكنة ، دوال مستويات الحركة . (G17,G18, G19) دوال إحداثيات الحركة (G90 , G91) . ٢- عمل محاكاة (Simulation) باستخدام برامج محاكاة ، كيفية استخدام البرنامج، ايعازات البرنامج . ٣- لوحة التحكم للماكنة CNC حسب نظام ISO9001 ، تنفيذ حركات عن طريق جهاز التحكم اليدوي ، تصفير الماكنة ، تصفير الماكنة المثلثة، تصفير قطعة العمل ، طرق تثبيت قطعة العمل .
الثالث	١- دوال الحركة الخطية (G1,G2)،دوال خزن نقاط صفر القطعة (النقاط المرجعية) (51,G52,G53,G54,G55,G56,G57,G58,G59) ،الدوال المساعدة F,M,S,T ٢- تنفيذ برنامج تفريز وجهي باستخدام الايعازات اعلاه وتطبيقه على الحاسبة باستخدام برامج محاكاة وتنفيذ عملياً على الماكنة . ٣- دوال الحركة الدوارانية G2, G3 ، دالة التكرار ، دالة تكوين صورة مطابقة باتجاه معاكس (Mirror) .
الرابع	١- عمل برنامج لتنفيذ قطع دائري (ربع دنرة ، نصف دائرة ، دائرة كاملة) وتطبيقه على الحاسبة باستخدام برامج محاكاة وتنفيذه عملياً على الماكنة . ٢- دوال تعويض نصف القطر (دوال المعايرة) G40,G41,G42,G43,G44 ٣- عمل برنامج لتنفيذ تمرينين احدهما بارز والاخر حفر وتطبيقه على الحاسبة باستخدام برامج محاكاة وتنفيذه

	على الماكنة باستخدام الدوال اعلاه .
الخامس	١- الدوال الثابتة ، دالة التثقيب مرحلة واحدة ، دالة تثقيب على مراحل ، دالة تشغيل الاسنان دالة توسيع الثقوب دالة حلقة التفرز ، دالة تشغيل شق طولي ، دالة تشغيل الحفر الدائري . ٢- تنفيذ برنامج باستخدام الدوال السابقة وتطبيقة على الحاسبة باستخدام برامج محاكاة وتنفيذه على الماكنة . ٣- صيانة الماكنة كيفية تبديل عدة القطع ، فحص منطومة التزييت في الماكنة وتزييت عمود الدوران ، فحص منظومة التبريد وتبديل سائل التبريد .
الاول	**٦-مفردات ورشة المكائن المبرمجة والتي تعمل بنظام CAD-CAM** ١-تعريف الطلبة على المكائن المبرمجة وملحقاتها والبرامج الملحقة . ٢-التعرف على اجزاء ماكنة الخراطة المبرمجة . مفاتيح لوحة التحكم ووظيفة كل منها ، عدد القطع ، محاور الماكنة . ٣-استخدام برنامج CAD-CAM لتصميم منتج هندسي وتنفيذ المنتج على الحاسبة بطريقة المحاكاة Simulation .
الثاني	التعرف على كيفية استدال العدد التالفة او تعريف عدة جديدة . تنفيذ منتج متكامل على الماكنة ابتدأ من مرحلة التصميم على برنامج الـ CAD/CAM مروراً بعملية المحاكاة وانتهاءاً بتنفيذ المنتج على الماكنة .
الثالث	١- التعرف على اجزاء ماكنة التفريز المبرمجة : مفاتيح لوحة التحكم ووظيفة كل منها ، عدد القطع ، محاور الماكنة . ٢- استخدام برنامج CAD/CAM لتصميم منتج هندسي وتنفيذ المنتج على الحاسبة بطريقة المحاكاة Simulation .
الرابع	١- التعرف على كيفية استبدال العدد التالفة او تعريف عدد جديدة . ٢- تنفيذ منتج متكامل على الماكنة ابتداءاً من مرحلة التصميم على البرنامج CAD/CAM مروراً بعملية المحاكاة وانتهاء اً بتنفيذ المنتج على الماكنة .

الخامس	تنفيذ العديد من التمارين على مكائن الخراطة والتفريز .

لاحظات:

بالنسبة للطلبة الذين يتم قبولهم بعد بداية العام الدراسي يتم تعويض مافاتهم من تمارين وذلك خلال العطلة ربيعية حصرياً وباوامر ادارية من القسم العلمي مؤشراً فيها تاريخ مباشرتهم في المعهد.

بالنسبة للطلبة الذين يرسبون باقل من نصف الوحدات يحق لهم التعويض في الاسبوع الذي يسبق الامتحانات نظرية لنهاية العام حصرياً.

مادة المعامل تقييم مستمر لاوجود لدور ثان فيها وبالتالي فلا احقية للاقسام العلمية ولا لوحدات المعامل بان يم دورات تعويضية في العطلة الصيفية خوفاً من انحدار المستوى العلمي في هذه المادة .

يتم ابلاغ القسم العلمي بغيابات الطلبة اسبوعياً لغرض التمكن من تنفيذ المادة (9) من التعليمات الامتحانية والتي تنص (يعتبر الطالب راسباً في اي موضوع اذا تجاوزت غياباته (١٠%) عشرة من المائة من الساعات المقررة لذلك الموضوع بدون عذر مشروع او (١٥%) خمس عشر من المائة بعذر مشروع يقره مجلس الكلية او المعهد) .

تتولى الاقسام العلمية ووحدات المعامل تبليغ الطلبة بممضمون الفقرات اعلاه منذ بداية العام الدراسي .