**Ministry of Higher cation and Scientific Research**
**Scientific Supervision and Scientific Evaluation Apparatus**
**Directorate of Quality Assurance and Academic Accreditation**
**Accreditation Department**

# Academic Program and Course Description Guide

**2024-2025**

# 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 third 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:

**Academic Program Description**: 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**: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

**Program Vision:** An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

**Program Mission:** Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

**Program Objectives:** 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 / subjects included in the academic program according to the approved learning system (semester, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

**Learning Outcomes:** A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

**Teaching and learning strategies:** They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

## Academic Program Description

**2024-2025**

University: AL-**Furat AL-Awsat Technical University**

Faculty/Institute: **Al-Mussaib Technical Institute**

Scientific Department: **Mechanical Techniques**

Academic or Professional Program Name: **Diploma**

Final Certificate Name: **Diploma in mechanical techniques**

Academic System: **Annual**

Description Preparation Date: **2024-2025**

File Completion Date: **2025\3\5**

Signature:

Head of Department Name:

**Asst. Prof. Dr. Zuhair H. Obaid**

Date: **2025\3\5**

Signature:

Scientific Associate Name:

**Dr. Lec. Mohammed H. Sabry**

Date: **2025\3\5**

**The file is checked by:**

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department: **Assist. lecturer. Walaa Hussein Allawi**

Date: **2025\3\10**

Signature:

جامعة الفرات الأوسط التقنية
المعهد التقني المسيب
شعبة ضمان الجودة والأداء الجامعي

**Approval of the Dean**

٢٠٢٥/٣/١١

Assist. Prof
Dr. Malik N. Hawas
DEAN

## 1. Program Vision

Creating a comprehensive, creative technical education system that is based on market needs, focuses on local needs, bears responsibility for covering the needs of local employers, and serves the changing needs of the market.

## 2. Program Mission

Providing high-quality technical education makes the return benefiting from the education process more efficient and distinct, expanding its base quantitatively and qualitatively, laying the foundations for sustainable human development and professional ethics, and responding quickly to changing needs by keeping pace with scientific and technical developments, external openness, adopting education for the market, and ensuring confirmation of the quality of the targeted return from the education process. .

## 3. Program Objectives

1. Use of all mechanical operating machines,
2. Use of measuring and testing devices,
3. Completing various welding and plumbing works and conducting laboratory tests.

## 4. Program Accreditation

Does the program have program accreditation? And from which agency?
Non

## 5. Other external influences

Is there a sponsor for the program?
Non

## 6. Program Structure

| Program Structure | Number of Courses | Credit hours | Percentage | Reviews* |
|---|---|---|---|---|
| **Institution Requirements** | **6** | **14** | **%10.9** | **Annual system** |
| **College Requirements** | **5** | **24** | **%18.8** | **Annual system** |
| **Department Requirements** | **11** | **90** | **%70.3** | **Annual system** |

| | | | | |
|---|---|---|---|---|
| **Summer Training** | **---------** | **---------** | **---------** | **Fulfillment only** |
| **Other** | **---------** | **---------** | **---------** | |
| **Summation** | **22** | **128** | **%100** | |

* This can include notes whether the course is basic or optional.

## 7. Program Description

| Year/Level | | Course Code | Course Name | Credit Hours | |
|---|---|---|---|---|---|
| | | | | theoretical | practical |
| First | | | **Materials Science** | **2** | **1** |
| | | | **Manufacturing Methods** | **2** | **2** |
| | | | **Workshops** | **-** | **6** |
| | | | **Mechanical engineering** | **2** | **3** |
| | | | **Mathematics** | **2** | **-** |
| | | | **Computer application(1)** | | **1** |
| | | | **Engineering drawing** | **-** | **3** |
| | | | **Human rights and Democracy** | **1** | **-** |
| | | | **Electricity technology** | **2** | **1** |
| | | | **English Language-**1 | **1** | **-** |
| | | | **Arabic Language-1** | **1** | **-** |
| Second | | | **Machine Parts** | **3** | **-** |
| | | | **Manufacturing Processes(2)** | **2** | **2** |
| | | | **Metallurgy** | **2** | **2** |
| | | | **Workshops(2)** | **-** | **8** |
| | | | **Project** | **-** | **4** |
| | | | **Industrial drawing** | **-** | **3** |
| | | | **Management & occupational safety** | **2** | **-** |
| | | | **Computer application(2)** | | **1** |
| | | | **Crimes of the defunct Baath Party** | **1** | **-** |
| | | | **English Language-**2 | **1** | **-** |
| | | | **Arabic Language-2** | **1** | |

## 8. Expected learning outcomes of the program

**Knowledge**

A1: Explain material properties and heat treatments; select suitable materials based on performance, cost, and safety.
A2: Explain principles of engineering/industrial drawing, read technical drawings, and apply GD&T basics.
A3: Describe conventional & non-conventional manufacturing processes (machining, forming, casting, welding, CNC) and state selection criteria for each.
A4: Explain mechanical & metallurgical testing, basic quality control (SPC), and elements of process planning/technological route.

**Skills**

B1: Select material, process, and technological route; prepare a Process Sheet and operation plan per design requirements.
B2: Operate conventional & CNC machine tools, set cutting parameters, and apply safety procedures.
B3: Perform casting and welding; conduct laboratory/metallographic tests, document and analyze results for decisions.

B4: Use CAD/CAM/CAE for modeling, drawing, and simulation; apply basic TPM practices in lab/workshop.

**Ethics**

C1: Adhere to professional ethics, safety, social responsibility, and environmental sustainability.
C2: Work effectively in multidisciplinary teams, demonstrate discipline and leadership, and communicate professionally in Arabic & English.
C3: Practice critical thinking and data-driven decision-making; show innovation and an entrepreneurial mindset.
C4: Commit to lifelong learning; keep up with digitalization, smart metrology, and automation; respect intellectual property

## 9. Teaching and Learning Strategies

1- Scientific lecture (use of data display, blackboard, display of illustrative pictures).
2- Discussion among students.
3- Preparing reports related to the lecture.

## 10. Evaluation methods

(Lecture, workshop, laboratory, methodological training, summer training).

## 11.Faculty

### Faculty Members

| Academic Rank | Specialization | | Special Requirements/Skills (if applicable) | | Number of the teaching staff | |
|---|---|---|---|---|---|---|
| | General | Special | | | Staff | Lecturer |
| Assistant Professor Dr. | Mechanical engineering | Applied mechanical engineering | | | 1 | |
| Lecturer | Material engineering | Polymers | | | 1 | |
| Assistant Lecturer | Material engineering | Production engineering | | | 1 | |
| Assistant Lecturer | Mechanical engineering | Applied mechanical engineering | | | 1 | |
| Assistant Lecturer | Welding Technology Engineering | Welding Technology Engineering | | | 1 | |
| Assistant Lecturer | Material engineering | Polymers | | | 1 | |
| Assistant Lecturer | Physics Science | Applied Physics | | | 1 | |
| Assistant Lecturer | law | Criminal law | | | 1 | |

### Professional Development

**Mentoring new faculty members**

1. Having local and international courses in general and private specialization to increase on-site skills and develop appropriate solutions.

2. Having research applied to various internal and external sites, which helps him obtain a database of all mechanical parts.

**Professional development of faculty members**

1. Supporting self-efforts, such as reading and reading, by faculty members and academic leaders.
2. Including engaging and joining scientific meetings directly,
3. Using modern technological means such as training courses, workshops, panel discussions, conferences, and professional degree programs.

## 12. Acceptance Criterion

Central admission for preparatory school students, direct admission and differentiation for professional studies students.

## 13. The most important sources of information about the program

Internet websites, public libraries, professional organizations and associations, companies and institutions.

## 14. Program Development Plan

1. Providing academic support capabilities in organizing field visits.
2. Providing an appropriate classroom environment that enables the teacher to diversify teaching strategies.
3. Providing information technology in the campus library.
4. Hosting experts from outside the institute, or from the work environment for which they are preparing, to benefit from their expertise in developing the course according to the actual need of the labor market.

## Program Skills Outline

| Year/Level | Course Code | Course Name | Basic or optional | Required program Learning outcomes | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Knowledge | | | | Skills | | | | Ethics | | | |
| | | | | A1 | A2 | A3 | A4 | B1 | B2 | B3 | B4 | C1 | C2 | C3 | C4 |
| First | | Materials Science | Basic | √ | √ | | | √ | √ | √ | | √ | | | |
| | | Manufacturing Methods | Basic | √ | √ | √ | | √ | √ | | √ | √ | | √ | √ |
| | | Workshops | Basic | √ | √ | | | √ | √ | √ | | √ | | | |
| | | Mechanical engineering | Supportive | √ | √ | √ | √ | √ | | √ | | | √ | √ | |
| | | Mathematic | Supportive | √ | | √ | | | √ | √ | √ | √ | √ | √ | √ |
| | | Computer application(1) | Supportive | √ | √ | | | √ | √ | √ | | √ | | | |
| | | Engineering drawing | Basic | √ | √ | | | √ | √ | √ | | √ | | | |
| | | Human rights& Democracy | General | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | √ |
| | | English Language-1 | General | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| | | Electrical technology | General | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Arabic Language-1** | Basic | √ | √ | | | √ | √ | √ | | √ | | | |
| **Second** | | **Machine Parts** | Basic | √ | √ | √ | √ | √ | √ | √ | √ | √ | | | |
| | | **Manufacturing Processes(2)** | Basic | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | |
| | | **Metallurgy** | Basic | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| | | **Workshops(2)** | Basic | √ | √ | | | √ | √ | √ | | √ | | | |
| | | **Project** | Basic | √ | √ | | | √ | √ | √ | | √ | | | |
| | | **Industrial drawing** | Basic | √ | √ | √ | √ | √ | √ | √ | | √ | | | |
| | | **Management & occupational safety** | Basic | √ | √ | | | √ | √ | √ | | √ | | | |
| | | **Computer application(2)** | Basic | √ | √ | | | √ | √ | √ | | √ | | | |
| | | **Crimes of the defunct Baath Party** | General | √ | √ | √ | √ | | √ | √ | √ | √ | √ | √ | √ |
| | | **Arabic Language-2** | General | √ | √ | | | √ | √ | √ | | √ | | | |
| | | **English Language-2** | General | √ | √ | | | √ | √ | √ | | √ | | | |

- **Please tick the boxes corresponding to the individual program learning outcomes under evaluation.**

# Course Description Form

| |
|---|
| 1. Course Name: |
| **Human rights & democracy** |
| 2. Course Code: |
| |
| 3. Semester / Year: |
| First and second semester / First year |
| 4. Description Preparation Date: |
| **22\9\2024** |
| 5. Available Attendance Forms: |
| **Mandatory attendance weekly** |
| 6. Number of Credit Hours (Total) / Number of Units (Total) |
| **2 h/ 4 units** |
| 7. Course administrator's name (mention all, if more than one name) |
| Name: Yasmin Abd Alabbas Hammad email : yasmeen.hamad.ims04@atu.edu.iq |

8. Course Objectives

| | |
|---|---|
| **Course Objectives** | **The student will be able to:**<br>**1 . The student must be able to understand public rights and freedoms**<br>**2 .The student should be able to know the types of rights and democratic systems**<br>**3. To be able to define democracy and its types** |
| | **A- Cognitive Objectives**<br>**1.A Able to understand a general concept of human rights and their historical development.**<br>**2. Able to explain the basic principles of human rights.**<br>**3. Able to explain to the student the national constitutional and legal framework.**<br>**4. Able to interpret international and regional agreements that support human rights**<br>**B- Skill Objectives**<br>**1.B The student understands the skill of legal analysis.**<br>**2.b Demonstrates his/her skill in identifying new rights.**<br>**3.b Demonstrates the skill of legal criticism.**<br>**4.b The student demonstrates the legal classification of rights as a human and legal principle**<br>**C- Evaluations and Affective Objectives**<br>**1.C Promoting the value of human dignity**<br>**2.c. Consolidating the values of justice and equality**<br>**3.c. Promoting the value of responsible freedom**<br>**4.c. Developing critical moral awareness** |

9. Teaching and Learning Strategies

| | |
|---|---|
| **Strategy** | **Teaching and Learning Methods:**<br>**1. Using the case study and presentation method**<br>**2. Brainstorming**<br>**3. E-learning**<br>**4. Citing international conventions through discussion and dialogue** |

10. Course Structure

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

| | | | | | |
|---|---|---|---|---|---|
| 1 | 2 | The student understands the content and can complete the applicable exercises. | Human rights, their definition, and goals ,Human rights in ancient civilizations especially the Mesopotamian civilization | lecture | Exams And Practical report |
| 2 | 2 | The student understands the content and can complete the applicable exercises | Human rights in divine laws, with a focus on human rights in Islam | lecture | Exams And Practical report |
| 3 | 2 | The student understands the content and can complete the applicable exercises | Human rights in contemporary and modern history: international recognition of human rights since World War I and the League of Nations | lecture | Exams And Practical report |
| 4 | 2 | The student understands the content and can complete the applicable exercises | Regional recognition of human rights: European Convention on Human Rights 1950, American ,Convention on Human Rights 1969 African Charter on Human Rights Arab Charter on Human Rights ,1981 1994 | lecture | Exams And Practical report |
| 5 | 2 | The student understands the content and can complete the applicable exercises | Non-governmental organizations and human rights (International ,Committee of the Red Cross Amnesty International, Human Rights Watch, National Human (Rights Organizations | lecture | Exams And Practical report |
| 6 | 2 | The student understands the content and can complete the applicable exercises | Human rights in Iraqi constitutions between theory and reality | lecture | Exams And Practical report |
| 7 | 2 | The student understands the content and can complete the applicable exercises | The relationship between human :rights and public freedoms In the Universal -1 Declaration of Human Rights In regional charters and national constitutions | lecture | Exams And Practical report |
| 8 | 2 | The student understands the content and can complete the applicable exercises | Economic, social, cultural and civil human rights | lecture | Exams And Practical report |
| 9 | 2 | The student understands the content and can complete the applicable exercises | Modern human rights: facts in development, the right to a clean ,environment, the right to solidarity the right to religion | lecture | Exams And Practical report |
| 10 | 2 | The student understands the content and can complete the applicable exercises | Guarantees of respect and protection ,of human rights at the national level guarantees in the constitution and laws, guarantees in the principle of .the rule of law Guarantees in constitutional oversight, guarantees in freedom of the press and public opinion, the role of non-governmental organizations in respecting and protecting human .rights | lecture | Exams And Practical report |

| | | | | | |
|---|---|---|---|---|---|
| 11 | 2 | The student understands the content and can complete the applicable exercises | Guarantees, respect and protection of human rights at the international :level<br>- The role of the United Nations and its specialized agencies in providing guarantees<br>- The role of regional organizations (the Arab League, the European ,Union, the African Union the Organization of American States, the (ASEAN Organization<br>The role of international, regional non-governmental organizations and public opinion in respecting and protecting human rights | lecture | Exams<br>And<br>Practical report |
| 12 | 2 | The student understands the content and can complete the applicable exercises | The general theory of freedoms: the origin of rights and freedoms, the legislator's position on declared rights and freedoms, and the use of .the term public freedoms | lecture | Exams<br>And<br>Practical report |
| 13 | 2 | The student understands the content and can complete the applicable exercises | The legal base of the legal state | lecture | Exams<br>And<br>Practical report |
| 14 | 2 | The student understands the content and can complete the applicable exercises | Regulation of public freedoms by public authority | lecture | Exams<br>And<br>Practical report |
| 15 | 2 | The student understands the content and can complete the applicable exercises | Equality: The historical development of the concept of equality<br>The modern development of the concept of equality<br>gender equality<br>Equality between individuals according to their beliefs and race | lecture | Exams<br>And<br>Practical report |
| 16 | 2 | The student understands the content and can complete the applicable exercises | Democracy, its definition, types | lecture | Exams<br>And<br>Practical report |
| 17 | 2 | The student understands the content and can complete the applicable exercises | Concepts of democracy | lecture | Exams<br>And<br>Practical report |
| 18 | 2 | The student understands the content and can complete the applicable exercises | Democracy in the third year | lecture | Exams<br>And<br>Practical report |
| 19 | 2 | The student understands the content and can complete the applicable exercises | Democratic systems in the world | lecture | Exams<br>And<br>Practical report |

| | | | | | |
|---|---|---|---|---|---|
| 20 | 2 | The student understands the content and can complete the applicable exercises | ,The concept of freedoms classification of public freedoms | lecture | Exams And Practical report |
| 21 | 2 | The student understands the content and can complete the applicable exercises | Fundamental freedoms, intellectual freedoms, economic and social freedoms | lecture | Exams And Practical report |
| 22 | 2 | The student understands the content and can complete the applicable exercises | Freedom, security and feeling of reassurance<br>Freedom to come and go | | |
| 23 | 2 | The student understands the content and can complete the applicable exercises | Freedom of education, freedom of the press, freedom of assembly | lecture | Exams And Practical report |
| 24 | 2 | The student understands the content and can complete the applicable exercises | Freedom of association, freedom of action | lecture | Exams And Practical report |
| 25 | 2 | The student understands the content and can complete the applicable exercises | The right to own property | lecture | Exams And Practical report |
| 26 | 2 | The student understands the content and can complete the applicable exercises | Freedom of trade and industry | lecture | Exams And Practical report |
| 27 | 2 | The student understands the content and can complete the applicable exercises | women freedom | lecture | Exams And Practical report |
| 28 | 2 | The student understands the content and can complete the applicable exercises | Political parties and public freedoms | lecture | Exams And Practical report |
| 29 | 2 | The student understands the content and can complete the applicable exercises | Scientific and technical progress and public freedoms | lecture | Exams And Practical report |
| 30 | 2 | The student understands the content and can complete the applicable exercises | The future of public freedoms | lecture | Exams And Practical report |

## 11.Course Evaluation

1. **Daily**
2. **Weekly**
3. **Monthly**

## 12.Learning and Teaching Resources

# Course Description Form

| |
|---|
| 1. Course Name: |
| Mechanical engineering |
| 2. Course Code: |
| |
| 3. Semester / Year: |
| First and second semester / first year |
| 4. Description Preparation Date: |
| 22\9\2024 |
| 5. Available Attendance Forms: |
| Mandatory attendance weekly |
| 6. Number of Credit Hours (Total) / Number of Units (Total) |
| 5 h/10 units |
| 7. Course administrator's name (mention all, if more than one name) |
| Name**: Noor Abbas Hussein**<br>Email: noor.hussein.tcm@atu.edu.iq |
| 8. Course Objectives |

| | |
|---|---|
| **Course Objectives** | **The student will be able to:**<br>**1. Learn about mechanics and identify its types**<br>**2. Recognize the types of forces affecting objects**<br>**3. Identify the types of moments**<br>**4. Identify the types of balance and determine the centers of gravity of objects**<br>**5. Identify the types of stresses and strains that occur as a result of loads.** |
| **Required program outputs** | **A- Cognitive Objectives**<br>**1.a: Understand the basic concepts of mechanics (force, moments, equilibrium).**<br>**2.a: Understand the principles of static and dynamic analysis of objects.**<br>**3.a: Understand the concepts of internal forces and stresses (axial, shear, bending, torsion, thermal).**<br>**4.a: Understand the basic laws (Newton's Law, Hooke's Law, equilibrium equations).**<br>**B- Psychomotor Objectives**<br>**1.b: The ability to represent problems using free-body diagrams (F.B.D.).**<br>**2.b: Accurately calculate resultants, moments, and equilibrium forces.**<br>**3.b: Apply analytical methods to find centers of gravity, moments of inertia, shear forces, and bendi moments.**<br>**4.b: Solve practical problems using related mathematical laws and equations.**<br>**C- Affective Objectives**<br>**1.c: Enhance accuracy and attention to detail when solving problems. 2.c.: Develop a sense of commitment to engineering ethics.**<br>**3.c.: Enhance self-confidence in facing and solving difficult problems.**<br>**4.c.: Develop teamwork and cooperation in solving classroom exercises.** |

| 9. Teaching and Learning Strategies | |
|---|---|
| **Strategy** | **1. Theoretical Lectures: To explain basic concepts and laws (force, moments, equilibrium, dynamic stresses).** |

| | |
|---|---|
| | **2. Problem Solving: To train students to analyze mechanical problems and draw free-body diagran (F.B.D.).**<br>**3. Demonstrations: To illustrate practical applications using models or simulation programs.**<br>**4. Class Discussions: To exchange ideas and encourage critical thinking.**<br>**5. Practical Reports/Assignments: To enhance practical application and link theory to practice.**<br>**_____.** |

## 10. Course Structure

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 2 | The student understands the content and can complete the applicable exercises. | Static, fundamental concepts , Force , Scalars and , Vectors , Units , Force polygon , Cartesian Components . | lecture And solve problems | Exams And Practical report |
| 2 | 2 | The student understands the content and can complete the applicable exercises | Analysis of Forces | lecture And solve problems | Exams And Practical report |
| 3 | 2 | The student understands the content and can complete the applicable exercises | Resultant of Concurrent , Coplanar Force system (2-D) | lecture And solve problems | Exams And Practical report |
| 4 | 2 | The student understands the content and can complete the applicable exercises | Moments | lecture And solve problems | Exams And Practical report |
| 5 | 2 | The student understands the content and can complete the applicable exercises | Couples , transformation of the Couple and the force | lecture And solve problems | Exams And Practical report |
| 6 | 2 | The student understands the content and can complete the applicable exercises | Resultant of non –Concurrent , Coplanar force system (3-D) . | lecture And solve problems | Exams And Practical report |
| 7 | 2 | The student understands the content and can complete the applicable exercises | Equillibrium , free body diagram (F.B.D.) | lecture And solve problems | Exams And Practical report |
| 8 | 2 | The student understands the content and can complete the applicable exercises | Equillibrium Conditions (2-D) | lecture And solve problems | Exams And Practical report |
| 9 | 2 | The student understands the content and can complete the applicable exercises | Equillibrium Conditions (3-D) | lecture And solve problems | Exams And Practical report |
| 10 | 2 | The student understands the content and can | Friction, Dry Friction | lecture And solve problems | Exams And Practical report |

| | | | | | |
|---|---|---|---|---|---|
| | | complete the applicable exercises | | | |
| 11 | 2 | The student understands the content and can complete the applicable exercises | Center of Gravity, Centriod (length, area ), Centriod of Simple area | lecture And solve problems | Exams And Practical report |
| 12 | 2 | The student understands the content and can complete the applicable exercises | Centroids of Composite areas. | lecture And solve problems | Exams And Practical report |
| 13 | 2 | The student understands the content and can complete the applicable exercises | Moment of inertia ( Simple and Composite areas). | lecture And solve problems | Exams And Practical report |
| 14 | 2 | The student understands the content and can complete the applicable exercises | 2-Dynamics type of motion ,Linear motion with constant speed . | lecture And solve problems | Exams And Practical report |
| 15 | 2 | The student understands the content and can complete the applicable exercises | Linear motion with Constant acceleration . | lecture And solve problems | Exams And Practical report |
| 16 | 2 | The student understands the content and can complete the applicable exercises | Newton's Second Law | lecture And solve problems | Exams And Practical report |
| 17 | 2 | The student understands the content and can complete the applicable exercises | Curvilinear motion | lecture And solve problems | Exams And Practical report |
| 18 | 2 | The student understands the content and can complete the applicable exercises | Angular motion , Relative Motion . | lecture And solve problems | Exams And Practical report |
| 19 | 2 | The student understands the content and can complete the applicable exercises | Work , Energy, Power | lecture And solve problems | Exams And Practical report |
| 20 | 2 | The student understands the content and can complete the applicable exercises | 3-Strength of material :Fundamantal concept,Loads , Stress , Strain , Eelasticity , Plasticity, Deformation . | lecture And solve problems | Exams And Practical report |
| 21 | 2 | The student understands the content and can complete the applicable exercises | Hook's Law , Stress -strain curve, type of stress . | lecture And solve problems | Exams And Practical report |
| 22 | 2 | The student understands the content and can | Normal stress due to an axial load on 1-Uniformam Cross section area 2-Variable cross section area . | | |

| | | | | | |
|---|---|---|---|---|---|
| | | complete the applicable exercises | | | |
| 23 | 2 | The student understands the content and can complete the applicable exercises | Shear Stress | lecture And solve problems | Exams And Practical report |
| 24 | 2 | The student understands the content and can complete the applicable exercises | Torsional Stress | lecture And solve problems | Exams And Practical report |
| 25 | 2 | The student understands the content and can complete the applicable exercises | Thermal Stress | lecture And solve problems | Exams And Practical report |
| 26 | 2 | The student understands the content and can complete the applicable exercises | Beams , types of loads , types of beams . | lecture And solve problems | Exams And Practical report |
| 27 | 2 | The student understands the content and can complete the applicable exercises | Shear force (S.F.) & bending moment (B.M.) of Simple supported beam under an –axial load . | lecture And solve problems | Exams And Practical report |
| 28 | 2 | The student understands the content and can complete the applicable exercises | Shear force (S.F.) & bending moment (B.M.) of Simple supported beam under uniform distributed Load . | lecture And solve problems | Exams And Practical report |
| 29 | 2 | The student understands the content and can complete the applicable exercises | Shear force (S.F.) & bending moment (B.M.) of cantilever beam under an –axial load . | lecture And solve problems | Exams And Practical report |
| 30 | 2 | The student understands the content and can complete the applicable exercises | Shear force (S.F.) & bending moment (B.M.) of cantilever beam under uniform distributed Load . | lecture And solve problems | Exams And Practical report |

## 11.Course Evaluation

**Evaluation is done through:**

1. Termly (Theoretical) Examinations: To measure understanding of basic concepts and laws.
2. Final Exams (Theory + Practical Problems): To assess the student's overall level in the subject.
3. Practical Reports/Assignments: To measure the student's ability to analyze and solve problems using systematic steps.
4. Daily Assessment: Through class participation, accuracy of solutions, and correct drawing of diagrams (F.B.D.).
5. Mini-Projects/Group Practical Problems: To measure the student's skills in cooperation and teamwork.

## 12.Learning and Teaching Resources

1. Engineering mechanics Ferdinand L. singer third edition. Haber and P.QW. Publisher Inc.

2. ستأتيك-ديناميك، ميكانيكا الهندسة: تعريب، د. وجيه الخاخي، د.موفق احمد عبد الله.
.3Engineering mechanics static and dynamic Higden
.4Engineering mechanics static and dynamic Merriam
.5Engineering mechanics static and dynamic Nibbler
6. ميكانيكا الموائع، د. نعمة احمد عمارة، الجامعة التكنولوجية-مركز التعريب والنشر
7. الميكانيك ( النظرية ) ترجمة د. احمد صادق ، دار مير للطباعة والنشر

# Course Description Form

| | |
|---|---|
| 13.Course Name: | |
| **Electrical Technology** | |
| 14.Course Code: | |
| | |
| 15.Semester / Year: | |
| First and second semester / First year | |
| 16.Description Preparation Date: | |
| 22\9\2024 | |
| 17.Available Attendance Forms: | |
| **Mandatory attendance weekly** | |
| 18.Number of Credit Hours (Total) / Number of Units (Total) | |
| **3 h/ 6 units** | |
| 19.Course administrator's name (mention all, if more than one name) | |
| Name: Wassan Jabbar<br>Email: inm.wan@atu.edu.iq | |
| 20.Course Objectives | |
| **Course Objectives** | • **The student will be able to:**<br>• **1. Learn about Electrical Basic Electrical( units, symbols ) simple Electric Circuit ,**<br>• **2. Identify the Electric Circuit .**<br>• **3. Identify the The Effective Magnetic for Electric current , Application on users**<br>**4. Identify the Alternating Current , types , construction , Utilization , Rotation Reversal.**<br>**5. Electric Transformers. / 6. Motors Protection** |
| **Required program outp** | A- Cognitive Objectives<br>•1. Learn about Electrical Basic Electrical( units, symbols ) simple Electric Circuit ,<br>•2. Identify the Electric Circuit .<br>•3. Identify the The Effective Magnetic for Electric current , Application on users<br>4. Identify the Alternating Current , types , construction , Utilization , Rotation Reversal.<br>5. Electric Transformers.<br>6. Motors Protection<br><br>B- Skill Objectives<br>.1B .: Develop the student's ability to think logically and deductively.<br>2B.: Employ mathematical laws and theories to solve practical and real-life problems.<br>3B.: Use technological tools correctly.<br>4B.: Apply technological in other fields (such as physics, economics, engineering).<br><br>C- Evaluations and Affective Objectives<br>.1C The student will appreciate the role of mathematics in scientific and technological development.<br>2.C.: Demonstrate accuracy and discipline in solving exercises and performing mathematical calculations.<br>3.C.: Exchange ideas and different methods of solving problems with his or her peers.<br>4.C.: Employ technological to serve society and develop its environment.<br><br>: |

## 21.Teaching and Learning Strategies

| | |
|---|---|
| **Strategy** | .1. Lecture:<br>2. Discussion:<br>3. Problem-Based Learning:<br>4. Cooperative Learning:<br>5. Inquiry-Based Learning:<br>6. Technology Integration:<br>7. Project-Based Learning:<br>8. Brainstorming:<br>9. Self-Learning |

## 22. Course Structure

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 2 | The student understands the content and can complete the applicable exercises. | First : Electrical Basic Electrical( units, symbols ) simple Electric Circuit , Electric Current , Potential) . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 2 | 2 | The student understands the content and can complete the applicable exercises. | Voltage , Amper ,Ohms Law , Power , Resistance , Series &Parallel Circuits . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 3 | 2 | The student understands the content and can complete the applicable exercises. | Problems for Electric Circuit . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 4 | 2 | The student understands the content and can complete the applicable exercises. | Second : Alternating Current , Methods of approach Alternating current . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 5 | 2 | The student understands the content and can complete the applicable exercises. | The Sine wave , General format for the Sinusoidal voltage or current , Effective values {Root mean spare ( I r .m .s , V r . m .s )} . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 6 | 2 | The student understands the content and can complete the applicable exercises. | The Way for Alternating current , types of power plant . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 7 | 2 | The student understands the content and can complete the applicable exercises. | Third : Electromagnetic :Magnetic Field , Magnetic flux lines , Magnetic flux density | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 8 | 2 | The student understands the content and can complete the applicable exercises. | The Effective Magnetic for Electric current , Application on users Magnetic Motive force. | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 9 | 2 | The student understands the content and can complete the applicable exercises. | 4 Th : Alternating Current Single phase , Alternating Current three phase . | lecture And solve problems | Daily evaluation , Exams And Practical report |

| | | | | | |
|---|---|---|---|---|---|
| 10 | 2 | The student understands the content and can complete the applicable exercises. | Star Connected for three phase system , phase current & Line current , phase Voltage & line Voltage , Power . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 11 | 2 | The student understands the content and can complete the applicable exercises. | Delta Connected for three phase system , phase current & Line current , phase Voltage & line Voltage , Power . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 12 | 2 | The student understands the content and can complete the applicable exercises. | 5 Th : Electric Transformers.. | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 13 | 2 | The student understands the content and can complete the applicable exercises. | 6 Th : A.C motors , motor types , three phase motors ( types , Utilization ) . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 14 | 2 | The student understands the content and can complete the applicable exercises. | Construction of three phase motors , Principle to operate motors . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 15 | 2 | The student understands the content and can complete the applicable exercises. | Methods to start With motion three phase motors . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 16 | 2 | The student understands the content and can complete the applicable exercises. | Methods to control & specifically change Velocity of three phase motors. | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 17 | 2 | The student understands the content and can complete the applicable exercises. | 7 Th Alternating Current Single phase motors Single phase motors , types , construction , Utilization , Rotation Reversal. | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 18 | 2 | The student understands the content and can complete the applicable exercises. | Single phase motors to start with condenser types construction , Utilization. | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 19 | 2 | The student understands the content and can complete the applicable exercises. | 8 Th : Motors Protection . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 20 | 2 | The student understands the content and can complete the applicable exercises. | Circuit Fuse , types , characteristic To be Separated... | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 21 | 2 | The student understands the content | 9 Th : Method of specifically devoid in motors . | lecture And solve problems | Daily evaluation , Exams And Practical report |

| | | | | | |
|---|---|---|---|---|---|
| | | and can complete the applicable exercises. | | | |
| 22 | 2 | The student understands the content and can complete the applicable exercises. | High motors temperature during rotation , rotation motors with clamor . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 23 | 2 | The student understands the content and can complete the applicable exercises. | Reformation Method to break down . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 24 | 2 | The student understands the content and can complete the applicable exercises. | Circuit to be in control of operation cybernetics motors .. 10 Th: Motors security & perpetuation . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 25 | 2 | The student understands the content and can complete the applicable exercises. | Method of operation conservation motors .. | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 26 | 2 | The student understands the content and can complete the applicable exercises. | Motors greasing & cleaning . | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 27 | 2 | The student understands the content and can complete the applicable exercises. | Industrial safe or Industrial secure . | Lecture And solve problems | Daily evaluation , Exams And Practical report |
| 28 | 2 | | Methods of Generation Power electricity | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 29 | 2 | | Generation of Power electricity | lecture And solve problems | Daily evaluation , Exams And Practical report |
| 30 | 2 | | | lecture And solve problems | Daily evaluation , Exams And Practical report |

## 23.Course Evaluation

1- Written Exams.

2- Quizzes.

3- Homework.

4- Projects & Reports.

5- Performance Assessment.

6- Oral Presentations.

7- Class Participation.

8- Self-Assessment.

9- Final Exam.

| 24.Learning and Teaching Resources | |
|---|---|
| Required textbooks (curricular books, if any) | علم الهندسة الكهربائية الأساسية<br>تأليف / آى . مكنزي سميث , كي . تي . هوزي<br>رجمة / الدكتور محمد زكي محمد خضير - الدكتور مظفر أنور النعمة<br><br>كتاب تحليل الدوائر الكهربائية والالكترونية |
| Main references (sources) | لد ائر والقياسات الكهربائية - تأليف / د. أسعد عبد المجيد الاوسي-<br>د الله محمد عيوش - صدقي كريم سعيد – ابراهيم يحيى احمد / 1991 |
| Recommended books and references (scientific journals, reports...) | |
| Electronic References, Websites | |

# Course Description Form

| |
|---|
| 1. Course Name: |
| **English language1** |
| 2. Course Code: |
| |
| 3. Semester / Year: |
| First and second semester / first year |
| 4. Description Preparation Date: |
| **22\9\2024** |
| 5. Available Attendance Forms: |
| **Mandatory attendance weekly** |
| 6. Number of Credit Hours (Total) / Number of Units (Total) |
| **2h/ 2 units** |
| 7. Course administrator's name (mention all, if more than one name) |
| Name: Wassan Jabbar<br>Email: inm.wan@atu.edu.iq |
| 8. Course Objectives |

| | |
|---|---|
| **Course Objectives** | **The student will be able to:**<br>**1. Learn about Understand the basic principles and grammar of the language..** |
| **Required program outputs** | A- Cognitive Objectives<br>• 1. Learn about English Basic & Grammar<br>• 2. Identify the construction of sentences ,uses in examples & Short answers<br>• 3. Tenses of Verbs , Irregular Verbs<br>4. Uses of Quantity: much and many / some and any - something , anyone, nobody , everywhere / a few, a little, a lot of - Articles<br><br>B- Skill Objectives<br>.1B The student Knows the concept of tenses in the language .<br>2B.: Explains to the student the mechanism of learning language skills .<br>3B.: Shows the student the basics of writing and speaking .<br>4B.: Demonstrates listening skills to the student .<br><br>C- Evaluations and Affective Objectives<br>.1C The student will appreciate the role of mathematics in scientific and technological development.<br>2.C.:. Accuracy in solving exercises and conducting discussions .<br>3.C.: Exchange ideas and different methods of solving problems with his or her peers.<br>4.C.: Differentiate between problems . |

| 9. Teaching and Learning Strategies | |
|---|---|
| **Strategy** | 1. Lecture:<br>2. Discussion:<br>3 Cooperative Learning:<br>4. Inquiry-Based Learning:<br>5 Technology Integration::<br>6. Brainstorming:<br>7. Self-Learning: |

## 10. Course Structure

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 1 | The student understands the content and can complete the applicable exercises. | **Hello,(am ,are ,is),How are you? Good Morning,** | lecture And solve problems | Exams And Practical report |
| 2 | 1 | The student understands the content and can complete the applicable exercises | **What s' this in English, Numbers1__10 This is** | lecture And solve problems | Exams And Practical report |
| 3 | 1 | The student understands the content and can complete the applicable exercises | **Your world ,countries,(he, she , they ,his ,her) where s' he from.** | lecture And solve problems | Exams And Practical report |
| 4 | 1 | The student understands the content and can complete the applicable exercises | **Fantastic, awful ,beautiful ,Numbers (11-30)** | lecture And solve problems | Exams And Practical report |
| 5 | 1 | The student understands the content and can complete the applicable exercises | **All about you ,Jobs ,(am ,are ,is) , Negatives and question ,** | lecture And solve problems | Exams And Practical report |
| 6 | 1 | The student understands the content and can complete the applicable exercises | **Personal information ,social expressions.** | lecture And solve problems | Exams And Practical report |
| 7 | 1 | The student understands the content and can complete the applicable exercises | **My family and friends, (our ,their) possessive s'.** | lecture And solve problems | Exams And Practical report |
| 8 | 1 | The student understands the content and can complete the applicable exercises | **has ,has, The alphabet.** | lecture And solve problems | Exams And Practical report |
| 9 | 1 | The student understands the content and can complete the applicable exercises | **The way I live, sports ,food, drinks,( present simple- I, you, we, they.).** | lecture And solve problems | Exams And Practical report |
| 10 | 1 | The student understands the content and can complete the applicable exercises | **Languages and nationalities , (A ,an) , Numbers and prices.** | lecture And solve problems | Exams And Practical report |
| 11 | 1 | The student understands the content and can complete the applicable exercises | **Every day, the time, (Always , sometimes , Never).** | lecture And solve problems | Exams And Practical report |

| | | | | | |
|---|---|---|---|---|---|
| 12 | 1 | The student understands the content and can complete the applicable exercises | **Words that go together, Day of the week.** | lecture And solve problems | Exams And Practical report |
| 13 | 1 | The student understands the content and can complete the applicable exercises | **My favourites , Question words ,(me ,him, us, them)** | lecture And solve problems | Exams And Practical report |
| 14 | 1 | The student understands the content and can complete the applicable exercises | **This ,That , Adjectives , Can I….?** | lecture And solve problems | Exams And Practical report |
| 15 | 1 | The student understands the content and can complete the applicable exercises | **Where I live, Rooms and Furniture.** | lecture And solve problems | Exams And Practical report |
| 16 | 1 | The student understands the content and can complete the applicable exercises | **Prepositions , Directions.** | lecture And solve problems | Exams And Practical report |
| 17 | 1 | The student understands the content and can complete the applicable exercises | **Times past , saying years, Was ,Were ,born .** | lecture And solve problems | Exams And Practical report |
| 18 | 1 | The student understands the content and can complete the applicable exercises | **Past Simple – irregular Verbs .** | lecture And solve problems | Exams And Practical report |
| 19 | 1 | The student understands the content and can complete the applicable exercises | **Have , Do, Go, When s' your Birth Day ?** | lecture And solve problems | Exams And Practical report |
| 20 | 1 | The student understands the content and can complete the applicable exercises | **Negatives and pronunciation.** | lecture And solve problems | Exams And Practical report |
| 21 | 1 | The student understands the content and can complete the applicable exercises | **We Had a Great time , Past Simple- regular and irregular.** | lecture And solve problems | Exams And Practical report |
| 22 | 1 | The student understands the content and can complete the applicable exercises | **Question and Negatives ,** | | |
| 23 | 1 | The student understands the content and can complete the applicable exercises | **Sport and leisure, Going Sightseeing.** | lecture And solve problems | Exams And Practical report |

| | | | | | |
|---|---|---|---|---|---|
| 24 | 1 | The student understands the content and can complete the applicable exercises | **I Can doThat ! Can/ Can't** | lecture And solve problems | Exams And Practical report |
| 25 | 1 | The student understands the content and can complete the applicable exercises | **Adverbs , Adjective and Noun. Every day Poblems.** | lecture And solve problems | Exams And Practical report |
| 26 | 1 | The student understands the content and can complete the applicable exercises | **The Internet** | lecture And solve problems | Exams And Practical report |
| 27 | 1 | The student understands the content and can complete the applicable exercises | **Please and Thank you , I'd like – some /any ,in a Restaurant , Signs all around,** | lecture And solve problems | Exams And Practical report |
| 28 | 1 | The student understands the content and can complete the applicable exercises | **Here and Now ,Colours and Clothes , Present Continuous.** | lecture And solve problems | Exams And Practical report |
| 29 | 1 | The student understands the content and can complete the applicable exercises | **Opposite verbs, What s' the Matter?** | lecture And solve problems | Exams And Practical report |
| 30 | 1 | The student understands the content and can complete the applicable exercises | **It s' Time to go ! Future plans , Grammar revision Vocabulary revision ,Social expressions.** | lecture And solve problems | Exams And Practical report |

## 11.Course Evaluation

1- Written Exams.

2- Quizzes.

3- Homework.

4- Projects & Reports.

5- Oral Presentations.

6- Class Participation.

7- Self-Assessment.

8- Final Exam.

## 12.Learning and Teaching Resources

•*Newheadway Plus, Pre-Intermediate Student's book by John & Liz Soars Press. Oxford

•*Newheadway Plus, Beginner Workbook by John & Liz Soars Press. Oxford

# Course Description Form

| 1. Course Name: |
|---|
| Materials properties |
| 2. Course Code: |
| |
| 3. Semester / Year: |
| First and second semester / first year |
| 4. Description Preparation Date: |
| 22\9\2024 |
| 5. Available Attendance Forms: |
| Attend a lecture weekly |
| 6. Number of Credit Hours (Total) / Number of Units (Total): |
| 2 hours / 4 units |
| 7. Course administrator's name (mention all, if more than one name) |
| Name: Noor Al-Huda Sabah Jassim<br>Email: noor.jassim@atu.edu.iq |

| 8. Course Objectives | |
|---|---|
| **Course Objectives** | Studying the engineering properties of crystalline and amorphous materials and identifying the mechanical properties of metals and alloys. |
| **Required program outputs** | A- Cognitive Objectives<br>.1 The student will learn about the basic properties of materials.<br>2.a The student will learn about the types of materials.<br>3.a The student will learn about the mechanical properties of materials.<br>4.a The student will understand the chemical behavior of materials under different conditions<br>B- Skill Objectives<br>.1B The student will develop the skills of measurement and analysis.<br>2.b The student will develop the skill of using scientific equipment.<br>3.b Apply theoretical knowledge practically<br>C- Evaluations and Affective Objectives<br>.1C Instill the values of accuracy and discipline.<br>2.c Promote a sense of responsibility and develop respect for scientific knowledge.<br>3.c Promote a spirit of cooperation and teamwork.<br>4.c Encourage a love of exploration and scientific curiosity.<br>5.c Promote a concern for occupational safety |

| 9. Teaching and Learning Strategies | |
|---|---|
| **Strategy** | .1 Use the progressive presentation method.<br>2. The diagramming method.<br>3. Brainstorming |

| | |
|---|---|

10. Course Structure

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 2 | Definition of engineering materials. | Definition of engineering materials. | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 2 | 2 | Identify Atom, element, types of bonds in engineering materials. | Atom, element, types of bonds in engineering materials. | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 3 | 2 | Identify Crystalline and amorphous materials. | Crystalline and amorphous materials. | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 4 | 2 | Identify Crystal forms (H.C.P) (F.C.C) (B.C.C) | Crystal forms (H.C.P) (F.C.C) (B.C.C) | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 5 | 2 | Identify Mechanical properties of materials. (Stress, strain, stress-strain curve, ductility, collapse). | Mechanical properties of materials. (Stress, strain, stress-strain curve, ductility, collapse). | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 6 | 2 | Identify Hardness, hardness test. | Hardness, hardness test. | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 7 | 2 | Identify Continuation. | Continuation. | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 8 | 2 | Identify Durability, durability tests. | Durability, durability tests. | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 9 | 2 | Identify Thermal properties of materials. (thermal expansion, thermal conductivity) | Thermal properties of materials. (thermal expansion, thermal conductivity) | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 10 | 2 | Identify Electrical properties of materials (ionic materials, insulating materials, metallic | Electrical properties of materials (ionic materials, insulating materials, metallic | lecture | Written tests Quarterly exams final exams Daily evaluation |

| | | | | | |
|---|---|---|---|---|---|
| | | materials, factors affecting conductivity). | materials, factors affecting conductivity). | | |
| 11 | 2 | Identify Magnetic properties of materials (Ferromagnetic materials, paramagnetic materials, diamagnetic materials, magnetic retardation, factors affecting magnetism). | Magnetic properties of materials (Ferromagnetic materials, paramagnetic materials, diamagnetic materials, magnetic retardation, factors affecting magnetism). | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 12 | 2 | Identify Chemical properties of materials (Corrosion, electrochemical series, oxidation) | Chemical properties of materials (Corrosion, electrochemical series, oxidation) | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 13 | 2 | Identify Iron, its most important ores, extraction, blast furnace, transformers. | Iron, its most important ores, extraction, blast furnace, transformers. | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 14 | 2 | Carbon steel, its most important types, properties, and uses. | Carbon steel, its most important types, properties, and uses. | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 15 | 2 | Alloy steel, its most important types, properties, and uses. | Alloy steel, its most important types, properties, and uses. | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 16 | 2 | Identify Cast iron, its types, properties, and uses. | Cast iron, its types, properties, and uses. | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 17 | 2 | supplement | supplement | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 18 | 2 | Copper, its alloys, properties, and uses. | Copper, its alloys, properties, and uses. | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 19 | 2 | Identify Aluminum, its alloys, properties, and uses. | Aluminum, its alloys, properties, and uses. | lecture | Written tests Quarterly exams final exams Daily evaluation |

| | | | | | |
|---|---|---|---|---|---|
| 20 | 2 | Identify Nickel, its alloys, properties, and uses. | Nickel, its alloys, properties, and uses. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 21 | 2 | Tin, its alloys, properties, and uses.<br>Zinc, its alloys, properties, and uses.<br>Manganese, its alloys, properties, and uses. | Tin, its alloys, properties, and uses.<br>Zinc, its alloys, properties, and uses.<br>Manganese, its alloys, properties, and uses. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 22 | 2 | Other nonferrous alloys (white metals, bearing alloys) | Other nonferrous alloys (white metals, bearing alloys) | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 23 | 2 | Powder metallurgy<br>Identify (Methods of obtaining metal powders, mechanical methods, physical and chemical methods, natural, mechanical and chemical properties of powders. | Powder metallurgy<br>(Methods of obtaining metal powders, mechanical methods, physical and chemical methods, natural, mechanical and chemical properties of powders. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 24 | 2 | Powder pressing, sintering process. | Powder pressing, sintering process. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 25 | 2 | Identify Ceramic materials | Ceramic materials | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 26 | 2 | Glass, its types, manufacture, and uses. | Glass, its types, manufacture, and uses. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 27 | 2 | Identify Concrete, its industrial uses. | Concrete, its industrial uses. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 28 | 2 | Identify Polymers, polymer molecules, types of polymer. | Polymers, polymer molecules, types of polymer. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 29 | 2 | Properties and uses of plastics. | Properties and uses of plastics. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

| | | | | | |
|---|---|---|---|---|---|
| 30 | 2 | Plastics supplement. | Plastics supplement. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

## 11.Course Evaluation

1. Daily
2. Weekly
3. Monthly

## 12.Learning and Teaching Resources

| | |
|---|---|
| Required textbooks (curricular books, if any) | Metals, Engineering materials |
| Main references (sources) | Engineering materials |
| Recommended books and references (scientific journals, reports...) | A collection of books in the field o Engineering materials |
| Electronic References, Websites | Check out websites in this field |

# Course Description Form

1. Course Name:

Engineering drawing / (AutoCAD)

2. Course Code:

3. Semester / Year:

First and second semester / first year

4. Description Preparation Date:

22\9\2024

5. Available Attendance Forms:

Attendance daily according to the weekly schedule

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

3 hours: 6 units

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

Name: Ali Hameed Mohammad

Email: ali.mohammed.ims04@atu.edu.iq

8. Course Objectives

| | |
|---|---|
| **Course Objectives** | **Teaching students how to draw using AutoCAD...**<br>**Drawing at high speed and accuracy...** |
| **Required program outputs** | A- Cognitive Objectives<br>1A: Students will recognize the AutoCAD interface and its basic commands.<br>2A: Students will interpret the most important commands in AutoCAD.<br>3A: Students will distinguish between coordinate systems (absolute, relative, polar).<br>4A: Students will understand the principles of 2D engineering drawing.<br>B- Skill Objectives<br>1B: Students will use drawing tools (Line, Circle, Arc, Rectangle, etc.).<br>2B: Students will apply modification commands (Trim, Extend, Move, Copy, Mirror, etc.).<br>3B: Students will create complete 2D engineering drawings with dimensions (Dimensioning).<br>4B: Students will save and print drawings using correct print settings.<br>C- Evaluations and Affective Objectives<br>1C: Students will appreciate the importance of engineering drawing in design and manufacturing.<br>2C: Students will commit to accuracy in drawing and adhere to standard specifications<br>3C: Students will develop a spirit of creativity in 2D design. |

9. Teaching and Learning Strategies

| | |
|---|---|
| **Strategy** | Theoretical Lecture<br>Continuous Hands-on Practice using Computers<br>Assessment Methods:<br>Practical Tests<br>Assignments & Reports<br>Mini Projects<br>Continuous Laboratory Performance Assessment<br>Final Exam |

10. Course Structure

| **Week** | **Hours** | **Required Learning Outcomes** | **Unit or subject name** | **Learning method** | **Evaluation method** |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| 1 | 3 | The importance of engineering drawing, the importance of using a computer to implement engineering drawing, standard drawing board sizes, an overview of the AutoCAD program. | Engineering drawing / (AutoCAD) | Use datashow<br>Use a computer<br>Use a whiteboard | Quick exams + class questions |
| 2 | 3 | Preparing for computer drawing Title Block | Engineering drawing / (AutoCAD) | Use datashow<br>Use a computer<br>Use a whiteboard | Quick exams + class questions |
| 3 | 3 | Drawing geometric shapes using the computer | Engineering drawing / (AutoCAD) | Use datashow<br>Use a computer<br>Use a whiteboard | Quick exams + class questions |
| 5+ 4 | 3 | Graphic modifications, computer drawing aids | Engineering drawing / (AutoCAD) | Use datashow<br>Use a computer<br>Use a whiteboard | Quick exams + class questions |
| 8+7+6 | 3 | Types of lines for engineering drawing, engineering operations, and setting dimensions. | Engineering drawing / (AutoCAD) | Use datashow<br>Use a computer<br>Use a whiteboard | Quick exams + class questions |
| 9 | 3 | Perspective drawing, a perspective drawing that contains a circle represented by an oval. | Engineering drawing / (AutoCAD) | Use datashow<br>Use a computer<br>Use a whiteboard | Quick exams + class questions |
| 11+10 | 3 | Projection theory, drawing simplified projections. | Engineering drawing / (AutoCAD) | Use datashow<br>Use a computer<br>Use a whiteboard | Quick exams + class questions |
| 15+14+13+12 | 3 | Main projections, even angles, drawing according to the theory of the first even angle of projection, drawing according to the theory of the third even angle of projection. | Engineering drawing / (AutoCAD) | Use datashow<br>Use a computer<br>Use a whiteboard | Quick exams + class questions |
| 17+16 | 3 | Draw the three main projections at even angles and note the difference between them. | Engineering drawing / (AutoCAD) | Use datashow<br>Use a computer<br>Use a whiteboard | Quick exams + class questions |
| 19+18 | 3 | Deducing the third projection from the two projections. | Engineering drawing / (AutoCAD) | Use datashow<br>Use a computer<br>Use a whiteboard | Quick exams + class questions |
| 21+20 | 3 | Inferring perspective from two or three projections. | Engineering drawing / (AutoCAD) | Use datashow<br>Use a computer<br>Use a whiteboard | Quick exams + class questions |
| 23+22 | 3 | Cutting theory, cutting shapes and lines according to the type | Engineering drawing / (AutoCAD) | Use datashow<br>Use a computer | Quick exams + class questions |

| | | | | | |
|---|---|---|---|---|---|
| | | of material, drawing cut sections. | | Use a whiteboard | |
| 25+24 | 3 | Drawing projections cut from one specific projection | Engineering drawing / (AutoCAD) | Use datashow Use a computer Use a whiteboard | Quick exams + class questions |
| 27+26 | 3 | Partially cropped project drawing | Engineering drawing / (AutoCAD) | Use datashow Use a computer Use a whiteboard | Quick exams + class questions |
| 30+29+28 | 3 | Drawing a half-cut projection, drawing winding sections. | Engineering drawing / (AutoCAD) | Use datashow Use a computer Use a whiteboard | Quick exams + class 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) | |
| Main references (sources) | Auto cad + internet lectures |
| Recommended books and references (scientific journals, reports...) | |
| Electronic References, Websites | |

# Course Description Form

| |
|---|
| 1. Course Name: |
| Computer application |
| 2. Course Code: |
| |
| 3. Semester / Year: |
| First and second semester / first stage |
| 4. Description Preparation Date: |
| 22\9\2024 |
| 5. Available Attendance Forms: |
| Weekly and according to schedule |
| 6. Number of Credit Hours (Total) / Number of Units (Total) |
| 3 hr./ 6 units |
| 7. Course administrator's name (mention all, if more than one name) |
| Name: Dr. Zaid H. Rashid Email: zhr.1986@atu.edu.iq |
| 8. Course Objectives |

| | |
|---|---|
| **Course Objectives** | **• Explaining the role of the calculator in producing engineering drawings and applying th in public life**<br>**• Creating an effective relationship between calculator applications and other sciences**<br>**• Identify calculator applications and use them effectively in organizing office work** |
| 9. Teaching and Learning Strategies | |
| **Strategy** | Explanation on the board - presentation - coordination with students - traini - discussion |

10. Course Structure

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 3 | Introduction to computers: their generations, components: hardware and software (system software and application software). | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 4 - 2 | 3 | Windows operating system: The concept of the Windows system, its advantages and basic requirements, operating the system, components of the main desktop screen, the concept of the icon, the method of dealing with mouse activities, the importance and components of the Taskbar, making use of Start to enter programs, | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

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| | | the concept of loaded tasks, exiting the system and turning it off. Calculator Shut Down). | | | |
| 6 - 5 | 3 | The concept of the window for any program and identifying its main components, dealing with desktop icons such as (My Document; My Computer; Recycle Bin). | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 8 - 7 | 3 | Getting to know My Computer in terms of disks, folders and files, how to deal with formatting floppy disks, copying folders and files, dealing with the trash, and how to delete and retrieve files through what the trash can provides in this regard. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 10 - 9 | 3 | Taking advantage of Control Panel programs such as the Mouse icon, the screen saver control icon, changing the appearance of the desktop background, and Program to add and delete programs. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 11 | 3 | Take advantage of the Run option to execute programs appropriately, as well as switch to the system signal (Ms-Dos) and deal with its commands. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 12 | 3 | *Use entertainment programs such as (Window Media Player) to play movies. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 13 | 3 | *Use of additional programs such as the calculator. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 14 | 3 | *Dealing with the drawing program (Paint) in creating, saving and retrieving drawings through the commands it provides. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 15 | 3 | Dealing with the Notes window (Notpad; Wordpad) in writing texts, | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams |

| | | | | | |
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| | | saving them, retrieving them, printing them, and changing their printing style and formatting. | | | Daily evaluation |
| 16 | 3 | Learn how to get help and its different methods. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 17 | 3 | Introduction to AutoCAD version (2000) and an explanation of the program interface. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 18 | 3 | Screen settings (Snap, Limit, Grid, Pan, Zoom,...). | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 19 | 3 | Draw menu. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 20 | 3 | List of revisions (modify). | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 21 | 3 | Object Snap menu. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 22 | 3 | Layers. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 23 | 3 | Dimensions. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 24 | 3 | Writing . | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 25 | 3 | Store files, import files from other programs, and export them. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 26 | 3 | Make blocks and import parts from other programs. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 27 | 3 | Draw a plan for the department’s specialization. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams |

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| | | | | | Daily evaluation |
| 28 | 3 | Draw a section of that diagram. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 30- 29 | 3 | Printing, copying and extracting files on the plotter. | Computer applications 1 | Lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

## 11.ourse Evaluation

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

## 12.Learning and Teaching Resources

| | |
|---|---|
| Required textbooks (curricular books, if any) | |
| Main references (sources) | |
| Recommended books and references (scientific journals, reports...) | |
| Electronic References, Websites | |

# Course Description Form

| |
|---|
| 1. Course Name: |
| Mathematics |
| 2. Course Code: |
| |
| 3. Semester / Year: |
| First and second semester / first year |
| 4. Description Preparation Date: |
| 22/9/2024 |
| 5. Available Attendance Forms: |
| Attend a lecture according to weekly schedule |
| 6. Number of Credit Hours (Total) / Number of Units (Total): |
| 2 hours / 4 units |
| 7. Course administrator's name (mention all, if more than one name) |
| Name: Dr. Riyadh A. Sarhan Email: Sarhan.Riyadh@atu.edu.iq |
| 8. Course Objectives |

| | |
|---|---|
| **Course Objectives** | Introducing the student to the use of mathematics in other scientific topics and increasing his ability to think logically when solving exercises, as well as increasing his ability to develop and how to link data with his information to obtain a solution to the problem. |
| **Require program outp** | A- Cognitive Objectives<br>1A.: The student will become familiar with basic mathematical concepts and terminology.<br>2A.: The student will apply laws and theories to solve various mathematical problems.<br>3A.: The student will analyze mathematical problems into their basic components.<br>4A.: The student will evaluate the accuracy of solutions and the mathematical methods used.<br>B- Skill Objectives<br>1B.: Develop the student's ability to think logically and deductively. |

| | |
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| | 2B.: Employ mathematical laws and theories to solve practical and real-life problems.<br>3B.: Use technological tools (calculators, mathematical software) correctly.<br>4B.: Apply mathematics in other fields (such as physics, economics, engineering).<br>C- Evaluations and Affective Objectives<br>1.C.: The student will appreciate the role of mathematics in scientific and technological development.<br>2.C.: Demonstrate accuracy and discipline in solving exercises and performing mathematical calculations.<br>3.V.: Exchange ideas and different methods of solving problems with his or her peers.<br>4.C.: Employ mathematics to serve society and develop its environment. |

## 9. Teaching and Learning Strategies

| | |
|---|---|
| **Strategy** | 1. Lecture:<br>2. Discussion:<br>3. Problem-Based Learning:<br>4. Cooperative Learning:<br>5. Inquiry-Based Learning:<br>6. Technology Integration:<br>7. Project-Based Learning:<br>8. Brainstorming:<br>9. Self-Learning |

## 10. Course Structure

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 2 | Identify determinants and their properties, solve simultaneous equations using the determinant method (Cramer). | Determinants and their properties, solving simultaneous equations using the determinant method (Cramer). | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

| | | | | | |
|---|---|---|---|---|---|
| 2 | 2 | Identify determinants and their properties, solve simultaneous equations using the determinant method (Cramer). | Determinants and their properties, solving simultaneous equations using the determinant method (Cramer). | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 3 | 2 | Learn about differentiation, algebra of derivatives, and multiple functions. | Differentiation, algebra of derivatives, multiple functions. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 4 | 2 | Learn about differentiation, algebra of derivatives, and multiple functions. | Differentiation, algebra of derivatives, multiple functions. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 5 | 2 | Learn about differentiation, algebra of derivatives, and multiple functions. | Differentiation, algebra of derivatives, multiple functions. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 6 | 2 | Recognizing trigonometric, logarithmic and exponential functions and their derivatives and implicit functions, the chain rule. | Trigonometric, logarithmic and exponential functions and their derivatives and implicit functions, chain rule. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 7 | 2 | Recognizing trigonometric, logarithmic and exponential functions and their derivatives and implicit functions, the chain rule. | Trigonometric, logarithmic and exponential functions and their derivatives and implicit functions, chain rule. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 8 | 2 | Recognizing trigonometric, logarithmic and exponential functions and their derivatives and implicit functions, the chain rule. | Trigonometric, logarithmic and exponential functions and their derivatives and implicit functions, chain rule. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 9 | 2 | Learn about graphing functions, graphing trigonometric functions, and | Drawing functions, drawing trigonometric functions and maximum and minimum limits. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

| | | | | | |
|---|---|---|---|---|---|
| | | maximum and minimum limits. | | | |
| 10 | 2 | Learn about graphing functions, graphing trigonometric functions, and maximum and minimum limits. | Drawing functions, drawing trigonometric functions and maximum and minimum limits. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 11 | 2 | Learn about graphing functions, graphing trigonometric functions, and maximum and minimum limits. | Drawing functions, drawing trigonometric functions and maximum and minimum limits. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 12 | 2 | Learn about physical differential applications, velocity and acceleration, and engineering differential applications. | Physical calculus applications, velocity and acceleration and engineering calculus applications. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 13 | 2 | Learn about physical differential applications, velocity and acceleration, and engineering differential applications. | Physical calculus applications, velocity and acceleration and engineering calculus applications. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 14 | 2 | Identify integration, its laws, and its relationship to differentiation, definite and indefinite integration. | Integration, laws, and its relationship to differentiation, definite and indefinite integration. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 15 | 2 | Identify integration, its laws, and its relationship to differentiation, definite and indefinite integration. | Integration, laws, and its relationship to differentiation, definite and indefinite integration. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 16 | 2 | Learn about implicit integration, geometric (areas and volumes) and physical | Implicit integration, geometric (areas and volumes) and physical applications of integration. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

| | | | | | |
|---|---|---|---|---|---|
| | | applications of integration. | | | |
| 17 | 2 | Learn about implicit integration, geometric (areas and volumes) and physical applications of integration. | Implicit integration, geometric (areas and volumes) and physical applications of integration. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 18 | 2 | Learn about implicit integration, geometric (areas and volumes) and physical applications of integration. | Implicit integration, geometric (areas and volumes) and physical applications of integration. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 19 | 2 | Learn about implicit integration, geometric (areas and volumes) and physical applications of integration. | Implicit integration, geometric (areas and volumes) and physical applications of integration. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 20 | 2 | Learn about general methods of integration, substitution and partial integration, and the use of exponential and logarithmic partial fractions. | General methods of integration include substitution, partial substitution, and the use of exponential and logarithmic partial fractions. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 21 | 2 | Learn about general methods of integration, substitution and partial integration, and the use of exponential and logarithmic partial fractions. | General methods of integration include substitution, partial substitution, and the use of exponential and logarithmic partial fractions. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 22 | 2 | Learn about general methods of integration, substitution and partial integration, and the use of exponential and logarithmic partial fractions. | General methods of integration include substitution, partial substitution, and the use of exponential and logarithmic partial fractions. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

| | | | | | |
|---|---|---|---|---|---|
| 23 | 2 | Learn about discrete, homogeneous, and linear differential equations with their various applications. | Discrete, homogeneous and linear differential equations with their various applications. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 24 | 2 | Learn about discrete, homogeneous, and linear differential equations with their various applications. | Discrete, homogeneous and linear differential equations with their various applications. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 25 | 2 | Learn about discrete, homogeneous, and linear differential equations with their various applications. | Discrete, homogeneous and linear differential equations with their various applications. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 26 | 2 | Learn about discrete, homogeneous, and linear differential equations with their various applications. | Discrete, homogeneous and linear differential equations with their various applications. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 27 | 2 | Identifying vectors (direct and quantitative multiplication and calculating angles between vectors). | Vectors (direct and quantitative multiplication and calculating angles between vectors). | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 28 | 2 | Identifying vectors (direct and quantitative multiplication and calculating angles between vectors). | Vectors (direct and quantitative multiplication and calculating angles between vectors). | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 29 | 2 | Learn about statistics (principles) and probability theory. | Statistics (principles) and probability theory. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 30 | 2 | Learn about statistics (principles) and probability theory. | Statistics (principles) and probability theory. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

## 11.Course Evaluation

1- Written Exams.

2- Quizzes.

3- Homework.

| |
|---|
| 4- Projects & Reports.<br>5- Performance Assessment.<br>6- Oral Presentations.<br>7- Class Participation.<br>8- Self-Assessment.<br>9- Final Exam. |

| 12.Learning and Teaching Resources | |
|---|---|
| Required textbooks (curricular books, if any) | Thomas Calculus 13th Edition |
| Main references (sources) | Thomas Calculus 13th Edition |
| Recommended books and references (scientific journals, reports...) | A collection of books in the field o applied mathematics |
| Electronic References, Websites | Check out websites in this field |

# Course Description Form

| |
|---|
| 1. Course Name: |
| Manufacturing process |
| 2. Course Code: |
| |
| 3. Semester / Year: |
| Second semester / first year |
| 4. Description Preparation Date: |
| 22\9\2024 |
| 5. Available Attendance Forms: |
| Daily attendance according to the weekly schedule |
| 6. Number of Credit Hours (Total) / Number of Units (Total) |
| 4 hours/8 units |
| 7. Course administrator's name (mention all, if more than one name) |
| Name: Ali Hameed Mohammad<br>Email: ali.mohammed.ims04@atu.edu.iq |
| 8. Course Objectives |

| | |
|---|---|
| **Course Objectives** | - Preparing the student to be able to use all measuring devices for mechanical operation processes<br>- Improving the student's ability to conduct tests on plumbing sand and tests concerned with the quality of products manufactured by casting and welding processes.<br>- Providing the student with skills in forming and working metals with plumbing, welding, blacksmithing, and the calculations required to achieve the highest accuracy in production. |
| **Required program outpu** | A- Cognitive Objectives<br>1A: Understand a general concept of manufacturing processes.<br>2A: Recognize equations, laws, and transformation processes.<br>3A: Distinguish between different types of tools and equipment used in manufacturing.used.<br>B- Skill Objectives<br>1B: Perform selected laboratory experiments.<br>2B: Measure dimensions using various measuring instruments (micrometer, vernier caliper) practically.<br>3B: Conduct tests on different types of metals.<br>4B: Apply occupational safety procedures in the laboratory.<br>C- Evaluations and Affective Objectives<br>1C: Demonstrate accuracy and discipline in conducting measurements.<br>2C: Exchange ideas and different methods with peers.<br>3C: Maintain tools and equipment and respect the work environment. |

| 9. Teaching and Learning Strategies | |
|---|---|
| **Strategy** | Teaching and Learning Methods:<br>Theoretical Lectures<br>Practical Demonstrations in Workshops<br>Problem-Based Learning<br>Cooperative Learning<br>Use of Audio-Visual Aids (Technology Integration) |

10. Course Structure

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

| | | | | | |
|---|---|---|---|---|---|
| 1 | 2 | Definition of measurement and units of measurement, error and its causes, methods of measuring main dimensions, simple conveyor measuring devices. | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 2 | 2 | Measuring feet (probes), their parts, uses, and types. | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 3 | 2 | Micrometers, their types, uses, parts, and the idea of how a micrometer works. | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 4 | 2 | Measuring molds and their uses, types, and how to use them. | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 5 | 2 | Measuring angles and side shapes, tools for measuring angles and measuring cups (dabaa) and their types. | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 6 | 2 | Method of measuring screw elements, external and internal diameters, measuring step and step diameter, electronic mechanical comparison devices. | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 7 | 2 | Optical device, some modern measurement methods (acoustic frequency measuring devices, digital optical). | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 8 | 2 | Files and their role in industrial development, the process of slicing, the tools used and the processes involved in the filing process, files used and their specifications, machines and their types and methods of attaching crafts to them, uses of files, and how to clean files. | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 9 | 2 | Cutting with a saw, the conditions that must be met in the sawing process, the saw weapon, the crowns and their types, the teeth, the method of sharpening and maintaining them, the types of manual hammer heads and the method of installing them. | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 10 | 2 | Drilling and grinding, types of drills, types of | Manufacturing processes 1 | - lecture | - Daily test |

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| | | primers, types of primers, how to perform the drilling and grinding process. | | -Laboratory experiments | -Laboratory experiments |
| 11 | 2 | Models, their types, wood used in their manufacture, and the conditions that must be met in the model. | Manufacturing processes 1 | - lecture<br>-Laboratory experiments | - Daily test<br>-Laboratory experiments |
| 12 | 2 | Tools and devices used in making the model, box molds, and how to design a simple model. | Manufacturing processes 1 | - lecture<br>-Laboratory experiments | - Daily test<br>-Laboratory experiments |
| 13 | 2 | Plumbing, historical overview, main methods of plumbing (cast casting, sand casting, metal mold casting, other methods of plumbing) Advantages of the plumbing process. | Manufacturing processes 1 | - lecture<br>-Laboratory experiments | - Daily test<br>-Laboratory experiments |
| 14 | 2 | Plumbing sand, plumbing sand specifications, components, plumbing sand, devices used and additives to plumbing sand. | Manufacturing processes 1 | - lecture<br>-Laboratory experiments | - Daily test<br>-Laboratory experiments |
| 15 | 2 | Dumps and tools used in preparing sand molds, the process of molding a simple model and the last one, the parasitic molds and the final molds used | Manufacturing processes 1 | - lecture<br>-Laboratory experiments | - Daily test<br>-Laboratory experiments |
| 16 | 2 | Pulp, its types, pulp sand, mixture ratios and materials added to it, stages of its work (mixing and preparing sand, making balls, drying it), the benefit of the drying process, ovens or methods of drying balls and their equipment. | Manufacturing processes 1 | - lecture<br>-Laboratory experiments | - Daily test<br>-Laboratory experiments |
| 17 | 2 | Casting with metal molds, its types, centrifugal casting, and its types. | Manufacturing processes 1 | - lecture<br>-Laboratory experiments | - Daily test<br>-Laboratory experiments |
| 18 | 2 | Lost wax plumbing, continuous plumbing, shell plumbing. | Manufacturing processes 1 | - lecture<br>-Laboratory experiments | - Daily test<br>-Laboratory experiments |
| 19 | 2 | Metal smelting and its foundations, types of smelting furnaces, blast furnace, main dimensions and method of operation, blast furnace, electric arc | Manufacturing processes 1 | - lecture<br>-Laboratory experiments | - Daily test<br>-Laboratory experiments |

| | | | | | |
|---|---|---|---|---|---|
| | | furnace, reflector furnace, rotary furnace. | | | |
| 20 | 2 | Casting of castings, its equipment and foundations, cleaning of castings, casting defects, inspection of castings. | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 21 | 2 | Welding, foundations of metal welding, clarification of the main methods of welding (pressure welding, electric arc fusion welding, other methods of fusion welding, flash welding and caustic welding), types of welding joints. | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 22 | 2 | Hot pressure welding, including (electrical resistance welding, including spot and line welding, flash welding), cold pressure welding, pressure welding using explosives, and pressure welding using ultrasonic waves. | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 23 | 2 | 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. | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 24 | 2 | Arc welding, welding current, direct and reverse polarity method, types of electrodes, packaging of metal electrodes and their types. | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 25 | 2 | Electron movement, methods of isolating electrodes and the welding area, electric arc welding using protective gases (carbon dioxide welding, arcon tig welding, brazing welding) | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 26 | 2 | Atomic hydrogen arc welding, atrophy arc welding, fusion welding. | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |
| 27 | 2 | Temperature welding, caustic welding (mortar welding, plumbing welding) and some modern types of welding | Manufacturing processes 1 | - lecture -Laboratory experiments | - Daily test -Laboratory experiments |

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| | | (laser welding, electron beam welding). | | | |
| 28 | 2 | Welding defects, welding tests. | Manufacturing processes 1 | - lecture<br>-Laboratory experiments | - Daily test<br>-Laboratory experiments |
| 29 | 2 | 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, blacksmithing elements. | Manufacturing processes 1 | - lecture<br>-Laboratory experiments | - Daily test<br>-Laboratory experiments |
| 30 | 2 | Special blacksmithing methods, blacksmithing molds and their manufacture, effective force, explanation of the different blacksmithing operations (contact, methods of different geometric sections in cutting operations, making simple steps, forming various artifacts). | Manufacturing processes 1 | - lecture<br>-Laboratory experiments | - Daily test<br>-Laboratory experiments |

## 11.Course Evaluation

Learning through Mini-Projects
Assessment Methods:
Written Exams
Practical Tests
Assignments and Reports
Mini Projects
Continuous Laboratory Performance Assessment
Final Exam

## 12.Learning and Teaching Resources

| | |
|---|---|
| Required textbooks (curricular books, if any) | Metal manufacturing operations (Abdul Khaleq Hassan) |
| Main references (sources) | Introduction to production engineering<br>Principles of metal casting<br>Principles of precision in design and production |
| Recommended books and references (scientific journals, reports...) | Manufacturing methods Prof. Dr. Abdul Razzaq Ismai Khadr<br>Production Technology and Workshop Works W. A. Chapmon |
| Electronic References, Websites | https://esco.ec.europa.eu/ |

# Course Description Form

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|---|---|
| Course Name: | |
| Industrial Drawing | |
| Course Code: | |
| | |
| Semester / Year: | |
| First and second semester /second year | |
| Description Preparation Date: | |
| 2024\9\22 | |
| Available Attendance Forms: Attend a lecture | |
| Attend in computer lab. | |
| Number of Credit Hours (Total) / Number of Units (Total): | |
| 3 hours / 6 units | |
| Course administrator's name (mention all, if more than one name) | |
| Name: Dr. Zaid H. Rashid Email: zhr.1986@atu.edu.iq | |
| Course Objectives | |
| **Course Objectives** | Introducing the student to using the AutoCAD program to draw mechanical assemblies and increasing his ability to think in understanding engineering designs and how to link data with his information to obtain a solution to the problem, as well as getting acquainted with the corresponding programs in mechanical design. |
| **Required progr outputs** | A- Cognitive Objectives<br>1A: The student will be familiar with drawing engineering projections and sections of mechanical parts.<br>2A: The student will use international systems to draw mechanical parts.<br>3A: The student will be able to read and implement mechanical design drawings.<br>4A: The student will be able to draw basic mechanical parts based on international standard systems.<br><br>B- Skill Objectives<br>1B: The student will extract engineering plans for mechanical assemblies.<br>2B: The student will use AutoCAD to draw mechanical assemblies. |

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| | 3B: The student will establish dimensions, geometric tolerances, and mechanical symbols for finishing and welding operations.<br>4B: The student will be familiar with specialized and auxiliary programs for mechanical drawing.<br><br>C- Evaluations and Affective Objectives<br>1C: The student will understand the importance of industrial drawing in design and manufacturing.<br>2C: The student will be committed to accuracy in drawing and adherence to standard specifications.<br>3C: Developing a spirit of creativity in the design of mechanical systems. |

Teaching and Learning Strategies

| | |
|---|---|
| **Strategy** | Teaching and Learning Methods<br>• Theoretical lectures.<br>• Continuous practical application using computers (Hands-on practice).<br>. |

Course Structure

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 3 | Learn about a general review of ,first grade topics ,geometric lines ,projections sections, and setting dimensions using the AutoCAD .program | A general review of :first grade topics ,geometric lines ,projections, sections and setting dimensions using the AutoCAD .program | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 2 | 3 | Learn about methods of fastening using screws, types of screws, types of nuts, and drawing a picture | Methods of fastening using screws, types of ,screws, types of nuts with a drawing | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 3 | 3 | Learn about methods of fastening using screws, types of screws, types of nuts, and drawing a picture | Fastening using screws, types of ,screws, types of nuts with a drawing | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

| | | | | | |
|---|---|---|---|---|---|
| 4 | 3 | Recognizing the connection using ,threads, their types uses, and drawing an assembly drawing | Fastening using ,threads, their types uses, drawing an assembly drawing | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 5 | 3 | Recognizing fastening using ,threads, their types uses, and drawing an assembly drawing | Fastening using ,threads, their types uses, drawing an assembly drawing | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 6 | 3 | Recognizing fastening by welding, welding symbols, drawing of an assembly plate with welding symbols | Connection by welding, welding symbols, assembly plate drawing with welding symbols | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 7 | 3 | Connection by welding, welding symbols, assembly plate drawing with welding symbols | Connection by welding, welding symbols, assembly plate drawing with welding symbols | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 8 | 3 | Identifying fastening using rivets, shapes of rivet nails, types of fastening with rivets, drawing an assembly plate | ,Fastening by rivet ,shapes of rivet nails types of fastening by rivet, drawing an assembly plate | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 9 | 3 | Identifying fastening using rivets, shapes of rivet nails, types of fastening with rivets, drawing an assembly plate | ,Fastening by rivet ,shapes of rivet nails types of fastening by rivet, drawing an assembly plate | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 10 | 3 | Identification plate applied to the segmentation and assembly of a mechanical crane | Application board for segmentation and assembly of mechanical crane | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 11 | 3 | ,Identify springs ,their types, uses and draw a picture of a compression . spring | ,Springs, their types uses, drawing of a . compression spring | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 12 | 3 | Recognizing an applied panel drawing for exhaust | Drawing an applied panel for segmenting | lecture | Practical tests Quarterly exams final exams |

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| | | valve segmentation and assembly | and assembling the . exhaust valve | | Daily evaluation |
| 13 | 3 | Identify the types of column connections (couplings), and draw an applied drawing | Column connections ,(couplings), types drawing of an applied . plate | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 14 | 3 | ,Identify clutches ,their types and uses and draw an applied . drawing | Clutches, their types and uses, with an . applied drawing | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 15 | 3 | ,Identify bearings drawing an assembly plate for a friction bearing | ,Loading chairs assembly drawing of a friction loading chair | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 16 | 3 | Identify pulleys and belts, their types and uses, and draw two drawings to assemble parts containing belt wheels of different .types | Pulleys and belts, their types and uses, with two drawings for assembling parts containing belt wheels of different types | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 17 | 3 | Identifying the ,types of gears gears, basic definitions, drawing of the gear with an assembly plate for .engaging the gear | ,Types of gears, gears ,basic definitions drawing of the gear with an assembly plate for engaging the gear | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 18 | 3 | Identifying the ,types of gears gears, basic , definitions drawing of the gears with an assembly plate for . engaging the gears | ,Types of gears, gears ,basic definitions drawing of the gear with an assembly plate for engaging the gear | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 19 | 3 | Identify bevel gears, with a drawing of an assembly plate for the bevel gear engagement | Bevel gears, with a drawing of the assembly plate for the bevel gear engagement | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 20 | 3 | Identify bevel gears, with a drawing of an assembly plate for the bevel gear engagement | Bevel gears, with a drawing of the assembly plate for the bevel gear engagement | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

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|---|---|---|---|---|---|
| 21 | 3 | Learn an introduction to the Autodesk Inventor . program | Introduction to . Autodesk Inventor | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 22 | 3 | Learn an introduction to the Autodesk Inventor . program | Introduction to . Autodesk Inventor | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 23 | 3 | Getting to know the 2D drawing . environment | 2D drawing . environment | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 24 | 3 | Learn about the assembly . environment | Assembly environment . | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 25 | 3 | Learn about the assembly . environment | Assembly environment . | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 26 | 3 | Learn about the dynamic analysis environment and . movement | Dynamic and motion . analysis environment | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 27 | 3 | Learn about the dynamic analysis environment and . movement | Dynamic and motion . analysis environment | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 28 | 3 | Identifying vectors direct and) quantitative multiplication and calculating angles .(between vectors | Vectors (direct and quantitative multiplication and calculating angles .(between vectors | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 29 | 3 | Learn about the additions to the fees . | Additions to fees | lecture | Practical tests Quarterly exams final exams Daily evaluation |
| 30 | 3 | Identifying a project within the jurisdiction of the concerned department for part of any practical . system | A project within the jurisdiction of the relevant department for part of any practical system | lecture | Practical tests Quarterly exams final exams Daily evaluation |

## Course Evaluation

Assessment Methods

• Practical tests

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| • Assignments and reports<br>• Mini-projects | |
| Learning and Teaching Resources | |
| Required textbooks (curricular books, if any) | الرسم الصناعي للمهندس يوسف الراضي |
| Main references (sources) | |
| Recommended books and references (scientific journals, reports...) | A collection of books in the field o mechanical drawing |
| Electronic References, Websites | Check out websites in this field |

# Course Description Form

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| Course Name: |
| Metallurgy |
| Course Code: |
| |
| Semester / Year: |
| First and second semester / second year |
| Description Preparation Date: |
| 2024/2/19 |
| Available Attendance Forms: |
| Daily attendance according to the weekly schedule |
| Number of Credit Hours (Total) / Number of Units (Total) |
| 4 hours/8 units |
| Course administrator's name (mention all, if more than one name) |
| Name: Roaa Mohammed Muneer Email: roaa.muneer@atu.edu.iq |
| Course Objectives |

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|---|---|
| **Course Objectives** | Providing the student with sufficient knowledge of the types of metals and alloys, their mechanical properties, crystal structure, and the various types of defects that occur during the processing and forming processes.<br>Providing the student with sufficient knowledge and skill in studying heat treatments, how to implement them, and their effect on the properties and structure of metals.<br>Providing the student with sufficient knowledge and skill in identifying material resistance tests and working on their devices to implement them practically and draw their curves.<br>Providing the student with sufficient knowledge and skill in working with various microscopes to examine the composition of minerals<br>- Providing the student with sufficient knowledge and skill in performing surface hardening of metals of all kinds, in addition to knowledge of corrosion and methods of preventing it, and finally metal recycling. |
| **Required program outputs** | A- Cognitive Objectives<br>1.A Understanding crystallization processes and phase transformations<br>2.A Analyzing crystal defects and mechanical properties<br>3.A Understanding the properties of metals<br>4.A Applying industrial processes and thermal technologies<br>B- Skill Objectives<br>1.B Understand crystal structure and thermal treatments<br>2.B Perform and use mechanical and microscopic tests<br>3.B Measure and apply analysis of equilibrium diagrams and phase studies<br>4.B Perform forming, turning, and surface treatment operations on metals<br>C- Evaluations and Affective Objectives<br>1.C Respecting natural resources<br>2.C Promoting a spirit of cooperation and occupational safety<br>3.CAppreciating innovation and industrial productivity<br>4.C Assume social responsibility in implementing industrial solutions |

| Teaching and Learning Strategies | |
|---|---|
| **Strategy** | 1. Interactive lectures,<br>2. Practical lab work,<br>3. Completing homework and assignments,<br>4. Projects and practical experiments. |

| Course Structure |
|---|

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 2 | Introduction to mineralogy, crystallization, chimeric crystallization, and the effect of cooling rate on the structure of minerals. | Metallurgy | lecture - Laboratory experiments | Daily test -Direct questions - Laboratory experiments |
| 2 | 2 | Installation of metal blocks (solidification of castings) Common defects in castings. | Metallurgy | lecture - Laboratory experiments | Daily test -Direct questions - Laboratory experiments |
| 3 | 2 | Atomic crowding coefficient, crystallographic directions, crystallographic levels, the phenomenon of rooting. | Metallurgy | lecture - Laboratory experiments | Daily test -Direct questions - Laboratory experiments |
| 4 | 2 | Crystalline, point, linear lattice defects. | Metallurgy | lecture - Laboratory experiments | Daily test -Direct questions - Laboratory experiments |
| 5 | 2 | Flexible forming and plastic forming (sliding, twinning) | Metallurgy | lecture - Laboratory experiments | Daily test -Direct questions - Laboratory experiments |
| 6 | 2 | Strain hardening, cold forming, hot forming. | Metallurgy | lecture - Laboratory experiments | Daily test -Direct questions - Laboratory experiments |
| 7 | 2 | Recovery, recrystallization, crystal growth. | Metallurgy | lecture - Laboratory experiments | Daily test -Direct questions - Laboratory experiments |
| 8 | 2 | Stress and strain curves in bending, stretching, fracture, types of fracture, movement from ductile to brittle fracture. | Metallurgy | lecture - Laboratory experiments | Daily test -Direct questions - Laboratory experiments |
| 9 | 2 | Fatigue, fatigue mechanism, factors affecting the fatigue limit, fatigue-resistant materials. | Metallurgy | lecture - Laboratory experiments | Daily test -Direct questions - Laboratory experiments |
| 10 | 2 | Creep, creep mechanism, creep-resistant materials. | Metallurgy | lecture - Laboratory experiments | Daily test -Direct questions |

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| | | | | | - Laboratory experiments |
| 11 | 2 | Compound, phase, solid solution, system, equilibrium, alloy formation, mechanical mixture, eutectics. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 12 | 2 | Thermal equilibrium diagram for a binary system that is completely dissolved in the liquid and solid states. Thermal equilibrium diagram for a binary system that is completely dissolved in the liquid state and undissolved in the solid state (eutectic). | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 13 | 2 | Thermal equilibrium diagram for a binary system with complete solvation in the liquid state and limited solvation in the solid state. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 14 | 2 | Thermal equilibrium diagram for a binary system that is completely dissolved in the liquid state and forms a chemical compound when frozen. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 15 | 2 | Iron, dissolution of carbon in iron, heat equilibrium diagram for the iron/carbon system, the most important reactions included in the diagram. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 16 | 2 | Completion of the heat equilibrium diagram for the iron/carbon system. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 17 | 2 | Austenite formation, mechanism of converting pearlite to austenite. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 18 | 2 | Austenite transformations with constant temperature and transformations by continuous cooling. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 19 | 2 | Thermal treatments (annealing, equalization, tempering) | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 20 | 2 | Completion of thermal treatments (hardening and review), sub-zero thermal treatments, and aging. | Metallurgy | lecture<br>- Laboratory experiments | Daily test |

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| | | | | | -Direct questions<br>- Laboratory experiments |
| 21 | 2 | Surface hardening (carburization of all types and the thermal treatments that follow it) Al-Tahwah, Al-Sanida. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 22 | 2 | Alloy steel, the effect of alloying elements on the properties of steel. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 23 | 2 | Stainless steel, tool steel. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 24 | 2 | Cast iron production and its heat treatments. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 25 | 2 | Supplementing the production of cast iron and its most important types. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 26 | 2 | Definition of corrosion, direct and indirect economic costs of corrosion, manifestations of corrosion, mechanism of corrosion. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 27 | 2 | Passivity, Faraday's law general corrosion, galvanic corrosion, cavernous corrosion. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 28 | 2 | Soil corrosion, facultative corrosion, intercrystalline corrosion, and stress corrosion. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 29 | 2 | Optimal material selection, contour softening, design and operation. | Metallurgy | lecture<br>- Laboratory experiments | Daily test<br>-Direct questions<br>- Laboratory experiments |
| 30 | 2 | Methods of corrosion prevention. | Metallurgy | lecture<br>- Laboratory experiments | Daily test |

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| | | | | | -Direct questions<br>- Laboratory experiments |

## Course Evaluation

1. Theoretical tests,
2. Practical assignments,
3. Laboratory performance evaluation,
4. Projects or final reports.

## Learning and Teaching Resources

| | |
|---|---|
| Required textbooks (curricular books, if any) | Materials Engineering Principles book/Dr. Hussein Baqir |
| Main references (sources) | Engineering metallurgy (part1), Higgins<br>Metallurgy for engineering /Rollason<br>Engineering physical metallurgy |
| Recommended books and references (scientific journals, reports...) | Engineering materials and their tests/Dr. Qahtan Al Khazraji<br>Engineering metrology/Dr. Arif Abu Safia<br>Engineering metrology/Dr. Abdul Razzaq Ismail<br>- Principles of mineralogy/Dr. Adel Mahmoud Hassan |
| Electronic References, Websites | http://www.phase-trans.msm.cam.ac.uk/dendrites.html |

# Course Description Form

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|---|
| 1. Course Name: |
| Crimes of the defunct Baath Party |
| 2. Course Code: |
| |
| 3. Semester / Year: |
| First and second semester / second year |
| 4. Description Preparation Date: |
| 11/3/2024 |
| 5. Available Attendance Forms: |
| Attend a lecture |
| 6. Number of Credit Hours (Total) / Number of Units (Total): |
| 1 hr / 2 units |
| 7. Course administrator's name (mention all, if more than one name) |
| Name: yasamin Abd Alabbas Hammad Email: yasmeen.hamad.ims04@atu.edu.iq |
| 8. Course Objectives |

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|---|---|
| **Course Objectives** | Studying the Crimes of the defunct Baath Party |
| **Required progra outputs** | Course Outcomes:<br>A- Cognitive Objectives<br>1. A student will gain a general understanding of crime and its types.<br>2. A student will demonstrate the historical aspects of the Ba'ath Party's crimes.<br>3. A student will be able to explain the international and criminal framework of crime.<br>4. A student will be able to explain the types of crimes committed during the former regime<br>B- Skill Objectives<br>1.B The student understands the skill of legal analysis. |

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| | 2.b Demonstrates his/her skill in identifying committed crimes.<br>3.b Demonstrates the skill of legal criticism.<br>4.b The student explains the legal classification of the crime<br>C- Evaluations and Affective Objectives<br>1.C Establishing the value of rejecting tyranny<br>2.c. Disseminating a culture of human rights<br>3.c. Promoting the value of responsible freedom<br>4.c. Developing a sense of justice and fairness |

9. Teaching and Learning Strategies

| | |
|---|---|
| **Strategy** | Teaching and Learning Methods:<br>1. Using the case study and presentation method<br>2. Brainstorming<br>3. E-learning<br>4. Citing crimes committed through discussion and dialogue |

10. Course Structure

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|---|---|---|---|---|---|
| **1** | **1** | Identify A brief overview of the political systems in Iraq (1921-2003) "The monarchy, the Republican era (1958-1968), the Republican era (Baathist 1968-2003) | A brief overview of the political systems in Iraq (1921-2003) "The monarchy, the Republican era (1958-1968), the Republican era (Baathist 1968-2003) | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **2** | **1** | A brief overview of the political systems in Iraq (1921-2003) "The monarchy, the Republican era (1958-1968), the Republican era (Baathist 1968-2003) | A brief overview of the political systems in Iraq (1921-2003) "The monarchy, the Republican era (1958-1968), the Republican era (Baathist 1968-2003) | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

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|---|---|---|---|---|---|
| **3** | **1** | The Baathist regime's violations of public rights and freedoms "violation of intellectual rights and public freedoms, violation of intellectual rights, violation of public freedoms, violation of the right to party pluralism." | The Baathist regime's violations of public rights and freedoms "violation of intellectual rights and public freedoms, violation of intellectual rights, violation of public freedoms, violation of the right to party pluralism." | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **4** | **1** | Identify The Baathist regime's violations of public rights and freedoms "violation of intellectual rights and public freedoms, violation of intellectual rights, violation of public freedoms, violation of the right to party pluralism." | The Baathist regime's violations of public rights and freedoms "violation of intellectual rights and public freedoms, violation of intellectual rights, violation of public freedoms, violation of the right to party pluralism." | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **5** | **1** | Identify The Baathist regime's violations of public rights and freedoms "violation of intellectual rights and public freedoms, violation of intellectual rights, violation of public freedoms, violation of the right to party pluralism." | The Baathist regime's violations of public rights and freedoms "violation of intellectual rights and public freedoms, violation of intellectual rights, violation of public freedoms, violation of the right to party pluralism." | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **6** | **1** | Violations of social, political and cultural rights, violation of freedom of opinion, revocation of citizenship, other social rights, violation of cultural rights and freedoms, violation of international law, the first and second Gulf wars, the | Violations of social, political and cultural rights, violation of freedom of opinion, revocation of citizenship, other social rights, violation of cultural rights and freedoms, violation of international law, the first and second Gulf wars, the international | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

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|---|---|---|---|---|---|
| | | international blockade on Iraq due to the invasion of Kuwait. | blockade on Iraq due to the invasion of Kuwait. | | |
| **7** | **1** | Identify Violations of social, political and cultural rights, violation of freedom of opinion, revocation of citizenship, other social rights, violation of cultural rights and freedoms, violation of international law, the first and second Gulf wars, the international blockade on Iraq due to the invasion of Kuwait. | Violations of social, political and cultural rights, violation of freedom of opinion, revocation of citizenship, other social rights, violation of cultural rights and freedoms, violation of international law, the first and second Gulf wars, the international blockade on Iraq due to the invasion of Kuwait. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **8** | **1** | IdentifyViolations of social, political and cultural rights, violation of freedom of opinion, revocation of citizenship, other social rights, violation of cultural rights and freedoms, violation of international law, the first and second Gulf wars, the international blockade on Iraq due to the invasion of Kuwait. | Violations of social, political and cultural rights, violation of freedom of opinion, revocation of citizenship, other social rights, violation of cultural rights and freedoms, violation of international law, the first and second Gulf wars, the international blockade on Iraq due to the invasion of Kuwait. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **9** | **1** | Identify The impact of the Baathist regime's behavior on society and its control over the state: random arrests, torture of prisoners, and executions, arbitrary arrest of suspects and torture of | The impact of the Baathist regime's behavior on society and its control over the state: random arrests, torture of prisoners, and executions, arbitrary arrest of suspects and torture of prisoners, execution of soldiers and civilians. ‘ | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

| | | | | | |
|---|---|---|---|---|---|
| | | prisoners, execution of soldiers and civilians. | | | |
| **10** | **1** | Identify The impact of the Baathist regime's behavior on society and its control over the state: random arrests, torture of prisoners, and executions, arbitrary arrest of suspects and torture of prisoners, execution of soldiers and civilians. | ، The impact of the Baathist regime's behavior on society and its control over the state: random arrests, torture of prisoners, and executions, arbitrary arrest of suspects and torture of prisoners, execution of soldiers and civilians. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **11** | **1** | Limiting the three powers in the hands of the Baathist regime: separation of powers, ruling powers under the system (executive, legislative and judicial), partisan requirements for limiting power, tyranny in corrupting morals and fighting scholars. | Limiting the three powers in the hands of the Baathist regime: separation of powers, ruling powers under the system (executive, legislative and judicial), partisan requirements for limiting power, tyranny in corrupting morals and fighting scholars. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **12** | **1** | Limiting the three powers in the hands of the Baathist regime: separation of powers, ruling powers under the system (executive, legislative and judicial), partisan requirements for limiting power, tyranny in corrupting morals and fighting scholars. | Limiting the three powers in the hands of the Baathist regime: separation of powers, ruling powers under the system (executive, legislative and judicial), partisan requirements for limiting power, tyranny in corrupting morals and fighting scholars. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **13** | **1** | The impact of the transitional period in | The impact of the transitional period in | lecture | Written tests<br>Quarterly exams |

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|---|---|---|---|---|---|
| | | combating authoritarian politics: The concept of transitional justice and the mechanisms for achieving it. “The concept of transitional justice and its advantages, the goals of transitional justice.” | combating authoritarian politics: The concept of transitional justice and the mechanisms for achieving it. “The concept of transitional justice and its advantages, the goals of transitional justice.” | | final exams Daily evaluation |
| **14** | **1** | The impact of the transitional period in combating authoritarian politics: The concept of transitional justice and the mechanisms for achieving it. “The concept of transitional justice and its advantages, the goals of transitional justice.” | The impact of the transitional period in combating authoritarian politics: The concept of transitional justice and the mechanisms for achieving it. “The concept of transitional justice and its advantages, the goals of transitional justice.” | lecture | Written tests Quarterly exams final exams Daily evaluation |
| **15** | **1** | The psychological field: The psychological and social mechanisms used by the previous regime: the phenomenon of scarcity and scarcity, the phenomenon of distraction, the mechanism of terror and intimidation, the mechanism of psychological pressure and punishment, ethnic cleansing, scientific and cultural impoverishment. | The psychological field: The psychological and social mechanisms used by the previous regime: the phenomenon of scarcity and scarcity, the phenomenon of distraction, the mechanism of terror and intimidation, the mechanism of psychological pressure and punishment, ethnic cleansing, scientific and cultural impoverishment. | lecture | Written tests Quarterly exams final exams Daily evaluation |
| **16** | **1** | Identify The psychological field: The psychological and social mechanisms used by | The psychological field: The psychological and social mechanisms used by the previous regime: | lecture | Written tests Quarterly exams final exams Daily evaluation |

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| | | the previous regime: the phenomenon of scarcity and scarcity, the phenomenon of distraction, the mechanism of terror and intimidation, the mechanism of psychological pressure and punishment, ethnic cleansing, scientific and cultural impoverishment. | the phenomenon of scarcity and scarcity, the phenomenon of distraction, the mechanism of terror and intimidation, the mechanism of psychological pressure and punishment, ethnic cleansing, scientific and cultural impoverishment. | | |
| **17** | **1** | The psychological field: The psychological and social mechanisms used by the previous regime: the phenomenon of scarcity and scarcity, the phenomenon of distraction, the mechanism of terror and intimidation, the mechanism of psychological pressure and punishment, ethnic cleansing, scientific and cultural impoverishment. | The psychological field: The psychological and social mechanisms used by the previous regime: the phenomenon of scarcity and scarcity, the phenomenon of distraction, the mechanism of terror and intimidation, the mechanism of psychological pressure and punishment, ethnic cleansing, scientific and cultural impoverishment. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **18** | **1** | Family rule and the reduction of the nation to the personality of the ruler, the dialectic of the ruler and the citizen between hypocrisy and injustice and the promotion of a culture | Family rule and the reduction of the nation to the personality of the ruler, the dialectic of the ruler and the citizen between hypocrisy and injustice and the promotion of a culture | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **19** | **1** | Family rule and the reduction of the nation to the personality of the ruler, the dialectic of | Family rule and the reduction of the nation to the personality of the ruler, the dialectic of the ruler and the citizen | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

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|---|---|---|---|---|---|
| | | the ruler and the citizen between hypocrisy and injustice and the promotion of a culture | between hypocrisy and injustice and the promotion of a culture | | |
| **20** | **1** | Religion and the State: Crimes of preventing the dissemination of religious teachings and confiscating science and knowledge. Crimes of preventing the dissemination of religious teachings and confiscating science and knowledge. Crimes of killing scholars and religious youth and banning religious parties. Religious authority and the religious seminary. Banning parties in general and religious parties in particular. | Religion and the State: Crimes of preventing the dissemination of religious teachings and confiscating science and knowledge. Crimes of preventing the dissemination of religious teachings and confiscating science and knowledge. Crimes of killing scholars and religious youth and banning religious parties. Religious authority and the religious seminary. Banning parties in general and religious parties in particular. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **21** | **1** | Religion and the State: Crimes of preventing the dissemination of religious teachings and confiscating science and knowledge. Crimes of preventing the dissemination of religious teachings and confiscating science and knowledge. Crimes of killing scholars and religious youth and banning religious parties. Religious authority and the religious seminary. Banning | Religion and the State: Crimes of preventing the dissemination of religious teachings and confiscating science and knowledge. Crimes of preventing the dissemination of religious teachings and confiscating science and knowledge. Crimes of killing scholars and religious youth and banning religious parties. Religious authority and the religious seminary. Banning parties in general and religious parties in particular. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

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| | | parties in general and religious parties in particular. | | | |
| **22** | **1** | Religion and the State: Crimes of preventing the dissemination of religious teachings and confiscating science and knowledge. Crimes of preventing the dissemination of religious teachings and confiscating science and knowledge. Crimes of killing scholars and religious youth and banning religious parties. Religious authority and the religious seminary. Banning parties in general and religious parties in particular. | Religion and the State: Crimes of preventing the dissemination of religious teachings and confiscating science and knowledge. Crimes of preventing the dissemination of religious teachings and confiscating science and knowledge. Crimes of killing scholars and religious youth and banning religious parties. Religious authority and the religious seminary. Banning parties in general and religious parties in particular. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **23** | **1** | Culture, media, and the militarization of society: the militarization of the educational institution, the militarization of media discourse, the militarization of literature and art. | Culture, media, and the militarization of society: the militarization of the educational institution, the militarization of media discourse, the militarization of literature and art. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **24** | **1** | Culture, media, and the militarization of society: the militarization of the educational institution, the militarization of media discourse, the militarization of literature and art. | Culture, media, and the militarization of society: the militarization of the educational institution, the militarization of media discourse, the militarization of literature and art. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **25** | **1** | The impact of oppression and wars on the environment and the population: | The impact of oppression and wars on the environment and the population: the use | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

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| | | the use of internationally prohibited weapons and environmental pollution" Halabja - Basra | of internationally prohibited weapons and environmental pollution" Halabja - Basra | | |
| **26** | **1** | Scorched Earth Policy: The Battle of the Jassim River and its effects on the environment, burning oil wells, minefields and war remnants, bombing Iraqi cities. | Scorched Earth Policy: The Battle of the Jassim River and its effects on the environment, burning oil wells, minefields and war remnants, bombing Iraqi cities. | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **27** | **1** | Drying the marshes and straw migration: concept and importance, the role of the former regime in drying the marshes, the effects of drying the marshes, | Drying the marshes and straw migration: concept and importance, the role of the former regime in drying the marshes, the effects of drying the marshes, | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **28** | **1** | Destruction of the agricultural and animal environment and radioactive contamination: Dujail, bulldozing palm groves, Basra, | Destruction of the agricultural and animal environment and radioactive contamination: Dujail, bulldozing palm groves, Basra, | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **29** | **1** | Destruction of the agricultural and animal environment and radioactive contamination: Dujail, bulldozing palm groves, Basra, | Destruction of the agricultural and animal environment and radioactive contamination: Dujail, bulldozing palm groves, Basra, | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| **30** | **1** | Mass graves and bombing of places of worship | Mass graves and bombing of places of worship | lecture | Written tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 11.Course Evaluation | | | | | |
| 1. Daily<br>2. Weekly<br>3. Monthly | | | | | |
| 12.Learning and Teaching Resources | | | | | |
| Required textbooks (curricular books, if any) | | | Human rights book | | |

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|---|---|
| Main references (sources) | Human rights book |
| Recommended books and references (scientific journals, reports...) | A collection of books in the field o Human rights book |
| Electronic References, Websites | Check out websites in this field |

# Course Description Form

| | |
|---|---|
| 1. Course Name: | |
| Machine Parts | |
| 2. Course Code: | |
| | |
| 3. Semester / Year: | |
| First and second semester / second year | |
| 4. Description Preparation Date: | |
| 22\9\2024 | |
| 5. Available Attendance Forms: | |
| Attend a lecture | |
| 6. Number of Credit Hours (Total) / Number of Units (Total) | |
| 3 hours / 6 units | |
| 7. Course administrator's name (mention all, if more than one name) | |
| Name: mohammed salih hassan<br>Email: hs.muhamad@atu.edu.iq | |
| 8. Course Objectives | |
| **Course Objectives** | machine parts aims to explain the role of mechanical parts through mach System, the relation links them , how to conduct some calculations to design th parts and to specify all factors that are affected. |
| **Outcomes** | Knowledge Outcomes<br>A1: Clarify the basic concepts related to machine parts, their types, and their functions within mechanical systems.<br>A2: Explain the theoretical principles of mechanical design for connecting elements such as joints, welded joints, and screw connections.<br>A3: Distinguish between the performance characteristics of different mechanical parts and their impact on the system.<br>A4: Explain the principles of selecting materials and parts based on load requirements and the operating environment.<br>Skills Outcomes<br>B1: Draw and illustrate machine part diagrams using CAD engineering desig software.<br>B2: Perform basic calculations to determine the dimensions and stiffness of mechanical components.<br>B3: Analyze the performance of mechanical components and identify strengt and weaknesses.<br>B4: Use measuring tools, verify dimensions, and ensure parts conform to specifications.<br>Attitude/Competencies Outcomes<br>A1: Adhere to quality and precision standards in the design and implementati of parts.<br>C2: Work collaboratively and cooperatively on practical projects.<br>A3: Critical thinking in solving mechanical design and analysis problems.<br>A4: Adherence to safety standards when handling machines and tools.<br>Second: |
| 9. Teaching and Learning Strategies | |

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| **Strategy** | (1) Theoretical lectures: explaining basic concepts, explaining the operation mechanical parts, and visual presentations.<br>2. Practical exercises: designing parts using CAD, measuring dimensions real models, and small projects.<br>3. Active learning: group discussions, studying real cases, solving design a analysis problems.<br>4. Self-learning: reading references, preparing reports, and digitally search for modern applications.<br>5. Practical and theoretical assessment: short tests, evaluating projects a reports, and evaluating class participation. |

10. Course Structure

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 3 | Review of Strength of Materials | Review of Strength of Materials | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 2-3 | 6 | Identify Riveted Joints.Types of Riveted Joints ,Design of Riveted Joints, Efficiency of Riveted Joints . | Riveted Joints.Types of Riveted Joints ,Design of Riveted Joints, Efficiency of Riveted Joints . | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 4-5 | 6 | Identify Welded Joints Types of welding Joints ,Design of welding Joints | Welded Joints Types of welding Joints ,Design of welding Joints | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 6-7 | 6 | Identify Screwed Joints, Design of Bolts for Fastening , Design of Bolts for Power Transition . | Screwed Joints, Design of Bolts for Fastening , Design of Bolts for Power Transition . | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 8-9 | 6 | Identify Keyed Joints , Types of Key , Design of Sunk Key . | Keyed Joints , Types of Key , Design of Sunk Key . | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 10-11 | 6 | Frictional Clutches, Type of Frictional Clutches , Design of Frictional Clutches. | Frictional Clutches, Type of Frictional Clutches , Design of Frictional Clutches. | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 12-13 | 6 | Types of Springs , Design of Springs | Types of Springs , Design of Springs | lecture | Written tests Quarterly exams final exams |

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|---|---|---|---|---|---|
| | | | | | Daily evaluation |
| 14-15 | 6 | Types of Belts , Design of Belts. | Types of Belts , Design of Belts. | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 16-17 | 6 | Design of Shafts | Design of Shafts | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 18-19 | 6 | Design of Journal Bearings | Design of Journal Bearings | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 20 | 3 | Selection of Ball Bearings | Selection of Ball Bearings | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 21-22 | 6 | Design of Gears by Lewis Equation | Design of Gears by Lewis Equation | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 23-24 | 6 | Gears Trains | Gears Trains | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 25-26 | 6 | Design of Simple Gears Box | Design of Simple Gears Box | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 27-28 | 6 | Worm Gears | Worm Gears | lecture | Written tests Quarterly exams final exams Daily evaluation |
| 29-30 | 6 | Cams | Cams | lecture | Written tests Quarterly exams final exams Daily evaluation |

| 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) | Machine design R.S. KHURI |
| Main references (sources) | Machine design |
| Recommended books and references (scientific journals, reports...) | A collection of books in the field of Machine design |
| Electronic References, Websites | Check out websites in this field |

# Course Description Form

| |
|---|
| 1. Course Name: |
| Manufacturing processes 2 |
| 2. Course Code: |
| |
| 3. Semester / Year: |
| First and second semester / second year |
| 4. Description Preparation Date: |
| 22\9\2024 |
| 5. Available Attendance Forms: |
| Physical attendance according to the weekly schedule |
| 6. Number of Credit Hours (Total) / Number of Units (Total) |
| 4 hr./ 8 unites |
| 7. Course administrator's name (mention all, if more than one name) |
| Name: Ali Awad Ismaeel<br>Email: aliawad@atu.edu.iq |
| 8. Course Objectives |

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| **Course Objectives** | **Teaching students to work on production machines.....<br>Operations and formation...** |
| **Required program outpu** | **A- Cognitive Objectives<br>1. The student learns about tolerances and harmonics and how to calculate them.<br>2.a The student learns about surface roughness, the equipment used, and how to them.<br>3.a The student learns about chip formation theories, lubricating fluids, and cooling.<br>4.a The student learns about production equipment (lathe, milling machine, plan machine).<br>5.a The student learns about forming processes<br>B- Skill Objectives<br>1.B The student will have the skill to accurately calculate tolerances and surf roughness.<br>2.b The student will have a working knowledge of lathe, milling, and planing machin<br>3.b The student will have a broad understanding of forming processes and the equipm used in these processes<br>C- Evaluations and Affective Objectives<br>1.C The student's ideas crystallize into knowledge of production machinery.<br>2. The ability to propose ideas and solutions to problems that may arise during work<br>3. The student has the skill to reduce time and increase productivity in this field<br>3. Monthly** |

| 9. Teaching and Learning Strategies | |
|---|---|
| **Strategy** | **Teaching and Learning Methods:<br>1. Using the progressive presentation method<br>2. Using the diagram method<br>3. Practical practice for the student** |

10. Course Structure

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | | Geometric tolerances, couplings, coupling systems, ranks of | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator | Quick exams, class questions |

| | | | | | |
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| | | tolerances, coupling units, basic deviations, | | 4-Milling workshop | |
| 2 | | Types of tolerances, hole basic system, column basic system, symbols of duals, tolerances for loose dimensions, detailed duals, selection of duals and their economic advantages. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 3 | | Geometric tolerances in shape and position and types of shape and position tolerances. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 4 | | Measurement specifiers, design of measurement specifiers, types of measurement specifiers (internal measuring specifiers, external measuring specifiers, adjustable measuring specifiers, solid measuring specifiers, special measuring specifiers). | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 5 | | Classification of metal fabrication, metal working, introduction to the theory of blade formation and influencing factors, methods of fixing workpieces, including round and non-round, the cutting edges used, and the longitudinal and transverse feed shares. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 6 | | Identifying the pens used and how to install them for crafts, shaping lathe pens. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 7 | | Identifying the types of turning pen angles, the effect of turning pen angles on the cutting process, types of turning pen metals, cutting conditions, cutting elements, uses of cutting speeds, and the use of tables and speed maps, classification of cutting tools with respect to operating methods and number of cutting edges. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 8 | | The cutting edge, the emerging cutting edge and the theory of its | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator | Quick exams, class questions |

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| | | formation, the factors that affect it, the factors that lead to reducing its size, cooling and its importance for cutting operations, various cooling liquids. | | 4-Milling workshop | |
| 9 | | How to conduct an operating card for a group of operations, calculate its components, and calculate the cutting time for each operation | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 10 | | How to take advantage of the sequence card to make a product path through the different units. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 11 | | Factors that affect the choice of cutting speed (1- The effect of the properties of the cutting tool. 2- The effect of the operating elements. 3- The effect of the properties of the metal being worked. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 12 | | Automatic turret turning machines, studying the processes that can be operated and analyzing the processes on the product, how to prepare operating cards. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 13 | | Types of tools used and their arrangement on the front and rear hexagonal and quadrilateral heads. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 14 | | Studying how to program automatic programmed lathes and the factors influencing the operating steps. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 15 | | Milling, learning about the operations that can be performed on milling machines, parts and components of horizontal and vertical milling machines, and the nature of the work of each part. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 16 | | Machine accessories, dividing heads, tools for attaching workpieces, mandrels, and bushings. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 17 | | Types of milling knives (disc and finger), gear | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator | Quick exams, class questions |

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| | | sharpening knives, angle milling knives. | | 4-Milling workshop | |
| 18 | | Explaining the steps for performing milling operations, choosing the appropriate machine, the initial dimensions of the artifacts, and methods of attaching the artifacts. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 19 | | Milling different types of gears (steel, conical, helical, worm gears) | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 20 | | How to make a ghanfari clutch, a V-block clutch. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 21 | | Operating rates, cutting and feeding speeds, and the basis for their selection for the following various milling operations. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 22 | | Skimming: Introduction to the types of planers (trolley, hopper, vertical), operations performed on the planing machine, operating capabilities available with each machine, methods of attaching the work. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 23 | | Operating rates, including cutting and feeding speeds, planer attachments such as dividing heads or special devices, angles of planer pens, and types of forces affecting them. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 24 | | The planer planer, clarification of (the cutting stroke, the return stroke), methods of connection to the planer machine and operating rates, calculating the cutting time for planing, preparing the planer sequence card. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 25 | | Grinding: An introduction to the theory of cutting and the shape of the blade in the grinding process, the grinding stones used (circumferential, face, side, cup, external, | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |

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| | | internal), their specifications and uses, attachment methods and balances. | | | |
| 26 | | Different grinding machines and the operating capabilities of each type (external and internal cylindrical grinding machines, tool sharpening machines). | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 27 | | Preparing a comprehensive operating card for all cutting operations. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 28 | | Metal forming: theory of forming, foundations of cold and hot forming, types of forming. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 29 | | Rolling mill: | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |
| 30 | | The basics of rolling and its methods, rolled products, sequence of operations in rolling, machines used, conditions for completing the rolling process. | Manufacturing processes 2 | 1- Data Show<br>2- Whiteboard<br>3- Calculator<br>4-Milling workshop | Quick exams, class questions |

## 11.Course Evaluation

1. Daily
2. Weekly

## 12.Learning and Teaching Resources

| | |
|---|---|
| Required textbooks (curricular books, if any) | |
| Main references (sources) | Manufacturing processes, part two |
| Recommended books and references (scientific journals, reports...) | |
| Electronic References, Websites | |

# Course Description Form

| |
|---|
| 13.Course Name: |
| Computer application 2 |
| 14.Course Code: |
| |
| 15.Semester / Year: |
| First and second semester / second year |
| 16.Description Preparation Date: |
| 22\9\2024 |
| 17.Available Attendance Forms: |
| Attend a lecture |
| 18.Number of Credit Hours (Total) / Number of Units (Total): |
| 3 hours / 6 units |
| 19.Course administrator's name (mention all, if more than one name) |
| Name: Noor Abbas Hussein Email: noor.hussein.tcm@atu.edu.iq |
| 20.Course Objectives |

| | |
|---|---|
| **Course Objectives** | Introducing the student to the use of AutoCAD and its two-dimensional tools, drawing various geometric shapes, as well as three-dimensional .drawing tools and drawing models. |
| **Required program outputs** | A- Cognitive Objectives<br>1.A: Become familiar with the AutoCAD environment and its basic settings.<br>2.A: Understand 2D drawing commands (Draw, Modify, Object Snap, Layers).<br>3.A: Understand dimensioning, annotation, writing, and file management commands.<br>4.A: Become familiar with the basics of 3D drawing (Surface, Solids, Extrude, Revolve, Slice).<br>B- Skill Objectives<br>1.B: Be able to use drawing and retouching commands to produce accurate engineering drawings.<br>2.B: Format drawings using layers, dimensions, and annotation.<br>3.B: Apply 3D drawing commands to design engineering models.<br>4.B: Output and prepare drawings for printing and reproduction.<br>C- Affective Values and Objectives |

| | |
|---|---|
| | 1.C: Promote accuracy and commitment in completing engineering drawings.<br>2.C: Develop a spirit of innovation in using AutoCAD tools to solve problems.<br>3.C: Respect intellectual property rights when importing and exporting files.<br>4.C: Teamwork and collaboration in completing classroom projects. |

## 21.Teaching and Learning Strategies

| | |
|---|---|
| **Strategy** | 1. Theoretical lectures with live computer-based practical applications.<br>2. Program demonstrations (demos).<br>3. Homework assignments and small projects.<br>4. Class discussions and student exchange of solutions.<br>_____<br>1- |

## 22. Course Structure

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 3 | Introduction to the AutoCAD program , Screen settings(Snap, Limit, Grid, Pan, Zoom,...) | Introduction to the AutoCAD program , Screen settings(Snap, Limit, Grid, Pan, Zoom,...) | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 2 | 3 | Draw . menu | Draw . menu | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 3 | 3 | Draw . menu | Draw . menu | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 4 | 3 | Draw . menu | Draw . menu | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 5 | 3 | List of revisions (modify) . | List of revisions(modify) . | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 6 | 3 | List of revisions (modify) . | List of revisions(modify) . | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 7 | 3 | List(Object Snap) | List(Object Snap) | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 8 | 3 | . Layers_ | . Layers_ | lecture | Practical tests<br>Quarterly exams |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | final exams<br>Daily evaluation |
| 9 | 3 | _ . Dimensions_ | _ . Dimensions_ | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 10 | 3 | Writing, scratching Hatching | Writing, scratching Hatching | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 11 | 3 | Store files, import files from other programs, and export .them | Store files, import files from other programs, and .export them | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 12 | 3 | Makingblocks and importing parts from other programs, such as dividing an element into equal spaces(Divide) the , distribution of elements along a path (Measure) . | Makingblocks and importing parts from other programs, such as dividing an element into equal spaces(Divide) , the distribution of elements along a path (Measure) . | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 13 | 3 | Computer drawing applications according to the department's .specialty | Computer drawing applications according to the department's .specialty | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 14 | 3 | Computer drawing applications according to the department's .specialty | Computer drawing applications according to the department's .specialty | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 15 | 3 | Printing, copying and extracting files on the .plotter | Printing, copying and extracting files on the .plotter | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 16 | 3 | Principles of drawing .in three dimensions | Principles of drawing in .three dimensions | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 17 | 3 | List of cortical trigrams(Surface .( | List of cortical trigrams (Surface .( | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 18 | 3 | List of cortical trigrams(Surface .( | List of cortical trigrams (Surface .( | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 19 | 3 | List of cortical trigrams(Surface .( | List of cortical trigrams (Surface .( | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 20 | 3 | List of cortical trigrams(Surface .( | List of cortical trigrams (Surface .( | lecture | Practical tests<br>Quarterly exams |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | final exams<br>Daily evaluation |
| 21 | 3 | List ofSolids . | List ofSolids . | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 22 | 3 | List ofSolids . | List ofSolids . | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 23 | 3 | List ofSolids . | List ofSolids . | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 24 | 3 | Applications on the commandsSlice - Revolve - Extrude | Applications on the commandsSlice - Revolve - Extrude | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 25 | 3 | Applications on the commandsSlice - Revolve - Extrude | Applications on the commandsSlice - Revolve - Extrude | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 26 | 3 | Applications on the commandsSlice - Revolve - Extrude | Applications on the commandsSlice - Revolve - Extrude | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 27 | 3 | Solid Editing drawing revisions | Solid Editing drawing revisions | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 28 | 3 | Solid Editing drawing revisions | Solid Editing drawing revisions | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 29 | 3 | Draw an applied example within the department’s specialty | Draw an applied example within the department’s specialty | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |
| 30 | 3 | Draw an applied example within the department’s specialty | Draw an applied example within the department’s specialty | lecture | Practical tests<br>Quarterly exams<br>final exams<br>Daily evaluation |

## 23.Course Evaluation

1. Daily assessment (participation, assignments, application notes).
2. Short practical tests during the semester.
3. Written and practical midterm exams.
4. Final exam (theoretical + practical).

## 24.Learning and Teaching Resources

| | |
|---|---|
| Required textbooks (curricular books, if any) | |

| | |
|---|---|
| Main references (sources) | Introduction to Auto CAD 2009 2D and 3D design, 1'st edition, 2008, Alf Yarwood |
| Recommended books and references (scientific journals, reports...) | Educational books for AutoCAD |
| Electronic References, Websites | Check out websites in this field |

# Course Description Form

| |
|---|
| 25.Course Name: |
| Industrial management |
| 26.Course Code: |
| |
| 27.Semester / Year: |
| First and second semester / second year |
| 28.Description Preparation Date: |
| 22\9\2024 |
| 29.Available Attendance Forms: |
| Mandatory attendance weekly |
| 30.Number of Credit Hours (Total) / Number of Units (Total) |
| 2 hr/ 4 units |
| 31.Course administrator's name (mention all, if more than one name) |
| **Name: Ali Hameed Mohammad**<br>Email: ali.mohammed.ims04@atu.edu.iq |
| 32.Course Objectives |

| | |
|---|---|
| **Course Objectives** | **The student will be able to:**<br>**1. Learn about industrial management and its functions.**<br>**2. Learn about production planning and the objectives and methods of production planning.**<br>**3. Learn about linear programming methods**<br>**4. Learn about the concept of maintenance, the importance of maintenance, and the concept of the technological system**<br>**5. Learn about quality control, quality control methods, and sample inspection characteristics** |
| **Required program outputs** | **A- Cognitive Objectives**<br>**1A: Students will identify the basic concepts of industrial management and its importance.**<br>**2A: Students will explain the functions of management (planning, organizing, directi controlling) in an industrial environment.**<br>**3A: Students will distinguish between production types (continuous production, intermittent production, make-to-order production).**<br>**4A: Students will analyze managerial problems and propose appropriate solutions.**<br>**B- Skill Objectives**<br>**1B: Students will apply production planning methods.**<br>**2B: Students will use tools for quality and productivity control.**<br>**3B: Students will employ communication skills in an industrial work environment.**<br>**4B: Students will participate in preparing managerial and industrial reports.**<br>**C- Evaluations and Affective Objectives**<br>**1C: Students will recognize the importance of management in improving industrial operations efficiency.**<br>**2C: Students will commit to leadership spirit and discipline within the workplace.**<br>**3C: Students will develop teamwork and collaboration skills.**<br>**4C: Students will respect administrative laws and regulations in industrial institution** |

| 33.Teaching and Learning Strategies | |
|---|---|
| **Strategy** | • **Theoretical Lecture**<br>• **Case Study**<br>• **Discussion and Dialogue**<br>• **Problem-Based Learning**<br>• **Brainstorming** |

| | |
|---|---|
| | • **Projects and Reports** |

34. Course Structure

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 2 | The student understands the content and can complete the applicable exercises. | Management:<br>Management and its development, stages of management development, basic principles of management, characteristics of management, levels of management. | lecture<br>And<br>solve problems | Exams<br>And<br>Practical report |
| 2 | 2 | The student understands the content and can complete the applicable exercises | Administrative functions, industrial management, its functions, industrial engineering, characteristics of industrial management. | lecture<br>And<br>solve problems | Exams<br>And<br>Practical report |
| 3 | 2 | The student understands the content and can complete the applicable exercises | Industrial unit arrangement:<br>-Location and arrangement of the industrial unit.<br>-The main factors affecting the selection of industrial project sites.<br>-Arrangement of the industrial unit (initial arrangement of the factory.(<br>-Classification of types of industrial unit arrangements.<br>-Advantages, limitations, and cases in which it is applied (commodity, functional, mixed, and combined arrangement). | lecture<br>And<br>solve problems | Exams<br>And<br>Practical report |
| 4 | 2 | The student understands the content and can complete the applicable exercises | Feasibility study for industrial projects:<br>An idea about the feasibility study for industrial projects.<br>Industrial project<br>Stages of feasibility studies<br>The importance of feasibility studies. | lecture<br>And<br>solve problems | Exams<br>And<br>Practical report |
| 5 | 2 | The student understands the content and can complete the applicable exercises | Production planning:<br>Production planning, the concept of production planning, objectives of production planning and control. | lecture<br>And<br>solve problems | Exams<br>And<br>Practical report |
| 6 | 2 | The student understands the content and can complete the applicable exercises | Production planning:<br>Types of production, production planning methods. | lecture<br>And<br>solve problems | Exams<br>And<br>Practical report |

| | | | | | |
|---|---|---|---|---|---|
| 7 | 2 | The student understands the content and can complete the applicable exercises | Linear programming methods, graphical method and transportation method | lecture And solve problems | Exams And Practical report |
| 8 | 2 | The student understands the content and can complete the applicable exercises | Study work and standard time: Work study, work study methods, method study, time study, work measurement | lecture And solve problems | Exams And Practical report |
| 9 | 2 | The student understands the content and can complete the applicable exercises | Maintenance: Maintenance, the importance of maintenance, the concept of the technological system | lecture And solve problems | Exams And Practical report |
| 10 | 2 | The student understands the content and can complete the applicable exercises | Maintenance: Types of maintenance, types of holidays. | lecture And solve problems | Exams And Practical report |
| 11 | 2 | The student understands the content and can complete the applicable exercises | Training: Training, the concept of training, the importance of training, training methods. | lecture And solve problems | Exams And Practical report |
| 12 | 2 | The student understands the content and can complete the applicable exercises | Industrial costs and wages: Costs, classification of costs, wages. | lecture And solve problems | Exams And Practical report |
| 13 | 2 | The student understands the content and can complete the applicable exercises | Industrial costs and wages: Methods of calculating wages, incentives, and types of incentives | lecture And solve problems | Exams And Practical report |
| 14 | 2 | The student understands the content and can complete the applicable exercises | purchase management: Purchases, purchasing steps, inventory, types of stored materials and methods of controlling them. | lecture And solve problems | Exams And Practical report |
| 15 | 2 | The student understands the content and can complete the applicable exercises | Industrial safety: Industrial safety, accident, types of accidents, protective equipment and its types. | lecture And solve problems | Exams And Practical report |
| 16 | 2 | The student understands the | Quality control: | lecture And | Exams And |

| | | | | | |
|---|---|---|---|---|---|
| | | content and can complete the applicable exercises | The meaning of control, the meaning of quality. | solve problems | Practical report |
| 17 | 2 | The student understands the content and can complete the applicable exercises | Quality control:<br>Definition of quality, quality specifications, factors controlling quality, development and improvement of quality, design, quality conformity, international and Iraqi standard specifications. | lecture<br>And<br>solve problems | Exams<br>And<br>Practical report |
| 18 | 2 | The student understands the content and can complete the applicable exercises | Quality control methods and sample inspection plans:<br>Quality control methods, examination and inspection methods, quality control steps, sampling methods, sample inspection schedule. | lecture<br>And<br>solve problems | Exams<br>And<br>Practical report |
| 19 | 2 | The student understands the content and can complete the applicable exercises | Quality control methods and sample inspection plans:<br>Operating characteristic curve, quality of design, data collection (type and analysis). | lecture<br>And<br>solve problems | Exams<br>And<br>Practical report |
| 20 | 2 | The student understands the content and can complete the applicable exercises | Control charts. | lecture<br>And<br>solve problems | Exams<br>And<br>Practical report |
| 21 | 2 | The student understands the content and can complete the applicable exercises | Control charts:<br>Preparing and using a mean chart.<br>Preparing and using a Pareto chart. | lecture<br>And<br>solve problems | Exams<br>And<br>Practical report |
| 22 | 2 | The student understands the content and can complete the applicable exercises | Control charts:<br>Prepare a chart with standard deviation<br>Prepare a defect chart. | | |
| 23 | 2 | The student understands the content and can complete the applicable exercises | Control charts:<br>Scatterplot, how to prepare a scatterplot. | lecture<br>And<br>solve problems | Exams<br>And<br>Practical report |
| 24 | 2 | The student understands the content and can complete the applicable exercises | Control charts:<br>Quality control charts for standard deviation and percentage of defective units.<br>Histogram (preparation and use). | lecture<br>And<br>solve problems | Exams<br>And<br>Practical report |
| 25 | 2 | The student understands the | Types of control charts: | lecture<br>And | Exams<br>And |

| | | | | | |
|---|---|---|---|---|---|
| | | content and can complete the applicable exercises | Control charts for honeycombs (arithmetic mean control chart (X-chart). | solve problems | Practical report |
| 26 | 2 | The student understands the content and can complete the applicable exercises | Types of control charts: Control charts for defects (control chart for range R-Chart and control chart for standard deviation δ-chart). | lecture And solve problems | Exams And Practical report |
| 27 | 2 | The student understands the content and can complete the applicable exercises | Types of control charts: Control charts for defects (control chart for the percentage of defective units P-chart). | lecture And solve problems | Exams And Practical report |
| 28 | 2 | The student understands the content and can complete the applicable exercises | Types of control charts: Control charts for defects (Control chart, number of defects in one unit, C-Chart). | lecture And solve problems | Exams And Practical report |
| 29 | 2 | The student understands the content and can complete the applicable exercises | Types of control charts: Control charts for defects (Control chart for the average number of defects in the set of items (U-chart). | lecture And solve problems | Exams And Practical report |
| 30 | 2 | The student understands the content and can complete the applicable exercises | Summary of quality control panels. | lecture And solve problems | Exams And Practical report |

## 35.Course Evaluation

- **Written Exams**
- **Quizzes**
- **Assignments and Reports**
- **Group Projects**
- **Final Exam**

## 36.Learning and Teaching Resources


.2 "Industrial management majors guide "world widelearn ,retrieved

.3 industrial manager :job description , duties" and requirements". Bestaccredited colleges

.3Industrial organization.asp" investopedia retrieved"

.4 Hammdy A. taha "operation research : an introduction " edition prentice -hall

.5 الإدارة الصناعية ، هيئة المعاهد الفنية , ايسر سوسان ,فراس جعبار.

.6 الهندسة الصناعية – دار الكتب للطباعة والنشر – الطبعة الاولى ,د.عادل كوريال.

.7 ادارة الجودة الشاملة ومتطلبات الايزو, الطبعة الاولى, مطبعة بغداد , خليل العاني , اسماعيل القزاز.

# Course Description Form

| |
|---|
| 13.Course Name: |
| **English language** |
| 14.Course Code: |
| |
| 15.Semester / Year: |
| First and second semester / second year |
| 16.Description Preparation Date: |
| 20/9/2024 |
| 17.Available Attendance Forms: |
| **Mandatory attendance weekly** |
| 18.Number of Credit Hours (Total) / Number of Units (Total) |
| **1 h/ 2 units** |
| 19.Course administrator's name (mention all, if more than one name) |
| Name: Noor Al-Huda Sabah Jassim<br>Email: noor.jassim@atu.edu.iq |
| 20.Course Objectives |

| | |
|---|---|
| **Course Objectives** | • **The student will be able to:**<br>• **1. Learn about English Basic & Grammar**<br>• **2. Identify the construction of sentences ,uses in examples & Short answers**<br>• **3. Tenses of Verbs , Irregular Verbs**<br>**4. Uses of Quantity: much and many / some and any - something , anyone, nobody, everywhere / a few, a little, a lot of - Articles** |

| |
|---|
| 21.Teaching and Learning Strategies |

| | |
|---|---|
| **Strategy** | **1. Academic lectures.**<br>**2. Open discussions.**<br>**3. Attempts to solve exercises according to the required equations using the problem-solving method.** |

22. Course Structure

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 1 | The student understands the : Tenses: Present, past, future , Questions - Questions words | Getting to know you / **Tenses: Present, past, future , Questions -** Where were you born? , What do you do? **Questions words** Who ... ?,Why | lecture | Daily evaluation , Exams And Practical report |
| 2 | 1 | Present tenses Present Simple Present Continuous | The way we live **Present tenses Present Simple Present Continuous** | lecture | Daily evaluation , Exams And Practical report |

| | | | | | |
|---|---|---|---|---|---|
| | | What's he doing at the moment? Uses have/have got | What's he doing at the moment? **have/have got** | | |
| 3 | 1 | Past tenses, Past Simple - Past Continuous | It all went wrong **Past tenses, Past Simple -** What did you do last night ? **Past Continuous** | lecture | Daily evaluation , Exams And Practical report |
| 4 | 1 | Quantity: much and many / some and any something, anyone, nobody, everywhere a few, a little, a lot of Articles | Let's go shopping! **Quantity: much and many / some and any something, anyone, nobody, everywhere a few, a little, a lot of Articles** | lecture | Daily evaluation , Exams And Practical report |
| 5 | 1 | Verb patterns 1 want/hope to do, enjoy/like doing Future intentions | What do you want to do? **Verb patterns 1** want/hope to do, enjoy/like doing **Future intentions** going to and will | lecture | Daily evaluation , Exams And Practical report |
| 6 | 1 | What's it like What's it like? Comparative and superlative adjectives | Tell me! **What's it like** What's it like? **Comparative and superlative adjectives** | lecture | Daily evaluation , Exams And Practical report |
| 7 | 1 | Present Perfect and Past Simple / for and since Tense revision | Famous couples **Present Perfect and Past Simple** She has written 20 novels. **for and since** **Tense revision** Where do you live ? | lecture | Daily evaluation , Exams And Practical report |
| 8 | 1 | have (got) to / should / must | Do's and don'ts **have (got) to** You have to pay bills / **should** You should talk to your boss / **must** You must go to the dentist. | lecture | Daily evaluation , Exams And Practical report |
| 9 | 1 | Time and conditional clauses - as soon as, when, while, until . What if….? | Going places **Time and conditional clauses** - as soon as, when, while, until | lecture | Daily evaluation , Exams And Practical report |

| | | | | | |
|---|---|---|---|---|---|
| | | | When we're in Australia, we'll.<br>**What if**….? If I pass my exams, I'll... | | |
| 10 | 1 | Verb patterns 2<br>Infinitives - Purpose what, etc. + infinitive something ,etc. + infinitive | Scared to death - **Verb patterns 2**<br>manage to do, used to do, go walking<br>**Infinitives - Purpose**<br>I went to the shops to buy some shoes.<br>**what, etc. + infinitive**<br>I don't know what to say./ **something ,etc. + infinitive**<br>I need something to eat | lecture | Daily evaluation , Exams And Practical report |
| 11 | 1 | Things that changed the world - Passives | Things that changed the world - **Passives**<br>Coca-Cola is enjoyed all over the world.<br>It was Invented In 1886. | lecture | Daily evaluation , Exams And Practical report |
| 12 | 1 | Dreams and reality<br>Second conditional<br>Might | Dreams and reality<br>**Second conditional**<br>If I were a princess, I'd live In a castle.<br>**Might** - I might go to America. | lecture | Daily evaluation , Exams And Practical report |
| 13 | 1 | Present Perfect Continuous .<br>Present Perfect Simple versus Continuous | Earning a living<br>**Present Perfect Continuous** - I've been living on the streets for a year. / How long have you been selling The Big Issue?<br>**Present Perfect Simple versus Continuous**<br>He's been running. | lecture | Daily evaluation , Exams And Practical report |
| 14 | 1 | Past Perfect .<br><br>Reported statements | Love you and leave you<br>**Past Perfect**<br>They had met only one week earlier<br>**Reported statements**<br>She told me that she loved John. | lecture | Daily evaluation , Exams And Practical report |

| 23.Course Evaluation | |
|---|---|
| **Evaluation is done through:**<br>1. Daily, monthly and annual examinations.<br>2. Interaction and group participation in discussing and solving exercises. | |
| 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 | |
| 24.Learning and Teaching Resources | |
| Required textbooks (curricular books, if any) | Pre - Intermediate --<br>New head way English course<br>John and Liz Soars / OXFORD UNIVERSITY PRESS |
| Main references (sources) | |
| Recommended books and references (scientific journals, reports...) | |
| Electronic References, Websites | |

# نموذج وصف المقرر

| | |
|---|---|
| **13. اسم المقرر** | |
| اللغة العربية2 | |
| **14. رمز المقرر** | |
| | |
| **15. الفصل / السنة** | |
| المرحلة 2 – الفصل الأول والثاني 2024–2025 | |
| **16. تاريخ إعداد هذا الوصف** | |
| 2024/12/16 | |
| **17. أشكال الحضور المتاحة** | |
| اسبوعي (نظري) | |
| **18.عدد الساعات الدراسية (الكلي)/ عدد الوحدات (الكلي)** | |
| 30 | |
| **19. اسم مسؤول المقرر الدراسي ( اذا اكثر من اسم يذكر)** | |
| الاسم: م.م. ياسمين عبد العباس حمد<br>الآيميل : **yasmeen.hamad.ims04@atu.edu.iq** | |
| **20. اهداف المقرر** | |
| **اهداف المادة الدراسية** | • تطوير مهارات الطلاب اللغوية<br>• تنمية روح الاعتزاز باللغة العربية<br>• تنمية القابليات النحوية والادبية لدى الطالب الجامعي<br>• الارتقاء بمستوى اللبة المهني والبحثي |
| **مخرجات البرنامج المطلوب** | **أ– الأهداف المعرفية**<br>1.أ يعرف فكرة عامة عن قواعد اللغة العربية الأساسية<br>2.أ يبين معرفة خصائص اللغة العربية<br>3.أ يوضح للطالب الإطار المعرفية للتمييز بين الاحرف<br>4.أ يفسر قواعد البلاغة والشعراء<br><br>**ب– الأهداف المهارية**<br>1.ب اكتساب مهارة الكتابة الصحيحة<br>2.ب يوضح مهارته في التعبير الكتابي<br>3.ب يبدع في مهارة النقد البلاغي<br>4.ب يبين الطالب الاعراب المناسب لكل جملة<br><br>**ج– القييم والاهداف الوجدانية**<br>1.ج تعزيز الانتماء للغة العربية<br>2.ج إعلاء قيمة التواصل الحضاري<br>3.ج ترسيخ احترام اللغة<br>4.ج تعزيز روح الإبداع |

| | |
|---|---|
| | 5.ج تنمية حب المطالعة |

## 21. استراتيجيات التعليم والتعلم

| | |
|---|---|
| **الاستراتيجية** | **طرائق التعليم والتعلم :**<br>1. استعمال طريقة دراسة الحالة والعرض<br>2. العصف الذهني<br>3. التعلم الالكتروني<br>4. المناقشة والحوار |

## 22. بنية المقرر

| الأسبوع | الساعات | اسم الوحدة / أو الموضوع | طريقة التعليم | طريقة التقييم |
|---|---|---|---|---|
| 1st | 2 | العربية اللغة عن مقدمة | محاضرات ورقية والالكترونية محاضرات عن فيدوية الصفوف طريق الاليكترونية | امتحانات يومية واسبوعية وفصلية ونهائية |
| 2nd | 2 | النحو علم في قواعد يتألف وما الكلام ( ) منه | = | = |
| 3rd | 2 | النحو علم في قواعد ( ) الأفعال أقسام | = | = |
| 4th | 2 | النحو علم في قواعد ( ) والمعرفة النكرة | = | = |
| 5th | 2 | النحو علم في قواعد والإعراب البناء ( | = | = |
| 6th | 2 | النحو علم في قواعد ( ) والخبر المبتدأ | = | = |
| 7th | 2 | النحو علم في قواعد الفاعل ( | = | = |
| 8th | 2 | النحو علم في قواعد ( ) الفاعل نائب | = | = |
| 9th | 2 | الإملاء الضاد بين الفرق ( ) والظاء | = | = |
| 10th | 2 | الإملاء التاء كتابة قواعد ( والمفتوحة المربوطة ) | = | = |
| 11th | 2 | الإملاء كتابة قواعد ( ) الهمزة | = | = |
| 12th | 2 | التعبير في قواعد ( ) الترقيم علامات | = | = |
| 13th | 2 | أدبي نص ( ) الرحمن سورة عشر/الحفظ نص آيات | = | = |
| 14th | 2 | أدبي نص | = | = |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | فراس أبو :الشاعر الحمداني, الجواهري | | | |
| | | | الشاعر بدر شاكر السياب | | 15th | |
| | | | ان و اخواتها | | 16th | |
| | | | فتح همزة ان و كسرها | | 17th | |
| | | | علامات الاعراب الاصلية -الضمة -الفتحة -الكسرة علامات الاعراب الفرعية -الواو -الالف -الياء | | 18th | |
| | | | الجملة الاسمية المبتدأو الخبر 1- انواع المبتدأ 2-انواع الخبر | | 19th | |
| | | | الافعال الخمسة | | 20th | |
| | | | الاخطاء اللغوية الجزء (2) | | 21st | |
| | | | مفردات لغوية -المفرادفات و الاضداد -فروق لغوية -معادلات نحوية | | 22nd | |
| | | | المثني و اعرابه | | 23rd | |
| | | | انواع الجموع -جمع المذكر السالم -جمع المؤنث السالم | | 24th | |
| | | | جمع التكسير | | 25th | |
| | | | هندسة النحو قواعد اللغة العربية في لوحة تعليمية | | 26th | |

| | | | | | |
|---|---|---|---|---|---|
| | 27th | | تصويبات لغوية | | |
| | 28th | | امتحان | | |
| | 29th | | الاعجاز القرآني | | |
| | 30th | | الاخطاء اللغوية الجزء (3) | | |

## 11. تقييم المقرر

1. يومية
2. اسبوعية
3. شهرية

## 12. مصادر التعلم والتدريس

| | |
|---|---|
| الكتب المقررة المطلوبة ( المنهجية أن وجدت ) | |
| المراجع الرئيسة ( المصادر) | القران الكريم<br>الوجيز في اللغة العربي<br>معاني النحو<br>قواعد اللغة العربية النحو والصرف الميسر<br>قواعد الاملاء<br>الوجيز في ا للغة العربية لغير المتخصصين |
| الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية، التقارير.... ) | تيسير النحو<br>جامع الدروس العربية |
| المراجع الإلكترونية ، مواقع الانترنيت | **المواقع العديدة تعني بمادة اللغة العربية ومن ضمنها اليوتيوب والبحوث العلمية** |

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| اسم المقرر: |
| اللغة العربية 1 |
| رمز المقرر |
| |
| الفصل / السنة |
| الفص الأول والثاني / المرحلة الاولى |
| تاريخ إعداد هذا الوصف |
| 2024/10/1 |
| أشكال الحضور المتاحة |
| اسبوعي وحسب الجدول |
| عدد الساعات الدراسية (الكلي)/ عدد الوحدات (الكلي) |
| 1 ساعات / 2وحدات |
| اسم مسؤول المقرر الدراسي ( اذا اكثر من اسم يذكر) |
| الاسم: م.م. ياسمين عبد العباس حمد<br>الآيميل : **yasmeen.hamad.ims04@atu.edu.iq** |
| اهداف المقرر |

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|---|---|
| **اهداف المادة الدراسية** | • تطوير مهارات الطلاب اللغوية<br>• تنمية روح الاعتزاز باللغة العربية<br>• تنمية القابليات النحوية والادبية لدى الطالب الجامعي<br>• الارتقاء بمستوى اللبة المهني والبحثي |
| | **أ– الأهداف المعرفية**<br>5.أ يعرف فكرة عامة عن قواعد اللغة العربية الأساسية<br>6.أ يبين معرفة خصائص اللغة العربية<br>7.أ يوضح للطالب الإطار المعرفية للتمييز بين الاحرف<br>8.أ يفسر قواعد البلاغة والشعراء<br><br>**ب– الأهداف المهارية**<br>5.ب اكتساب مهارة الكتابة الصحيحة<br>6.ب يوضح مهارته في التعبير الكتابي<br>7.ب يبدع في مهارة النقد البلاغي<br>8.ب يبين الطالب الاعراب المناسب لكل جملة<br><br>**ج– القييم والاهداف الوجدانية**<br>6.ج تعزيز الانتماء للغة العربية<br>7.ج إعلاء قيمة التواصل الحضاري<br>8.ج ترسيخ احترام اللغة<br>9.ج تعزيز روح الإبداع |

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| | 10.ج تنمية حب المطالعة |

| استراتيجيات التعليم والتعلم | |
|---|---|
| **الاستراتيجية** | 1. استعمال طريقة دراسة الحالة والعرض<br>2. العصف الذهني<br>3. التعلم الالكتروني<br>4. المناقشة والحوار |

بنية المقرر

| الأسبوع | الساعات | مخرجات التعلم المطلوبة | اسم الوحدة او الموضوع | طريقة التعلم | طريقة التقييم |
|---|---|---|---|---|---|
| 1 | 2 | **مقدمة عن الأخطاء اللغوية –التاء المربوطة والطويلة والتاء المفتوحة** | اللغة العربية | محاضرات | امتحان تحريري اختبارات |
| 2 - 4 | 2 | **قواعد كتابة الالف الممدودة والمقصورة – الحروف الشمسية والقمرية** | اللغة العربية | محاضرات | امتحان تحريري اختبارات |
| 5 - 6 | 2 | **الضاد والظاء** | اللغة العربية | محاضرات | امتحان تحريري اختبارات |
| 7 - 8 | 2 | **كتابة الهمزة** | اللغة العربية | محاضرات | امتحان تحريري اختبارات |
| 9 - 10 | 2 | **علامات الترقيم** | اللغة العربية | محاضرات | امتحان تحريري اختبارات |
| 11-12 | 2 | **الاسم والفعل والتفريق بينهما** | اللغة العربية | محاضرات | امتحان تحريري اختبارات |
| 13-14 | 2 | **المفاعيل** | اللغة العربية | محاضرات | امتحان تحريري اختبارات |
| 15-16 | 2 | **العـدد** | اللغة العربية | محاضرات | امتحان تحريري اختبارات |
| 17-18 | 2 | **تطبيقات الأخطاء اللغوية الشائعة** | اللغة العربية | محاضرات | امتحان تحريري اختبارات |
| 19-20 | 2 | **النون والتنوين . معاني حروف الجر** | اللغة العربية | محاضرات | امتحان تحريري اختبارات |
| 21-22 | 2 | **الجوانب الشكلية للخطاب الإداري** | اللغة العربية | محاضرات | امتحان تحريري اختبارات |

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|---|---|---|---|---|---|
| 24-23 | 2 | **لغة الخطاب الإداري** | اللغة العربية | محاضرات | امتحان تحريري اختبارات |
| | 2 | **نماذج من المراسلات الإدارية** | اللغة العربية | محاضرات | امتحان تحريري اختبارات |

| تقييم المقرر |
|---|
| **1. يومية**<br>**2. اسبوعية**<br>**3. شهرية** |

| مصادر التعلم والتدريس | |
|---|---|
| ب المقررة المطلوبة ( المنهجية أن وجدت ) | |
| اجع الرئيسة ( المصادر) | |
| الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية، التقارير.... ) | |
| اجع الإلكترونية ، مواقع الانترنيت | |