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


# Academic Program and Course Description Guide

## To Field Crops D department

## 2025 - 2026

# Introduction:

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

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

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

In this regard, we can only emphasize the importance of writing an

academic programs and course description to ensure the proper functioning of the educational process.

## Concepts and terminology:

**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 (quarterly, 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 Form

University Name: Wasit University

Faculty/Institute: College of Agriculture

Scientific Department: Crop Sciences Department

Academic or Professional Program Name:

Final Certificate Name: B.Sc. in Crop Sciences

Academic System: Annual

Description Preparation Date: 1/8/2025

File Completion Date: 1/9/2025

Signature:

Head of Department Name: Nabil R. Lahmood

Date: 1/9/2025

Signature:

Scientific Associate Name: Dr. Jawad Jaafar Talib Abed

Date: 21/8/2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 1/9/2025

Signature:

Assist. Prof.

Dr. Hakeem.S. Abed

Approval of the Dean

Dean

## 1. Program Vision

**"To lead in education and scientific research in the field of field crops sciences by developing sustainable and smart production systems that address contemporary agricultural challenges and contribute to achieving food security and sustainable agricultural development at the local and regional levels."**

## 2. Program Mission

• Preparing scientifically and practically qualified agricultural professionals to lead the agricultural sector.
• Providing high-quality education that enhances knowledge and skills in the field of crop sciences.
• Producing applied scientific research that contributes to solving agricultural challenges.
• Strengthening partnerships with the community to support sustainable agricultural development.
• Contributing to the achievement of food security through the development of agricultural production.

## 3. Program Objectives

**Educational and Institutional Objectives**

**1. Enhancing Scientific Knowledge:**
- **Provide students with both theoretical and practical knowledge in agricultural and agricultural engineering sciences.**
- **Strengthen students' understanding of environmental and economic challenges in the agricultural sector.**

**2. Developing Practical Skills:**
- **Develop students' abilities in utilizing modern technologies and managing agricultural resources.**
- **Enhance their capacity to design and implement sustainable agricultural projects.**

**3. Promoting Ethical and Professional Values:**
- **Instill values of sustainability and social responsibility among students.**
- **Foster commitment to professional ethics in research and agricultural practice.**

**4. Advancing Scientific Research and Innovation:**
- **Encourage students to participate in scientific research aimed at solving agricultural problems.**
- **Support innovation in agriculture by providing a stimulating educational environment.**

**5. Community Service:**
- **Prepare graduates capable of contributing to the improvement of quality of life in rural communities.**
- **Strengthen collaboration with public and private sectors to achieve food security.**

**6. Continuous Development of Academic Programs:**

- **Update curricula to align with the latest developments in agricultural sciences.**
- **Ensure the quality of academic programs through continuous assessment and improvement.**

| **4. Program Accreditation** |
|---|
| Does the program have program accreditation? And from which agency looking for **support** |

| **5. Other External Influences Ministry of Higher Education and Scientific Research** |
|---|
| Is there a sponsor for the program? **Government support is available** |

| **6. Program Structure** | | | | |
|---|---|---|---|---|
| **Program Structure** | **Number of Courses** | **Credit Hours** | **Percentage** | **Reviews*** |
| **Institution Requirements** | **4** | **8** | **7** | Principle |
| **College Requirements** | **5** | **15** | **13** | Principle |
| **Department Requirements** | **28** | **98** | 80 | Principle |
| **Summer Training** | **-** | **-** | **-** | Principle |
| **Others** | | | | |

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

| **7. Program Description** | | | | |
|---|---|---|---|---|
| **Year/Level** | **Course Code** | **Course Name** | **Credit Hours** | |
| | | | **theoretical** | **practical** |
| **Second stage First Semester** | PTAXO201 | **plant Taxonomy** | **2** | **3** |
| | PIHO205 | **Principles of horticulture** | **2** | **3** |
| | ENGL209 | **English language 2** | **2** | **3** |
| | PLEC202 | **Plant ecology** | **2** | **3** |
| | AGME206 | **Agricultural machinery and** | **2** | **3** |
| | FOTEC204 | **principles of food industries** | **2** | **3** |
| | BACR207 | **Baath crimes** | **2** | **-** |
| | FEFE203 | **Soil fertility and fertilizer** | **2** | **3** |
| | **ENGL208** | **English Language** | 2 | **--** |
| | CUMP107 | **Computer applications2** | **3** | **-** |
| **Second stage Second Semester** | FAMA203 | **farm management** | **3** | **2** |
| | OI&SU202 | **Oil and sugar crops** | **2** | **3** |
| | PRSTAT205 | **Principles of Statistics** | **2** | **3** |
| | AEXT204 | **Agricultural Extension** | 2 | **3** |
| | MICO206 | **principles of microbiology** | **2** | **3** |
| | AR&DR201 | **Irrigation and Drainage** | **2** | **3** |
| | ARBL207 | **Arabic2** | **2** | **-** |
| **Third Stage First Semester** | FCRDE306 | **Design and analysis of experiments** | **2** | **3** |

| | | | | |
|---|---|---|---|---|
| | CRMEC3010 | **Field crops mechanization** | **2** | **3** |
| | GENE302 | **Genetic** | **2** | **3** |
| | CRIN303 | **Economic crop insects** | **2** | **3** |
| | LANRE304 | **land reclamation** | **2** | **3** |
| | FOCRO305 | **fodder crops** | **2** | **3** |
| **Third Stage Second** | FIBC308 | **fiber crops** | **2** | **3** |
| | GRAC301 | **grain crops** | **2** | **3** |
| | CRDE3011 | **Crop diseases** | **2** | **3** |
| | SETECH307 | **Seed technology** | **2** | **3** |
| | LEGCR309 | **Legume crops** | **2** | **3** |
| **Forth Stage First semester** | MEPL404 | **Medicinal plants** | **2** | **3** |
| | PLPS406 | **Plant physiology** | **2** | **3** |
| | WEBI405 | **Weed biology** | **2** | **3** |
| | CRMA402 | **Field crops management** | **2** | **3** |
| | LACU403 | **Cultivation of lands** | **2** | **3** |
| | MOGE401 | **molecular genetics** | **2** | **3** |
| **Forth Stage Second semester** | GRRE407 | **Graduation research** | **3** | **-** |
| | PLBR409 | **Plant breeding** | **2** | **3** |
| | WECO410 | **Weed control** | **2** | **3** |
| | ABST408 | **Environmental stress** | **2** | **3** |
| | PASM414 | **Pasture management** | **2** | **3** |
| | SEMI413 | **Seminars** | **1** | |
| | GRRE407 | **Graduation research** | **3** | |

| 8. Expected Learning Outcomes of Program | |
|---|---|
| **Knowledge** | |
| **Cognitive Learning Outcomes**<br>**1. Understanding the Fundamentals of Agricultural Sciences:**<br><br>**Comprehend the fundamental concepts in field crop sciences, agricultural engineering, and resource management.**<br><br>**Understand the relationship between the physical and chemical components of climate and plant growth.**<br><br>**2. Knowledge of Practical Applications:**<br><br>**Recognize how to apply scientific theories to address complex agricultural problems.**<br><br>**Understand the impact of environmental and climatic factors on agricultural production.**<br><br>**3. Familiarity with Modern Technologies:**<br><br>**Acquire knowledge of modern agricultural technologies such as smart irrigation systems and agricultural automation.**<br><br>**Understand the role of technology in enhancing agricultural productivity.**<br><br>**4. Understanding Economic and Social Aspects:**<br><br>**Appreciate the impact of agriculture on both local and global economies.**<br><br>**Understand the social role of agriculture in achieving food security.** | Enabling students to gain a good understanding of field crop management in line with the requirements of sustainable development and the needs of the labor market. |
| **Skills** | |

| | |
|---|---|
| Professional and Technical Skills<br>**1. Analytical Skills**:<br><br>Ability to analyze agricultural data and draw meaningful conclusions.<br><br>Use of analytical tools to assess production quality.<br><br>**2. Technical Skills:**<br><br>Ability to manage agricultural fields and improve productivity and quality.<br><br>Proficiency in operating modern agricultural machinery and utilizing advanced agricultural technologies.<br><br>Application of engineering principles in the design of various agricultural systems (e.g., irrigation, pest control, fertilization).<br><br>**3. Research Skills:**<br><br>Ability to conduct scientific research in the field of agriculture and disseminate findings effectively.<br>4.Communication Skills:<br><br>Ability to communicate effectively with agricultural teams and local communities.<br><br>Present scientific presentations and technical reports clearly and concisely.<br><br>Contribute to community-based advisory and technical expertise.<br><br>5. Managerial Skills:<br><br>Efficient management of agricultural resources.<br><br>Planning and organizing agricultural projects. | Students' knowledge of the jungles spread in agricultural fields, as well as how to add fertilizers to field crops and how to prepare the soil before planting. |
| | |
| **Ethics** | |

| | |
|---|---|
| **1. Commitment to Sustainability:**<br>• Promote sustainable agricultural practices that protect the environment.<br>• Uphold responsible use of natural resources.<br>**2. Professional Ethics:**<br>• Adhere to ethical principles in scientific research and agricultural practice.<br>• Respect intellectual property rights in the field of agriculture**.**<br>**3. Community Service:**<br>• Work to improve the quality of life in rural communities through agricultural development.<br>• Contribute to achieving food security at both local and global levels.<br>**4. Collaboration and Teamwork:**<br>• Foster a spirit of teamwork in agricultural and research activities.<br>• Respect diverse perspectives in solving agricultural problems**.** | Ethical and professional commitment to improving the quality of rural society, serving the community, and achieving food security. |
| | |

**9. Teaching and Learning Strategies**

**Teaching and Learning Strategies**

**1. Project-Based Learning:**

- Implement practical agricultural projects aimed at solving real-world problems.
- Apply scientific theories in real-life agricultural settings.

**2. Interactive Learning:**

- Use group discussions and workshops to enhance understanding.
- Engage with agricultural experts through guest lectures and seminars.

**3. Self-Directed Learning:**

- Encourage students to independently research and explore agricultural topics.
- Utilize electronic resources and libraries for continuous learning.

**4. Experiential Learning:**

- Conduct hands-on experiments in laboratories and agricultural fields.

- Analyze practical results and compare them with scientific theories.

**5. Continuous Assessment:**

- Use formative assessments to measure students' progress consistently.
- Provide immediate feedback to improve performance.

**6. Industry Collaboration:**

- Organize field visits to farms and agricultural companies.
- Collaborate with the private sector in implementing research and applied projects.

## 10. Evaluation Methods

**1. Theoretical Assessments:**
- Written exams (quizzes and midterm tests).
- Research papers and technical reports.
- Oral and visual presentations.

**2. Practical Assessments:**
- Laboratory and field experiments.
- Practical projects and field visit reports.

**3. Skills Assessments:**
- Evaluation of the use of agricultural tools and equipment.
- Self-assessment and peer assessment.
- Participation in discussion circles and workshops.

**4. Values-Based Assessments:**
- Monitoring behavior during teamwork activities.
- Evaluation of students' involvement in community service.

**5. Comprehensive Assessments:**
- Cumulative assessments integrating both theoretical and practical components.
- Evaluation of final projects.

**6. Technology-Based Assessments:**
- Online examinations.
- Simulations and evaluation of digital projects.

**7. Continuous Assessments:**
- Formative assessments with ongoing feedback.
- Final summative assessments.

**8. External Assessments:**
- Evaluation by external experts.
- Attainment of recognized professional certifications.

**9. Outcome-Based Assessments:**
- Measurement of learning outcomes (e.g., problem-solving skills).
- Evaluation of the impact of projects on the environment and society.

**10. Personal Assessments:**
- Personal interviews.
- Curriculum vitae (CV) evaluation.

| **11. Faculty** | | | | | |
|---|---|---|---|---|---|
| **Faculty Members** | | | | | |
| **Academic Rank** | **Specialization** | | **Special Requirements/Skills (If Applicable)** | **Number of Teaching Staff** | |
| | **General** | **Special** | | **Staff** | **Lecturer** |
| Prof | **Crop Science** | Breeding | Experienced in hybridization methods and selection of varieties | 1 | |
| Prof. | **Crop Science** | Weed Control | Pest Management and Weed Control Expert | **1** | |
| Assist.Prof. | Agriculture Extension | Agriculture Extension | Technology Transfer Expert | **1** | |
| Lectures | **Crop Sciences** | **Crop Breeding** | | **1** | |
| Assist.Prof. | **Plant Biotech.** | Gene expression | | **1** | |
| Lectures | **Plant Sciences** | **Crop Physiology** | | **1** | |
| Assist.Prof. | **Medical Plant** | **Plant stress** | | **1** | |
| Ass. Lecturer | Economy | **Agricultura Economy** | | **1** | |
| Ass. Lecturer | **Food Tecnology** | **Food Tecnology** | | **1** | |
| Ass. Lecturer | **Biology** | **Biology** | | **1** | |
| Ass. Lecturer | Crop Sciences | Crop Production | | **1** | |

| **Professional Development** |
|---|
| **Monitoring New Faculty Members** |

**Faculty Professional Development**

**1. Training in Modern Technologies:**

- Courses on the use of advanced agricultural technologies (e.g., smart irrigation systems, precision agriculture).
- Training in agricultural data analysis software.

**2. Teaching Skills Development:**

- Workshops on effective teaching strategies (e.g., active learning, formative assessment).
- Training on curriculum design aligned with accreditation standards.

**3. Research Enhancement:**

- Participation in scientific conferences and research workshops.
- Training in academic writing and securing research funding.

**4. Continuing Education:**

- Attending specialized courses in agricultural and agricultural engineering sciences.
- Keeping up with recent developments through reading and participation in seminars.

**5. Industry Collaboration:**

- Field visits to modern farms and agricultural companies.
- Partnerships with the private sector for developing research and applied projects.

**6. Leadership and Administrative Development:**

- Courses in educational leadership and research team management.
- Training in managing large-scale agricultural projects.

**7. Evaluation and Feedback:**

- Regular assessment of faculty performance.
- Providing constructive feedback based on evaluation outcomes to enhance performance.

**8. International Education:**

- Experience exchange with international universities through academic exchange programs.
- Participation in international research collaborations.

**9. Promotion of Ethical Values:**

- Workshops on research ethics and professional conduct.
- Raising awareness of sustainability and social responsibility.

**10. Self-Development:**

- Encouraging faculty members to independently pursue advancements in their fields.
- Providing educational resources (books, journals, digital platforms) to support self-directed learning.

**Professional Development for Faculty Members**

By following modern teaching methods, reviewing websites, and keeping pace with developments to learn about new research.

**12. Acceptance Criterion**

**Admission Requirements**

**Central Admission for Morning Studies**
Based on the annual plan submitted by the college:

- The student must hold a General Secondary School Certificate (Scientific Branch)

with an average not less than the minimum required by the Ministry or the College, or be a graduate of Agricultural Technical Secondary Schools.

- The student must demonstrate a genuine interest in studying agricultural sciences.
- The number of students admitted annually is determined according to the material and human resources and infrastructure available in the college and department.
- Annual admission quotas are set in line with labor market demands and service institutions, based on departmental policy and in coordination with potential employers.

**Direct Admission for Evening Studies**

## 13. The Most Important Sources of Information About The Program

From references books, help books, the Internet, and scientific research

## 14. Program Development Plan

**Development Plan**

The development plan focuses on curriculum improvement, enhancement of scientific research, faculty development, and community service, while adhering to quality standards and academic accreditation. It includes:

**1. Curriculum Development:**

- Updating academic content to align with recent advances in agricultural sciences.
- Introducing new courses focused on modern technologies such as smart agriculture and sustainability.
- Enhancing integration between theoretical and practical components of the curriculum.

**2. Improvement of Learning Environment:**

- Equipping laboratories with the latest devices and technologies.
- Providing classrooms with modern teaching tools (e.g., smart boards).
- Establishing model educational farms for hands-on training.

**3. Faculty Development:**

- Organizing training programs for faculty members in agricultural technologies and effective teaching methods.
- Encouraging participation in international conferences and workshops.
- Offering opportunities for continuing education and advanced professional certifications.

**4. Research Enhancement:**

- Providing research grants to support faculty and student projects.
- Establishing partnerships with research centers and international universities.

- Encouraging the publication of research in peer-reviewed scientific journals.

**5. Student Support Services:**

- Providing effective academic and career advising programs.
- Creating a digital library with access to modern educational resources.
- Offering financial support for outstanding students and those with special needs**.**

**6. Industry Collaboration:**

- Forming partnerships with agricultural companies to provide practical training opportunities.
- Organizing field visits to farms and agricultural enterprises.
- Hosting experts from the agricultural sector for lectures and workshops**.**

**7. Assessment System Development:**

- Developing diverse assessment tools (e.g., exams, projects, presentations).
- Implementing formative assessment to continuously monitor student progress.
- Utilizing technology in assessments (e.g., electronic exams).

**8. Community Engagement:**

- Organizing agricultural awareness campaigns for the local community.
- Providing scientific consultation to farmers and agricultural businesses.
- Implementing community-based projects that contribute to agricultural productivity.

**9. Quality Assurance and Accreditation:**

- Conducting regular self-evaluation of the program based on accreditation standards.
- Implementing recommendations from external review teams to improve quality.
- Continuously updating program policies and procedures**.**

**10. Continuous Development:**

- Reviewing the development plan annually to evaluate progress and introduce improvements.
- Encouraging the active involvement of students and faculty in the development process**.**

| Program Skills outline | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Required Program Learning Outcomes | | | | | | | | | | | | |
| **Year/** | **Course Code** | **Course Name** | **Basic or Optional** | **Knowledge** | | | | **Skills** | | | | **Ethics** | | | | |
| **1** | OCHEM105 | organic chemistry | **Basic** | **A1** | **A2** | **A3** | **A4** | **B1** | **B2** | **B3** | **B4** | **C1** | **C2** | **C3** | **C4** | |
| **2** | | Principles of | **Basic** | √ | √ | √ | √ | √ | | √ | | √ | √ | √ | √ | |
| **2** | | Agricultural | **Basic** | √ | √ | √ | √ | √ | | √ | | √ | √ | √ | √ | |
| **2** | | principles of food | **Basic** | √ | √ | √ | √ | √ | | √ | | √ | √ | √ | √ | |
| **2** | | Agricultural | **Basic** | √ | √ | √ | √ | √ | | √ | | √ | √ | √ | √ | |
| **2** | | Soil fertility | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **2** | | plant classificati | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **2** | | computer applicatio | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **2** | | farm manageme | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **2** | | English language2 | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **2** | | Oil and sugar | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **2** | | Principles of | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **2** | | crops environme | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **2** | | principles of | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **2** | | Ray and puncture | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **2** | | Arabic2 | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **2** | | **Baath crimes** | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **3** | | Heredity | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **3** | | Design and | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **3** | | Field crops | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **3** | | Crop insects | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **3** | | land reclamatio | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |
| **3** | | fodder crops | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **3** | | fiber crops | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **3** | | grain crops | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **3** | | field crop diseases | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **3** | | seed technolog | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **4** | | medicinal plants | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **4** | | plant physiolog | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **4** | | Weed biology | **Basic** | √ | √ | √ | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | field crops manageme | **Basic** | √ | √ | √ | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | Cultivation of marsh | **Basic** | √ | √ | √ | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | molecular genetics | **Basic** | √ | √ | √ | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | Graduation research | **Basic** | √ | √ | √ | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | plant breeding | **Basic** | √ | √ | | | | | √ | | √ | √ | √ | √ |
| **4** | | desert cultivation | **Basic** | √ | √ | | | | | √ | | √ | √ | √ | √ |
| **4** | | Weed control | **Basic** | √ | √ | | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | environmental stress | **Basic** | √ | √ | | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | pasture manageme | **Basic** | √ | | | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | Seminars | **Basic** | √ | | | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | Graduation research | **Basic** | √ | √ | | √ | √ | | √ | | √ | √ | √ | √ |
| **2** | | farm manageme | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **2** | | English language2 | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **2** | | Oil and sugar | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **2** | | Principles of | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **2** | | crops environme | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **2** | | principles of | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **2** | | Ray and puncture | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **2** | | Arabic2 | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2** | | **Baath crimes** | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **3** | | Heredity | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **3** | | Design and | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **3** | | Field crops | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **3** | | Crop insects | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **3** | | land reclamatio | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **3** | | fodder crops | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **3** | | fiber crops | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **3** | | grain crops | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **3** | | field crop diseases | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **3** | | seed technolog | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **4** | | medicinal plants | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **4** | | plant physiolog | **Basic** | √ | √ | √ | √ | √ | √ | √ | | √ | √ | √ | √ |
| **4** | | Weed biology | **Basic** | √ | √ | √ | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | field crops manageme | **Basic** | √ | √ | √ | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | Cultivatio n of marsh | **Basic** | √ | √ | √ | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | molecular genetics | **Basic** | √ | √ | √ | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | Graduatio n research | **Basic** | √ | √ | √ | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | plant breeding | **Basic** | √ | √ | | | | | √ | | √ | √ | √ | √ |
| **4** | | desert cultivation | **Basic** | √ | √ | | | | | √ | | √ | √ | √ | √ |
| **4** | | Weed control | **Basic** | √ | √ | | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | environme ntal stress | **Basic** | √ | √ | | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | pasture manageme | **Basic** | √ | | | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | Seminars | **Basic** | √ | | | √ | √ | | √ | | √ | √ | √ | √ |
| **4** | | Graduatio n research | **Basic** | √ | √ | | √ | √ | | √ | | √ | √ | √ | √ |

**Course Description Form**

| | | | | | |
|---|---|---|---|---|---|
| **1. Course Name:** | | | | | |
| **Plant Taxonomy** | | | | | |
| **2. Course Code:** | | | | | |
| PTAXO201 | | | | | |
| **3. Semester / Year:2025- 2026** | | | | | |
| **First semester- first stage** | | | | | |
| **4. Description Preparation Date:2025** | | | | | |
| **2025 – 8 - 28** | | | | | |
| **5. Available Attendance Forms:** | | | | | |
| **Attending college within practical Classification laboratory- I attend full time** | | | | | |
| **6. Number of Credit Hours (Total) / Number of Units (Total): 3 / 3.5** | | | | | |
| | | | | | |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** | | | | | |
| Name: Dr. Hussien Almtarfi Email: htarish@uowasit.edu.iq | | | | | |
| **8. Course Objectives** | | | | | |
| Course Objectives | | **The study of general botany includes observations with the naked eye, microscope (microscope) in the study of the minute parts of fancy plants. It learns about the external parts of plants and the internal anatomy of the plant, as well as the proteins that occur in the sexual and somatic cells of aromatic and low-lying plants.** | | | |
| **9. Teaching and Learning Strategies** | | | | | |
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, distributed over 15 weeks.** | | | | |
| **10. Course Structure** | | | | | |
| | | | | | |
| **Week** | **Hours** | **Required learning outcomes** | **Unit or Subject Name** | **Learning Method** | **Evaluation Method** |

| | | | | | |
|---|---|---|---|---|---|
| **1** | **3** | **Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills** | The microscope, its parts, how to use it, how to examine slides with it, calculating the magnification power of the lenses. | **Lecture with explanation and presentation.** | **Laboratory + Show videos on correct use while working inside the laboratory.** |
| **2** | **3** | **Knowledge and understanding, brainstorming and mental skills, professional and** | **Explaining the types of segments and the difference between permanent and temporary** | **Samples of slides for s** | **laboratory experiment** |
| **3** | **3** | **Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills** | **Plant Cell<br>Cell contents:<br>A-Protoplast and its components:<br>1-Protoplasm (protoplasmic components)<br>2- Non-protoplasmic components<br>B-Cell wall<br>Composition,** | **Lecture with explanation and presentation<br>Use a + microscope** | **Display screen +laboratory work .** |
| **4** | **3** | **Knowledge and understanding, brainstorming and mental skills, professional and** | **Cell division, direct division, indirect division, meiosis** | **Lecture with explanation and presentation** | **Display screen + examination of slides under a** |
| **5** | **3** | **Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills** | **Exam 1** | | |
| **6** | **3** | **Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills** | **Connective tissue<br>Stomata (formation, structure, function)<br>Non-secretory appendages<br>Plant tissue<br>Meristematic tissues and their division<br>Continuous or permanent tissue** | **Lecture with explanation and presentation** | **Display screen + examination of slides under a microscope** |

| | | | | | |
|---|---|---|---|---|---|
| **7** | **3** | **Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills** | **Vascular tissue<br>Fiber<br>Bark<br>Vascular bundles and their types** | **Lecture with explanation and presentation** | **Display screen + examination of slides under a microscope** |
| **8** | **3** | **Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills** | **the roots<br>The root and its qualities<br>Root zones<br>Types of roots<br>Root anatomy** | **Lecture with explanation and presentation** | **Display screen + examination of slides under a microscope** |
| **9** | **3** | **Knowledge and understanding, brainstorming and mental skills, professional and scientific skills,** | **the leg<br>Characteristics and nature of growth<br>Division of stems according to function** | **Lecture with explanation and presentation** | **Display screen + examination of slides under a microscope** |
| **10** | **3** | **Knowledge and understanding, brainstorming and mental skills,** | **the paper<br>Installation of the sheet<br>Types of papers** | **Lecture with explanation and presentation** | **Display screen + examination of slides** |
| **11** | **3** | **Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills** | **Flower and inflorescences<br>Reveals its surroundings<br>Pollination and fertilization<br>Types of inflorescences** | **Lecture with explanation and presentation** | **Display screen + Plant samples** |
| **12** | **3** | **Knowledge and understanding, brainstorming and mental skills,** | **Fruits and seeds<br>Fruit composition and types** | **Lecture with explanation and presentation** | **Display + samples** |
| **13** | **3** | **Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills** | **Seed and its structure<br>Types of seeds** | **Lecture with explanation and presentation** | **Display + samples** |

| | | | | | |
|---|---|---|---|---|---|
| **14** | | | **Exam2** | | |

| **11. Course Evaluation** | |
|---|---|
| Distribution of 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 Sources** | |
| Required Textbooks (Curricular Books, If Any) | **Practical general plant** |
| Main References (Sources) | **الموسوي، عبد الله حمد. السعدي، حسين علي (1980). وزارة التعليم العالي والبحث العلمي. كلية العلوم. جامعة البصرة.** |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **No** |

**Course Description Form**

**Course Description Form**

| |
|---|
| **1. Course Name:** |
| **Pant economy** |
| **2. Course Code:** |
| PLEC208 |
| **3. Semester / Year:2025- 2026** |
| **First semester-first stage** |
| **4. Description Preparation Date:2025** |
| **2025-8-27** |
| **5. Available Attendance Forms:** |
| **My presence in the department hall- I attend full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total):** |
| **2 hours per week" (2 units)** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |
| Name: Sarah Ali |

| **8. Course Objectives** | |
|---|---|
| Course Objectives | **Introducing the principles and basics of agricultural production economics and economic principles related to production, marketing, etc.** |

| **9. Teaching and Learning Strategies** | |
|---|---|
| Strategy | **The lesson includes (2) theoretical hours, a number of weekly credit hours distributed over 15 weeks.** |

| **10. Course Structure** |
|---|
| |

| Week | Hours | Required learning | Unit or Subject | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| 1 | 3 | Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills | Introduction to economics and consumer behavior theory | Lecture with explanation and presentation. | Display Screen |
| 2 | 3 | Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills | The role of agricultural activity in the national economy | Lecture with explanation and presentation | Display Screen |
| 3 | 3 | Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills | Economics of agricultural production | Lecture with explanation and presentation | Display Screen |
| 4 | 3 | Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills | Production costs the first exam | Lecture with explanation and presentation | Display Screen |
| 5 | | | the first exam | | |

| | | | | | |
|---|---|---|---|---|---|
| **6** | **3** | **Knowledge and understanding, brainstorming and mental skills, professional** | **Agricultural prices** | **Lecture with explanation and presentation** | **Display Screen** |
| **7** | **3** | **Knowledge and understanding, brainstorming and mental skills,** | **Markets and their types** | **Lecture with explanation and presentation** | **Display Screen** |
| **8** | **3** | **Knowledge and understanding, brainstorming** | **Agricultural policy** | **Lecture with explanation and presentation** | **Display Screen** |
| **9** | **3** | **Knowledge and understanding, brainstorming** | **Farm management** | **Lecture with explanation and presentation** | **Display Screen** |
| **10** | **3** | **Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills** | **Agricultural development** | **Lecture with explanation and presentation** | **Display Screen** |
| **11** | | | **Second exam** | | |
| **12** | **3** | **Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills** | **Agricultural marketing** | **Lecture with explanation and presentation** | **Display Screen** |

| | | | | | |
|---|---|---|---|---|---|
| **13** | **3** | **Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills** | **Agricultural finance** | **Lecture with explanation and presentation** | **Display Screen** |

| **11. Course Evaluation** | |
|---|---|
| Distribution of 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 Sources** | |
| Required Textbooks (Curricular Books, If Any) | **No** |
| Main References (Sources) | **الاقتصاد الزراعي/ د.عبد الوهاب مطر الداهري/وزارة التعليم العالي والبحث العلمي/1980** |
| Recommended Books and References (Scientific Journals, Reports...) | **مباديء الاقتصاد الزراعي/د.احمد أبو اليزيد** |
| Electronic References, Websites | محمود سليم \| فور - PDF كتاب الاقتصاد الزراعي ريد (4readlib.com) |

**Course Description Form**

| **1. Course Name:** |
|---|
| **Democracy and Human Rights - First Stage - for all departments / College of Agriculture - University of Wasit** |
| **2. Course Code:** |
| DEMO102 |
| **3. Semester / Year:** |
| **The first semester - The first stage 2025-2026** |
| **4. Description Preparation Date:2025** |

| |
|---|
| **2025-8-27** |
| **5. Available Attendance Forms:** |
| **Presence I attend full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total): 2 Hours weekly 2 units** |
| |
| **7. Course Administrator's Name** |
| Ass. Lecture Amar Hedal |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | **1- Focusing on the fact that rights and freedoms are an integrated theory that has developed throughout the eras of history, and has gone through historical turning points and events that were embodied after a conflict between two trends. The first is based on the foundations that authority is an end and individualism is to serve the legal system in order to achieve its interests. This naturally focuses on restricting freedoms and rights.**<br>**2- Focusing on the fact that the individual is a goal and that authority and the state achieve the individual's goal is a matter that occupied thought, leading to the laws embodying the idea of rights and freedoms in their current form and what religions and divine laws have added to it to form a basic source for this content.**<br>**3- Trying to convey the idea that the importance of rights education comes from a comprehensive and continuous process targeting all peoples and nations and working to consolidate the fulfillment of rights and duties through education, training and media.** |

| **9. Teaching and Learning Strategies** | |
|---|---|
| Strategy | **The lesson includes two theoretical hours, the number of hours per week distributed over 15 weeks.** |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| **1** | **2** | | **Human rights and its concepts** | **An explanatory lecture with explanations and examples using a display screen with** | **Surprise tests and assigning students to manage the lecture under supervision and guidance from us, including tests at the end of each course and monthly.** |
| **2** | **2** | | **Characteristics and types** | **An explanatory lecture with explanations** | **Surprise tests and assigning students to manage the lecture under supervision and** |

| | | | | | |
|---|---|---|---|---|---|
| **3** | | | **The historical development of the idea of human rights according to** | **An explanatory lecture with explanations** | **Surprise tests and assigning students to manage the lecture under supervision and** |
| **4** | | | **The historical development of the idea of human rights among** | **An explanatory lecture with explanations** | **Surprise tests and assigning students to manage the lecture under supervision and** |
| **5** | | | **The historical development of the idea of human rights, in the** | **An explanatory lecture with explanations** | **Surprise tests and assigning students to manage the lecture under supervision and** |
| **6** | | | **Intellectual contribution to the development of the idea of human** | **An explanatory lecture with explanations** | **Surprise tests and assigning students to manage the lecture under supervision and** |
| **7** | | | **First-month exam** | | |
| **8** | | | **Intellectual contribution to the development of the idea of human** | **An explanatory lecture with explanations** | **Surprise tests and assigning students to manage the lecture under supervision and** |
| **9** | | | **Types of rights** | **An explanatory lecture with explanations** | **Surprise tests and assigning students to manage the lecture under supervision and** |
| **10** | | | **Types and public freedoms** | **An explanatory lecture with explanations** | **Surprise tests and assigning students to manage the lecture under supervision and** |
| **11** | | | **The position of some international agreements on human rights** | **An explanatory lecture with explanations** | **Surprise tests and assigning students to manage the lecture under supervision and** |
| **12** | | | **The position of some international agreements on human rights** | **An explanatory lecture with explanations** | **Surprise tests and assigning students to manage the lecture under supervision and** |
| **13** | | | **Democracy and public freedoms** | **An explanatory lecture with explanations** | **Surprise tests and assigning students to manage the lecture under supervision and** |
| **14** | | | **Human rights in declarations of rights and regional documents** | **An explanatory lecture with explanations** | **Surprise tests and assigning students to manage the lecture under supervision and** |

| | | | | | |
|---|---|---|---|---|---|
| **15** | | **Exam** | **Second month exam** | | |

| **11. Course Evaluation** | |
|---|---|
| Distribution of 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 Sources** | |
| Required textbooks (methodology, if any) | The emergence of the theory of public rights and freedoms |
| Main references (sources) | Public freedoms and human rights, Dr. Muhammad Saeed<br>A collection of international documents on human rights |
| Recommended supporting books and references (scientific journals, reports...) | Scientific journals |
| Electronic references, websites | Some research and articles on fiber |

**Course Description Form**

| **1. Course Name:** |
|---|
| **Computer applications2** |
| **2. Course Code:** |
| CUMP208 |
| **3. Semester / Year:** |
| **Second course –Seconed stage** 2025-2025 |
| **4. Description Preparation Date:** |
| **2025-8-27** |
| **5. Available Attendance Forms:** |
| **Full time (lecture practical)** |
| **6. Number of Credit Hours (Total)/Number of Units (Total)** |
| **3 hours per week for 14 weeks** |

| **7. Course Administrator's Name (Mention All, If More Than One Name)** | |
|---|---|
| Name:Dr. Huda Lafta huda.lafta@mail.ru | |
| **8. Course Objectives** | |
| Course Objectives | **General objective: Explain how the student uses the AutoCAD program and how to deal with its applications.**<br>**Specific objective: Developing the student's ability to use AutoCAD in the field of engineering design and drawing.** |
| **9. Teaching and Learning Strategies** | |
| Strategy | |

**10. Course Structure**

| **Week** | **Hours** | **Required learning outcomes** | **Unit or Subject Name** | **Learning Method** | **Evaluation Method** |
|---|---|---|---|---|---|
| **1** | **3** | Acquire skill in the topic mentioned in the next cell of the table | Program operation and general concepts | Direct applications on computers | Daily, monthly and final tests |
| **2** | **3** | Acquire skill in the topic mentioned in the next cell of the table | Learn about the drawing commands listed under the "Master" tab. | Direct applications on computers | Daily, monthly and final tests |
| **3** | **3** | Acquire skill in the topic mentioned in the next cell of the table | Precise drawing and drawing aids such as "Mesh:," "Command Line," "Orthogonality," and "Jump to Elements". | Direct applications on computers | Daily, monthly and final tests |
| **4** | **3** | Acquire skill in the topic mentioned in the next cell of the table | Modifying drawing commands such as delete, move, mirror, matrix, rinse, and stretch commands. | Direct applications on computers | Daily, monthly and final tests |

| | | | | | |
|---|---|---|---|---|---|
| **5** | **3** | Acquire skill in the topic mentioned in the next cell of the table | .**Exam1** | Direct applications on computers | Daily, monthly and final tests |
| **6** | **3** | Acquire skill in the topic mentioned in the next cell of the table | Writing and scratching . Adding dimensions in terms of dimension components and signs | Direct applications on computers | Daily, monthly and final tests |
| **7** | **3** | Acquire skill in the topic mentioned in the next cell of the table | Blocks and descriptions, controlling their specifications, and how to configure, | Direct applications on computers | Daily, monthly and final tests |
| **8** | **3** | Acquire skill in the topic mentioned in the next cell of the table | 3D drawing. | Direct applications on computers | Daily, monthly and final tests |
| **9** | **3** | Acquire skill in the topic mentioned in the next cell of the table | Rigid bodies, how they are created, and the addition and subtraction operations that are performed on them. | Direct applications on computers | Daily, monthly and final tests |
| **10** | **3** | Acquire skill in the topic mentioned in the next cell of the table | Advanced editing operations such as 3D rotation, rectangular matrix, circular matrix, 3D woman, section commands, face extrusion, corner rotation, surface copying, and surface coloring. | Direct applications on computers | Daily, monthly and final tests |
| **11** | **3** | Acquire skill in the topic mentioned in the next cell of the table | Shading and materials in terms of shading drawing elements and adjusting the background color of the scene. | Direct applications on computers | Daily, monthly and final tests |

| | | | | | |
|---|---|---|---|---|---|
| **12** | **3** | Acquire skill in the topic mentioned in the next cell of the table | External files: using external components and adding them to the drawing to reduce effort and not add time with routine work, such as adding people, some furniture, or cars to the drawing. | Direct applications on computers | Daily, monthly and final tests |
| **13** | **3** | Acquire skill in the topic mentioned in the next cell of the table | Printing and output After completing the work on the computer, there must be a way to present the output to the beneficiary party in one of the appropriate ways, such as protective printing, submitting it as a PDF file, or publishing it on the web. | Direct applications on computers | Daily, monthly and final tests |
| **14** | **3** | Acquire skill in the topic mentioned in the next cell of the table | Applications to 2D and 3D graphics. | Direct applications on computers | Daily, monthly and final tests |
| **15** | | | Exam2 | | |
| **11. Course Evaluation** | | | | | |
| Distribution of 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 Sources | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **There are no methodological books** |
| Main References (Sources) | **Computer Curricula, Electronic Calculator Center, University of Kufa.** |
| Recommended Books and References (Scientific Journals, Reports...) | |
| Electronic References, Websites | **Electronic Calculator Center, University of Basra** |

**Course Description Form**

| 1. Course Name: | |
|---|---|
| **Principles of horticulture** | |
| **2. Course Code:** | |
| PIHO205 | |
| **3. Semester / Year:**2026-2025 | |
| **First semester-second stage** | |
| **4. Description Preparation Date:**2025 | |
| **1**-8-**202**5 | |
| **5. Available Attendance Forms:** | |
| **Attending college within practical crop hall- I attend full time** | |
| **6. Number of Credit Hours (Total) / Number of Units (Total): 3 / 3.5-5** | |
| | |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** | |
| Name : Dr. Ahmad Shaker | Email: gl718@uowasit.edu.iq |
| **8. Course Objectives** | |
| Course Objectives | • **Defining the science of horticulture and main mothed of reproduction of fruit and vegetative and decoration plants** |
| **9. Teaching and Learning Strategies** | |

| | |
|---|---|
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, distributed over 15 weeks.** |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| **1** | **2** | | **History of Horticulture science** | **Lecture with explanation and presentation.** | **Display Screen** |
| **2** | **2** | | **The nutritional value of horticultural crop ,mineral element ,protin ,vitamin** | **Lecture with explanation and presentation** | **Display Screen** |
| **3** | **2** | | **Factors affecting the growth of productivity of horticulture a-** | **Lecture with explanation and presentation** | **Display Screen** |
| **4** | **2** | | **Factors affecting the growth of productivity of horticulture a-atmospheric factors ,tem,humitiy ,wind** | **Lecture with explanation and presentation** | **Display Screen** |
| **5** | | | **Exam1** | | |

| | | | | | |
|---|---|---|---|---|---|
| **6** | **2** | | **Sexal reproduction ,the importance ,the the applications the affecting growth of productivity of horticulture b-terestrial factors ,soil water ,salt** | **Lecture with explanation and presentation** | **Display Screen** |
| **7** | **2** | | **Factor Vegetative propagation ,budding ,cutting ,larying** | **Lecture with explanation and presentation** | **Display Screen** |
| **8** | **2** | | **Tissue cultre technique** | **Lecture with explanation and presentation** | **Display Screen** |
| **9** | **2** | | **Tissue cultre technique** | **Lecture with explanation and presentation** | **Display Screen** |
| **10** | **2** | | **Cultivation in aconditioned environment ,construction of green hous and glass** | **Lecture with explanation and presentation** | **Display Screen** |
| **11** | **2** | | **The nursery ,and condition required,** | **Lecture with explanation and presentation** | **Display Screen** |
| **12** | **2** | | **Division of horticulture crop s ,vegetatable plans ,fruit plants ,** | **Lecture with explanation and presentation** | **Display Screen** |
| **13** | **2** | | **Division of ornamental plant ,flower ,tree** | **Lecture with explanation and presentation** | **Display Screen .** |
| **14** | | | **Exam2** | | |

**11. Course Evaluation**

Distribution of 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 Sources | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | |
| Main References (Sources) | **Chen,Q.;Bi.J.;Wu,X.;Yi,J.;Zhou.L.and Zhou,Y.(2015).Drying Kinetics and Quality attributes of jujube slices dried by hot-air and shortand medium-wave infrared radiation LWT-Food Science and technology.64:759-766.** |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **No** |

**Course Description Form**

| **1. Course Name:** |
|---|
| **Practical Principles of horticulture** |
| **2. Course Code:** |
| PIHO205 |
| **3. Semester / Year:202**5**- 202**6 |
| **First Semester – Seconed stage (Crop Section) (2023-2024)** |
| **4. Description Preparation Date:202**5 |
| **11**/8/**202**5 |
| **5. Available Attendance Forms:** |
| **Attending college within practical crop hall- I attend full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total): 3 / 3.5** |
| **5 hours per week (2 theoretical hours + 3 practical hours) - 3 units** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |
| Name : Dr. Ahmad Shaker Email: gl718@uowasit.edu.iq |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | • **Defining the science of horticulture and main mothed of reproduction of fruit and vegetative and decoration plants** |
| **9. Teaching and Learning Strategies** | |
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, distributed over 15 weeks.** |
| **10. Course Structure** | |

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| **1** | **2** | | **Introduction to horticulture division and classification of plants** | **Lecture with explanation and presentation.** | **Display Screen** |
| **2** | **2** | | **Identify some types of plants (vegetables, fruits, ornaments)** | **Lecture with explanation and presentation** | **Display Screen** |
| **3** | **2** | | **Horticultural service operations (patching, thinning, hoeing, soil mulching, irrigation,** | **Lecture with explanation and presentation** | **Display Screen** |
| **4** | **2** | | **Practicing cultivation operations in the fields of the College of Agriculture** | **Lecture with explanation and presentation** | **Display Screen** |
| **5** | **2** | | **Exam1** | **Lecture with explanation and presentation** | **Display Screen** |

| | | | | | |
|---|---|---|---|---|---|
| **6** | **2** | | **Cultivation of seeds for several types of plants (according to the planting season) in different ways in agricultural facilities in the Faculty of Agriculture Breeding methods: sexual reproduction (seed farming methods, agriculture in sindin, box farming, basin farming, maroz agriculture, agriculture in sustainable drilling, peat snadin agriculture and Jiffy7 tablets** | **Lecture with explanation and presentation** | **Display Screen** |
| **7** | **2** | | **Vegetative propagation: Methods of vegetative** | **Lecture with explanation and presentation** | **Display Screen** |
| **8** | **2** | | **Vaccination, types of vaccination, (shield vaccination, patch vaccination, ring** | **Lecture with explanation and presentation** | **Display Screen** |
| **9** | **2** | | **A practical lesson on cuttings and grafting, in the fields of the Faculty of** | **Lecture with explanation and presentation** | **Display Screen** |
| **10** | **2** | | **Propagation by laying (its advantages, disadvantages, laying** | **Lecture with explanation and presentation** | **Display Screen** |
| **11** | **2** | | **The basics of establishing fruit orchards (private orchards,** | **Lecture with explanation and presentation** | **Display Screen** |
| **12** | **2** | | **Fruit tree planting systems and counting the number of trees (methods of planting** | **Lecture with explanation and presentation** | **Display Screen** |

| | | | | | |
|---|---|---|---|---|---|
| **13** | **2** | | **Calculating the number of trees in a quadrilateral way with timers (in one or** | **Lecture with explanation and presentation** | **Display Screen .** |
| **14** | | | **Exam2** | | |

| **11. Course Evaluation** | |
|---|---|
| Distribution of 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 Sources** | |
| Required Textbooks (Curricular Books, If Any) | |
| Main References (Sources) | **Chen,Q.;Bi.J.;Wu,X.;Yi,J.;Zhou.L.and Zhou,Y.(2015).Drying Kinetics and Quality attributes of jujube slices dried by hot-air and shortand medium-wave infrared radiation LWT-Food Science and technology.64:759-766.** |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **No** |

**Course Description Form**

| **1. Course Name:** |
|---|
| **(Agricultural extension) -** |
| **2. Course Code:** |
| AEXT204 |
| **3. Semester / Year:** |
| **Second Semester –Second stage(2025-2026)** |
| **4. Description Preparation Date:** |
| **4/8/2025** |
| **5. Available Attendance Forms: Attending college within practical microbiology laboratories** |

| |
|---|
| **My presence in Hall 2- I attend full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total): 2** |
| **2 hours per week -2units** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |
| Name: Sara Ali |

| **8. Course Objectives** | |
|---|---|
| Course Objectives | **Equip them with skills to communicate, educate, and guide farmers in adopting modern techniques, improving productivity, and promoting sustainable farming practices.** |

| **9. Teaching and Learning Strategies** | |
|---|---|
| Strategy | **The lesson includes (2) theoretical hours and (3) practical hours - the number of weekly hours approved distributed over 15 weeks.** |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| **1** | **2** | | **Agricultural extension and its impact on the development of rural communities** | **Lecture with explanation in presentation** | **Display** |
| **2** | **2** | | **The role of agricultural extension in development and combating underdevelopment** | **Lecture with explanation in presentation** | **Display** |

| | | | | | |
|---|---|---|---|---|---|
| **3** | **2** | | **Agricultural extension –phylsophy and objective** | **Lecture with explanation in presentation** | **Display** |
| **4** | **2** | | **General principles of agricultural extension** | **Lecture with explanation in presentation** | **Display** |
| **5** | **2** | | **Exam1** | | |
| **6** | **2** | | **Agricultural extension activity and its development<br>The different factors watch effect of Agricultural extension** | **Lecture with explanation in presentation** | **Display** |
| **7** | **2** | | **Agricultural Extension Systems and Organizations** | **Lecture with explanation in presentation** | **Display** |
| **8** | **2** | | **Types of Agricultural extension** | **Lecture with explanation in presentation** | **Display** |

| | | | | | |
|---|---|---|---|---|---|
| **9** | **2** | | **Characteristics of an agricultural guide** | **Lecture with explanation in presentation** | **Display** |
| **10** | **2** | | **agricultural advisor qualifications** | **Lecture with explanation in presentation** | **Display** |
| **11** | **2** | | **Duties and duties of an agricultural guide** | **Lecture with explanation in presentation** | **Display** |
| **12** | **2** | | **Program planning and evaluation** | **Lecture with explanation in presentation** | **Display** |
| **13** | **2** | | **Principles of planning guidance programs** | **Lecture with explanation in presentation** | **Display** |
| **14** | | | **Exam2** | | |

**11. Course Evaluation**

Distribution of 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 Sources | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **Agricultural extension, part 2 Dr . Abbas Abdul Mohsen** |
| Main References (Sources) | **No** |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **No** |

**Course Description Form**

| 1. Course Name: | |
|---|---|
| **Oil and sugar crops** | |
| **2. Course Code:** | |
| OI&SU202 | |
| **3. Semester / Year:**2025- 2026 | |
| **Second Semester- Second stage** | |
| **4. Description Preparation Date:**2025 | |
| **1**-8-2025 | |
| **5. Available Attendance Forms:** | |
| **Attending college within practical Jungle laboratory + field.- I attend full time** | |
| **6. Number of Credit Hours (Total) / Number of Units (Total):** | |
| **3 / 3.5** | |
| **7. Course Administrator's Name (** | |
| Name: **Mention All, If More Than One Name)** | |
| **8. Course Objectives** | |
| Course Objectives | **Introducing students to oil and sugar crops and their importance, knowing the botanical description of each crop, how oils and sugars are formed in seeds, and laboratory extraction of vegetable oils.** |
| **9. Teaching and Learning Strategies** | |

| | |
|---|---|
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, distributed over 15 weeks.** |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| 1 | 3 | Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills | Definition of field crops - division of field crops - definition of oil crops - how oil is formed in plant seeds and the composition of oils and fatty acids | Lecture with explanation and presentation. | Display Screen + field. |
| 2 | 3 | Knowledge and understanding, brainstorming and mental skills, professional and scientific skills, and general skills | Introduction to the Soxolite device (a device for extracting oil from seeds), its history, parts, and how to extract oil | Lecture with explanation and presentation | Extraction inside the laboratory using the device |
| 3 | 3 | Knowledge and understanding, brainstorming and mental skills, | Sunflower and its botanical description | Lecture with explanation and presentation | Display Screen + field. |
| 4 | 3 | Knowledge and understanding, brainstorming and mental skills, | Corn( Maize) crop and its botanical description | Lecture with explanation and presentation | Display Screen + field. |
| 5 | 3 | | Exam1 | | |
| 6 | 3 | Knowledge and understanding, brainstorming and mental skills, | Soybean and its botanical description Peanut and its botanical description | Lecture with explanation and presentation | Display Screen + Seed sample |
| 7 | 3 | Knowledge and understanding, brainstorming and mental skills, | Safflower and its botanical description | Lecture with explanation and presentation | Display Screen + field. |
| 8 | 3 | Knowledge and understanding, brainstorming and mental skills, | Rapesed and its botanical description | Lecture with explanation and presentation | Display Screen + field. |

| | | | | | |
|---|---|---|---|---|---|
| **9** | **3** | **Knowledge and understanding, brainstorming and mental skills,** | **Cotton and its botanical description** | **Lecture with explanation and presentation** | **Display Screen + field.** |
| **10** | **3** | **Knowledge and understanding, brainstorming and mental skills,** | **Flax crop and its botanical description** | **Lecture with explanation and presentation** | **field.** |
| **11** | **3** | **Knowledge and understanding, brainstorming and mental skills,** | **View live samples of some oil crops and identify their seeds** | **Field** | **field.** |
| **12** | **3** | **Knowledge and understanding, brainstorming and mental skills,** | **Sugar plants (sugarcane) and its botanical description** | **Lecture with explanation and presentation** | **Display Screen** |

| | | | | | |
|---|---|---|---|---|---|
| **12** | **3** | **Knowledge and understanding, brainstorming and mental skills,** | **Sugar plants (sugarcane) and its botanical description** | **Lecture with explanation and presentation** | **Display Screen** |
| **13** | **3** | **Knowledge and understanding, brainstorming and mental skills,** | **Sugar beet yield and its botanical description** | **Lecture with explanation and presentation** | **Display Screen** |
| **14** | | | **Exam2** | | |

**11. Course Evaluation**

Distribution of 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 Sources**

| | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **Oil and sugar crops** |
| Main References (Sources) | **رزق،توكل يونس وحكمت عبد علي (1980). المحاصيل الزيتية والسكرية .وزارة التعليم العالي والبحث العلمي.**<br><br>**ور، حسين عوني ورزكار حمدي رشيد(1990). المحلصيل الزيتية. وزارة التعليم العالي والبحث العلمي.جامعة الموصل.** |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **no** |

**Course Description Form**

| | |
|---|---|
| **1. Course Name:** | |
| **(Oil and sugar crops)** | |
| **2. Course Code:** | |
| OI&SU202 | |
| **3. Semester / Year:** | |
| **The Second course –Second stage(-**2025-2024**)** | |
| **4. Description Preparation Date:** | |
| **4/** 8/ 2025 | |
| **5. Available Attendance Forms:** | |
| **My presence in Hall No. 3- I attend full time** | |
| **6. Number of Credit Hours (Total) / Number of Units (Total)** | |
| **5 hours per week - 3 units** | |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** | |
| **Name: Dr. Rhiad Almalky** | **Email:** ralmaliki@uowasit.edu.iq |
| **8. Course Objectives** | |
| Course Objectives | **• Providing students with theoretical and applied information in the field of cultivation and production of major oil crops, as well as the characteristics and aspects of oil manufacturing.**<br>**• Providing students with theoretical and applied information in the field of cultivation and production of the main sugar crops, as well as the processes of sugar extraction and manufacturing.** |
| **9. Teaching and Learning Strategies** | |
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, distributed over 15 weeks.** |
| **10. Course Structure** | |
| | |

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| 1 | 2 | | Definition of oil crops, the importance of oil crops, production of oil crops, trade in fats and oils, sources of oils and fats | Lecture with explanation and presentation | Display screen + whiteboard |
| 2 | 2 | | Physical and chemical .properties of oils and fats Components of oils, fatty ,acids - glycerides Partition of oils and fats, composition and representation of oils and fats | Lecture with explanation and presentation | Display screen + whiteboard |
| 3 | 2 | | Methods of extracting oils and .fats Problems and obstacles to the cultivation and production of oil crops and means of overcoming them | Lecture with explanation and presentation | Display screen + whiteboard |
| 4 | 2 | | Study of oil crops Sesame, sunflower (English and scientific name and family, economic importance - original habitat - environmental conditions - soil and crop service processes - harvesting). | Lecture with explanation and presentation | Display screen + whiteboard |
| 5 | 2 | | Peanut, soybean (English and scientific name and family, economic importance - original habitat - environmental conditions - soil and crop service processes - harvesting). | Lecture with explanation and presentation | Display screen + whiteboard |
| 6 | 2 | | Exam1 | | |

| | | | | | |
|---|---|---|---|---|---|
| **7** | **2** | | **Safflower, (English and scientific name and family, economic importance - original habitat - environmental conditions - soil and crop service processes - harvesting). Rape and mustard (English and scientific name and family, economic importance - original habitat - environmental conditions - soil and crop service processes - harvesting).** | **Lecture with explanation and presentation** | **Display screen + whiteboard** |
| **8** | **2** | | **Cotton and flax (English and scientific name and family, economic importance - habitat - environmental conditions - soil and crop service processes - harvesting).** | **Lecture with explanation and presentation** | **Display screen + whiteboard** |
| **9** | **2** | | **Sugar crops Introduction (a brief overview of the history of sugar crops in general)** | **Lecture with explanation and** | **Display screen + whiteboard** |
| **10** | **2** | | **Sugarcane (English and scientific name and family( A brief overview of the plant's development and its original habitat. Geographical distribution Climatic needs** | **Lecture with explanation and presentation** | **Display screen + whiteboard** |
| **11** | **2** | | **Suitable soil, planting time - seed quantity - factors .affecting cuttings Crop service operations (irrigation - fertilization)** | **Lecture with explanation and presentation** | **Display screen + whiteboard** |
| **12** | **2** | | **Sugar beet (English and (scientific name and family Introduction to the development of the sugar beet plant - the original habitat - economic importance and geographical distribution - sugar extraction and oil development.** | **Lecture with explanation and presentation** | **Display screen + whiteboard** |

| | | | | | |
|---|---|---|---|---|---|
| **13** | **2** | | **Plant climatic needs Agricultural operations (suitable soil - planting time - .(planting method Suitable conditions for seed germination - seed quantity - agricultural cycle** | **Lecture with explanation and presentation** | **Display screen + whiteboard** |
| **14** | **2** | | **Crop service operations (thinning operations, weeding, fertilization, harrowing and (uprooting The processes of extracting sugar from sugar beets and manufacturing them include washing and cleaning - the cutting process – purification Sugar corn, its cultivation methods and its importance** | **Lecture with explanation and presentation** | **Display screen + whiteboard** |
| **15** | **2** | | **Exam2** | | |

**11. Course Evaluation**

Distribution of 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 Sources**

| | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **Oil and sugar crops (Dr.. Tawakkol Younis Rizk Dr. Hikmat Abdul Ali)** |
| Main References (Sources) | **No** |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **No** |

**Course Description Form**

| | |
|---|---|
| **1. Course Name:** | |
| ***Plant ecology*** **-** | |
| **2. Course Code:** | |
| 001720 | |
| **3. Semester / Year:**2025- 2026 | |
| **First semester-second stage** | |
| **4. Description Preparation Date:2024** | |
| **1**-4-2025 | |
| **5. Available Attendance Forms:** | |
| In presence- **I attend full time** | |
| **6. Number of Credit Hours (Total) /** | |
| **Number of Units (Total): 5 / 3.5** | |
| **7. Course Administrator's Name** | |
| Name:Dr. Muhanad Kholbas | Email:rawafid.qasim : : albwmohanad@uowasit.ed |
| **8. Course Objectives** | |
| Course Objectives | **Learn about ecology and its relationship with - living organisms**<br>**Identifying climatic and oceanic conditions and - their relationship primarily with plant organisms .in a sequential scientific manner**<br>**Identify the effect of climatic conditions on the - growth of different plants**<br>**Introducing students to environmental pollution, its types, types, harms, and future plans to avoid its risks.** |
| **9. Teaching and Learning Strategies** | |
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, distributed over 15 weeks.** |

| 10. Course Structure | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| **Week** | **Hours** | **Required learning outcomes** | **Unit or Subject Name** | **Learning Method** | **Evaluation Method** |
| **1** | **2** | | **Definition of ecology and the study of environmental factors.** | **a lecture with an explanation, a presentation,** | **display screen + a blackboard** |
| **2** | **2** | | **The ecosystem and its relationship to human ecology and the complete types of** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **3** | **2** | | **Ecological succession, introduction, hydrological succession and arid** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **4** | **2** | | **Climate, weather, dividing the regions of the world according to the** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **5** | **2** | | **Plant efficiency in using light, effects of light on plants** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **6** | **2** | | **Temperature, temperature efficiency, accumulated heat,** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **7** | **2** | | **First month exam** | | |
| **8** | **2** | | **Water, crop water needs, factors affecting water consumption** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **9** | **2** | | **The relationship of water to plants, division of plants** | **a lecture with an explanation, a** | **display screen + a blackboard** |

| | | | | | |
|---|---|---|---|---|---|
| **10** | **2** | | **Wind, its effect on plants, harms and benefits of wind** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **11** | **2** | | **Atmospheric humidity, the effect of humidity on crop growth.** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **12** | **2** | | **Factors affecting atmospheric humidity, the effect of humidity on the** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **13** | **2** | | **Environmental pollution, introduction, definition, nature of** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **14** | **2** | | **Water pollutants and methods of treating them, soil pollution and methods of** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **15** | **2** | | **Second month exam** | | |

**11. Course Evaluation**

Distribution of 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 Sources**

| | |
|---|---|
| Required textbooks (methodology, if any) | **Plant Ecology Book, written by Dr. Hikmat Al-Ani** |
| Main references (sources) | **Basics of Ecology book 2008, written by Dr. Abdel Qader Abdel** |
| Recommended supporting books and references (scientific journals, reports...) | **The book Physiology of Stress in Plants, written by Professor Dr. Moheb Saqr Taha** |
| Electronic references, websites | **Some research and articles on plant environment** |

**Course Description Form**

| | |
|---|---|
| **1. Course Name:** | |
| **Practical plant ecology** | |
| **2. Course Code:** | |
| PLEC208 | |
| **3. Semester / Year:** | |
| **First semester - The first stage /** 2025-2026 | |
| **4. Description Preparation Date:** | |
| **2**/8/2025 | |
| **5. Available Attendance Forms:** | |
| **My presence in the jungle laboratory- I attend full time** | |
| **6. Number of Credit Hours (Total) / Number of Units (Total)** | |
| **(3 practical hours) 3 units** | |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** | |
| Name: Dr. muhand Kholbas | Email: albwmohanad@uowasit.ed |
| **8. Course Objectives** | |
| **Course Objectives •** | • **Identify the most important devices associated with weather monitoring stations**<br>• **Identify the environmental factors affecting atmospheric pressure, solar radiation, and others.** |
| **9. Teaching and Learning Strategies** | |
| Strategy | **The lesson includes (3 practical hours) a number of weekly credit hours distributed over 15 weeks** |
| **10. Course Structure** | |
| | |

| Week | Hours | Required learning | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| 1 | 3 | | Meteorological stations | Lecture with explanation and presentation | Display Screen |
| 2 | 3 | | Solar radiation and measuring devices | Lecture with explanation and | Display Screen |
| 3 | 3 | | Temperatures and devices for measuring them in the atmosphere | Lecture with explanation and | Display Screen |
| 4 | 3 | | Exam1 | | |
| 5 | 3 | | Temperature system and how to calculate it | presentation | Display Screen |
| 6 | 3 | | Humidity and its measuring devices in the atmosphere and soil | Lecture with explanation and presentation | Display Screen |
| 7 | 3 | | Evaporation and evaporation measuring devices | Lecture with explanation and | Display Screen |
| 8 | 3 | | Precipitation, rain and dew measuring devices | Lecture with explanation and | Display Screen |
| 9 | 3 | | Calculating the rainfall rate | Lecture with explanation and | Display Screen |
| 10 | 3 | | Wind, devices for measuring wind speed and direction | Lecture with explanation and | Display Screen |
| 11 | 3 | | Natural plant environments in the world and Iraq | Lecture with explanation and | Display Screen |

| | | | | | |
|---|---|---|---|---|---|
| **12** | **3** | | **Forest vegetation in the world and Iraq** | **Lecture with explanation and** | **Display Screen** |
| **13** | **3** | | **A field visit to the weather station** | **Lecture with explanation and** | **Display Screen** |
| **14** | **3** | | **Meteorological stations** | **Lecture with explanation and** | **Display Screen** |
| **15** | | | **Exam2** | | |

| **11. Course Evaluation** |
|---|
| Distribution of 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 Sources** | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **Lectures from a website** |
| Main References (Sources) | **No** |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **No** |

| | |
|---|---|
| Main References (Sources) | **Chen,Q.;Bi.J.;Wu,X.;Yi,J.;Zhou.L.and Zhou,Y.(2015).Drying Kinetics and Quality attributes of jujube slices dried by hot-air and shortand medium-wave infrared radiation LWT-Food Science and technology.64:759-766.** |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **No** |

**Course Description Form**

| **1. Course Name:** |
|---|

| |
|---|
| **Agricultural equipment and machinery/theoretical part** |
| **2. Course Code:** |
| CRMEC3010 |
| **3. Semester / Year:** |
| **First semester** 2025-2026 **/ second stage** |
| **4. Description Preparation Date:** |
| **30/**8/2025 |
| **5. Available Attendance Forms:** |
| **In-person education- I attend full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total)** |
| **2-3.5 units- 5 hours** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |
| Name: **dr. Ahmad Qati** Email: agatea@uowasit.edu.iq |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | • **Identify the types of agricultural tractors and their parts.**<br>• **Introducing students to the agricultural tractor engine, the engine parts, and the functions of each part.**<br>• **Introducing students to different agricultural machines.** |
| **9. Teaching and Learning Strategies** | |

| | |
|---|---|
| Strategy | **1 - Interest and active participation in the study site (classroom), evidence of the student's commitment and responsibility**<br>**2 -Adherence to the specified timings for submitting reports, homework assignments, and research required of the student to submit.**<br>**3 -Semester and final tests that express the student's interest in cognitive and skill achievement**<br>**4 - Seminars and mini-discussion sessions and their role in localizing the student's scientific knowledge in the subject of the study** |

**10. Course Structure**

| Week | Hours | Required learning | Unit or Subject Name | Learning Method | Evaluation |
|---|---|---|---|---|---|
| **The first** | **2** | **Types of agricultural pullers** | **Agricultural equipment and machinery/theoretical part** | **Lecture and presentation** | **Quarterly exam +Quiz + reports** |
| **The second** | **2** | **Devices and means of transporting power in agricultural tugs** | **Agricultural equipment and machinery/theoretical part** | **Lecture and presentation** | **Quarterly exam +Quiz + reports** |
| **The third** | **2** | **The tug engine, its fixed and moving parts and their functions** | **Agricultural equipment and machinery/theoretical part** | **Lecture and presentation** | **Quarterly exam +Quiz + reports** |
| **The fourth** | **2** | **Auxiliary devices attached to the tug engine** | **Agricultural equipment and machinery/theoretical part** | **Lecture and presentation** | **Quarterly exam +Quiz + reports** |
| **The fifth** | **2** | **Exam1** | | | |
| **The sixth** | **2** | **Gear box and separator ((kilogram** | **Agricultural equipment and machinery/theoreti** | **Lecture and presentation** | **Quarterly exam +Quiz +** |
| **The seventh** | **2** | **Engine cooling system** | **Agricultural equipment and machinery/theoretical part** | **Lecture and presentation** | **Quarterly exam +Quiz + reports** |

| | | | | | |
|---|---|---|---|---|---|
| **The eighth** | **2** | **Fuel system** | **Agricultural equipment and machinery/theoretical part** | **Lecture and presentation** | **Quarterly exam +Quiz + reports** |
| **The ninth** | **2** | **Oil and fuel cleaners (filters)** | **Agricultural equipment and machinery/theoretical part** | **Lecture and presentation** | **Quarterly exam +Quiz + reports** |
| **The tenth** | **2** | **Soil preparation machines for primary treatments (tillage machines.( Dump tillage machines** | **Agricultural equipment and machinery/theoretical part** | **Lecture and presentation** | **Quarterly exam +Quiz + reports** |
| **The eleventh** | **2** | **Digger plow Rotary plow** | **Agricultural equipment and machinery/theoretical part** | **Lecture and presentation** | **Quarterly exam +Quiz + reports** |
| **The twelveth** | **2** | **Soil preparation machines for secondary treatments - smoothing combs Special equipment** | **Agricultural equipment and machinery/theoretical part** | **Lecture and presentation** | **Quarterly exam +Quiz + reports** |
| **The Thirteenth** | **2** | **Seedling and cultivation machines (seeds) and fertilization machines** | **Agricultural equipment and machinery/theoretical part** | **Lecture and presentation** | **Quarterly exam +Quiz + reports** |
| **The fourteenth** | **2** | **Harvesting machines Combined grain harvester Cut potatoes and sugar beets** | **Agricultural equipment and machinery/theoretical part** | **Lecture and presentation** | **Quarterly exam +Quiz + reports** |
| **The Fifteenth** | | **Exam2** | | | |

**11. Course Evaluation**

Distribution of 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. **Homework: 15% Daily exam: 15% Written exam : 50% Scientific reports: 20%**

| 12. Learning and Teaching Sources | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **No** |
| Main References (Sources) | **الميكنة الزراعية ، د. محمد سيد عمران ، د. كمال محمد نافع. 2009.**<br>FMO. (1984) Fundamentals of Machine Operation. John Deere Service Training Dept., Moline, Illinois. USA. |
| Recommended Books and References (Scientific Journals, Reports...) | |
| Electronic References, Websites | http://www.Lab Safety Supply - EZ Facts Safety Info - Document #221, Proper Lifting Techniques.htm |

**Course Description Form**

| **1. Course Name:** |
|---|
| Agricultural mechanization equipment / practical part |
| **2. Course Code:** |
| CRMEC3010 |
| **3. Semester / Year:**2025-2026 |
| The First Semester-second stage |
| **4. Description Preparation Date:**2025 |
| 14-8-2025 |
| **5. Available Attendance Forms:** |
| **I attend full time** |
| **6. Number of Credit Hours (Total) /** |
| **Number of Units (Total): 3/ 3.5** |
| **7. Course Administrator's Name** |
| **(Mention All, If More Than One Name)** |
| **8. Course Objective** |

| | |
|---|---|
| Course Objectives | • **Identify the types of agricultural tractor**<br>• **their parts.**<br>• **Introducing students to the agricultural**<br>• **engine, the engine parts, and the fu each**<br>• **part.**<br>**Introducing students to different agricultural mac** |

| **9. Teaching and Learning Strategies** | |
|---|---|
| Strategy | **1 Education strategy collaborative concept planning.**<br>**2. Brainstorming education strategy.**<br>**3. Education Strategy Notes Series.** |

**10. Course Structure**

| **Week** | **Hours** | **Required learning** | **Unit or Subject Name** | **Learning** | **Evaluation Method** |
|---|---|---|---|---|---|
| **1** | **2** | | **• Identify the ty of agricultu tractors** | | |
| **2** | **2** | | **• View the device and parts of the tug and the mea of transporti power in t** | | |
| **3** | **2** | | **• Watch the tug engine and lea about its fixed a** | | |
| **4** | **2** | | **• Identify the auxiliary devi attached to** | | |
| **5** | **2** | | **• See the gear box, the separato the differential device, and the final reduction device and how they work vic** | | |
| **6** | **2** | | **Exam1** | | |

| | | | | | |
|---|---|---|---|---|---|
| **7** | **2** | | **• See the gear box, the separator, t differential device, and the final reduction device and how they** | | |
| **8** | **2** | | **• Watch the Engine lubrication system and how maintain it.** | | |
| **9** | **2** | | **• Watch the engine cooling system and** | | |
| **10** | **2** | | **• Identify the fuel system and how it works** | | |
| **11** | | | **• Identify the types of oil and fuel cleaners** | | |
| **12** | **2** | | **• Identifying t machines preparing the s** | | |
| **13** | **2** | | **• Watch t excavator a rotary plow, th** | | |
| **14** | **2** | | **• Identifying t parts of s preparation** | | |
| **15** | | | **Exam2** | | |

**11. Course Evaluation**

**Distribution is as follows: 25 marks for monthly and daily exams for the first semester 25 for monthly and daily exams for the second semester. 50 marks for final exams**

| 12. Learning and Teaching Sources | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **No** |
| Main References (Sources) | 1. Agricultural mechanization. For agricultural sec school classes. The Egyptian Arabic Republic . 2<br>2 .Tractors and agricultural machinery for agric professional institutes. Republic of Yemen . 2010 |
| Recommended Books and References (Scientific Journals, Reports...) | **NO** |
| Electronic References, Websites | **No** |

**Course Description Form**

| **1. Course Name:** |
|---|
| Soil Fertility and Fertilizers |
| **2. Course Code:** |
| GRAC301 |
| **3. Semester / Year:** |
| **first semester \ 2025-2-26** |
| **4. Description Preparation Date:** |
| **31-8-2025** |
| **5. Available Attendance Forms:** |
| **Attending** |
| **6. Number of Credit Hours (Total) / Number of Units (Total)** |

| |
|---|
| **5 hours ( 2 Theoretical and 3 practical) 3.5 units** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |
| Name: Dr. Noor alhuda Jwaad Email |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | • **Identify the types of fertilizers**<br>• **The most important interactions of fertilizers in the soil** |

| | |
|---|---|
| **9. Teaching and Learning Strategies** | |
| Strategy | **In-person lectures for 15 weeks, including two monthly exams and daily exams** |

**10. Course Structure**

| **Week** | **Hours** | **Required learning outcome** | **Unit or Subject Name** | **Learning Method** | **Evaluation Method** |
|---|---|---|---|---|---|
| 1 | **2** | | Nutrient elements and classification | Lecture with explanatio | daily exam |
| 2 | **2** | | Source of nutrients | Lecture with explanatio | daily exam |
| 3 | **2** | | Factors affecting soil fertility | Lecture with explanatio | daily exam |
| 4 | **2** | | Soil fertility and plant growth | Lecture with explanation presentation | daily exam |

| | | | | | |
|---|---|---|---|---|---|
| 5 | | | | | Exam1 |
| 6 | **2** | | Nitrogen of soil and fertilizer | | |
| 7 – 8 | **2** | | Phosphorus of soil and fertilizers | Lecture with explanation presentation | daily exam |
| 9 – 10 | **2** | | Potassium of soil and fertilizers | Lecture with explanatio | daily exam |
| 11 | **2** | | Sulfur of soil and fertilizers | Lecture with explanatio | daily exam |
| 12 – 13 | **2** | | Trace elements | Lecture with explanatio | daily exam |
| 14 | **2** | | Organic manures | Lecture with explanation presentation | daily exam |

| | | | | | |
|---|---|---|---|---|---|
| 15 | | | Exam2 | | |

| **11. Course Evaluation** | |
|---|---|
| The final exam consists of 50 monthly exams, 10 for each monthly exam, 5 daily exams, and 5 reports | |
| **12. Learning and Teaching Sources** | |
| Required Textbooks (Curricular Books, If Any) | **نوري عبدالقادر حسن واخرون .1990.خصوبة التربة والاسمدة .كلية الزراعة-جامعة البصرة.** |
| | **سعدالله النعيمي .1999.الأسمدة وخصوبة التربة .كلية الزراعة والغابات-جامعة الموصل** |
| Main References (Sources) | **No** |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **No** |

**Course Description Form**

| | |
|---|---|
| **1. Course Name:** | |
| **Irrigation and drainage** | |
| **2. Course Code:** | |
| LANRE304 | |
| **3. Semester / Year:** | |
| **Second semester \ 2025-2026** | |
| **4. Description Preparation Date:** | |
| **3-8-2025** | |
| **5. Available Attendance Forms:** | |
| **Attending** | |
| **6. Number of Credit Hours (Total) / Number of Units (Total)** | |
| **5. hours ( 2 Theoretical and 3 practical) 3units** | |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** | |
| **Dr. Layth Salam** | **mail :** |
| **8. Course Objectives** | |
| Course Objectives | **• importance of the issue of field irrigation and drainage from the agricultural and engineering side for the purpose of identifying the best steps and methods for calculating irrigation and drainage requirements and the most important characteristics related to soil, plants and environmental conditions in order to reach the best use of water resources and increase the efficiency of use of irrigation water and preserve the soil and its properties from deterioration.** |
| **9. Teaching and Learning Strategies** | |
| Strategy | **In-person lectures for 15 weeks, including two monthly exams and daily exams** |
| **10. Course Structure** | |
| | |

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| 1 | 2 | The concept of irrigation, irrigation old and new | | | |
| 2 | 2 | sources of irrigation water. Irrigation water quality | | | |
| 3 | 2 | Physical properties of soil related to irrigation | | | |
| 4 | 2 | Water-soil relationship, soil moisture constants, water movement in soil, water tip | | | |
| 5 | | Exam1 | | | |
| 6 | 2 | Plant water consumption Measuring water | | | |
| 7 | 2 | Water requirements and irrigation scheduling | | | |

| | | | | | |
|---|---|---|---|---|---|
| **8** | **2** | **Transmission and distribution of irrigation water, movement of water in pipes and open channels** | | | |
| **9** | **2** | **modern irrigation methods** | | | |
| **10-11** | **2** | **The concept of drainage, the justification for the establishment of drains, the relationship of drainage to plant** | | | |
| **12** | **2** | **Drainage and soil salinity, leaching requirements and salt balance** | | | |
| **13** | **2** | **Types of drains, their classification, and the objectives of their establishment** | | | |
| **14** | **2** | **Designs of open and covered drains systems and calculating the distances between drains** | | | |
| **15** | | **Exam2** | | | |
| **1** | **3** | **Survey the land and draw a contour map** | | | |

| | | | | | |
|---|---|---|---|---|---|
| **2** | **3** | **Measuring levels and calculating the amount of excavation and backfilling for an irrigation channel** | | | |
| **3** | | **Measuring soil moisture** | | | |
| **4** | **3** | **Measuring water in different ways. raft, weir, manhole, parachal channel, drain pumps.** | | | |
| **5** | | **Exam1** | | | |
| **6** | | **applications in calculating water consumption. Crop Wat application in ET0 acc gauge water tip ount** | | | |
| **7** | **3** | **applications in calculating the water needs of plants** | | | |
| **8** | **3** | **applications in calculating the amount of water and irrigation periods** | | | |

| | | | | | |
|---|---|---|---|---|---|
| **9** | **3** | **applications in calculating the adequacy, efficiency and consistency of irrigation water distribution** | | | |
| **10** | **3** | **Design of the canals: an earthen irrigation canal. Lined irrigation channel** | | | |
| **11** | **3** | **Investigations required for the construction of drains, exploratory and operational investigations** | | | |
| **12** | **3** | **Measurement of saturated hydraulic conductivity in the laboratory and field** | | | |
| **13** | **3** | **open drains design and closes** | | | |
| **14** | **3** | **Designs of open and covered drains systems** | | | |
| **15** | **3** | **Exam2** | | | |

**11. Course Evaluation**

**The final exam consists of 50 monthly exams, 10 for each monthly exam, 5 daily exams, and 5 reports**

**12. Learning and Teaching Sources**

| | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **Irrigation, its basics and applications, written by Dr. Nabil Ibrahim Al-Tayef and Dr. Issam Khudair Hamza Al-Hadithi, 1988, Ministry of Higher Education and Scientific Research - University of Baghdad**<br>**Irrigation and drainage, written by Dr. Laith Khalil Ismail, 2000, Ministry of Higher Education and Scientific Research .- University of Mosul .**<br>**Design and Management of Field Irrigation Systems, written by Dr. Samir Muhammad Ismail, 2002, Faculty of Agriculture - Alexandria University.**<br>**Modern irrigation technologies and other topics in the water issue, written by Dr. Issam Khudair Al-Hadithi, Dr. Ahmed Madloul Al-Kubaisi, and Dr. Yas Khudair Hamza Al-Hadithi, 2010, Ministry of Higher Education and Scientific Research - Anbar University** |
| Main References (Sources) | **No** |
| Recommended Books and References (Scientific Journals, Reports...) | **Iraqi academic scientific journals** |
| Electronic References, Websites | oil Science Society Of America Library Genesis |

**Course Description Form**

| | |
|---|---|
| **1. Course Name:** | |
| **Plant Taxonomic** | |
| **2. Course Code:** | |
| PTAXO201 | |
| **3. Semester / Year:** | |
| **The first course- second stage (-2025-2026)** | |
| **4. Description Preparation Date:** | |
| **6/ 8/ 2025** | |
| **5. Available Attendance Forms:** | |
| **My presence in** Plant Classification Lab.**- I attend full time** | |
| **6. Number of Credit Hours (Total) / Number of Units (Total)** | |
| **5 hours per week - 3 units** | |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** | |
| **Name: Dr. Hussien Almtarfi** | **Email: htarish@uowasit.edu.iq** |
| **8. Course Objectives** | |
| Course Objectives | **1- Providing students with theoretical and applied information on methods of classifying plants, taxonomic ranks, and the foundations of plant classification.**<br>**2- • Providing students with theoretical and applied information on the structure and parts of various plants.** |
| **9. Teaching and Learning Strategies** | |
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, distributed over 15 weeks.** |
| **10. Course Structure** | |

| | | | | | |
|---|---|---|---|---|---|
| **Week** | **Hours** | **Required learning outcomes** | **Unit or Subject Name** | **Learning Method** | **Evaluation Method** |
| **1** | **3** | | **Fundamentals of Plant Classification and Taxonomic Categories** | **Lecture with explanation and presentation** | **Display screen + whiteboard** |
| **2** | **3** | | **Scientific nomenclature - plant classification** | **Lecture with explanation and presentation** | **Display screen + whiteboard** |
| **3** | **3** | | **The roots Morphological of roots- types of roots** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live simple** |
| **4** | **3** | | **Stems - types of stems - modifications of stems** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live simple** |
| **5** | **3** | | **The leaf- types of leaves- Types of blade in leaves- leaf margins** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live simple** |
| **6** | **3** | | **- leaf Apex- leaf Venation- Leaves Arrangment- leaf mutations** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live simple** |

| | | | | | |
|---|---|---|---|---|---|
| **7** | **3** | | **Flower<br>flower components** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live simple** |
| **8** | **3** | | **A field visit to nearby crop fields to learn about plants** | | |
| **9** | **3** | | **types of flowers** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live simple** |
| **10** | **3** | | **Aestivation<br>Symmetry** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live simple** |
| **11** | **3** | | **Placentation** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live simple** |
| **12** | **3** | | **Inflorescences - types of inflorescences** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live simple** |
| **13** | **3** | | **The fruit - types of fruits - The stages of fruition** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live simple** |

| | | | | | |
|---|---|---|---|---|---|
| **14** | **3** | | **Seeds - Classification of seeds- Diagnose and distinguish crop seeds** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live simple** |
| **15** | **3** | | **A visit to one of the nearby nurseries to learn about different plants and their parts** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live simple** |

| **11. Course Evaluation** | |
|---|---|
| Distribution of 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 Sources** | |
| Required Textbooks (Curricular Books, If Any) | **1- Plant taxonomy**<br>**Ali Hussein Issa**<br><br>**2- Principle general plant**<br>**Abdullah Hamad Al Musawi**<br>**D. Hussein Ali Al-Saadi** |
| Main References (Sources) | **No** |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **Multiple sources related to the classification and division of plants** |

**Course Description Form**

| **1. Course Name:** |
|---|
| **Plant Taxonomic) - Second stage - Field Crops Department - College of Agriculture - University of Basra** |
| **2. Course Code:** |
| 001720 |
| **3. Semester / Year:** |

| |
|---|
| **The first course- second stage (-2025-2026)** |
| **4. Description Preparation Date:** |
| **10/ 8/ 2025** |
| **5. Available Attendance Forms:** |
| **My presence in** Plant Taxonomy Lab. **I attend full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total)** |
| **5 hours per week - 3 units** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |
| **Name: Dr. Nada mohammad Email:** |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | **1- Providing students with theoretical and applied information on methods of classifying plants, taxonomic ranks, and the foundations of plant classification.**<br>**2- • Providing students with theoretical and applied information on the structure and parts of various plants.** |

| | |
|---|---|
| **9. Teaching and Learning Strategies** | |
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, distributed over 15 weeks.** |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| 1 | 3 | | Fundamentals of Plant Classification and Taxonomic Categories | Lecture with explanation and presentation | Display screen + whiteboard |

| | | | | | |
|---|---|---|---|---|---|
| **2** | **3** | | **Scientific nomenclature - plant classification** | **Lecture with explanation and presentation** | **Display screen + whiteboard** |
| **3** | **3** | | **The roots<br>Morphological of roots-<br>types of roots** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live symple** |
| **4** | **3** | | **Stems - types of stems - modifications of stems** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live simple** |
| **5** | **3** | | **The leaf- types of leaves- Types of blade in leaves- leaf margins** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live symple** |
| **6** | **3** | | **- leaf Apex- leaf Venation- Leaves Arrangment- leaf mutations** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live symple** |
| **7** | **3** | | **Flower<br>flower components** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live simple** |
| **8** | **3** | | **A field visit to nearby crop fields to learn about plants** | | |

| | | | | | |
|---|---|---|---|---|---|
| **9** | **3** | | **types of flowers** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live symple** |
| **10** | **3** | | **Aestivation Symmetry** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live symple** |
| **11** | **3** | | **Placentation** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live symple** |
| **12** | **3** | | **Inflorescences - types of inflorescences** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live symple** |
| **13** | **3** | | **The fruit - types of fruits - The stages of fruition** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live symple** |
| **14** | **3** | | **Seeds - Classification of seeds- Diagnose and distinguish crop seeds** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live symple** |

| | | | | | |
|---|---|---|---|---|---|
| **15** | **3** | | **A visit to one of the nearby nurseries to learn about different plants and their parts** | **Lecture with explanation and presentation** | **Display screen + whiteboard + Live symple** |

| **11. Course Evaluation** |
|---|
| Distribution of 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 Sources** | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **1- Plant taxonomy**<br>**Ali Hussein Issa**<br><br>**2- Principle general plant**<br>**Abdullah Hamad Al Musawi**<br>**D. Hussein Ali Al-Saadi** |
| Main References (Sources) | **No** |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **Multiple sources related to the classification and division of plants** |

| **1. Course Name: -** |
|---|
| Legume crops |
| **2. Course Code:** |
| LEGCR309 |
| **3. Spring / Year:** |
| **Second semester – third stage 2025-2026** |
| **4. Description Preparation Date:** |
| **1/8/2025** |
| **5. Available Attendance Forms:** |
| **I attend full time** |

**6. Number of Credit Hours (Total) 3 practical hours per week. Total 45**

/ Number of units (total) 1:5

**7. Course Administrator's Name (Mention All, If More Than One Name)**

Name:Dr. Hussien QAlmtarfi Email: htarish@uowasit.edu.iq

**8. Course Objectives**

| | |
|---|---|
| Course Objectives | Ability to work in the agricultural sector and in the field of field crops<br>• Increasing the spirit of competition among students for academic excellence and obtaining good job |

**9. Teaching and Learning Strategies**

| | |
|---|---|
| Strategy | **-Working to graduate students with concepts in the field of field management in a good manner-**<br>**-Working to graduate students familiar with sciences related to crop management, such as plant physiology, irrigation, and puncturing.**<br>**- Introducing students to the types and nature of their growth, methods of propagation and reproduction, and the characteristics of their growth and harvest.** |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| **1** | | The importance of legumes | | theoretical and practical power point | Daily and monthly tests |
| **2** | | Beans - botanical description - varieties - | | Field or laboratory | |
| **3** | | Lentils - botanical description - varieties - | | | |
| **4** | | Chickpeas - botanical description - varieties - | | | |

| | | | | | |
|---|---|---|---|---|---|
| **5** | | **Assignment -1** | | | |
| **6** | | Field pistachios - botanical description - | | | |
| **7** | | Harthman - botanical description - varieties | | | |
| **8** | | Soybeans - botanical description - varieties - | | | |
| **9** | | **Assignment 2** | | | |
| **10** | | Beans - botanical description - varieties - | | | |
| **11** | | Peas - botanical description - varieties - | | | |
| **12** | | Cowpeas - botanical description - varieties - diseases | | | |
| **13** | | **Assignment 3** | | | |
| **14** | | Intercropping | | Assignment 3 | |
| **15** | | Harvesting and storing | | | |

| **11. Course Evaluation** |
|---|
| Distribution of 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 Sources** | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **No** |

| | |
|---|---|
| Main References (Sources) | 1- Scientific foundations for managing, producing and improving field crops. Hussein Al-Muaini and Muhammad Awaid Ghadeer Al-Obaidi. College of Agriculture - University. Anbar, 2018<br>2- Principles of field crop production: Muhammad Hazal Kazem Al-Baldawi, Aladdin Abdul Majeed Al-Jubouri, and Muwaffaq Abdul Razzaq Suhail Al-Naqeeb. College of Agriculture - University of Baghdad-2014 |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **No** |

**Course Description Form**

| |
|---|
| **1. Course Name** |
| **: *Legume Crops lab*** |
| **2. Course Code:** |
| LEGCR309 |
| **3. Semester / Year:** |
| **Second semester – third stage 2025- 2026** |
| **4. Description Preparation Date** |
| **1-8-2025** |

| **5. Available Attendance Forms:** | | | | | |
|---|---|---|---|---|---|
| In presence – **full time** | | | | | |
| **6. Number of Credit Hours (Total) / Number of Units (Total):** | | | | | |
| **5 / 3.5** | | | | | |
| **7. Course Administrator's Name** | | | | | |
| Name: Dr. Hussien almtarfi Email: | | | | | |
| **8. Course Objectives** | | | | | |
| Course Objectives | **Definition of legume crops, and what is their importance in human food -1**<br>**The importance of legume crops to the soil -2**<br>**Classification of crops of the leguminous family according to the growing season -3**<br>**4- The importance of crops of the leguminous family as animal feed** | | | | |
| **9. Teaching and Learning Strategies** | | | | | |
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, and distributed over 15 weeks.** | | | | |
| **10. Course Structure** | | | | | |
| | | | | | |
| **Week** | **Hours** | **Required learning outcomes** | **Unit or Subject Name** | **Learning Method** | **Evaluation Method** |
| **1** | **2** | **Leguminous seed crops and their importance** | | **a lecture with an explanation, a presentation,** | **display screen + a blackboard** |
| **2** | **2** | **Nitrogen fixation, root nodule formation** | | **a lecture with an explanation, a** | **display screen + a blackboard** |

| | | | | | |
|---|---|---|---|---|---|
| **3** | **2** | **Intercropping** | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **4** | **2** | **Beans, origin, economic importance, uses** | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **5** | **2** | **Nutritional value of beans, varieties, genetic sources** | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **6** | **2** | **Nutritional value of beans, varieties, genetic sources** | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **7** | | | **First-month exam** | | |
| **8** | **2** | **Chickpeas, economic importance, uses, components of the** | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **9** | **2** | **Chickpea crop varieties, nitrogen fixation in chickpeas, maturity** | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **10** | **2** | **Mung beans, economic importance, nutritional value,** | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **11** | **2** | **Cowpeas, economic importance, nutritional value, maturity, and** | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **12** | **2** | **Soybeans, economic importance, nutritional value, maturity and** | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **13** | **2** | **Field pistachios, economic importance, nutritional value,** | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **14** | **2** | **Peas, economic importance, nutritional value, maturity and** | | **a lecture with an explanation, a** | **display screen + a blackboard** |

| | | | | | |
|---|---|---|---|---|---|
| **15** | | | **Second month exam** | **a lecture with an explanation, a** | **display screen + a blackboard** |

| **11. Course Evaluation** | |
|---|---|
| Distribution of 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 Sources** | |
| Required textbooks (methodology, if any) | **Plant Ecology Book, written by Dr. Hikmat Al-Ani** |
| Main references (sources) | **Basics of Ecology book 2008, written by Dr. Abdel Qader Abdel** |
| Recommended supporting books and references (scientific journals, reports...) | **The book Physiology of Stress in Plants, written by Professor Dr. Moheb Saqr Taha** |
| Electronic references, websites | **Some research and articles on the plant environment** |

**Course Description Form**

| **1. Course Name:** |
|---|
| ***design and analysis of agriculture experiments*** |
| **2. Course Code:** |
| FCRDE306 |
| **3. Semester / Year:2025- 2026** |
| **First semester- third stage** |
| **4. Description Preparation Date:2025** |
| **1-5-2025** |
| **5. Available Attendance Forms:** |
| In presence- **full time** |

| **6. Number of Credit Hours (Total) / Number of Units (Total):** | |
|---|---|
| **5 / 3.5** | |
| **7. Course Administrator's Name** | |
| **Dr. Nabel Lahmod** | |
| **8. Course Objectives** | |
| Course Objectives. | **introduction to general concepts of desertification.**<br>**The difference between desertification and deserts.**<br>**Climate changes and their relationship to desertification.**<br>**Global warming and the greenhouse effect phenomenon.**<br>**Crops adapted to desertification.** |
| **9. Teaching and Learning Strategies** | |
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, and distributed over 15 weeks.** |
| **10. Course Structure** | |

| **Week** | **Hours** | **Required learning outcomes** | **Unit or Subject Name** | **Learning Method** | **Evaluation Method** |
|---|---|---|---|---|---|
| **1** | **2** | Introduction to Statistics | | **a lecture with an explanation, a presentation,** | **display screen + a blackboard** |
| **2** | **2** | Principles of Statistics. | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **3** | **2** | Statistical procedures for agricultural research. | | **a lecture with an explanation, a** | **display screen + a blackboard** |

| | | | | | |
|---|---|---|---|---|---|
| **4** | **2** | Measures of dispersion and centering | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **5** | **2** | Introduction to agricultural experiment design | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **6** | **2** | Completely Randomized Design (applications) | | **a lecture with an explanation, a presentation** | **display screen + a blackboard** |
| **7** | | | **First-month exam** | | |
| **8** | **2** | Tests suggested after experimentation | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **9** | **2** | Randomized complete block design | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **10** | **2** | The relative efficiency of a complete randomized block design | | **a lecture with an explanation,** | **display screen + a blackboard** |
| **11** | **2** | | | **a lecture with an explanation,** | **display screen + a blackboard** |
| **12** | **2** | The relative efficiency of the Latin square design compared to the | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **13** | **2** | Latin Squair Design | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **14** | **2** | Factorial Experiments | | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **15** | | | **Second month exam** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **11. Course Evaluation** | | | | | |

| | |
|---|---|
| Distribution of 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 Sources** | |
| Required textbooks (methodology, if any) | design and analysis of agricultural experiments |
| Main references (sources) | Principles of Statistics.<br>design and analysis of agricultural experiments |
| Recommended supporting books and references (scientific journals, reports...) | Statistical procedures for agricultural research. |
| Electronic references, websites | Many resources |

**Course Description Form**

| |
|---|
| **1. Course Name:** |
| ***practical fodder crops –*** |
| **2. Course Code:** |
| FOCRO305 |
| **3. Semester / Year:2025- 2026** |
| **First semester-third stage** |
| **4. Description Preparation Date:2025** |
| **1-8-2025** |
| **5. Available Attendance Forms:** |
| In presence- **full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total):** |
| **5 / 3.5** |
| **7. Course Administrator's Name** |
| Name: |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | **1- definition of fiber crops ,and whatis their importance in industries**<br>**2-division of fiber crops and their importance to humans**<br>**3- classification of fiber crops** |

**9. Teaching and Learning Strategies**

| | |
|---|---|
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, and distributed over 15 weeks.** |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| 1 | 3 | Divination of fiber | | a lecture explain with view models | display screen + a blackboard |
| 2 | 3 | Seeds Fibers | | a lecture explain with view models | display screen + a blackboard |
| 3 | 3 | The effect of environmental factors on cotton growth | | a lecture explain with view models | display screen + a blackboard |
| 4 | 3 | Agricultural operations | | a lecture explain with view models | display screen + a blackboard |
| 5 | 3 | Topping | | a lecture explain with view models | display screen + a blackboard |
| 6 | 3 | Genie and its types | | a lecture explain with view models | display screen + a blackboard |

| | | | | | |
|---|---|---|---|---|---|
| **7** | | **Exam** | **First-month exam** | | |
| **8** | **3** | **Stem fibers** | | **a lecture explain with view models** | **display screen + a blackboard** |
| **9** | **3** | **Crop service operations** | | **a lecture explain with view models** | **display screen + a blackboard** |
| **10** | **3** | **General properties of fibers** | | **a lecture explain with view models** | **display screen + a blackboard** |
| **11** | **3** | **Jute** | | **a lecture explain with view models** | **display screen + a blackboard** |
| **12** | **3** | **Kanaf (Juljule)** | | **a lecture explain with view models** | **display screen + a blackboard** |
| **13** | **3** | **Cannabis** | | **a lecture explain with view models** | **display screen + a blackboard** |
| **14** | **3** | **Leaf fiber** | | **a lecture explain with view models** | **display screen + a blackboard** |
| **15** | | **Exam** | **Second month exam** | | **display screen + a blackboard** |

**11. Course Evaluation**

Distribution of 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 Sources**

| | |
|---|---|
| Required textbooks (methodology, if any) | Fiber crops ,written by Dr.hikmat abdel ali |
| Main references (sources) | Fiber crops ,written by Dr. ayad talaat shaker |
| Recommended supporting books and references (scientific journals, reports...) | Scientific journals with field of fiber crops |

| | |
|---|---|
| Electronic references, websites | Some research and articles on fiber crops |

| | |
|---|---|
| **1. Course Name: Practice part** | |
| ***fodder crops*** | |
| **2. Course Code:** | |
| FOCRO305 | |
| **3. Semester / Year:2025- 2026** | |
| **First semester-third stage** | |
| **4. Description Preparation Date:2025** | |
| **12-8-2025** | |
| **5. Available Attendance Forms:** | |
| In presence- **full time** | |
| **6. Number of Credit Hours (Total) / Number of Units (Total):** | |
| **5 / 3.5** | |
| **7. Course Administrator's Name** | |
| Name:<br>Email: | |
| **8. Course Objectives** | |
| Course Objectives | **1- definition of fiber crops ,and whatis their importance in industries**<br>**2-division of fiber crops and their importance to humans**<br>**3- classification of fiber crops** |
| **9. Teaching and Learning Strategies** | |

| | |
|---|---|
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, and distributed over 15 weeks.** |

**10. Course Structure**

| Week | Hours | Terms and definitions | | | |
|---|---|---|---|---|---|
| **1** | **3** | **The importance of forage crops in agricultural cycles and soil maintenance** | | **Lecture** | **display screen + a blackboard** |
| **2** | **3** | **The importance of legume forage crops** | | **Lecture** | **lecture** |
| **3** | **3** | **Alfalfa crops** | | **Lecture** | **lecture** |
| **4** | **3** | **Berseem Egyptian crops** | | **Lecture** | **lecture** |
| **5** | **3** | **Sweet clover crops and soybean crops** | | **Lecture** | **lecture** |
| **6** | **3** | **Exam** | | **Lecture** | **lecture** |
| **7** | | **The importance of grass forage crops Barley crop** | | **Lecture** | **lecture** |
| **8** | **3** | **Oat crop** | | **Lecture** | **lecture** |
| **9** | **3** | **Corn and sorghum crops** | | **Lecture** | **lecture** |

| | | | | | |
|---|---|---|---|---|---|
| **10** | **3** | **Sudan grass and millets crop** | | **Lecture** | **lecture** |
| **11** | **3** | **Forage mixtures** | | **Lecture** | **lecture** |
| **12** | **3** | **Pastures and their types** | | **Lecture** | **lecture** |
| **13** | **3** | **Range Condition Estimation methods** | | **Lecture** | **lecture** |
| **14** | **3** | **Terms and definitions** | | **Lecture** | **lecture** |
| **15** | | **Exam** | **Second month exam** | | |

| **11. Course Evaluation** |
|---|
| Distribution of 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 Sources** | |
|---|---|
| Required textbooks (methodology, if any) | Fiber crops ,written by Dr.hikmat abdel ali |
| Main references (sources) | Fiber crops ,written by Dr. ayad talaat shaker |
| Recommended supporting books and references (scientific journals, reports...) | Scientific journals with field of fiber crops |
| Electronic references, websites | Some research and articles on fiber crops |

**Course Description Form**

| **1. Course Name:** |
|---|
| **(Theoretical Genetics** |
| **2. Course Code:** |
| GENE302 |

| |
|---|
| **3. Semester / Year:** |
| **first Semester-third stage (2025-2026)** |
| **4. Description Preparation Date:** |
| **2025-8-31** |
| **5. Available Attendance Forms: Attending college within practical microbiology laboratories**<br>**Full time** |
| **My presence in Hall 2** |
| **6. Number of Credit Hours (Total) / Number of Units (Total):** |
| **5 hours per week (2 hours theoretical + 3 hours practical) / 3.5 units** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |
| Dr. Riad Jabar Mansor |

| | |
|---|---|
| **8. Course Objectives** | |
| Course Objectives | • **Learn about genetics and related sciences**<br>• **Learn about Mendel's laws**<br>• **Study of pollination methods with plants** |
| **9. Teaching and Learning Strategies** | |
| Strategy | **The lesson includes (2) theoretical hours and (3) practical hours - the number of weekly hours approved distributed over 15 weeks.** |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| **1** | **2** | | **Introduction to genetics - definition of genetics - its benefits - its connection with other sciences. The concept of Phenotype and Genotype - Test cross - cross multiplication- retrograde crosstalk.** | **Lecture with explanation in presentation** | **Display + Blackboard** |

| | | | | | |
|---|---|---|---|---|---|
| **2** | **2** | | **Mendelian inheritance - Mendel's first law - Mendel's second law - types of sovereignty.** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **3** | **2** | | **Overlap of allelic genes - overlap of non-allelic genes - different cases of superiority.** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **4** | **2** | | **Multiple alleles-Examples of multiple alleles-Sex chromosomes-Sex systems in organisms-Sex-linked traits-Sex-affected traits-Sex-determining traits.** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **5** | **2** | | **Exam1** | | |
| **6** | **2** | | **Genetic maps - How to draw genetic maps - The importance of genetic maps Linkage and crossing over - types of linkage - the mechanics of crossing over - theories that explain the phenomenon of genetic crossing over** | **Lecture with explanation in presentation** | **Display + Blackboard** |

| | | | | | |
|---|---|---|---|---|---|
| **7** | **2** | | **Genetic mutations - their types - their origin - their means of occurrence - their importance** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **8** | **2** | | **Cytoplasmic Heredity Examples of Cytoplasmic Inheritance Quantitative Inheritance Examples of Quantitative Inheritance.** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **9** | **2** | | **Genetic material in living organisms - characteristics of living matter - structure of DNA - structure of RNA - the most important differences between them.** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **10** | **2** | | **Evidence that proves that DNA is the genetic material in living organisms - Evidence that proves that RNA is the genetic material in some viruses.** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **11** | **2** | | **DNA Replication (DNA cloning) - Hypotheses of replication methods - Semi-conservative replication - Conservative method - RNA transcription from DNA** | **Lecture with explanation in presentation** | **Display + Blackboard** |

| | | | | | |
|---|---|---|---|---|---|
| **12** | **2** | | **Protein synthesis - transcription and translation.** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **13** | **2** | | **Genetic engineering - its benefits - its determinants - how to carry out the process of genetic transfer - applications of genetic engineering.** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **14** | | | **Exam2** | | |

| **11. Course Evaluation** |
|---|
| Distribution of 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 Sources** | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **No** |
| Main References (Sources) | **1-- General inheritance**<br>**2-- Genetics and breeding of plants Dr.** |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **No** |

**Course Description Form**

| |
|---|
| **1. Course Name:** |
| ***practical inheritance*** |
| **2. Course Code:** |
| GENE302 |
| **3. Semester / Year:2025- 2026** |
| **First semester- third stage** |
| **4. Description Preparation Date:2025** |
| **12-8-2025** |
| **5. Available Attendance Forms:** |
| In presence- **full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total): 5 / 3.5** |
| |
| **7. Course Administrator's Name** |
| Name: Dr. Naser Alzamly Email: nafahim@uowasit.edu.iq |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | **1-definition of genetics ,and what is its importance in agricultural crops**<br>**2-laws of inheritance and their application**<br>**3- determination sex and relating sex** |

| |
|---|
| **9. Teaching and Learning Strategies** |

| | |
|---|---|
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, and distributed over 15 weeks.** |

| |
|---|
| **10. Course Structure** |

| | | | | | |
|---|---|---|---|---|---|
| **Week** | **Hours** | **Required learning outcomes** | **Unit or Subject Name** | **Learning Method** | **Evaluation Method** |
| **1** | **3** | **Introduction in genetics** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **2** | **3** | **Mandell's first law** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **3** | **3** | **Mandell's second law** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **4** | **3** | **Types of Dominance** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **5** | **3** | **Branching Method** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **6** | **3** | **Chi – Squares test** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **7** | | **Exam** | **First-month exam** | | |
| **8** | **3** | **Genetic Interaction** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **9** | **3** | **Multiple alleles** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **10** | **3** | **Sex designation & sex linkage** | | **a lecture with lssues solving** | **display screen + a blackboard** |

| | | | | | |
|---|---|---|---|---|---|
| **11** | **3** | **Linkage and crossing over** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **12** | **3** | **Genetic mapping** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **13** | **3** | **Quantitative genetics** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **14** | **3** | **Dead genes** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **15** | | **Exam** | **Second month exam** | | |

| **11. Course Evaluation** |
|---|
| Distribution of 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 Sources** | |
|---|---|
| Required textbooks (methodology, if any) | Foundations of breeding and genetics of field crops , Dr.Hamid Globe |
| Main references (sources) | Al-wajeez in genetics,written by Dr.Amin Abdul Jabbar |
| Recommended supporting books and references (scientific journals, reports...) | Scientific journals |
| Electronic references, websites | Some research and articles on genetics |

**Course Description Form**

| **1. Course Name:** |
|---|
| **field crops Machines - the theoretical part** |
| **2. Course Code:** |
| CRMEC3010 |

| |
|---|
| **3. Semester / Year:** |
| **Second semester-third stage 2025-2026** |
| **4. Description Preparation Date:** |
| **2/8/2025** |
| **5. Available Attendance Forms:** |
| **In-person education-full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total)** |
| **30 hours** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |
| Name: Dr. Ahmed Alshamry |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | • **Identifying soil preparation machines for primary treatments (tillage machines)**<br>• **Identify soil preparation machines for secondary treatments (soil smoothing machines)** |

| | |
|---|---|
| **9. Teaching and Learning Strategies** | |
| Strategy | **1 -Involving the student in discussion sessions.**<br>**2- Developing the student's abilities to reach the stage of analysis and conclusion.**<br>**3 -Creating a competitive atmosphere among students in their answers to scientific topics when asked.** |

**10. Course Structure**

| Week | Hours | Required learning | Unit or Subject Name | Learning Method | Evaluation |
|---|---|---|---|---|---|
| **The first** | **2** | **Mechanization of field crops - the theoretical part** | Getting to know the machines for preparing the soil for the initial treatments | **Lecture and presentation** | **Quarterly exam + reports** |

| | | | | | |
|---|---|---|---|---|---|
| **The second** | 2 | Mechanization of field crops - the theoretical part | moldboard plow types and regulations | **Lecture and presentation** | **Quarterly exam + reports** |
| **The third** | 2 | Mechanization of field crops - the theoretical part | Disk plow types and regulations | **Lecture and presentation** | **Quarterly exam + reports** |
| **The fourth** | 2 | Mechanization of field crops - the theoretical part | chisel plow and its regulations | **Lecture and presentation** | **Quarterly exam + reports** |
| **The fifth** | | | **Exam1** | | |
| **The sixth** | 2 | Mechanization of field crops - the theoretical part | Getting to know soil preparation machines for secondary treatments (soil bulverization Rotary plow how to operate and regulations | **Lecture and presentation** | **Quarterly exam + reports** |
| **The seventh** | 2 | Mechanization of field crops - the theoretical part | Disc harrows types and regulations | **Lecture** | **Quarterly exam + reports** |
| **The eighth** | 2 | Mechanization of field crops - the theoretical part | Automatic reciprocating harrow | **Lecture and presentation** | **Quarterly exam + reports** |
| **The ninth** | 2 | Mechanization of field crops - the theoretical part | soil grinder | **Lecture and presentation** | **Quarterly exam + reports** |
| **The tenth** | 2 | Mechanization of field crops - the theoretical part | Learn about special equipment | **Lecture and presentation** | **Quarterly exam + reports** |
| **The eleventh** | 2 | Mechanization of field crops - the theoretical part | Subsoiled plow | **Lecture and presentation** | **Quarterly exam + reports** |
| **The twelfth** | 2 | Mechanization of field crops - the theoretical part | Ditcher opener | **Lecture and presentation** | **Quarterly exam + reports** |

| | | | | | |
|---|---|---|---|---|---|
| **The Thirteenth** | 2 | Mechanization of field crops - the theoretical part | The opening of Maruz and Batan | **Lecture and presentation** | **Quarterly exam + reports** |
| **The fourteenth** | 2 | Mechanization of field crops - the theoretical part | Combines machines, their types and the purpose of their use Article review | **Lecture and presentation** | **Quarterly exam + reports** |
| **The Fifteenth** | | | Exam2 | | |

**11. Course Evaluation**

Distribution of 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. **Homework: 15% Daily exam: 15% Written exam : 50% Scientific reports: 20%**

**12. Learning and Teaching Sources**

| | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | Soil preparation equipment book - Aziz Ramo Al-Banna |
| Main References (Sources) | Agricultural machines and machinery book - Yassin Hashem Al-Tahan |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **https://www.motorscaffe.com/2019/11/types-of-agricultural-plows-pdf.html** |

## Course Description Form

| |
|---|
| **1. Course Name:** |
| **field crops Machines - The practical part** |
| **2. Course Code:** |
| |
| **3. Semester / Year:** |
| **Second semester- third stage 2025-2026** |

| **4. Description Preparation Date:** |
|---|
| **11/3/2025** |
| **5. Available Attendance Forms:** |
| **In-person education- full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total)** |
| **45 hours- 3 hours** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |
| |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | • **Identifying soil preparation machines for primary treatments (tillage machines)**<br>• **Identify soil preparation machines for secondary treatments (soil smoothing machines)** |

| **9. Teaching and Learning Strategies** | |
|---|---|
| Strategy | **1 -Involving the student in discussion sessions.**<br>**2- Developing the student's abilities to reach the stage of analysis and conclusion.**<br>**3 -Creating a competitive atmosphere among students in their answers to scientific topics when asked.** |

**10. Course Structure**

| Week | Hours | Required learning | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| **The first** | **3** | **Mechanization of field crops - the theoretical part** | Getting to know the machines for preparing the soil for the initial treatments | **Lecture and presentation** | **Quarterly exam + reports** |
| **The second** | 3 | Mechanization of field crops - the theoretical part | moldboard plow types and regulations | **Lecture and presentation** | **Quarterly exam + reports** |

| | | | | | |
|---|---|---|---|---|---|
| **The third** | 3 | Mechanization of field crops - the theoretical part | Disk plow types and regulations | **Lecture and presentation** | **Quarterly exam + reports** |
| **The fourth** | 3 | Mechanization of field crops - the theoretical part | chisel plow and its regulations | **Lecture and presentation** | **Quarterly exam + reports** |
| **The fifth** | | | **Exam1** | | |
| **The sixth** | 3 | Mechanization of field crops - the theoretical part | Rotary plow how to operate and regulations Getting to know soil preparation | **Lecture and presentation** | **Quarterly exam + reports** |
| **The seventh** | 3 | Mechanization of field crops - the theoretical part | Disc harrows types and regulations | **Lecture** | **Quarterly exam + reports** |
| **The eighth** | 3 | Mechanization of field crops - the theoretical part | Automatic reciprocating harrow | **Lecture and presentation** | **Quarterly exam + reports** |
| **The ninth** | 3 | Mechanization of field crops - the theoretical part | soil grinder | **Lecture and presentation** | **Quarterly exam + reports** |
| **The tenth** | 3 | Mechanization of field crops - the theoretical part | Learn about special equipment | **Lecture and presentation** | **Quarterly exam + reports** |
| **The eleventh** | 3 | Mechanization of field crops - the theoretical part | Subsoiled plow | **Lecture and presentation** | **Quarterly exam + reports** |
| **The twelfth** | 3 | Mechanization of field crops - the theoretical part | Ditcher opener | **Lecture and presentation** | **Quarterly exam + reports** |
| **The Thirteenth** | 3 | Mechanization of field crops - the theoretical part | The opening of Maruz and Batan | **Lecture and presentation** | **Quarterly exam + reports** |
| **The fourteenth** | 3 | Mechanization of field crops - the theoretical part | Combines machines, their types and the Article review purpose of their use | **Lecture and presentation** | **Quarterly exam + reports** |

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|---|---|---|---|---|---|
| **The Fifteenth** | | | Exam2 | | |

| **11. Course Evaluation** |
|---|
| Distribution of 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. **Homework: 15% Daily exam: 15% Written exam : 50% Scientific reports: 20%** |

| **12. Learning and Teaching Sources** | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | Soil preparation equipment book - Aziz Ramo Al-Banna |
| Main References (Sources) | Agricultural machines and machinery book - Yassin Hashem Al-Tahan |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **https://www.motorscaffe.com/2019/11/types-of-agricultural-plows-pdf.html** |

**Course Description Form**

| **1. Course Name:** |
|---|
| **Seed technology** |
| **2. Course Code:** |
| SETECH307 |

| |
|---|
| |
| **3. Semester / Year:** |
| **Second semester-third stage 2025-2026** |
| **4. Description Preparation Date:** |
| **2025-8-12** |
| **5. Available Attendance Forms:** |
| **In the quality laboratory-full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total)** |
| **3 hours** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |
| Name: |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | **Introducing students to the composition of seeds, their natural and chemical characteristics, and how to produce seeds** |
| **9. Teaching and Learning Strategies** | |
| Strategy | |
| **10. Course Structure** | |

| **Week** | **Hours** | **Required learning** | **Unit or Subject Name** | **Learning Method** | **Evaluation Method** |
|---|---|---|---|---|---|
| **1** | **3** | | Getting to know the seeds: their shapes, colors, sizes, ways of spreading | **Lecture with explanation and** | |
| **2** | **3** | | Sampling . | Lecture with explanation and presentation | |
| **3** | **3** | | Examination of laboratory and standard germination and the effect of some plant hormones on it | Lecture with explanation and presentation | |

| | | | | | |
|---|---|---|---|---|---|
| **4** | **3** | | Hygiene check | Lecture with explanation and presentation | |
| **5** | | | Assignment 1 | | |
| **6** | **3** | | Checking the moisture content of the seed | Lecture with explanation and presentation | |
| **7** | **3** | | Testing the electrical conductivity of the seed | Lecture with explanation and presentation | |
| **8** | **3** | | Testing the genetic purity of the seed | Lecture with explanation and presentation | |
| **9** | | | Assignment 1 | | |
| **10** | **3** | | Seed strength tests: Germination test to accelerate age, cold test, nitrazolium test (vitality test), brick | Lecture with explanation and presentation | |
| **11** | **3** | | seed certification. | Lecture with explanation and presentation | |
| **12** | **3** | | field inspection. | Lecture with explanation and presentation | |
| **13** | **3** | | Assignment 1 | | |
| **14** | **3** | | A scientific visit to the laboratories of the General Authority for the examination and certification of seeds . | | |
| **11. Course Evaluation** | | | | | |
| Distribution of the score out of 20 according to the tasks assigned to the student, such as daily preparation, daily oral, monthly, or written exams, reports, etc. | | | | | |
| **12. Learning and Teaching Sources** | | | | | |

| | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **Field crop seeds (Dr. Abdullah Qasim Al-Fakhry)** |
| Main References (Sources) | **No** |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **No** |

**Course Description Form**

| | |
|---|---|
| **1. Course Name: -** | |
| **Seeds Technology** | |
| **2. Course Code:** | |
| SETECH307 | |
| **3. Semester / Year: Second / 2025-2026** | |
| **Second semester-third stage** | |
| **4. Description Preparation Date:** | |
| **3-8-2025** | |
| **5. Available Attendance Forms:** | |
| **Mandatory-full time** | |
| **6. Number of Credit Hours (Total) /** | |
| **30 hr.Number of Units (Total) 3.5-5** | |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** | |
| Name:Dr. Rheid almalky Email: | |
| **8. Course Objectives** | |
| Course Objectives | • Providing the student with practical and theoretical information on field management.<br>• Teaching the student the basic sciences of field crops. |
| **9. Teaching and Learning Strategies** | |

| | |
|---|---|
| Strategy | **-Working to graduate students with concepts in the field of crops production in a good manner-**<br>**- Introducing students to the types of crops and nature of their growth, methods of propagation and reproduction, and the characteristics of their growth and harvest.**<br>**- Introducing students to the devices used in laboratory of seeds testing.**<br>**-Introducing the student to the nature of dealing with seeds used in** |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| **1** | | Introduction to seed technology - Definition of seed technology - Objectives of seed technology - Definition of seed science - Seed production - Grain technology - Definition of technology - | | theoretical and practical power point lectures Discussions, | Daily and monthly tests |
| **2** | | The centres of origin of cereal crops in the world The productivity of cereal crops in Iraq and the reasons for its decline | | | |
| **3** | | Chemical composition of seeds and its relationship to their value as seeds - The most important chemical components of seeds - Diagnosis of seeds | | | |

| | | | | | |
|---|---|---|---|---|---|
| **4** | | Seed physiology - germination – types of germination - requirements for seed germination - germination when appropriate conditions are available - growth regulators and seeds - the role of growth regulators in germination | | | |
| **5** | | **Assignment -1** | | | |
| **6** | | Dormancy of seeds - Benefits of seed cumin - Harmful effects of seed dormancy - Types of cumin - Causes of dormancy - Methods of breaking latency - Methods of breaking dormancy - Vitality of seeds - Testing of tetrazolium - Strength of seeds - Factors affecting the lifespan of seeds | | | |
| **7** | | Seeds - the importance of seeds - augmentation with seeds - field foundations for multiplication of seeds - farms between commercial hybrids and open-pollinated varieties - quality of agricultural seeds | | | |
| **8** | | Certification of seeds - Production of certified seeds - Specifications of fields for the production of certified seeds - Method of cultivating varieties - Standards or measurements | | | |

| | | | | | |
|---|---|---|---|---|---|
| **9** | | Field inspection - How to conduct a field inspection - Inspection dates - Exotic species - Diseases - General condition of the crop - Isolation distances - Agricultural treatments - Previous crops - Cleaning the field - Tests of seeds | | | |
| **10** | | **Assignment 2** | | | |
| **11** | | Preparation of seeds - Harvesting and threshing - Cleaning and grading seeds - Drying seeds - | | | |
| **12** | | Basic rules for the production of seeds of the most important | | | |
| **13** | | Storage - storing seeds for agricultural purposes - seed treatments and seed storage - the most | | | |
| **14** | | Assignment 3 | | | |
| **15** | | Instructions for Handling Seeds for Planting | | | |

| **11. Course Evaluation** |
|---|
| Distribution of the score out of 30 according to the tasks assigned to the student, such as daily preparation, daily oral, monthly, or written exams, reports. |

| **12. Learning and Teaching Sources** | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **No** |

| | |
|---|---|
| Main References (Sources) | 1-Seed technology Riyad Jabbar Mansour Al-Maliki College of Agriculture - University of Wasit, 2020<br><br>2-. Seed technology Jalal Hamid Hamza College of Agriculture - University of Baghdad-2017<br>3-Grop Seeds Production and Quality Abdullah K Al-Fakhry Ahmad S Khalaf, 1983<br>4-General principles for breeding and improving the productivity of Cereals and legumes crops Faisal M M Al-Tahir Maysoun M Saleh Salih H F Al-Salim Reem N Al- Edelbi. College of Agriculture - University of Muthanna-2018 |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **No** |

**Course Description Form**

| |
|---|
| **1. Course Name:** |
| ***Cereal crops*** |
| **2. Course Code:** |
| GRAC301 |
| **3. Semester / Year:2025- 2026** |
| **First semester-third stage** |
| **4. Description Preparation Date:** |
| **12-8-2025** |
| **5. Available Attendance Forms:** |
| In presence- **full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total): 5 / 3.5** |

| |
|---|
| **7. Course Administrator's Name** |
| Name: Dr. Rhid Almalki |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | • Identify the methods of growing each crop and the factors affecting the productivity of each crop<br>• Methods used in storing and marketing important grain crops in the world<br>• Knowing the botanical description of each field crop<br><br>Make reports on specific topics related to the field crop |
| **9. Teaching and Learning Strategies** | |
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, and distributed over 15 weeks.** |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| **1** | **3** | **Botanical division of cereal crops** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **2** | **3** | **Stages of growth of cereal crops** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **3** | **3** | **Grain storage methods** | | **a lecture with lssues solving** | **display screen + a blackboard** |

| | | | | | |
|---|---|---|---|---|---|
| **4** | **3** | **Botanical description of the wheat crop** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **5** | **3** | **Botanical description of the Bariey crop** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **6** | **3** | **A scientific visit to an agricultural field** | | | |
| **7** | | **Botanical description of the Rice crop** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **8** | **3** | **Exam** | **First-month exam** | | |
| **9** | **3** | **Botanical description of the Corn or maize crop** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **10** | **3** | **Botanical description of the Sorghum crop** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **11** | **3** | **Botanical description of the Oats crop** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **12** | **3** | **A visit to the Seed Certification Authority** | | | |
| **13** | **3** | **Exam** | **-month exam** | | |
| **14** | **3** | **Botanical description of the Rye crop** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **15** | | **Botanical description of the Pearmillet crop** | | **a lecture with lssues solving** | **display screen + a blackboard** |
| **11. Course Evaluation** | | | | | |

| | |
|---|---|
| Distribution of 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 Sources** | |
| Required textbooks (methodology, if any) | 1-Cereals and Pulses Crops (Practical Part), Dr. Kamel Muhammad Al-Khafaji, |
| Main references (sources) | Grain production. Mr. Dr. Abdul Hamid Muhammed<br>Hassanein, Faculty of Agriculture - Al-Azhar University,<br>Arab Republic of Egypt 2019 |
| Recommended supporting books and references (scientific journals, reports...) | Scientific journals |
| Electronic references, websites | Some research and articles on Grain |

**Course Description Form**

| |
|---|
| **1. Course Name: -** |
| **Cereal Crops** |
| **2. Course Code:** |
| GRAC301 |
| **3. Semester / Year:** |
| **First semester – third stage / 2025-2026** |
| **4. Description Preparation Date:** |
| **3/8/2025** |
| **5. Available Attendance Forms:** |
| **Mandatory- full time** |
| **6. Number of Credit Hours (Total) /** |
| **30 hr.Number of Units (Total) 3.5** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |

| | |
|---|---|
| **8. Course Objectives** | |
| Course Objectives | • Providing the student with practical and theoretical information on field management.<br>• Teaching the student the basic sciences of field crops.<br>• Teaching students to work in the future in ministries and institutions related to agricultural sciences.<br>Preparing scientific and academic researchers in the field of field crop management. |
| **9. Teaching and Learning Strategies** | |
| Strategy | **-Working to graduate students with concepts in the field of crops production in a good manner-**<br>**- Introducing students to the types of crops and nature of their growth, methods of propagation and reproduction, and the characteristics of their growth and harvest.**<br>**- Introducing students to the devices used in laboratory of seeds testing.**<br>**-Introducing the student to the nature of dealing with seeds used in** |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| **1** | | **The economic importance of grain crops in Iraq and the world** | | theoretical and practical power point | Daily and monthly tests |
| **2** | | The centres of origin of cereal crops in the world The productivity of cereal crops in Iraq and the reasons for its | | | |
| **3** | | Wheat Crop- Economic importance<br>- Botanical description Environmental | | | |
| **4** | | Loding and Tillering Factors of production in Grain Crops | | | |
| **5** | | **Assignment -1** | | | |

| | | | | | |
|---|---|---|---|---|---|
| **6** | | Barley Crop- Economic importance - Botanical description Environmental requirements- Maturity and Harvesting | | | |
| **7** | | Oats Crop- Economic importance - Botanical description Environmental requirements- Maturity and Harvesting | | | |
| **8** | | Rye Crop- Economic importance - Botanical description Environmental requirements- Maturity and Harvesting | | | |
| **9** | | Rice Crop- Economic importance - Botanical description Environmental requirements- Maturity and Harvesting | | | |
| **10** | | **Assignment 2** | | | |
| **11** | | Corn Crop- Economic importance - Botanical description Environmental | | | |
| **12** | | Sorghum Crop- Economic importance Botanical description - Environmental | | | |
| **13** | | Pear millet Crop- Economic importance - Botanical description- Environmental | | | |
| **14** | | Assignment 3 | | | |
| **15** | | Seeds production of Wheat crop | | | |
| **11. Course Evaluation** | | | | | |

| | |
|---|---|
| Distribution of the score out of 100 according to the tasks assigned to the student, such as daily preparation, daily oral, monthly, or written exams, reports. | |
| **12. Learning and Teaching Sources** | |
| Required Textbooks (Curricular Books, If Any) | **No** |
| Main References (Sources) | 1-Grais and legumes crops Nebel Ali Hallel ، Al-motawly Abdlia Al-motawly ، Majdy Mohammed Shfeege andWajeeh ، Abd-Alazeem Al-Morshady- Cairo University - 2015<br>2-Plant nutrition guide. Youssef Muhammad Abu Dahi and Moayed Ahmed. Al-Younis. College of Agriculture - University of Baghdad, 1988<br>3-Production and improvement of field crops (Part One) Abdul Hamid Ahmed. Al-Younis, University of Baghdad - College of Agriculture 1993 |
| Recommended Books and References (Scientific Journals, Reports...) | **no** |
| Electronic References, Websites | **no** |

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|---|
| **1. Course Name:–** |
| ***FIELD CROP INSECTs*** |
| **2. Course Code:** |
| CINS308 |
| **3. Semester / Year:2024- 2025** |
| **First semester- third stage** |

| **4. Description Preparation Date:2025** | | | | | |
|---|---|---|---|---|---|
| **1-8-2025** | | | | | |
| **5. Available Attendance Forms:** | | | | | |
| in presence-**full time** | | | | | |
| **6. Number of Credit Hours (Total) / Number of Units (Total):** | | | | | |
| **5 / 2** | | | | | |
| **7. Course Administrator's Name** | | | | | |
| Name: Dr. Amer Algrawi | | | | | |
| **8. Course Objectives** | | | | | |
| Course Objectives | **Knowing the general characteristics of insects and the ladder of their development**<br>**• Study the most important insects that infect field crops, study their harm and combat them**<br>**Knowledge of general preventive and therapeutic methods to get rid of harmful insects** | | | | |
| **9. Teaching and Learning Strategies** | | | | | |
| Strategy | **1- PowerPoint presentation 2- Video presentation 3- Field visits** | | | | |
| **10. Course Structure** | | | | | |
| | | | | | |
| **Week** | **Hours** | **Required learning outcomes** | **Unit or Subject Name** | **Learning Method** | **Evaluation Method** |
| **1** | **2** | | **A general introduction to insects and their classification, the pest and its types, the harms and benefits of insects** | **PowerPoint** | |

| | | | | | |
|---|---|---|---|---|---|
| **2** | **2** | | **General insects: earthworms, locusts, borers** | | |
| **3** | **2** | | **Insects of the Poaceae family (wheat and barley)** | | |
| **4** | **2** | | **Corn insects** | | |
| **5** | **1** | | **First-month exam** | | |
| **6** | **2** | | **Insects of the legume family** | | |
| **7** | **2** | | **Sugar beet insects** | | |
| **8** | **2** | | **Sesame, safflower and tobacco insects** | | |
| **9** | **1** | | **Second month exam** | | |
| **10** | **2** | | **Cotton insects** | | |
| **11** | **2** | | **Sunflower insects** | | |
| **12** | **3** | | **Warehouse insects, part one** | | |
| **13** | **3** | | **Warehouse insects, part two** | | |

| | | | | | |
|---|---|---|---|---|---|
| **14** | **3** | | **Reasons for the widespread spread of insects and means of** | | |
| **15** | **3** | | **General pest control methods** | | |

| **11. Course Evaluation** | |
|---|---|
| Grade distribution out of 50: 30 theoretical grades distributed as follows: 20 monthly exams, 5 .reports, 2 attendance, 3 exams<br>20 practical grades distributed as follows: 15 monthly exams, 2 attendance, 3 exams. | |
| **12. Learning and Teaching Sources** | |
| Required textbooks (methodology, if any) | Book of field crop insects. Written by Dr. Salem Jamil Jarjis Dr. Hamza Kazem Abbas |
| Main references (sources) | Crop insects book Dr. Iyad Al-Hajj Youssef Banan Rakan Dabdoub 2010 |
| Recommended supporting books and references (scientific journals, reports...) | Scientific publications and research |
| Electronic references, websites | No |

**Course Description Form**

| **1. Course Name:** |
|---|
| crop insects |
| **2. Course Code:** |
| CINS308 |
| **3. Semester / Year:2023-2024** |
| **First semester - third stage** |
| **4. Descrip□on Prepara□on Date:** |
| **1-8-2025** |
| **5. Available Atendance Forms:** |
| **Full □me (lecture prac□al)** |
| **6. Number of Credit Hours (Total) / Number of Units (Total)** |
| **3 hours per week for 15weeks** |
| **7. Course Administrator's Name (Men□on All, If More Than One Name)** |
| Name: |

| 8. Course Objec◆ves | |
|---|---|
| Course Objec◆ves | **- Providing students with the skill of applying**<br>**- modern**<br>**- iden◆y new infec◆ons**<br>**- Displaying models of hardened insects or**<br>**- pictures of them**<br>**Insects and the damage they cause to economic crops** |

| 9. Teaching and Learning Strategies | |
|---|---|
| Strategy | |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evalua◆on Method |
|---|---|---|---|---|---|
| 1 | 3 | students with the skill of applying modern in iden◆y new infec◆ons Skill expansion students learn about methods of controlling insects and studying their life cycles Insects and the damage they cause to economic crops | History of field crop | Explaining scien◆fic material through giving lectures | Monthly and end semester exams |
| 2 | 3 | students with the skill of applying modern in iden◆y new infec◆ons Skill expansion students learn about methods of controlling insects and studying their life cycles Insects and the damage they | Insects economic | | Monthly and end semester exams |

| | | | | | |
|---|---|---|---|---|---|
| 3 | 3 | students with the skill of applying modern in iden◆y new infec◆ons Skil expansion students learn about methods of controlling insects and studying their life cycles Insects and the damage they cause to economic crops | importanc e of field crop insects | | Monthly and end semester exams |
| 4 | 3 | students with the skill of applying modern in iden◆y new infec◆ons Skil expansion students learn about methods of controlling insects and studying their life cycles Insects and the damage they cause to economic crops | Disturbing insects | | Monthly and end semester exams |

| | | | | | |
|---|---|---|---|---|---|
| 5 | 3 | | Exam1 | | |
| 6 | 3 | students with the skill of applying modern in iden identify new infec ions Skil expansion students learn about methods of controlling insects and studying their life cycles Insects and the damage they cause to economic crops | Grass crops insects | | Monthly and end semester exams |
| 7 | 3 | students with the skill of applying modern in iden identify new infec ions Skil expansion students | Corn insects | | Monthly and end semester exams |
| 8 | 3 | students with the skill of applying modern in iden identify new infec ions Skill expansion students | Leguminous crops insects | | Monthly and end semester exams |
| 9 | 3 | students with the skill of applying modern in iden identify new infec ions Skil expansion students | Sugar beet insects control Type and | | Monthly and end semester exams |
| 10 | 3 | students with the skill of applying modern in iden identify new infec ions | Oil crop insects | | Monthly and end semester exams |
| 11 | 3 | students with the skill of applying modern in iden identify new infec ions | Tobacco insects | | Monthly and end semester exams |
| 12 | 3 | students with the skill of applying modern in iden identify new infec ions Skil expansion students learn about methods of | Safflower insects | | Monthly and end semester exams |

| | | | | | |
|---|---|---|---|---|---|
| **13** | **3** | **students with the skill of applying modern in iden◆y new infec◆ons** | **Sun flower insects** | | **Monthly and end semester exams** |
| **14** | **3** | **students with the skill of applying modern in iden◆y new infec◆ons Skil expansion students learn about methods of controlling insects and studying their life cycles Insects and the damage they cause to economic crops** | **Insects coton Mites that infect different crops Entomolog ical** | | **Monthly and end semester exams** |
| **15** | | | **Exam2** | | |

1. 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

2. Learning and Teaching Resources

| | |
|---|---|
| Required textbooks (curricular books, if any) | No |
| Main references (sources) | **no** |
| Recommended books and references (scientific journals, reports...) | **References**<br><br>**Iyad Youssef Hajj Ismail and Banan Rakan 90pp**<br>**Field crop insects book-Economic insects :**<br>**Muhammad abdel Wahab Abdel Fattah , Ramadan Abdel Qader Salama .Abdel Aziz Mahmoud Ibrahim** |
| Electronic References, Websites | No |

| |
|---|
| **1. Course Name:** |
| ***theortical crop disease–*** |
| **2. Course Code:** |
| CRDE3011 |
| **3. Semester /** |
| **Second semester-third stage:2023- 2024** |
| **4. Description Preparation Date:2024** |
| **1-4-2024** |
| **5. Available Attendance Forms** |
| In presence- **full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total):** |
| **5 / 3.5** |
| **7. Course Administrator's Name** |
| Name: Dr. Hasanan Taher Email: |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | **1-definition of crop disease,and what is its importance in agricultural crops**<br>**2-Management of crops disease** |

| |
|---|
| **9. Teaching and Learning Strategies** |

| | |
|---|---|
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, and distributed over 15 weeks.** |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| **1** | **3** | | **Introduction in Crops disease** | | |
| **2** | **3** | | **Wheat Haredi Disease** | | |
| **3** | **3** | | **Rice disease** | | |
| **4** | **3** | | **maize disease** | | |
| **5** | **3** | | **Sun flower ,seasame and soy bean disease** | | |
| **6** | **3** | | **Sugarcan disease** | | |

| | | | | | |
|---|---|---|---|---|---|
| **7** | | | **Exam** | | |
| **8** | **3** | | **Cotton &linen disease** | | |
| **9** | **3** | | **Beans disease** | | |
| **10** | **3** | | **Alfaalfa disease** | | |
| **11** | **3** | | **Sorghum diseases** | | |
| **12** | **3** | | **Rust and Smuts** | | |
| **13** | **3** | | **Field peanut diseases** | | |
| **14** | **3** | | **Diseases of fibrous crops** | | |
| **15** | | **exam** | **Second month exam** | | **display screen + a blackboard** |

**11. Course Evaluation**

Distribution of the score out of 50 according to the tasks assigned to the student, such as daily preparation, daily oral, monthly, or written exams, reports, etc.

**12. Learning and Teaching Sources**

| | |
|---|---|
| Required textbooks (methodology, if any) | Diseases of field crops, methodological (Dr. Raqeeb Akef Al-Ani, Dr. Maysar Majeed |

| | |
|---|---|
| | Jarjis), |
| Main references (sources) | diseases of field crops (Dr. Robert F. Neval) |
| Recommended supporting books and references (scientific journals, reports...) | Scientific journals |
| Electronic references, websites | Some research and articles on crops disease |

**Course Description Form**

| | |
|---|---|
| 1. Course Name: | |
| Crop disease | |
| 2. Course Code: 002730 | |
| 3. Semester / | |
| Second semester- third stage2023-2024 | |
| 4. Description Preparation Dat | |
| 9-2-2024 | |
| 5. Available Attendance Forms: | |
| Presence- full time | |
| 6. Number of Credit Hours (Total) / Number of Units (Total) | |
| Total number of study hours / 75 hours (2 theoretical hours + 3 practical hours per week) 3.5 unit week<br>52.5 Total Units | |
| 7. Course administrator's name (mention all, if more than one name) | |
| Name: | |
| 8. Course Objectives | |
| 1- Identify diseases affecting field crops<br>2- Isolation and diagnosis of pathogens<br>3- Methods of combating diseases | |
| 9. Teaching and Learning Strategies | |
| **Strategy** | 1- Education strategy by PowerPoint presentation.<br>2- Brainstorming education strategy.<br>3- Education Strategy Field and Laboratory Observations Series |

| 10. Course Structure | | | | | |
|---|---|---|---|---|---|
| **Week** | **Hours** | **Required Learning Outcomes** | **Unit or subject name** | **Learning method** | **Evaluation method** |
| **1** | **3** | | General guidelines to be provided in the plant pathology laboratory, the objective of studying plant pathology, how to diagnose the disease, the definition of the disease, the symptoms of the disease, the signs of the disease. | Explanatory lecture with samples of pathological symptoms of different plants | display screen + a blackboard |
| **2** | **3** | | Wheat diseases / Rust and Smut | Explanatory lecture with samples of pathological symptoms of the wheat plant | display screen + a blackboard |
| **3** | **3** | | Wheat diseases / Powdery Mildew, Wheat mosaic, Seed Gall. | Explanatory lecture with samples of pathological symptoms of plants | display screen + a blackboard |
| **4** | **3** | . | Barley disease / Ergot disease, Net Blotch, Stripe disease, Spot Blotch | Explanatory lecture with samples of pathological symptoms of different plants | display screen + a blackboard |
| **5** | **3** | | First-month exam | | |
| **6** | **3** | | Rice Diseases / Blast Disease, Sclerotium stem rot, Kernel and panicle rot, Brown leaf Spot, Yellow Dwarf. | Explanatory lecture with samples of pathological symptoms of different plants | display screen + a blackboard |
| **7** | | | Sorghum diseases / Long Smut, Covered Smut, Loose Smut, Charcoal Rot. | Explanatory lecture with models of pathological symptoms | display screen + a blackboard |
| **8** | **3** | | Yellow corn diseases / Head Smut, Common Smut, Deplodia Rot, Bacterial Wilt. | Explanatory lecture with models of pathological symptoms | display screen + a blackboard |

| | | | | | |
|---|---|---|---|---|---|
| **9** | **3** | | Sunflower diseases / Downy Mildew Disease, Powdery Mildew Disease, Rust Disease, Sclerotina Rot. Sesame diseases / Charcoal Rot, Fusarium Wilt. | Explanatory lecture with models of pathological symptoms | display screen + a blackboard |
| **10** | **3** | Exam 2 | Second month exam | | |
| **11** | **3** | | Practical lesson on methods of isolating pathogens and diagnosing them in the laboratory | | |
| **12** | **3** | . | Soybean diseases / Downy Mildew, Charcoal Rot. Field pistachios diseases / Seed rot and seedling | Explanatory lecture with models of pathological symptoms | display screen + a blackboard |
| **13** | **3** | | Cotton crop diseases / Angular leaf spot, Verticillium and Fusarium Wilt, Cotton nut rot. | Explanatory lecture with models of pathological symptoms | display screen + a blackboard |
| **14** | **3** | . | Sugar cane diseases / Red Rot, Smut Disease. Tobacco Diseases / Tobacco Mosaic disease | Explanatory lecture with models of pathological symptoms | display screen + a blackboard |
| **15** | | | Field visit to learn about crop diseases | | |

11. Course Evaluation

The distribution is as follows: 50 degrees / 30 degrees for theoretical and 20 degrees for practical for monthly and weekly exams for the semester.
50 marks / 30 points for theoretical and 20 points for practical end-of-course exam.

12. Learning and Teaching Resources

| | |
|---|---|
| Required textbooks (curricular books, if any) | Field Crop Diseases Book (Dr. Raqeeb Akef Al-Ani and Maysar Majid Gerges, 1989) |
| Main references (sources) | Field Crop Diseases Book (Dr. Robert F. Neval 1991) |
| Recommended books and references (scientific journals, reports...) | Scientific journals |

| | |
|---|---|
| Electronic References, Websites | Some research and articles on genetics |

**Course Description Form**

| | |
|---|---|
| **1. Course Name:** | |
| Practical Land Reclamation | |
| **2. Course Code:** | |
| CLR307 | |
| **3. Semester / Year:** | |
| **First semester \ third stage2025-2026** | |
| **4. Description Preparation Date:** | |
| **5-8-2025** | |
| **5. Available Attendance Forms:** | |
| **Attending full time** | |
| **6. Number of Credit Hours (Total) / Number of Units (Total)** | |
| **2 hours -3.5-5** | |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** | |
| Name: | |
| **8. Course Objectives** | |
| Course Objectives | • **Identify the most important problems that agricultural lands suffer from The most important morphological soil characteristics**<br>• **Learn about methods of reclaiming saline, desert and sandy lands** |
| **9. Teaching and Learning Strategies** | |
| Strategy | **In-person lectures for 15 weeks, including monthly exams, daily exams, and a scientific trip to one of the reclamation projects in the region.** |
| **10. Course Structure** | |

| | | | | | |
|---|---|---|---|---|---|
| **Week** | **Hours** | **Required learning outcomes** | **Unit or Subject Name** | **Learning Method** | **Evaluation Method** |
| **1** | **2** | | land reclamation(decision and requirements) | Lecture with explanatio | daily exam |
| **2** | **2** | | Lands that need reclamation | Lecture with explanatio | daily exam |
| **3** | **2** | | Reclamation of Saline Soils | Lecture with explanatio | daily exam |
| **4** | **2** | | The problem of salinity and its impact on Agricultural production | Lecture with explanatio | daily exam |
| **5** | **2** | | **Exam1** | | |
| **6** | **2** | | Classification of salt-affected soils<br>Reclamation of sodic soils | Lecture with explanatio | daily exam |
| **7** | **2** | | Reclamation of calcareous soils | Lecture with explanatio | daily exam |
| **8** | **2** | | Reclamation of gypsiferous soils | Lecture with explanatio | daily exam |
| **9** | **2** | | Reclamation of sandy and desert soils | Lecture with explanatio | daily exam |
| **10** | **2** | | Reclamation of water logged soils | Lecture with explanatio | daily exam |
| **11** | **2** | | Reclamation of Acid soils | Lecture with explanatio | daily exam |

| | | | | | |
|---|---|---|---|---|---|
| **12** | **2** | | land reclamation(decision and requirements) | | daily exam |
| **14-13** | **2** | | Reclamation of Saline Soils Lands that need reclamation | | daily exam |
| **15** | | | **Exam2** | | |

| **11. Course Evaluation** |
|---|
| The final exam consists of 50 monthly exams, 10 for each monthly exam, 5 daily exams, and 5 reports |

| **12. Learning and Teaching Sources** | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **1- Shafiq Ibrahim Abdel-Al and Amin Hamad Al-Rawi. 1981. Soil reclamation and improvement. Ministry of Higher Education and Scientific Research. Sulaymaniyah University** |
| Main References (Sources) | **Agri-fax-liming of acid soil ,Alberta Agriculture, Canada,Agdex534.1,June(1981).** |

**Course Description Form**

| **1. Course Name:** |
|---|
| Practical Land Reclamation |
| **2. Course Code:** |
| CLR307 |
| **3. Semester / Year:** |
| **First semester \ Thrid stage** |
| **4. Description Preparation Date:** |

| |
|---|
| **5-8-2025** |
| **5. Available Attendance Forms:** |
| **Attending full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total)** |
| **3hours** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |
| Name: |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | • **Identify the most important problems that agricultural lands suffer from The most important morphological soil characteristics**<br>• **Learn about methods of reclaiming saline, desert and** |
| **9. Teaching and Learning Strategies** | |
| Strategy | **In-person lectures for 15 weeks, including monthly exams, daily exams, and a scientific trip to one of the reclamation projects in the region.** |

**10. Course Structure**

| Week | Hours | Required learning | Unit or Subject Name | Learning Method | Evaluation |
|---|---|---|---|---|---|
| **1** | **3** | | **Conducting a culture experiment in anvils of saline soil washed with** | **Lecture with explanation presentation** | **daily exam** |
| **2** | **3** | | **Conducting a culture experiment in anvils of saline soil washed with** | **Lecture with explanation presentation** | **daily exam** |
| **3** | **3** | | **Reclamation of saline soils/implementation of the saline soil reclamation** | **Lecture with explanation presentation** | **daily exam** |

| | | | | | |
|---|---|---|---|---|---|
| **4** | **3** | | **Implementing a saline soil reclamation program Specifications of water** | **Lecture with explanation presentation** | **daily exam** |
| **5** | **3** | | **Exam1** | | |
| **6** | **3** | | **Irrigation channels** | **Lecture with explanation presentation** | **daily exam** |
| **7** | **3** | | **Reclaimed land management** | **Lecture with explanation presentation** | **daily exam** |
| **8** | **3** | | **Reclaimed land management** | **Lecture with explanation presentation** | **daily exam** |
| **9** | **3** | | **Reclamation of sandy lands** | **Lecture with explanation presentation** | **daily exam** |
| **10** | **3** | | **Reclamation of sandy lands** | **Lecture with explanation presentation** | **daily exam** |
| **11** | **3** | | **Reclamation of flooded lands** | **Lecture with explanation presentation** | **daily exam** |
| **12** | **3** | | **Reclamation of flooded lands** | **Lecture with explanation presentation** | **daily exam** |
| **14-13** | **3** | | **Follow up practical experience Evaluate the practical experience and** | **Lecture with explanation presentation** | **daily exam** |
| **15** | **3** | | **Exam2** | | |
| **11. Course Evaluation** | | | | | |

| |
|---|
| The final exam consists of 50 monthly exams, 10 for each monthly exam, 5 daily exams, and 5 reports |

| **12. Learning and Teaching Sources** | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | 1- Shafiq Ibrahim Abdel-Al and Amin Hamad Al-Rawi. 1981. Soil reclamation and improvement. Ministry of Higher Education and Scientific Research. Sulaymaniyah |
| | Agri-fax-liming of acid soil ,Alberta Agriculture, Canada,Agdex534.1,June(1981). |

**Course Description Form**

| **1. Course Name:** |
|---|
| **Cultivation of lands** |
| **2. Course Code:** |
| CCL401 |
| **3. Semester / Year:** |
| **First semester – fourth stage/ 2025- 2029** |
| **4. Description Preparation Date:** |
| **5/8/2025** |
| **5. Available Attendance Forms:** |

| |
|---|
| Attendance in Crop Hall No. 2**- full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total):** |
| **5 / 3.5** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |
| |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | • Identify the meaning of the marshes and their environmental importance<br>• Identifying the areas where the marshes spread and their divisions<br>• What are the risks of drying out the marshes?<br>• Benefits of the marshes<br>• Physical and chemical characteristics of the marshes<br>• Sediments in the marshes and the |

| | |
|---|---|
| **9. Teaching and Learning Strategies** | |
| Strategy | **THE LESSON INCLUDES (2) HOURS OF THEORY AND (3) HOURS OF PRACTICAL - THE NUMBER OF WEEKLY HOURS IS APPROVED, DISTRIBUTED OVER 15 WEEKS** |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| **1** | **2** | | Definition of marshes and water swamps - The environmental importance of the Iraqi | **. Lecture with explanation and** | **. Display screen + whiteboard** |
| **2** | **2** | | Geography of the marshes - climate of the marshes - geography of some of | **. Lecture with explanation and** | **. Display screen + whiteboard** |
| **3** | **2** | | Division of the central and southern marshes - division of the marshes according to | **. Lecture with explanation and** | **. Display screen + whiteboard** |

| | | | | | |
|---|---|---|---|---|---|
| **4** | **2** | | Drying of the marshes and its impact on the different climatic characteristics of southern Iraq Environments of the Iraqi marshes - Environmental division of the marshes - The environmental importance of the Iraqi marshes | **. Lecture with explanation and presentation** | **. Display screen + whiteboard** |
| **5** | | | **Exam1** | | |
| **6** | **2** | | Benefits of the marshes - the geographical distribution of the | **. Lecture with explanation and** | **. Display screen + whiteboard** |
| **7** | **2** | | Evaluation of the physical properties of marsh soils in southern Iraq - | **. Lecture with explanation and** | **. Display screen + whiteboard** |
| **8** | **2** | | Some environmental and morphological studies of the marshes of southern Iraq - | **. Lecture with explanation and** | **. Display screen + whiteboard** |
| **9** | **2** | | Sediments in the marshes - mineral deposits of floors and types of clay | **. Lecture with explanation and** | **. Display screen + whiteboard** |
| **10** | **2** | | The effect of drying and burning on marsh soils. Physical and chemical properties of | **. Lecture with explanation and** | **. Display screen + whiteboard** |
| **11** | **2** | | Marsh water quality - marsh water quality before drying - water quality in the | **. Lecture with explanation and** | **. Display screen + whiteboard** |
| **12** | **2** | | Functional diversity - the relationship between environmental | **. Lecture with explanation and** | **. Display screen + whiteboard** |

| | | | | | |
|---|---|---|---|---|---|
| **13** | **2** | | Life functions of marshes - primary productivity of aquatic plants - primary | **. Lecture with explanation and** | **. Display screen + whiteboard** |

| | | | | | |
|---|---|---|---|---|---|
| **14** | **2** | | Food networks and chains in the marshes - ecological cycles of elements in wetlands Environmental restoration of the marshes - restoration of the marshes - a road map for the restoration of the marshes - glimpses of the Arab wetlands | **. Lecture with explanation and presentation** | **. Display screen + whiteboard** |
| **15** | | | **Exam2** | | |
| **11. Course Evaluation** | | | | | |
| Distribution of 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 Sources** | | | | | |

| | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **No** |
| Main References (Sources) | **no** |
| Recommended Books and References (Scientific Journals, Reports...) | **no** |
| Electronic References, Websites | **Lectures from websites** |

**Course Description Form**

| |
|---|
| **1. Course Name: Plant Breeding** |
| **(Theoretical plant breeding) -** |
| **2. Course Code:** |
| PLBR409 |
| **3. Semester / Year:** |
| **Second Semester –fourth stage(2023-2024)** |
| **4. Description Preparation Date:** |
| **2024-2-31** |
| **5. Available Attendance Forms:** |
| **Attending college within practical microbiology laboratories**<br>**Full time** |
| **6. Number of Credit Hours (Total) / Number of Units (Total):** |
| **5 hours per week (2 hours theoretical + 3 hours practical) / 3.5 units-5** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |
| |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | • **Learn about plant breeding science and related sciences**<br>• **Identify plant breeding methods and the objectives of pedagogy**<br>• **Study of plant propagation methods and male infertility and its relationship to plant breeding**<br>  • **Study of genetic and environmental variations and their relationship to plant growth** |

| **9. Teaching and Learning Strategies** | |
|---|---|
| Strategy | **The lesson includes (2) theoretical hours and (3) practical hours - the number of weekly hours approved distributed over 15 weeks.** |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| 1 | 2 | | Definition of plant breeding science - a brief history - objectives of plant breeding science - the foundations that laid the foundations of plant breeding | Lecture with explanation in presentation | Display + Blackboard |
| 2 | 2 | | Propagation methods in plants - Types of pollination in plants - Factors that encourage self-pollination - Humoral | Lecture with explanation in presentation | Display + Blackboard |
| 3 | 2 | | Heterogeneities and their relationship to plant growth - types of differences - infertility and incompatibility - means of overcoming self-incompatibility | Lecture with explanation in presentation | Display + Blackboard |

| | | | | | |
|---|---|---|---|---|---|
| **4** | **2** | | **Male infertility - its types - its applied benefits Genetic symmetry - its danger - chromosomal replication - its types - how it happens - its benefits** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **5** | | | **Exam1** | | |
| **6** | **2** | | **Plant breeding methods - duties of genetic material introduction departments - import steps - benefits** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **7** | **2** | | **Acclimatization - types - selection - types - pure strain - benefits of pure strain selection** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **8** | **2** | | **Comparison of autologous and mixed crops pollination – comparison of total selection and individual selection** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **9** | **2** | | **Compare the steps of the parentage recording method and the steps of the aggregation method – and compare the differences between the two methods** | **Lecture with explanation in presentation** | **Display + Blackboard** |

| | | | | | |
|---|---|---|---|---|---|
| **10** | **2** | | **Benefits of the method of re-pollination - hybrid - types of hybrids** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **11** | **2** | | **Synthetic variety – its advantages** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **12** | **2** | | **Breeding methods of vegetative propagation plants** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| **13** | **2** | | **Genetic mutations - types - methods of their events** | **Lecture with explanation in presentation** | **Display + Blackboard** |
| | | | **Exam2** | | |

| **11. Course Evaluation** | |
|---|---|
| Distribution of 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 Sources** | |
| Required Textbooks (Curricular Books, If Any) | **No** |
| Main References (Sources) | **1-Genetics and breeding of practical plants Dr. Hamid Globe Ali** |

| | |
|---|---|
| Recommended Books and References (Scientific Journals, Reports...) | **3- Plant breeding and improvement d. Medhat Al-Sahuki and others** |
| Electronic References, Websites | **no** |

**Course Description Form**

| |
|---|
| **1. Course Name :** |
| - **Plant Breeding Practical** |
| **2. Course Code:** |
| CPLB403 |
| **3. Semester / Year:2023- 2024** |
| **Second semester-fourth stage** |
| **4. Description Preparation Date:** |
| 2025-2026 |
| **5. Available Attendance Forms:** |
| In presence |
| **6. Number of Credit Hours (Total) / Number of Units (Total):** |
| **5 / 3.5** |
| **7. Course Administrator's Name** |
| **Dr. Riad Almaliky** |
| **8. Course Objectives** |

| | |
|---|---|
| Course Objectives | **Introducing the science of plant breeding -1 and its importance Methods of plant breeding**<br>**20. difficulties facing plant breeders when -3implementing breeding programs**<br>**4- Modern breeding methods used to improve plant characteristics** |

| 9. Teaching and Learning Strategies | |
|---|---|
| Strategy | **The lesson includes (2) hours of theory and (3) hours of practical - the number of weekly hours is approved, and distributed over 15 weeks.** |

**10. Course Structure**

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| 1 | 3 | | Defining the science of plant breeding and improving it. Objectives of breeding science Conduct a field visit to learn about plant pollination | a lecture with an explanation, a presentation, | display screen + a blackboard |
| 2 | 3 | | The floral system and its relationship to pedagogy and calculating the percentage of variation for a specific trait | a lecture with an explanation, a presentation, | display screen + a blackboard |
| 3 | 3 | | Learn about the floral system of self-pollinating crops | a lecture with an explanation, a | display screen + a blackboard |
| 4 | 3 | | Learn about the floral system of cross-pollinated crops | a lecture with an explanation, a | display screen + a blackboard |

| | | | | | |
|---|---|---|---|---|---|
| **5** | **3** | | **Implementing taxes on some self-pollinating crops** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **6** | **3** | | **Conducting taxes on some cross-pollinated crops** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **7** | | | **First-month exam** | | |
| **8** | **3** | | **Field identification of vegetatively pollinated crops** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **9** | **3** | | **Practical examples of hybrid vigor and indoor breeding in self-pollinated and** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **10** | **3** | | **A field visit to learn about fodder and vegetatively reproductive** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **11** | **3** | | **A field visit to identify and diagnose diseases and insects that** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **12** | **3** | | **Inheritance accounts of all kinds** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **13** | **3** | | **Identify the reasons for different heritability values** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **14** | **3** | | **Calculate genetic attainment and hybrid strength** | **a lecture with an explanation, a** | **display screen + a blackboard** |
| **15** | **3** | | **Second month exam** | **a lecture with an explanation, a** | **display screen + a blackboard** |

**11. Course Evaluation**

Distribution of 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 Sources**

| | |
|---|---|
| Required textbooks (methodology, if any) | **Plant breeding and improvement. Written by Dr. Medhat Al-Sahuki and others** |
| Main references (sources) | **Breeding and improving field crops. Hamid Glob Ali** |
| Recommended supporting books and references (scientific journals, reports...) | **No** |
| Electronic references, websites | **Some research and articles on plant breeding and improvement** |

**Course Description Form**

| | |
|---|---|
| **1. Course Name: -** | |
| **Crop Management** | |
| **2. Course Code:** | |
| CCMA405 | |
| **3. Semester / Year:** | |
| **First semester – fourth stage / 2025-2026** | |
| **4. Description Preparation** | |
| **Date:1/8/2025** | |
| **5. Available Attendance Forms:** | |
| **Mandatory full time** | |
| **6. Number of Credit Hours (Total) /** | |
| **30 hr.Number of Units (Total) 3.5-5** | |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** | |
| Dr, Husain Ibrahim Tarch | |
| **8. Course Objectives** | |
| Course Objectives | • Providing the student with practical and theoretical information on field management.<br>• Teaching the student the basic sciences of field crops. |
| **9. Teaching and Learning Strategies** | |
| Strategy | **-Working to graduate students with concepts in the field of field management in a good manner-**<br>**-Working to graduate students familiar with sciences related to crop management, such as plant physiology, irrigation, and puncturing.**<br>**- Introducing students to the types and nature of their growth, methods of propagation and reproduction, and the characteristics of their growth and harvest.** |
| **10. Course Structure** | |
| | |

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| **1** | | Crop Concept - Crop Management Concept | | theoretical and practical power point | Daily and monthly tests |
| **2** | | Pre-agriculture soil service - tillage concept benefits - Good tillage conditions - types of tillage - types of ploughs | | | |
| **3** | | Softening - Benefits of softening - depth of softening - softening machines - leveling - benefits of leveling - conditions - leveling machines - field division | | | |
| **4** | | Crop service - planting dates GDD units and their relationship to planting dates - Growing Degree Days(GDD) applications in crop management and production - soil heat and its relationship to crop growth | | | |
| **5** | | **Assignment -1** | | | |
| **6** | | Soil - soil conditions suitable for growing field crops - improve soil fertility | | | |
| **7** | | Seeding rate- plant density - the role of plant density in intercepting light and increasing yield - calculation of plant density | | | |

| | | | | | |
|---|---|---|---|---|---|
| **8** | | Planting methods - its importance in the growth of the crop - the appropriate depth of planting | | | |
| **9** | | **Assignment 2** | | | |
| **10** | | Soil conditioners - organic fertilizers - green manure - adding gypsum and sulfur to Reclamation of saline and alkaline soils | | | |
| **11** | | Irrigation - the importance of water for plants - number of irrigations for crops - Water Consumption - water use efficiency | | | |
| **12** | | Weed control - The most important pesticides used and recommended for control, Control of insects and diseases - diseases and insects that infect crops - how to prevent and control them before they appear | | | |
| **13** | | **Assignment 3** | | | |
| **14** | | Ripeness and harvest - physiological maturity - hard maturity - signs of maturity of crops | | Assignment 3 | |
| **15** | | Grain Storage Management – Methods of grain storage – Types of silos - methods of drying the yield in the field and silos | | | |
| **11. Course Evaluation** | | | | | |

| | |
|---|---|
| Distribution of 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 Sources** | |
| Required Textbooks (Curricular Books, If Any) | **No** |
| Main References (Sources) | 1-Scientific foundations for managing, producing and improving field crops. Hussein Al-Muaini and Muhammad Awaid Ghadeer Al-Obaidi. College of Agriculture - University. Anbar, 2018<br>2-Plant nutrition guide. Youssef Muhammad Abu Dahi and Moayed Ahmed. Al-Younis. College of Agriculture - University of Baghdad, 1988<br>3-Production and improvement of field crops (Part One) Abdul Hamid Ahmed. Al-Younis, University of Baghdad - College of Agriculture 1993 |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **no** |

**Course Description Form**

| |
|---|
| **1. Course Name: -** |
| **Crop Management** |
| **2. Course Code:** |
| Msc Wamid Almafraji |
| **3. Semester / Year:** |
| **First semester-fourth stage/ 2025-2026** |
| **4. Description Preparation** |
| **Date:1/8/2026** |
| **5. Available Attendance Forms:** |
| **Mandatory full time** |
| **6. Number of Credit Hours (Total) /** |
| **30 hr.Number of Units (Total) 3** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |
| |

| 8. Course Objectives | |
|---|---|
| Course Objectives | • Providing the student with practical and theoretical information on field management.<br>• Teaching the student the basic sciences of field crops.<br>• Teaching students to work in the future in ministries and institutions related to agricultural sciences. |
| **9. Teaching and Learning Strategies** | |
| Strategy | **-Working to graduate students with concepts in the field of field management in a good manner-**<br>**-Working to graduate students familiar with sciences related to crop management, such as plant physiology, irrigation, and puncturing.**<br>**- Introducing students to the types and nature of their growth, methods of propagation and reproduction, and the characteristics of their growth and harvest.**<br>**- Introducing students to the devices used in laboratory and field crop management.**<br>**-Introducing the student to the nature of dealing with seeds used in** |
| **10. Course Structure** | |
| | |

| Week | Hours | Required learning | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| **1** | | | **Conduct plowing, observe its specifications, and control it after** | theoretical and practical power point lectures | Daily and monthly tests |
| **2** | | | **Dividing the field and leveling it for planting the** | theoretical and practical power point | Daily and monthly tests |
| **3** | | | **Planting one or more crops at the same time and plant density** | theoretical and practical power point lectures | Daily and monthly tests |
| **4** | | | **Planting a crop at several dates and recording data to know the effect of** | theoretical and practical power point lectures | Daily and monthly tests |
| **5** | | **Exam 1** | | | |
| **6** | | | **Growing a crop with several doses of NPK to** | theoretical and practical | Daily and monthly tests |
| **7** | | | **Planting a crop after different irrigations (5** | theoretical and practical | Daily and monthly tests |

| | | | | | |
|---|---|---|---|---|---|
| **8** | | | **Cultivation of a crop using two treatments, one** | theoretical and practical | Daily and monthly tests |
| **9** | | | **A group of students recorded the** | theoretical and practical | Daily and monthly tests |
| **10** | | | **A group of students monitored signs** | power point lectures Discussions, | Daily and monthly tests |
| **11** | | | **A group of students completes the** | theoretical and practical | Daily and monthly tests |
| **12** | | | **Exam2** | | |

| **11. Course Evaluation** | |
|---|---|
| Distribution of 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 Sources** | |
| Required Textbooks (Curricular Books, If Any) | |
| Main References (Sources) | 1-Scientific foundations for managing, producing and improving field crops. Hussein Al-Muaini and Muhammad Awaid Ghadeer Al-Obaidi. College of Agriculture<br>- University. Anbar, 2018<br>2-Plant nutrition guide. Youssef Muhammad Abu Dahi and Moayed Ahmed. Al-Younis. College of Agriculture - University of Baghdad, 1988<br>3-Production and improvement of field crops (Part One) Abdul Hamid Ahmed. Al-Younis, University of Baghdad - College of Agriculture, 1993 |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **No** |

**Course Description Form**

| |
|---|
| **1. Course Name:** |
| **Practical pasture management** |
| **2. Course Code:** |
| |
| **3. Semester / Year:** |
| **The second semester-fourth stage / 2023-2024** |
| **4. Description Preparation Date:** |
| **2/3/2024** |
| **5. Available Attendance Forms:** |
| |
| **6. Number of Credit Hours (Total) / Number of Units (Total)** |
| **(3 practical hours) 3 units** |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** |
| Name: |
| **8. Course Objectives** |

| | |
|---|---|
| **Course Objectives** | • **• Identify natural factors and learn about the most important natural pasture plants** |

| **9. Teaching and Learning Strategies** | |
|---|---|
| Strategy | **The lesson includes (3 practical hours) a number of weekly credit hours distributed over 15 weeks** |

**10. Course Structure**

| **Week** | **Hours** | **Required learning** | **Unit or Subject Name** | **Learning Method** | **Evaluation Method** |
|---|---|---|---|---|---|
| **1** | **3** | | **Natural factors affecting pastures - environmental factors and soil** | **Display Screen** | **Lecture with explanation and** |
| **2** | **3** | | **Life factors, fire factors, and location factors** | **Display Screen** | **Lecture with explanation and** |
| **3** | **3** | | **Components of plant cover in pasture lands** | **Display Screen** | **Lecture with explanation and** |
| **4** | | | **Exam1** | | |
| **5** | **3** | | **The effect of grazing on the productivity of pasture plants - the** | **Display Screen** | **Lecture with explanation and** |
| **6** | **3** | | **The effect of grazing on the plant composition of the cover** | **Display Screen** | **Lecture with explanation and** |
| **7** | **3** | | **The relationship of pasture plants to soil and water conservation** | **Display Screen** | **Lecture with explanation and** |

| | | | | | |
|---|---|---|---|---|---|
| **8** | **3** | | **Restoring natural and artificial cladding to degraded pasture** | **Display Screen** | **Lecture with explanation and** |
| **9** | **3** | | **Causes of pasture land deterioration and ways to improve pastures** | **Display Screen** | **Lecture with explanation and** |
| **10** | **3** | | **Types of pastoral plants and trees growing in Iraqi pastures** | **Display Screen** | **Lecture with explanation and** |
| **11** | **3** | | **Harmful and poisonous plants in pasture lands Bloating, its causes** | **Display Screen** | **Lecture with explanation and** |
| **12** | **3** | | **Natural factors affecting pastures - environmental factors and soil** | **Display Screen** | **Lecture with explanation and** |
| **13** | **3** | | **Life factors, fire factors, and location factors** | **Display Screen** | **Lecture with explanation and presentation** |
| **14** | | | **Exam2** | | |

**11. Course Evaluation**

Distribution of 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 Sources**

| | |
|---|---|
| Required Textbooks (Curricular Books, If Any) | **Lectures from electronic sites** |
| Main References (Sources) | **No** |
| Recommended Books and References (Scientific Journals, Reports...) | **No** |
| Electronic References, Websites | **No** |

**Course Description Form**

| | |
|---|---|
| **1. Course Name:** | |
| **Pasture management** | |
| **2. Course Code:** | |
| | |
| **3. Semester / Year:** | |
| **Second semester –fourth stage /2023- 2024** | |
| **4. Description Preparation** | |
| **Date:4/3/22024** | |
| **5. Available Attendance Forms:** | |
| **Attendance in Crop Hall No. 2 full time** | |
| **6. Number of Credit Hours (Total) / Number of Units (Total):** | |
| **3 / 3.5-5** | |
| **7. Course Administrator's Name (Mention All, If More Than One Name)** | |
| Name: | |
| **8. Course Objectives** | |
| Course Objectives | • **Identify the types of pastures**<br>• **Identifying grazing areas globally and grazing areas in Iraq**<br>• **The importance of pastures**<br>• **Factors affecting pastures**<br>• **Identify grazing systems**<br>• **Identifying areas with harmful jungles** |
| **9. Teaching and Learning Strategies** | |
| Strategy | **THE LESSON INCLUDES (2) HOURS OF THEORY AND (3) HOURS OF PRACTICAL - THE NUMBER OF WEEKLY HOURS IS APPROVED, DISTRIBUTED OVER 15 WEEKS..** |
| **10. Course Structure** | |
| | |

| Week | Hours | Required learning outcomes | Unit or Subject Name | Learning Method | Evaluation Method |
|---|---|---|---|---|---|
| **1** | **2** | **Knowledge and understanding, brainstorming and mental skills,** | Pastures and their types | **. Lecture with explanation and presentation** | **. Display screen + whiteboard** |
| **2** | **2** | | The economic importance of pastures | **. Lecture with explanation and presentation** | **. Display screen + whiteboard** |
| **3** | **2** | | Pastoral vegetation and its main components | **. Lecture with explanation and presentation** | **. Display screen + whiteboard** |
| **4** | **2** | | Environmental factors and natural pastures | **. Lecture with explanation and presentation** | **. Display screen + whiteboard** |
| **5** | **2** | | Plant and grazing areas of the world | **. Lecture with explanation and presentation** | **. Display screen + whiteboard** |
| **6** | **2** | | First semester exam | | |
| **7** | **2** | | Plant and grazing areas in Iraq | **. Lecture with explanation and presentation** | **. Display screen + whiteboard** |
| **8** | **2** | | Grazing and its effect | **. Lecture with explanation and presentation** | **. Display screen + whiteboard** |
| **9** | **2** | | Types of grazing systems | **. Lecture with explanation and presentation** | **. Display screen + whiteboard** |
| **10** | **2** | | The animal load and its determinant factors | **. Lecture with explanation and presentation** | **. Display screen + whiteboard** |
| **11** | **2** | | Exploitation sources of grazing plants | **. Lecture with explanation and presentation** | **. Display screen + whiteboard** |
| **12** | **2** | | Pasture management and maintenance | **. Lecture with explanation and presentation** | **. Display screen + whiteboard** |

| | | | | | |
|---|---|---|---|---|---|
| **13** | **2** | | weeds in natural pastures | **. Lecture with explanation and presentation** | **. Display screen + whiteboard** |
| **14** | **2** | | Second semester exam | | |

| **11. Course Evaluation** | |
|---|---|
| Distribution of 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 Sources** | |
| Required Textbooks (Curricular Books, If Any) | **No** |
| Main References (Sources) | **no** |
| Recommended Books and References (Scientific Journals, Reports...) | **no** |
| Electronic References, Websites | **Lectures from websites** |

**Course Description Form**