Ministry of Higher Education and Scientific Research
Supervision and Scientific Evaluation Authority
Department of Quality Assurance and Academic Accreditation

Academic Program Description Form for Colleges and Institutes Academic Year

University: Shatt Al-Arab
College/Institute: Engineering
Scientific Department: Civil
Date of Form Completion: 01/09/2024

Signature
Name of Head of Department:

Asst. Lecturer Nabeel Najm Abdullah

Signature

Name of Scientific Assistant: Dr. Jawad Kadhim

Reviewed by:
Quality Assurance and University Performance Division
Name of Division Director: Dr. Jasem Mohsen Yasser

Signature:

الدكتور
جاسم محسن ياسر
Dr.Jasim Al-Battat

جامعة شط العرب
كلية الهندسة
العمادة
SHATT AL-ARAB UNIVERSITY

أ.م.د. احسان قاسم محمد
عميد كلية الهندسة

Dean's Approval

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	Shatt Al-Arab University College
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Irrigation Engineering/ CE315
4. Modes of Attendance offered	Class attendance
5. Semester/Year	1st semester / 3rd year
6. Number of hours tuition (total)	45 hrs.
7. Date of production/revision of this specification	2024

8. Aims of the Course

1. This course covers the basic concepts of irrigation engineering and explains the different irrigation methods.
2. Demonstrate the relationship between irrigation engineering (within agricultural engineering) and civil engineering.
3. Develop skills in understanding and solving problems within the field of agricultural engineering, such as water waste problems.
4. Present the principles and laws taken in other related courses and demonstrate their importance and how to apply and employ them in irrigation engineering to solve potential engineering problems.

9. Learning Outcomes, Teaching, Learning and Assessment Method

1. Clarifying the basic concepts of irrigation engineering systems and their applications in agricultural fields
2. Acquiring basic skills in managing irrigation systems optimally.
3. Gaining the appropriate experience in designing irrigation systems in different ways and their suitability to different surrounding conditions and knowing the difference between the old and modern irrigation systems.
4. Developing the ability to solve water waste problems and finding the best ways to reduce them.
5. Developing the ability to write scientific reports and reading charts with tables.

This course covers a wide range of different irrigation methods, their optimal conditions and design methods with the aim of enriching the knowledge base of the civil engineer in the field of agricultural engineering in a way that enables him to solve potential engineering problems in this field effectively.

Teaching and Learning Methods

The main strategy for delivering this module is to encourage student's participation in the exercises while refining and expanding their critical thinking skills. This will be achieved through theoretical lectures, small discussion groups, presentation of scientific films, writing reports, and using the scientific web sites.

Assessment methods

- Interacting within the lecture.
- Homework and reports.
- Short exams (quizzes).
- Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

- The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
- The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
- The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

- Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
- Sudden exams during the theoretical and practical lecture.
- Quarterly exams for the theoretical and practical side.
- Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1- Develop the student's ability to perform the duties and deliver them on time
D2 - Logical and programmatic thinking to find programmatic solutions to various problems
D3 - developing the student's ability to dialogue and debate
D4 - Develop the student's ability to deal with modern technology and internet.

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Irrigation, irrigation benefits and irrigation networks	Introduction to the Irrigation Engineering	Th. Lecture	Written exams and oral discussions
2	3	Types of irrigation methods, evaluation of irrigation water sources	Introduction to the Irrigation Engineering	Th. Lecture	Written exams and oral discussions
3	3	volume of water in the soil and methods for calculating water consumption	Introduction to the Irrigation Engineering	Th. Lecture	Written exams and oral discussions
4	3	Efficiency, sufficiency and consistency of irrigation	Introduction to the Irrigation Engineering	Th. Lecture	Written exams and oral discussions
5	3	Land gradation design methods	Land gradation design	Th. Lecture	Written exams and oral discussions
6	3	Surface irrigation process mechanism and water balance concept	Surface irrigation	Th. Lecture	Written exams and oral discussions
7	3	Design assumptions in strip irrigation and design flow rate, strip length and width	Strip irrigation	Th. Lecture	Written exams and oral discussions
8	3	Method of calculating absorption, design parameters, methods of controlling surface runoff	Furrow irrigation	Th. Lecture	Written exams and oral discussions
9	3	Design equations in basin irrigation and design parameters	Basin irrigation	Th. Lecture	Written exams and oral discussions
10	3	Sprinkler irrigation system diagram and effect of wind direction on the diagram	Sprinkler irrigation	Th. Lecture	Written exams and oral discussions
11	3	Hydraulic sprinkler, distribution uniformity factor, and the sprinkler irrigation losses	Sprinkler irrigation	Th. Lecture	Written exams and oral discussions
12	3	Number of pipes moves, hydraulic flow principles, and flow in the manifold	Sprinkler irrigation	Th. Lecture	Written exams and oral discussions

13	3	Pressure charge calculation, sprinkler irrigation system design	Sprinkler irrigation	Th. Lecture	Written exams and oral discussions
14	3	Benefits of trickle irrigation, basic parts of the drip system	Trickle irrigation	Th. Lecture	Written exams and oral discussions
15	3	Wetness area, drip system design	Trickle irrigation	Th. Lecture	Written exams and oral discussions

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	كتاب هندسة نظم الري الحقلي
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports)	1. اساسيات الري تأليف جورج هارغريفز وغاري ميركلي 2. مقدمة في نظم الري للدكتور سمير محمد إسماعيل 3. Irrigation and Drainage Engineering by Peter Waller and Muluneh Yitayew 4. Irrigation and water resources engineering by G.L. Asawa
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
Adding new subjects to the curricula within the development of the course by no more than 5%. Adding new references