Course Description Form

1. Course Name:
Pattern Recognition
2. Course Code:
CSMM4222
3. Semester / Year:
Second Semester 2024-2025
4. Description Preparation Date:
5/2/2025
5. Available Attendance Forms:In classroom
weekly Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
30 H/2 Units
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Shaimaa Hameed shaker Email: **Shaimaa.h.shaker@uotechnology.edu.iq**

8. Course Objectives

Course Objectives	• Introducing the student to the subject of pattern recognition and its connection to the vision how to recognize patterns. • Problems that appear in the patterns, the techniques used to address them, and the understanding of issues related to distinguishing patterns and ways to describe it.

9. Teaching and Learning Strategies

Strategy	**A- Knowledge and Understanding** A1: Enable the student to know and understand the theoretical principles of windows programming and turn them into programming functions for implementation. A2: The student describes how to build all programming interfaces in windows systems using the functions designated for that. A3: Enable the student to know and understand the practical applications of window programming. A4: To Impart the skills needed to develop windows applications, Student will learn how to design windows and various components of windows, keyboard events,

	graphics and text, file handling. **B- Subject-specific skills** B1:Logical thinking B2: Giving the students tasks to design different models by using advanced programming languages to motivate the students to acquire skills. **C- Thinking Skills** C1:Ability to work in teams C2:Ability to solve problems and think collectively **D- General and Transferable Skills (other skills relevant to employability and personal development)** D1:Using theoretical and practical tools in the design and implementation of interfaces to create interaction between the user and the computer. D2: Using modern tools of communication to interact with the work team to solve a specific problem D3: The ability to manage time while working as a team.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical	1,2,5,6,7	Introduction of pattern recognition	lectures + Video	Attendance + answer discussion questions
2	2 theoretical	1,2,5,6,7	Basic Concepts of pattern recognition	lectures + Video	Attendance + answer discussion questions
3	2 theoretical	1,2,5,6,7	Optical Pattern Recognition	lectures + Video	Attendance + answer discussion questions
4	2 theoretical	1,2,5,6,7	Object Description and Representation.	lectures + Video	Attendance + answer discussion questions
5	2 theoretical	1,2,5,6,7	Feature Selection and Generation.	lectures + Video	Attendance + answer discussion questions
6	2 theoretical	1,2,5,6,7	SIFT and SIRF	lectures + Video	Attendance + answer discussion questions
7	2 theoretical	1,2,5,6,7	Harris Corner Detection	lectures + Video	Attendance + answer discussion questions

8	2 theoretical	1,2,5,6,7	Template Matching	lectures + Video	Attendance + answer discussion questions
9	2 theoretical	1,2,5,6,7	Clustering Techniques.	lectures + Video	Attendance + answer discussion questions
1	2 theoretical	1,2,5,6,7	Clustering Algorithms	lectures + Video	Attendance + answer discussion questions
1	2 theoretical	1,2,5,6,7	Classification	lectures + Video	Attendance + answer discussion questions
1	2 theoretical	1,2,5,6,7	ID3 Algorithm	lectures + Video	Attendance + answer discussion questions
1	2 theoretical	1,2,5,6,7	OCR	lectures + Video	Attendance + answer discussion questions
1	2 theoretical	1,2,5,6,7	Pattern recognition Applications	lectures + Video	Attendance + answer discussion questions
1	2 theoretical	1,2,5,6,7	**Preparatory Week**	lectures + Video	Attendance + answer discussion questions

11. Course Evaluation

Attendance - oral exams and tests - mid-course exam - end-of-course exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Not required
Main references (sources)	pattern recognition. Sergios Th., second edition.
Recommended books and references (scientific journals, reports…)	Supervised and Unsupervised Pat Recognition J. David Irwin, *Auburn Univers*
Electronic References, Websites	