Form: Course Syllabus	Form Number	EXC-01-02-02A
	Issue Number and Date	2963/2022/24/3/2 5/12/2022
	Number and Date of Revision or Modification	2/(10/12/2023)
	Deans Council Approval Decision Number	50/2023
	The Date of the Deans Council Approval Decision	26/12/2023
	Number of Pages	06

1.	Course Title	**Advance Process Control**
2.	Course Number	**0905704**
3.	Credit Hours (Theory, Practical)	(3,0)
	Contact Hours (Theory, Practical)	(2,1)
4.	Prerequisites/ Corequisites	-
5.	Program Title	M.Sc. of Process Safety Engineering and Intelligent Systems
6.	Program Code	07
7.	School/ Center	School of Engineering
8.	Department	Department of Chemical Engineering
9.	Course Level	Master
10.	Year of Study and Semester (s)	
11.	Other Department(s) Involved in Teaching the Course	
12.	Main Learning Language	English
13.	Learning Types	✓ Face to face learning ☐ Blended ☐Fully online
14.	Online Platforms(s)	☐Moodle ☐Microsoft Teams
15.	Issuing Date	
16.	Revision Date	

17. Course Coordinator:

Name:	Contact hours:
Office number:	Phone number:
Email:	

18. Other Instructors:

Name:
Office number:
Phone number:
Email:
Contact hours:
Name:
Office number:
Phone number:
Email:
Contact hours:

19. Course Description:

As stated in the approved study plan.

This course delves into advanced process control techniques, emphasizing multi-loop systems, large-dead-time processes, and robust strategies to enhance safety and efficiency in industrial applications. The course combines theoretical foundations with practical applications in industrial settings, allowing students to bridge the gap between theory and real-world implementation. Students will explore multivariable control, model predictive control (MPC), and nonlinear control methods. The course also covers process identification, state and parameter estimation, fault detection and diagnosis (FDD), and intelligent control system design using fuzzy logic and neural networks.

Additionally, the course includes an internal lab. Using computational tools such as MATLAB, SIMULINK, and process simulators, students will apply the concepts learned to real-world industrial process scenarios, developing practical skills in system modeling, control design, and performance evaluation.

20. Program Intended Learning Outcomes: (To be used in designing the matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program)

1.

2.

3.

4.

21. Course Intended Learning Outcomes: (Upon completion of the course, the student will be able to achieve the following intended learning outcomes)

1.

2.

3.

4.

Course ILOs	The learning levels to be achieved					
	Remembering	Understanding	Applying	Analysing	evaluating	Creating

22. The matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program:

Program ILOs / Course ILOs	ILO (1)	ILO (2)	ILO (3)	ILO (4)	ILO (5)
1					
2					
3					
4					

5					
6					
7					
8					

23. Topic Outline and Schedule:

Week	Lecture	Topic	ILO/s Linked to the Topic	Learning Types (Face to Face/ Blended/ Fully Online)	Platform Used	Synchronous / Asynchronous Lecturing	Evaluation Methods	Learning Resources
1	1.1							
	1.2							
	1.3							
2	2.1							
	2.2							
	2.3							
3	3.1							
	3.2							
	3.3							
4	4.1							
	4.2							
	4.3							
5	5.1							
	5.2							
	5.3							
6	6.1							
	6.2							
	6.3							
7	7.1							
	7.2							
	7.3							
8	8.1							
	8.2							

	8.3							
9	9.1							
	9.2							
	9.3							
10	10.1							
	10.2							
	10.3							
11	11.1							
	11.2							
	11.3							
12	12.1							
	12.2							
	12.3							
13	13.1							
	13.2							
	13.3							
14	14.1							
	14.2							
	14.3							
15	15.1							
	15.2							
	15.3							

24. Evaluation Methods:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	ILO/s Linked to the Evaluation activity	Period (Week)	Platform

25. Course Requirements:

(e.g.: students should have a computer, internet connection, webcam, account on a specific software/platform…etc.):

26. Course Policies:

A- Attendance policies:

B- Absences from exams and submitting assignments on time:

C- Health and safety procedures:

D- Honesty policy regarding cheating, plagiarism, misbehavior:

E- Grading policy:

F- Available university services that support achievement in the course:

27. References:

A- Required book(s), assigned reading and audio-visuals:

B- Recommended books, materials, and media:

28. Additional information:

	Signature:	Date:
Name of the Instructor or the Course Coordinator: ……………………………………………	…………..………………	…….…………
Name of the Head of Quality Assurance Committee/ Department ……………………………………………	Signature: …………..………………	Date: …….…………
Name of the Head of Department ……………………………………………	Signature: …………..………………	Date: …….…………
Name of the Head of Quality Assurance Committee/ School or Center ……………………………………………	Signature: …………..………………	Date: …….…………
Name of the Dean or the Director ……………………………………………	Signature: …………..………………	Date: …….…………