Course Specification
(Bachelor)

Course Title:	***Introduction to industrial Engineering and systems***
Course Code:	*INE 2211*
Program:	*Bachelor in Industrial Engineering*
Department:	*Industrial Engineering*
College:	*College of Engineering*
Institution:	*King Khalid University, Abha, Saudi Arabia*
Version:	*Version 3*
Last Revision Date:	**09/12/2025**

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A. General information about the course:

1. Course Identification

1. Credit hours: (.....)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (Level 4/Year 2)					
4. Course general Description:					
The overall aim of this course is to define the industrial engineering, introduce the concepts and basic principles of industrial engineering. The students will be introduced to various branches of industrial engineering as the productivity of systems, the supply chain management, operations research, decision theory, quality management, engineering ethics and project management. This course helps students in how to collect industrial information and benefit from, and the possibility of handling the student with a network of information and knowledge of the tasks entrusted to the industrial engineer.					
5. Pre-requirements for this course (if any)**:**					
NIL					
6. Co-requisites for this course (if any)**:**					
NIL					
7. Course Main Objective(s):					
1- Identify IE, history and futures, different branches, roles, techniques, opportunities… 2- Define operations Management and the measurement of productivity. 3- Discuss the nature of manufacturing and manufacturing systems 4- Define the components of the supply chain management and understand the function of inventory. 5- Define the operations research and the linear programming and formulate and solve a LP model 6- Understand the decision theory 7- Develop the engineering ethics 8- Introduce the quality management 9- Understand the critical Path Method and activity scheduling in the project management					

10- Able to select the convenient tool to take decision in special topics in industrial engineering.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	100%
2	E-learning	0	0
3	Hybrid • Traditional classroom • E-learning	0	0
4	Distance learning	0	0

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	0
3.	**Field**	0
4.	**Tutorial**	0
5.	**Others (specify)**	0
Total		30

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Discuss the nature of manufacturing and service systems, operations management and the measurement of productivity.	**K1**	**Lectures and Tutorials**	**Quizzes Assignments Mid Term Final Exam**

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.1	Identify IE, history and futures, different branches, roles, techniques, opportunities…	K1	Lectures and Tutorials	Quizzes Assignments Mid Term Final Exam
1.2	Introduce the quality management	K2	Lectures and Tutorials	Quizzes Assignments Mid Term Final Exam
2.0	Skills			
2.1	Discuss nature of mfg/service systems, ops management, productivity measurement	S1	Lectures and Tutorials	Quizzes Assignments Mid Term Final Exam
2.2	Define the operations research and the linear programming, formulate and solve a LP model	S2	Lectures and Tutorials	Quizzes Assignments Mid Term Final Exam
2.3	Understand the decision theory and Introduce the engineering project management	S4	Lectures and Tutorials	Quizzes Assignments Mid Term Final Exam
2.4	Define the components of the supply chain management and understand the function of inventory.	S4	Lectures and Tutorials	Quizzes Assignments Mid Term Final Exam
3.0	Values, autonomy, and responsibility			
3.1	Develop the engineering ethics	V4	Lectures and Tutorials	Quizzes Assignments Mid Term Final Exam
3.2	Able to select the convenient tool to take decision in special topics in industrial engineering	V2	Lectures and Tutorials	Quizzes Assignments Mid Term Final Exam

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to industrial engineering	2
2	Operations Management	4
3	Nature of manufacturing and manufacturing systems	4
4	Supply chain management	4
5	Operations Research	4
6	Decision theory	4
7	Introduction to quality management	2
8	Engineering Ethics	2
9	Introduction to engineering project management	4
Total		30

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes and Assignments	2-5-8-9	30%
2.	Mid Term	7	30%
3.	Final Exam	15	40%
...			

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Introduction to Industrial Engineering , Avraham Shtub, Yuval Cohen, third edition 2022, ISBN 978-1-138-74785-2
Supportive References	-Operations and supply chain management : The core, F. Robert Jacobs, Richard B. Chase, 6th edition, McGraw-Hill US Higher Ed ISE, 6, 2022 -Operations Research: An Introduction, Hamdy A. Taha, Pearson Education, 11th edition 2022, ISBN 9780137625819 -Ethics in Engineering, Mike W. Martin, Roland Schinzinger, 5th edition 2020, ISBN 978-1-264-27076-7
Electronic Materials	PowerPoint Slides, U tube Videos
Other Learning Materials	Online research Papers

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	**Classrooms**
Technology equipment (projector, smart board, software)	**Projector**
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Student and faculty	Indirect through surveys
Effectiveness of Students assessment	Quality Committee	Direct through Rubrics
Quality of learning resources	Student and faculty	Indirect through surveys (Student, faculty)
The extent to which CLOs have been achieved	Student and faculty	Indirect through surveys (Student, faculty)
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**Reviewed by the Department Curriculum Committee. Approved by the Department Quality Committee**
REFERENCE NO.	**9-6-47**
DATE	**25/06/1447**