Course Specification
(Bachelor)

Course Title:	Facilities Planning and Design
Course Code:	INE 5351
Program: Bachelor of	Industrial Engineering
Department:	Industrial Engineering
College:	Engineering
Institution:	King Khalid University
Version:	1
Last Revision Date:	**17 Nov 2025**

Table of Contents

A. General information about the course:

Course Identification					
1. Credit hours:	3				
2. Course type					
a.	University ☐	College ☐	Department☒	Track☐	Others☐
b.	Required ☒	Elective☐			
3. Level/year at which this course is offered:	9/5				
4. Course general Description					
5. Pre-requirements for this course (if any): **INE 3315**					
6. Co- requirements for this course (if any): NIL					
7. Course Main Objective(s) The course covers strategic facilities planning through detailed facilities layout design. Considerations include product flow, space and activity relationships, personnel requirements, material handling, and layout. Traditional and contemporary issues in manufacturing and their impact on facilities design including receiving, shipping, warehousing, and integration with manufacturing and supporting operations are explored. Facilities planning models and the process of evaluating, selecting, preparing, presenting, and implementing the facilities plan are covered.					

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	60	100
2.	E-learning		
3.	Hybrid ● Traditional classroom ● E-learning		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	
3.	Field	

4.	Tutorial	30
5.	Others (specify)	
	Total	60

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	Enhance the integrated nature of the discipline. Apply the knowledge of flow process analysis to develop the material movement strategies	K1	Lectures and tutorials	Assignments Midterm Exam Final Exam
1.2	Knowledge on material flow and Material Handling	K3		
1.3	Understanding different type of facilities planning methods for both Constructive and Improvement ones.	K4		
2.0	Skills			
2.1	Determine product, process, and schedule design interactions.	S4	Lectures and tutorials	Assignments Midterm Exam Final Exam
2.2	Analyze flow, space, and activity relationships with impact to material handling and layout alternatives	S2		
1.3	Integrate receiving, shipping, warehousing with manufacturing and supporting operations.			
14	Apply quantitative facilities planning models.			
1.5	Prepare and present a detailed facilities planning project report and layout documenting all steps taken (Define problem, Generate alternatives, Analyze, Select) + Justification of your final recommendation.	S6		
3.0	Values, autonomy, and responsibility			
3.1	Work individually or within a team and communicate effectively to perform the assigned tasked (Homework/Group Project)	V2	Lectures and tutorials	Project

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to facilities planning	4
2	Product and schedule design	8
3	Flow, space, and activity relationship	8
	Personnel Requirements	8
4	Material Handling.	8
5	Layout Planning Models and Design Algorithms	16
6	Evaluating and Selecting the Facilities Plan	8

Total		60

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	6 to 8 Assignments	2, 3, 4, 5, 6, 7, 8, 9	25
2.	Quiz 1	3	
3.	Quiz 2	7	
4.	Project	6	5
5.	Mid Term Exam	5	30
6.	Final Exam	12	40
...			100

*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	Facilities Planning and Design, 2nd edition, Alberto Garcia-Diaz, J. MacGregor Smith, Springer Cham, 2024, Facilities Planning and Design | Springer Nature Link (formerly SpringerLink). Facilities Planning, 4th ed, Tompkins, White et al., 2010, John Wiley, New Jersey, ISBN 978-0-470-44404-7.
Supportive References	Manufacturing Facilities: Location, Planning, and Design, Third Edition, Dileep R. Sule, CRC Press, 2008. Stephens, M. P. (2019). *Manufacturing Facilities Design & Material Handling: Sixth Edition* (6th ed.). Purdue University Press. https://doi.org/10.2307/j.ctv15wxptd .
Electronic Materials	https://www.wiley.com/en-us/Facilities+Planning%2C+4th+Edition-p-9780470574157R120
Other Learning Materials	– Multimedia associated with the text book and the relevant websites Customized program available with Software homepage

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	Students	Indirect (Questionnaire)
Effectiveness of students' assessment	Faculty	Direct
Quality of learning resources	Program Leaders	Direct
The extent to which CLOs have been achieved	Faculty	Direct
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**REVIEWED BY CURRICULUM COMMITTEE** **APPROVED BY QUALITY COMMITTEE**
REFERENCE NO.	9-6-47
DATE	25/06/1447