Course Specification
(Bachelor)

Course Title : Fire and Explosion Prevention	
Course Code: INE 5366	
Program: **Bachelor of** Industrial Engineering	
Department: **Industrial Engineering**	
College: **Engineering**	
Institution: **King Khalid University**	
Version: **1**	
Last Revision Date: **19-11-2025**	

Table of Contents

A. General information about the course:

1. 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: (10th level / 5th Year)					
4. Course general Description:					
This course introduces students to fundamentals of fire and combustion and is intended to serve as the first exposure Principles of combustion explosions are taught along with explosion hazard and protection applications. Topics include a review of flammability limit concentrations for flammable gases and dusts; the status of explosion suppression technology; and vapor cloud explosion hazards.					
5. Pre-requirements for this course (if any)**:**					
NIL					
6. Co-requisites for this course (if any)**:**					
NIL					
7. Course Main Objective(s):					
CLO 1: Apply fire prevention system for a given type of industries CLO 2: Discuss the professional ethics a professional responsibility in fire preventions CLO 3: Create a team to function as a team in fire prevention management CLO 4: Assess fire science under various circumstance to gather knowledge of explosion CLO 5: Identify Fire Prevention & explosion models					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	70 %
2	E-learning	15	30 %
3	Hybrid • Traditional classroom		

No	Mode of Instruction	Contact Hours	Percentage
	• E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	15
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		45

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	Define & Apply fire prevention system for a given type of industries	K1	Lectures and tutorials	Assignments, Quizzes, and Exams
1.2	Assess fire science under various circumstance to gather knowledge of explosion	K2		
1.3	Identify Fire Prevention & explosion models	K3		
2.0	Skills			
2.1	Create a team to function as a team in fire prevention management	S1	Lectures and tutorials	Assignments, Quizzes, and Exams
2.2	Evaluate Fire explosion & prevention data analysis	S5		
3.0	**Values, autonomy, and responsibility**			
3.1	Discuss the professional ethics and professional responsibility in fire preventions	V1, V3	Lectures and tutorials	Assignments, Quizzes, and Exams

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.2	Demonstrate Ethics, fire issues and protection	V4		

C. Course Content

No	List of Topics	Contact Hours
1	What is industrial fire prevention?	6
2	Approaches to protect human lives and property	6
3	Fire mechanism, Fire requirements, Chemical Combustion mechanism, Types of Combustion	6
4	Types of fire	3
5	Study of standard fire parameters	3
6	Fire extinguishing strategies	3
7	Fire prevention models	6
8	Fire Engineering system	6
9	Fire Escape models	6
Total		**45**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignments	Every week	10 %
2.	Quiz 1	4	10 %
3.	Quiz 2	8	10 %
4.	Two Mid Term Exams	5, 10	30 %
5.	Final Exam	16	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	Guyer, J.P. (2018), Fire Protection Engineering for Buildings, [ISBN 9781976994876] DeCicco, P.R. (2018), Computer Application in Fire Protection Engineering, [ISBN 9780895032249]
Supportive References	DeCicco, P.R. (2001), Special Problems in Fire Protection Engineering, [ISBN 9780895032232]
Electronic Materials	Fire protection journals
Other Learning Materials	Lecture handouts

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	● Lecture room ● Backboard facility for sharing lecture notes, submission of assignments, and attempting quizzes.
Technology equipment (projector, smart board, software)	Projector and smart board
Other equipment (depending on the nature of the specialty)	Every student requires access to a personal computer and the Internet. On-site University access is provided through the University Central Library.

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		

Assessors (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