

**King Fahd University of Petroleum & Minerals**

# **Construction Engineering and Management**

**(Master of Science & Master of Engineering)**

## **CEM Department Mission Statement**

**The mission of the department is to:**

- ❖ **Enhance knowledge and practice of the construction industry through integrated education, research, and community service,**
- ❖ **Conduct and promote scientific research and its application for the advancement of construction industry,**
- ❖ **Disseminate new knowledge through publications, conferences, seminars and workshops.**

## **Program Educational Objectives**

**The Construction Engineering & Management graduates are equipped with diverse knowledge and skills that makes them capable of coping with the complex environment of construction project management. In particular:**

- ❖ **Graduates have the knowledge and skill necessary to pursue professional careers in Construction Engineering & Management.**
- ❖ **Graduates have the ability to analyze, improve, and design integrated project management systems.**
- ❖ **Graduates have the ability to function effectively in their organization through leadership, team-work, and ethical conduct.**
- ❖ **Graduates have the knowledge to appreciate environmental and contemporary issues associated with engineering practice.**

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**Program Outcomes**

**CEM Programs (MS and ME) will enhance and reinforce the following abilities that the engineer acquired during the undergraduate study.**

- a) Ability to apply knowledge of mathematics, science, and engineering.**
- b) Ability to design and conduct experiments as well as to analyze and interpret data.**
- c) Ability to design a system, component, or process to meet the desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.**
- d) Ability to function on multidisciplinary teams.**
- e) Ability to identify, formulate, and solve engineering problems.**
- f) An understanding of professional and ethical responsibility.**
- g) Ability to communicate effectively.**
- h) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context.**
- i) Recognition of the need for, and the ability to engage in life-long learning.**
- j) Knowledge of contemporary issues.**
- k) Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.**
- l) Ability to conduct sound research in Construction Engineering & Management with appropriate utilization of laboratories, field sites, learning media and means of information and communication technology**

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**A Matrix Relating Program Learning Outcomes to Program Objectives**

Program Learning Outcomes	Program Objectives			
	1- Knowledge & Skills	2-Design integrated PM systems	3- Leadership, teamwork, ethics	4- Environ & Contemporary Issues
a- Ability to apply knowledge of mathematics, science, engineering	✓			
b- Ability to design & conduct experiments; analyze & interpret data.	✓			
c- Ability to design a system, component, or process to requirement	✓	✓	✓	✓
d- Ability to function on multidisciplinary teams.			✓	✓
e- Ability to identify, formulates, and solves engineering problems.	✓	✓		
f- Understanding of professional and ethical responsibility.			✓	✓
g- Ability to communicate effectively.	✓		✓	
h- Education necessary to understand the impact of engineering solutions			✓	✓
i- Recognition of the need for, and the ability to engage in life-long learning.	✓	✓		
j- Knowledge of contemporary issues.	✓	✓		✓
k- Ability to use the techniques, skills and modern engineering tools.	✓	✓		
l- Ability to conduct sound research in Construction Engineering & Management	✓	✓	✓	✓

**A Matrix Relating Courses to Program Learning Outcomes for Master of  
Engineering in Construction Engineering & Management**

Program Courses	Program Learning Outcomes											
	a	b	c	d	e	f	g	h	i	j	k	l
CEM 510			✓		✓	✓	✓	✓		✓	✓	✓
CEM 511	✓		✓	✓	✓		✓				✓	
CEM 512	✓			✓	✓						✓	
CEM 513		✓	✓	✓	✓		✓					
CEM 514	✓				✓		✓		✓			✓
CEM 515	✓		✓	✓	✓		✓		✓		✓	
CEM 516	✓		✓	✓	✓		✓		✓		✓	
CEM 517				✓		✓	✓			✓	✓	
CEM 518	✓		✓	✓	✓		✓					
CEM 520		✓				✓			✓	✓		✓
CEM 525	✓		✓	✓	✓						✓	
CEM 530	✓		✓	✓			✓			✓	✓	✓
CEM 531	✓		✓	✓	✓						✓	
CEM 540	✓	✓	✓	✓	✓	✓	✓	✓			✓	
CEM 549	✓		✓		✓						✓	
CEM 599					✓		✓					✓
CEM 600					✓		✓					✓