

College of Engineering

Department of Civil Engineering

جامعة
الملك سعود
King Saud University



CE 514 Decision Making and Risk Management in Construction

Credit and Contact hours	3/ 3 (Lectures), 0 (Tutorials), 0 (Laboratory)										
Required, or Elective	Required for a MSCE degree										
Course Description	Concepts and current issues surrounding construction project evaluation and financing. The use of decision theory in evaluating project feasibility studies. Decision making under conditions of risk and uncertainty.										
Prerequisites or Co-requisites	STAT 503 (PROBABILITY & MATHEMATICAL STATISTICS)										
Course Learning Outcomes	<p>Students completing this course successfully will be able to</p> <table border="1"><thead><tr><th>Course Learning Outcomes</th><th>Related Program Outcomes</th></tr></thead><tbody><tr><td>CLO1: Acquire critical knowledge of contemporary risk management techniques in construction industry.</td><td>K1</td></tr><tr><td>CLO2: Use different decision-making techniques to solve real-life construction related problem.</td><td>S1</td></tr><tr><td>CLO3: Develop a detailed risk management plan using different tools and approaches and suggest mitigation response.</td><td>S1</td></tr><tr><td>CLO4: Discuss recent advancements in risk management plans in complex projects and identify any gaps needed for future research.</td><td>C1</td></tr></tbody></table>	Course Learning Outcomes	Related Program Outcomes	CLO1: Acquire critical knowledge of contemporary risk management techniques in construction industry.	K1	CLO2: Use different decision-making techniques to solve real-life construction related problem.	S1	CLO3: Develop a detailed risk management plan using different tools and approaches and suggest mitigation response.	S1	CLO4: Discuss recent advancements in risk management plans in complex projects and identify any gaps needed for future research.	C1
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CLO4: Discuss recent advancements in risk management plans in complex projects and identify any gaps needed for future research.	C1										
Student Outcomes related to this Course	<p>K1. Recognize advanced engineering knowledge, concepts and techniques to identify, interpret and analyze complex and real-life engineering problems.</p> <p>S1. Provide solution for complex and real-life engineering problems through critical thinking and using modern engineering tools and identify its impact on social and ethical issues.</p>										

	C1. Criticize and discuss scientific research reports /papers related to Civil Engineering issues with high level of ethics and proficiency, independently, or as a team work	
Topics Covered	List of Topics	Related CLOs
	1. Introduction to projects, risks and decision making techniques	CLO1
	2. The Analytic Hierarchy Process (AHP)	CLO2
	3. Decision tree	CLO2
	4. Fuzzy logic and SWOT analysis	CLO2
	5. Risk management	CLO3
	6. Qualitative and Quantitative approaches	CLO3
	7. Risk allocation and accountability	CLO4
	8. Monte Carlo simulation	CLO2
	9. Case studies	CLO4
Textbook(s) and Other Required Material	1. Singh, Amarjit, and C. Eng. "Quantitative Risk Management and Decision Making in Construction." American Society of Civil Engineers, 2017.	
Grading System	Assignments	20%
	Project Work and Research Report	20%
	Midterm Exam	20%
	Final Exam	40%
Instructors	Dr. Naief Ibn-Homaid, Associate Professor Office: 2A20, e-mail: bnhomaid@ksu.edu.sa Website: https://fac.ksu.edu.sa/bnhomaid/home	
Date of Review	February, 2021	