College of Engineering

Department of Civil Engineering

CE 510 Construction Management Research

Credit and Contact hours	3 / 3 (Lectures), 0 (Tutorials), 0 (Laboratory)
Required, or Elective	Elective
Course Description	This course covers research methodology applied to the construction industry. Students will have the opportunity to learn the importance of good construction project management and get an introduction to common approaches to construction research, including research strategies and formulation of research questions. They will finish the course by exploring a typical framework for a research proposal and drafting a research proposal of their own.
Prerequisites or Co-requisites	None
Course Learning Outcomes	Students completing this course successfully will be able to:

Course Learning Outcomes (CLOs)	*Related Student Outcomes (SO)*
CLO1. Acquire knowledge about the research process and recognize and identify the most common research methods and tools applied in construction research. K1	**SO1**
CLO2. Conduct advanced review to identify research gaps based on the literature review of prior research related to construction engineering and management. S3	**SO4**
CLO3. Formulate research problems and develop research questions, objectives, and hypotheses to address real-life problems in the construction industry. S2	**SO3**
CLO4. Investigate real-life research problems, and assess the effectiveness of appropriate research methods and tools in addressing them. S2	**SO3**

Student Outcomes related to this Course

SO 1 Recognize advanced engineering knowledge, concepts, and techniques to identify, interpret, and analyze complex and real-life engineering problems.

SO 3 Investigate scientific research problems independently or through teamwork using critical thinking, appropriate techniques, advanced tools, and management principles.

SO 4 Criticize and discuss scientific research reports /papers related to Civil Engineering issues with a high level of ethics proficiency and communication skills, independently, or as a teamwork.

<table>
<tr><td>Topics Covered</td><td>
<table>
<tr><th>List of Topics</th><th>Related CLOs</th></tr>
<tr><td>1. Introduction</td><td>CLO 1</td></tr>
<tr><td>2. Producing a Proposal</td><td>CLO 1, 3</td></tr>
<tr><td>3. Topic for Study</td><td>CLO 2, 4</td></tr>
<tr><td>4. Initial Research</td><td>CLO 1, 2, 3</td></tr>
<tr><td>5. Approaches to Empirical Work</td><td>CLO 1, 3</td></tr>
<tr><td>6. Hypotheses</td><td>CLO 1, 3</td></tr>
<tr><td>7. Data Collection</td><td>CLO 4</td></tr>
<tr><td>8. Data Analysis</td><td>CLO 1, 4</td></tr>
<tr><td>9. Ethics in Research</td><td>CLO 1, 3</td></tr>
<tr><td>10. Results, Inferences, and Conclusions</td><td>CLO 4</td></tr>
<tr><td>11. Reports and Presentations</td><td>CLO 3, 4</td></tr>
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<tr><td>Textbook(s) and Other Required Material</td><td>Title: Research Methods for Construction, 5th Edition. Authors: Richard F. Fellows, Anita M. M. Liu. ISBN: ISBN: 978-1-119-81473-3 Publication Date & Copyright: 2021 Wiley-Blackwell.</td></tr>
<tr><td>Grading System</td><td>
Assignments 10%
Research Topic /Literature Search 10%
Research Project Proposal 20%
Survey Instrument 5%
Mid-term exam 15%
Final Exam 40%
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<tr><td>Instructors</td><td>Dr. Abdulrahman Bin Mahmoud</td></tr>
<tr><td>Date of Review</td><td>March 2025</td></tr>
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