College of Engineering

Department of Civil Engineering

CE 446 Environmental Assessment and Management Systems

Credit and Contact hours	3 / 3 (Lectures), 1 (Tutorials), 0 (Laboratory)
Required, or Elective	Elective for a BSCE degree
Course Description	Knowledge for principle of environmental impact assessment includes the definition, historical background, laws and tools related to environmental impact assessment. The principles of environmental impact assessment focus on physical, biological and human use to achieve quality of life with case studies and examples.
Prerequisites or Co-requisites	CE 447 (Water Supply and Drainage Systems), CE 448 (Water and Wastewater Treatment)
Course Learning Outcomes	Students completing this course successfully will be able to

Course Learning Outcomes	***Related Student Outcomes (SO)***
CLO1. Review principles, process, and necessary techniques for environmental impact assessment, mitigation and monitoring – Review Papers and Standards	**SO7**
CLO2. Explain sources of pollutants and their environmental pathways. – Review Papers	**SO7**
CLO3. Conduct environmental impact assessment through analyzing the impact on resources and environment and evaluate impact from development projects.	**SO4**
CLO4. Recognize the environmental law & the rules regulating system control.	**PC1**
CLO5. Demonstrate professionally the results of Environmental Impact assessment report through presenting the results of a project to peers and students.	**SO3**

Student Outcomes related to this Course	**SO 7.** an ability to **acquire** and **apply new knowledge** as needed, using **appropriate learning strategies**. [ABET 7] **SO 4**. an ability to recognize **ethical** and **professional responsibilities** in engineering situations and make **informed judgments**, which must consider the **impact of engineering solutions in global, economic, environmental, and societal contexts.** [ABET 4]

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<tr><td></td><td>PC1.An ability to explain basic concepts in project management, business, public policy, and explain the importance of professional licensure. [PC]

SO 3.an ability to communicate effectively with a range of audiences. [ABET 3]</td></tr>
<tr><td>Topics Covered</td><td>
<table>
<tr><th>List of Topics</th><th>Related CLOs</th></tr>
<tr><td>1. Origin, principles and purpose of EIA, EIA terminology, International EIA context</td><td>CLO1</td></tr>
<tr><td>2. Regulations and legal bases for EIA</td><td>CLO4</td></tr>
<tr><td>3. Problems analysis & impact measures</td><td>CLO2</td></tr>
<tr><td>4. A practical introduction to methods for assessing, predicting and mitigating of ecological and socioeconomic impacts</td><td>CLO3</td></tr>
<tr><td>5. Evaluation of impact measures</td><td>CLO3</td></tr>
<tr><td>6. Basis for Evaluation of alternative solutions and monitoring Programs</td><td>CLO3</td></tr>
<tr><td>7. Main stages of the EIA process (screening, scoping, impact prediction, mitigation, monitoring and auditing of impacts)</td><td>CLO1 & CLO5</td></tr>
<tr><td>8. EIA Report structure, preparation and evaluation</td><td>CLO1, CLO4 and CLO5</td></tr>
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<tr><td>Textbook(s) and Other Required Material</td><td>1. Canter, Larry W., “Environmental Impact Assessment” ”, McGraw Hill Pub.,1996.
2. Glasson, J., Therivel, R. and Chadwick, A., “ Introduction to Environmental Impact Assessment: Principles and procedures, process, practice and prospects", UCL Press.,1994.</td></tr>
<tr><td>Grading System</td><td>Homeworks 20%
Technical paper 5%
Field trip reports 15%
Two Midterm Exams 20%
Final Examination 40%</td></tr>
<tr><td>Instructors</td><td>Prof. Ashraf M.I. Refaat (Room 2A4), email; refaat@ksu.edu.sa</td></tr>
<tr><td>Date of Review</td><td>September 2020</td></tr>
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