

**COURSE CODE:** ENE-332  
**COURSE NAME:** Environmental Impact Assessment  
**CREDIT HOURS:** Theory = 2 Practical = 0 Total = 2  
**CONTACT HOURS:** Theory = 32 Practical = 0 Total = 32  
**PREREQUISITE:** None  
**MODE OF TEACHING:** Two hours of lecture per week

**COURSE DESCRIPTION:**

This course introduces the methodology of environmental impact assessment (EIA) as a vital tool for sound environmental management and decision-making. The course provides an overview of the concepts, methods, issues and various forms and stages of the EIA process. It examines the development of EIA in Pakistan. It mainly draws on case studies of EIA in Pakistan but also focuses on the EIA process in other countries, including developing countries. Different levels and systems of EIA are examined to highlight the diversity of approach and impact of the EIA process.

**RELEVANT PROGRAM LEARNING OUTCOMES (PLOs):**

The course is designed so that students will achieve the PLOs:

- |   |                                  |                                     |    |                                 |                                     |
|---|----------------------------------|-------------------------------------|----|---------------------------------|-------------------------------------|
| 1 | Engineering Knowledge:           | <input type="checkbox"/>            | 7  | Environment and Sustainability: | <input checked="" type="checkbox"/> |
| 2 | Problem Analysis:                | <input type="checkbox"/>            | 8  | Ethics:                         | <input type="checkbox"/>            |
| 3 | Design/Development of Solutions: | <input type="checkbox"/>            | 9  | Individual and Teamwork:        | <input type="checkbox"/>            |
| 4 | Investigation:                   | <input type="checkbox"/>            | 10 | Communication:                  | <input type="checkbox"/>            |
| 5 | Modern Tool Usage:               | <input type="checkbox"/>            | 11 | Project Management:             | <input type="checkbox"/>            |
| 6 | The Engineer and Society:        | <input checked="" type="checkbox"/> | 12 | Lifelong Learning:              | <input checked="" type="checkbox"/> |

**COURSE LEARNING OUTCOMES:**

Upon successful completion of the course, the student will demonstrate competency by being able to:

Sr. No.	CLO	Domain	Taxonomy Level	PLO
1	<b>Understand</b> the background and concepts of environmental and social impact assessments	Cognitive	2	6
2	<b>Apply</b> the EIA process and different stages of EIA to identify and mitigate significant impacts of any project on environment and society	Cognitive	3	7
3	<b>Respond</b> to the concepts of EIA in order to fully	Affective	2	12

	understand them			
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### **Complex Engineering Problem**

<b>4</b>	<b>Execute and implement</b> the EIA decision making process.	Cognitive	3	7
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### **PRACTICAL APPLICATIONS:**

The demand for trained practitioners in environmental assessment at both the project level (environmental impact assessment (EIA)) and the strategic level (strategic environmental assessment (SEA)), and related environmental management fields continues to grow. To meet this demand, this course provides an opportunity for specialist study in this area. It will provide students with a thorough, stimulating, and practical education in EIA and related areas.

### **TOPICS COVERED:**

<b>Week</b>	<b>Topic Covered</b>	<b>Reading Assignment/ Homework</b>	<b>CLO #</b>
1,2	<b>EIA Basics:</b> Introduction, Definition, Principles, Basic Concepts, Types of assessment, Misconceptions, EIA Stages/Process	Chapter 1	1
3	<b>EIA Basics:</b> EIA Stages/Process	Chapter 1	1,2
4	<b>Decision-making theory and practice:</b> EIA as a decisions-making instrument	Chapter 2 Assignment 1 Quiz 1	2
5	<b>Environmental issues of Pakistan:</b> Physical, chemical, biological and social environment. The global environmental drivers that are affecting Pakistan would also be discussed briefly (e.g. climate change, global warming, pollution, and population increase), environmental threats (natural and manmade disasters), environmental movements, environmental integration through tools and instruments (planning, policy making, management and assessment), ecosystem services	Chapter 2 Assignment 2 Quiz 2	2
6	<b>Regulatory Framework:</b> EIA Regulations in Pakistan, EIA requirements of the World Bank and the Asian Development Bank	Chapter 3 Quiz 3	2
7	<b>EIA Process:</b> Screening	Chapter 3	3
8	<b>EIA Process:</b> Scoping, Checklist for rapid	Chapter 3	3

	environmental assessment (REA) of ADB,		
9	<b>Mid Semester Exam</b>		
10	<b>EIA Process:</b> Baseline Data, Identification of Impacts and Evaluation of Alternatives,	Chapter 4 Assignment 3	1, 2
11	<b>EIA Process:</b> Assessing the Impacts (methods and techniques),	Chapter 4 Quiz 4	1, 2
12	<b>EIA Process:</b> Public Participation	Chapter 5 Assignment 4 Quiz 5	3
13-14	<b>EIA Process:</b> Mitigation (importance, approaches, and methods) and identification of suitable alternatives, minimization of environmental disturbance and remedial measures, Environmental Management Plans (EMPs)	Chapter 5 Quiz 6	3, 4
15-16	<b>EIA Process:</b> Reporting (Pakistan guidelines for reporting EIA, required legal documents and guidelines), <b>EIA Process:</b> EIA quality review, EIA Follow-up (objective, component, regulations, process and challenges), Monitoring, Auditing,	Chapter 6	3, 4
17	<b>EIA Effectiveness:</b> Framework, Criteria, Introduction to Strategic Environmental Assessment (SEA)	Chapter 6	3, 4
18	<b>End Semester Exam</b>		

#### LIST OF PRACTICALS:

Not Applicable

Sr. No.	Practical	CLO #
1		
2		
3		

**Field Visit:** A project under development where EIA was conducted.

#### TEXT AND MATERIAL:

**Textbook (s)**

1- Environmental Impact Assessment Course Curriculum for Higher Education Institutions in Pakistan by Fischer, T. B. and Nadeem, O (2014), IUCN, Pakistan,

**References Material:**

- 2- Lecture Notes
- 3- Introduction to Environmental Impact Assessment, Fourth Edition (2012). John Glasson, Riki Therivel, Andrew Chadwick. Publisher: Routledge (Third Edition)
- 4- Environmental Impact Assessment (EIA) Handbook for Pakistan (2014). Author: Thomas B. Fischer. Publisher: IUCN, Pakistan.
- 5- Environmental Impact Assessment: A Guide to Best Professional Practices by Charles H. Eccleston, CRC Press, Taylor and Francis Group, LLC, 2011
- 6- Methods of Environmental Impact Assessment, Third Edition (2009). Peter Morris and Riki Therivel. Publisher: Routledge

**ASSESSMENT SYSTEM:**

<b>Theoretical/Instruction</b>	<b>100%</b>
Assignments	10%
Quizzes	15%
Mid Semester Exam	25%
End Semester Exam	50%

  

<b>Practical Work</b>	<b>0%</b>
Lab Attendance	0%
Lab Report	0%
Lab Quiz	0%
Lab Rubrics	0%