COURSE CODE:	**GIE-456**	
COURSE NAME:	**ENVIRONMENTAL IMPACT ASSESSMENT**	
CREDIT HOURS:	Theory	= 03
	Practical	= 00
	Total	= 03
CONTACT HOURS:	Theory	= 48
	Practical	= 00
	Total	= 48
PREREQUISITE:	Nil	

MODE OF TEACHING:

Instruction: Three hours of lecture per week
100%

COURSE DESCRIPTION:

This course is designed for undergraduate students to give them a brief introduction of EIA, its components, EIA cycle, Initial Environmental Examination, Environmental Risk Assessment, and Strategic Environmental Assessment (SEA) and enhance their skills and ability to plan, conduct and reviews the EIAs of development projects. Students will learn how GIS; RS are integrated in EIA projects through case studies & research papers.

COURSE OBJECTIVES:

The main objective of this course is to allow students to gain an understanding of theories and techniques in parallel with developing skills in analytical decision making, design and management in EIA

RELEVANT PROGRAM LEARNING OUTCOMES (PLOs):

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

1	Engineering Knowledge:	☐	7	Ethics:	☐
2	Problem Analysis:	☐	8	Individual and Collaborative Team Work: :	☐
3	Design/Development of Solutions:	☐	9	Communication:	☐
4	Investigation:	☐	10	Project Management:	☐
5	Tool Usage:	☐	11	Lifelong Learning:	☐
6	The Engineer and Society:	☑			

COURSE LEARNING OUTCOMES:

Upon successful completion of the course, the students will be able to:

1.	Describe basic concepts of environmental impact assessment (EIA)	Cognitive	2	6
2.	Analyse existing legal and environmental structures to create environmental impact statements.	Cognitive	4	6
3.	Apply the working principles of Geoinformatics for assessing impact on environmental.	Cognitive	3	6

TOPICS COVERED:

1.	Global Environmental Issues
2.	Regional Environmental Issues: Environmental Issues of Pakistan: Physical, Chemical, Biological and Social Environment. The global environmental drivers that are affecting Pakistan 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
3.	Sustainable Development & EIA
4.	Introduction to Environmental Impact Assessment a. Definition; b. History of development; c. Objectives d. Types of EIA; and e. Difference between effect and impact
5.	Regulatory mechanisms to EIA (in Pakistan) a. Policies and legislations b. Environmental standards (emission levels, species protection list) c. Major environmental parameters
6.	Steps involved in undertaking EIA (in Pakistan) a. EIA and the project cycle b. EIA Report Format
7.	Environmental Screening, Scoping and Terms of Reference
8.	Baseline information a. Data Sources b. Methods of Data Collection and Processing
9.	Significance of Spatial Data & GIS for Environment Impact
10.	Executing the EIA process, Alternative Analysis; Types of Impacts, Methods of identifying impacts, Impact prediction techniques; and Impact evaluation
11.	Environmental Impact Mitigating measures a. Benefit enhancing measures (selection and implementation) b. Adverse Impact mitigating measures (selection and implementation)
12.	Environmental Monitoring and Auditing, Types, and methods, Environmental Management Plan, Contents, and requirements

13.	Environmental Assessment Report and Format, Terms of Reference, Initial Environmental Examination (IEE), Environmental Impact Assessment
14.	Strategic Environmental Assessment (SEA)
15.	Application of Geoinformatics for environmental impact assessment
16.	Integrating EIA, GIS & RS in Development Process (Case studies)
17.	Integrating EIA and Remote Sensing in Development Process (Case studies)
18.	**ESE**

TEXT AND MATERIAL:

Textbook:	Crickson PA, "Environemntal Impact Assessment: Principles & Application" Latest Edition
Reference Books:	Lecture Notes Environmental Initiatives: Global and National Perspectives in Pakistan by Dr Muhammad Khurshid, 2004 Yousaf J. Ahmad, George K. Sammay "Guidelines to Environmental Impact Assessment" in developing countries. Hodder and Stoughton London, Sydney, Auckland Toronto, Sponsored by UNDP

ASSESMENT SYSTEM:

1. **CLOs Assessment**

Cognitive	**Psychomotor**	**Affective**
Spreadsheet	Rubrics	-

2. **Relative Grading**

Theoretical / Instruction			100%
	Assignments 10%		
	Quizzes 10%		
	Mid Semester Exam 30%		
	End Semester Exam 50%		
Total			**100%**