COURSE CODE COURSE NAME	GIE-474 WEB GIS	
CREDIT HOURS	Theory: 02	
	Practical: 01	
	Total: 03	
CONTACT HOURS	Theory: 32	
	Practical: 48	
	Total: 80	
PREREQUISITE	Nil	
MODE OF TEACHING:		
Instruction:	Two hours of lecture per week	66.66%
Practical:	Three hours of Lab work per week	33.34%

#### COURSE DESCRIPTION:

This course requires understanding of Web GIS concepts, web architecture, client and server-side technologies, OGC standards, open source and proprietary tools, spatial database connectivity, WMS, WFS, GML, KML, JSON, GeoJSON, and XML etc.

#### **COURSE OBJECTIVES:**

The objectives are to enable students to develop thorough understanding and basic principles and techniques of Web GIS concepts. To design and implement Web architecture using appropriate spatial database, spatial mapping servers, and client-side geospatial libraries. To explore both commercial and open-source Web GIS technologies by providing hands on trainings. Students are expected to understand Web in general and Web GIS in particular. Students will be able to design and develop Web GIS projects using both open source and proprietary Web technologies.

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

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

1 Engineering Knowledge: 

7 Environment
and

					Sustainability:	
2	Problem Analysis:			8	Ethics:	
3	Design/Development	of	$\checkmark$	9	Individual and Team Work:	
	Solutions:					
4	Investigation:			10	Communication:	
5	Modern Tool Usage:		$\checkmark$	11	Project Management:	
6	The Engineer and Society:			12	Lifelong Learning:	

# COURSE LEARNING OUTCOMES:

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

No.	CLO	Domain	Taxonom y Level	PLO
1	Describe an advanced level concept and theoretical background of Web GIS	Cognitive	2	1
2	Design complete Web GIS application	Cognitive	4	5

### TOPICS COVERED:

#### Theory:

Wee	Topics
k	
1	Web GIS Introduction
2	Web Terminologies
3	Web 2.0/OGC Standards
4	Open-source Web GIS Solutions (OpenGeo Suite)
5-6	Open Layers Concept (Map object, base layer, non-base layer, map controls,
	WMS Layer, Google, Bing and OSM)
7	Web GIS Architecture
8	Web Services and Geospatial Web Services
9	Geospatial Mashups

Geoportals
NSDI
OGC standards (WCS, WPS)
Web GIS Trends
Mobile GIS
ESE
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### Practical:

Sr. No.	Торіс
1.	JavaScript
2.	OpenLayers
3.	GeoServer
4.	MapServer
5.	ArcGIS Server
6.	PHP or Python Framework (WAMP)
7.	Leaflet
8.	ExtJS, GeoExt
9.	Project

# **TEXT AND MATERIAL:**

# Textbook(s):

a. Fu, Pinde, and Jiulin Sun. Web GIS: principles and applications. Esri Press, 2010.

### **ASSESMENT SYSTEM:**

# 1. CLOs Assessment

Cognitive	Psychomotor	Affective
Spreadsheet	-	-

2. Relative Grading

Theoretical /			67%
Instruction			07 70
	Assignments 10%		
	Quizzes 10%		
	OHT Exams 30%		
	End Semester Exam 50%		
Practical Work			33%
Laboratory Work		70%	
	Laboratory Assignment 70%		
	Semester Project 30%		
Viva/Quiz		30%	
Total			100%