

COURSE CODE: GIE-474
COURSE NAME: 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 67%
 Practical: Three hours of Lab work per week 33 %

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: | <input checked="" type="checkbox"/> | 7 | Ethics: | <input type="checkbox"/> |
| 2 | Problem Analysis: | <input type="checkbox"/> | 8 | Individual and Collaborative Team Work: | <input type="checkbox"/> |
| 3 | Design/Development of Solutions: | <input type="checkbox"/> | 9 | Communication: | <input type="checkbox"/> |
| 4 | Investigation: | <input type="checkbox"/> | 10 | Project Management: | <input type="checkbox"/> |
| 5 | Tool Usage: | <input checked="" type="checkbox"/> | 11 | Lifelong Learning: | <input type="checkbox"/> |
| 6 | The Engineer and Society: | <input type="checkbox"/> | | | |

COURSE LEARNING OUTCOMES:

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

No.	CLO	Domain	Taxonomy 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:**

Week	Topics
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
10	Geoportals
11	NSDI
12	OGC standards (WCS, WPS)
13-14	Web GIS Trends
15-16	Mobile GIS
17-18	ESE

Practical:

No.	Topic
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.

ASSESSMENT SYSTEM:

1. CLOs Assessment

Cognitive	Psychomotor	Affective
Spreadsheet	-	-

2. Relative Grading

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