GUJARAT TECHNOLOGICAL UNIVERSITY

GIS (Geographic Information system) for Planning
SUBJECT CODE: 1065506
B.PLAN 6th SEMESTER

Aim: To study, Geographic Information System (GIS) and its application in spatial planning.

Objective:
1. To study the concepts of GIS, Thematic Maps Creation and Spatial Analysis, GIS Modelling and its Application in Spatial Planning
2. To study GIS Software Packages (ESRI and Open Source) and Advanced Concepts of GIS.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P	C	Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA(I)	
1	0	2	4	40	30	0	30	100

L- Lectures; T- Tutorial/Teacher Guided Student Activity/Field work; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment.

Content:

Sr. No.	Content	Total Hrs
Unit -1	**Advanced Concepts in GIS** Introduction to Dynamic GIS; Integration of GIS and Digital Image Processing; Integration of GIS and GPS; Wed GIS; Crowd Sourcing	6
Unit -2	**Building Raster database & Raster Processing :** Data sources, Raster catalog, Raster mosaic, merging raster, raster in geo-database, Import and Export data, load data in personal Geo-database, Spatial Adjustment. Classification methods, Supervised and unsupervised classification	9
Unit - 3	**Introduction to Open sources in GIS** Q GIS, Introduction to vector data, Data Attribute, Data Capturing, Raster Data, Georeferencing, Topological errors corrections, Map Production, Use of Geoweb Services, Open Street Maps, Bhavan Data, Bhuvan Panchayat Geoportal and its application	12
Unit - 4	**GIS Modelling** Overlay functions in GIS; using attribute over spatial data in Modelling; case study based land suitability analysis; Modelling service area for social infrastructures; impact analysis	9
Unit - 5	**Specific Packages & Surface Analysis tools** Introduction and laboratory exercises on selected GIS Packages; Comparative advantages and disadvantages; Planning applications Using spatial analyst, contour tool, slope, aspect, Hill shape, curvature, visibility analysis, View shade, observe point, controlling visibility on a Viewshed, solar radiation tools, creating TIN and DEM	9
Unit – 6	**Representing the data 3D** Using Arc Scene and showing the data in 3D view	3
Total hours		48

Practicals will be taught on ArcGIS and Q GIS

Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1	Michael N. Demers	Fundamentals of Geographic Information Systems		-- John Wiley
2	Chor Pang Lo, Albert Yeung	Concepts and Techniques of GIS	2007	Prentice Hall
3	ESRI	Getting to know Arc View GIS ESRI		
4	John Peter Wilson	Handbook of GIS	2008	Blackwell Publishing
5	Paul Longley and Michael Betty	Spatial Analysis – Modeling in GIS Environment	1996	John Wiley
6	Michele Campagna	GIS for Sustainable Development	2005	Taylor and Francis

Course Outcome:

List of Exercises / Practicals:	
1	Visit to Town Planning and Valuation Department or Space Applications Centre submit report on ongoing work of GIS for nations development
List of Assignments/Tests :	
1	Test / Assignment on Units taught; 1 pre-midterm exam & 1 post-midterm exam
2	Use of GIS in planning Smart Cities of India

ACTIVE LEARNING ASSIGNMENTS: Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.