BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI-HYDERABAD CAMPUS
INSTRUCTION DIVISION, FIRST SEMESTER 2016-2017
COURSE HANDOUT (PART-II)

Date: 01/08/2016

In addition to part-I (General Handout for all courses appended to the timetable) this portion gives further specific details regarding the course.

Course No.   : **CE F431**
Course Title   : **PRINCIPLES OF GEOGRAPHICAL INFORMATION SYSTEMS**
Instructor – in – Charge : **RAJITHA K**

Scope & Objective: The course introduces the fundamentals of Geographic Information Systems. The main objective of the course is to promote a good foundation in GIS and working knowledge of fields strongly related to GIS in the computing perspective. Different algorithms for spatial analysis are discussed in the course illustrated with case studies. The course will also guide the students through projects and to apply concepts and ideas in various application areas and to establish a motivation towards research in thrust areas related to GIS.

Text Book:

T1: Rajiv Gupta & Mukesh Kumar Rohil, 'Computing Aspects of Geographical Information Systems', EDD Notes, BITS Pilani, 2001, 1st.

Reference Books:

R1: Kang-tsung Chang; "Introduction to Geographic Information Systems" , Tata McGraw-Hill , 4 th edi.

R2: Thomas M Lillesand, and Ralph W Kiefer; "Remote sensing and Image Interpretation", John Wiley & Sons, 1994, 3rd ed.

R3: Michael F. Worboys, "GIS: A Computing Perspective", Taylor & Francis Ltd; 1995, 1 st ed.

Course Plan:

Lecture No.	Learning Objectives	Topics to be covered	Reference
1-2	Introduction to GIS	Introduction to GIS	T1 , R1 ,Lecture notes
3-5	Introduction of GIS modules	GIS Functionality: Interface, Spatial data, Raster data model and vector data model	T1, R1
6-8	Making data compatible for GIS	Co-ordinate system and Geo-referencing	T1, R1,R2,Lecture notes
9-12	Making data compatible for GIS	Map Projection	T1,Lecture notes

13	Making data compatible for GIS	Digitization, Encoding, and Structuring of data	T1 , R1, Lecture notes
14-16	Data acquisition for GIS: Remote sensing	Remote sensing Fundamentals	T1 , R1, Lecture notes
17-18	Data acquisition for GIS: Photogrammetry	Basics of Photogrammetry, Flight planning	T1, R2, Lecture notes
19-20	Data acquisition for GIS: GPS	Basics of Global Positioning System (GPS)	Lecture notes
21-22	Data acquisition for GIS: Advanced Remote sensing	RADAR, TM and Multispectral sensing Radar: basics and application	T1 ,R2, Lecture notes
23-26	Compatibility of DBMS with GIS	Basics of spatial database	T1 &R1
27-30	Spatial Interpolation	Deterministic and Statistical spatial interpolation	R1, Lecture notes
31-33	Computational algorithms	Triangulation, DEM, TIN, terrain mapping and analysis	R1, Lecture notes
34-36	Computational algorithms	Network analysis, Geocoding, Path analysis and network applications	R1, Lecture notes
37-39	Strategies for Development, implementation and management of GIS	Different aspects of Spatial model creation, monitoring and managing at various levels of project	Lecture notes
40-42	Applications of GIS through case studies	transportation, Environment, water resources and allied fields	Lecture notes

Evaluation Scheme

EC No.	Evaluation Component	Duration(min)	Weightage (%)	Date & Time	Remarks
1	Test I	60	15	13/9, 2.30--3.30PM	CB
2	Test II	60	20	21/10, 2.30--3.30PM	OB
3	Surprise test	Cont.	5		-
4	*Project	Cont.	15		-
	Lab	Cont.	10		
5	Comp. Exam.	180	35	13/12 AN	CB

* Those who are not completed the project will be considered under NC category
Chamber Consultation Hour: To be announced

Notices: All notices will be displayed at Civil Engineering Notice Board and LTC
Make-up Policy: Take prior permissio

Instructor-In-Chare-CE F431