BSP 305					Introduction to Geo-Informatics					
Teaching Scheme					Examination Scheme					
L	T	P	C	Hrs/Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
0	3	0	0	3	25	50	25	--	--	100

COURSE OBJECTIVES

- Overall Basic Concepts of Satellite Technology and data availability
- An overview of Data Platforms, Database and Image processing
- Hands on Cartography Exercise, GPS Handling for surveying & Open Source GIS softwares
- Real life applications in Various Earth Science subjects of Geoinformatics

UNIT 1 Basic Concepts of Environment and Geospatial Technology 10 Hrs.

Basic concepts of Digital Image Processing, Climate concepts, Geographical features of earth, Hydrology, basic GIS Concepts, Scope of GIS, Global Positioning System and its applications, Remote Sensing and Digital Image Processing, History of Remote Sensing, Types of RS/GIS, Applications of RS/GIS, Satellites and Sensors etc.

UNIT 2 Cartography and Satellite Data Interpretation 10 Hrs.

Cartography and its applications, Map Reading, Geographical rectification, Visual Image Interpretation, Different GIS Softwares and its applications, Data Source for Satellite imageries, Feature Digitization (Point, Line & Polygon), Map making Process etc.

UNIT 3 Applications of GPS/GIS Softwares/Instruments using Field Data 10 Hrs.

Earth Resource Satellites, GPS-Applications and Errors, Hands on GPS, Exposure to android applications of GPS, Collecting Field Data using different tools of GPS, Import/Export data to Google Earth and different GIS Softwares.

UNIT 4 Applications of Geoinformatics tools in Earth Science 10 Hrs.

Use of GIS and Remote Sensing in Different applications like Urban Planning specially in Smart City Development, Geology, Geography, Earth Science, Forestry, Conservation, Socio-Economic parameters etc.

Max. 40 Hrs.

COURSE OUTCOMES

On completion of the course, student will be able to

CO1 - Explore New & growing aspects of Image Processing & GIS Technology

CO2 - Discover Experience of Surveying tools/Softwares for Field Survey from Job Perspective

CO3 - Learn various applications to delineate Map of particular requirement

CO4 - Explore Digital Image Processing Techniques & GIS based mapping concepts

CO5 - Search new ideas of physical science into Earth Science applications & Sustainable goals

CO6 - Expand vision towards various real life applications of Physical & Environmental Science

TEXT/REFERENCE BOOKS

Text Books:

1. Remote Sensing and GIS - Basudeb Bhatta
2. Remote Sensing And Image Interpretation –*Lillesand* & Kiefer

Reference Books:

3. Introduction to Geographic Information Systems by *Kang-Tsung Chang*
4. *"Remote Sensing Techniques and GIS Applications in Earth and Environmental Studies" by Abhisek Santra and Shreyashi Santra Mitra*
5. "GIS for Water Resource and Watershed Management" by John G Lyon
6. "Mapping and Modeling Weather and Climate with GIS" by Lori Armstrong
7. "Fundamentals of GPS Receivers: A Hardware Approach" by Dan Doberstein
8. Elements of Cartography by Arthur H. Robinson

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

Max. Marks: 100	**Exam Duration: 3 Hrs**
PART A : 10 Questions of 2 marks each-No choice	20 Marks
PART B : 8 Questions from Syllabus with internal choice, each carrying 10 Marks	80 Marks