VALUE ADDED COURSE

Swarrnim Institute of Technology

Course Code: VACSDP

Year: 2021-2022

Semester:- Odd

Swarrnim Institute of Technology
Swarrnim Startup & Innovation University
University Campus, Bhoyan Rathod, Near ONGC WSS, Opp. IFCCO, Adalaj Kalol Highway,
Gandhinagar,Gujarat, INDIA 382420 Phone: 095123 43333

Subject: GIS for Sustainable Development and Planning

Program:	Bachelor of Technology	Branch:	All

Hours:- <mark>30 hrs.</mark>

Objective:-

- Understand the fundamentals of GIS and its applications in sustainable development and planning
- Learn to use GIS software and tools for spatial analysis and mapping
- Apply GIS techniques to real-world problems in sustainable development and planning
- Develop skills in data collection, analysis, and interpretation using GIS.

Detail Syllabus

Sr.	Content	Total Hrs
1	**Introduction to GIS** - Definition and concept of GIS - History and evolution of GIS - Components of GIS (hardware, software, data) - Types of GIS data (vector, raster, 3D) - GIS software and tools (ArcGIS, QGIS, Google Earth)	08
2	**GIS Data Collection and Management** - Sources of GIS data (primary, secondary, crowdsourced) - Data collection methods (field surveys, remote sensing, GPS) - Data management techniques (data cleaning, data integration, data visualization)	06
3	**Spatial Analysis and Mapping** - Spatial analysis techniques (buffering, overlay, network analysis) - Mapping techniques (cartography, visualization, 3D modeling) - Case studies in spatial analysis and mapping	07
4	**Applications of GIS in Sustainable Development and Planning** - Environmental management (conservation, climate change, natural resources) - Urban planning (land use, transportation, infrastructure) - Resource management (water, soil, forest) - Disaster response and recovery	09

Reference Books:

Sr. No.	Author/s	Name of the Book	Publisher
1	Jonathan R. Lindsay	GIS for Sustainable Development	CRC Press, 2017
2	A. K. Jain	Sustainable Development and GIS	McGraw-Hill Education, 2019

Online Resources:

1. https://www.esri.com/en-us/solutions/sustainable-development.
2. https://www.un.org/en/sections/issues-depth/geospatial-information/.