**SHYAMA PRASAD MUKHERJI COLLEGE FOR WOMEN**

**Department of Geography**

**TEACHING PLAN JULY 2022-NOVEMBER 2022**

**COURSE AND YEAR: B.A (H) 2nd Year**

**SEMESTER: III**

**TAUGHT INDIVIDUALLY OR SHARED: INDIVIDUALLY**

**PAPAER: GEOGRAPHICAL INFORMATION SYSTEM (SEC -PRACTICAL)**

**FACULTY: MD ARIF HUSAIN**

**NO. OF CLASSES (PER WEEK): 6**

**Course Objectives:**

* The course aim is to give basic understanding of concept of GIS, its definitions and components;
* To gain working experience geographical data collection using GPS.
* To do analysis and application of geographical data in land use, urban sprawl, and forest study.

**Learning Outcome:**

* This is a practical, hands-on course; when you have completed it, you will be able to:
* Develop basic understanding and hands-on on GIS software and
* GPS ;
* Understand GIS Data Structures and GIS Data Analysis ;
* Apply GIS for natural resource management, urban and land use land cover study;

**Teaching Plan**

**Unit Name: Geographical Information System (GIS): Definition and Components.**

1. Introduction of GIS(1-2 Classes, 4th week of August)
2. Definition of GIS (1-2 classes, 4th week of August)
3. Components of GIS (1-2 classes, 4th week of August)

**Unit Name: GIS Data structure: Types ( spatial and non spatial), Raster and vector Data structure.**

1. Types of GIS data structure (5-6 Classes, 1st week of September)
2. Raster data structure (5-6 classes, 2nd week of September)
3. Vector data structure (5-6 classes, 3rd week of September)

**Unit Name: GIS Data Analysis: Input; Geoereferencing;Editing and output;Overlays**

1. GIS Data Analysis: (2-3 classes, 4th week of September)
2. Input; Geoereferencing (5-6 classes, 1st week of October)
3. Editing and output; Overlays (2-3 classes, 2nd week of October)

**Unit Name: Application of GIS: Land Use Mapping; Urban Sprawl Analysis; Forests Monitoring**

1. Applications of GIS (5-6 Classes, 2nd week of October)
2. Supervised Classification (5-6 Classes, 3rd week of October)
3. Unsupervised Classification (5-6 Classes, 4th week of October)
4. Landuse mapping (5-6 Classes, 1st week of November)

**Unit Name Urban sprawl analysis and forest Monitoring:**

1. Urban sprawl (5-6 classes, 2nd week of November)
2. Normalized Difference Built Area Index (5-6 classes, 3rd week of November)
3. Forest monitoring (2-3 classes, 4th week of November)
4. Normalized Difference Vegetation Index (2-3 classes, 4th week of November)

**Unit Name: Global Positioning System (GPS): Principles and Uses.**

1. Principal and Uses (6-8 classes, 1st and 2nd week of December)

**Methodology of Teaching**: Interactive Lectures, Thorough discussion and illustrations.

**Practical Record**

A project file consisting of 5 Exercises on using any GIS Software on above mentioned themes in the syllabus.

**Assessment**

**Criteria of Assessment-**

1. Practical Record

2. Assignment- Question to be answered based on the units taught

3. Test- 2 Tests minimum. If need be one more will be taken.

**Tentative Dates of Assessment:**

3rd Week of September (Assignment)

2nd Week of October 2022 (Test)

1st week of November 2022 (Test)

Semester Exams in December 2022

**Readings prescribed:**

Bhatta, B. (2010) Analysis of urban growth and sprawl from remote sensing , springer, Berlin Heidelberg.

Burrough, P.A., and Mc Donnell, R.A. (2000) Principals of geographic information system – spatial information system and geo-statistics : oxford university press.

Chauniyal, D.D.(2010) Sudur samvedan evam bhogolik suchana pranali, sharda pustak Bhavan Allahabad.

Nag.P. (2008) Introduction to GIS , concept India, New Delhi.

Singh, R.B. and Murai, S. (1998) space informatics for sustainable development, oxford and IBH, New Delhi.