**CENTRAL UNIVERSITY OF KERALA**
**DEPARTMENT OF GEOLOGY**
**M.Sc. GEOLOGY**

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| Course Code | EGE 5002 | Semester | III |
| Course Title | Geospatial Technology | | |
| Credits | 3 | Type | Elective |

This is a participatory, experimental, problem solving and entrepreneurship based course for Spatial and data analysis skills.

Course Description
This course will discuss the fundamentals of geospatial technology. Geospatial technology is an applied branch of earth science which deals with the modern tools contributing to the geographic mapping and analysis of the Earth and human societies. This course will be offered as an external elective for other branch students. This present course curriculum offers an opportunity for the other branch students to understand the basics of geospatial technology for developing an interest in the principles, practical uses, and resources related to geospatial technologies.

***Course Outcome***
By the end of the course, students are expected to be able to:

- understand the basics of geospatial technology.
- have an introduction towards remote sensing and GIS .
- have an idea about the applications of remote sensing and GIS.

***Course Structure***

*Module - 1*

Concepts and foundation of remote sensing: energy sources and radiation principles, energy interactions in the atmosphere, energy interaction with earth surface features – Spectral Reflectance - Introduction to aerial photographs and aerial photo interpretation. geometric characteristics of aerial photographs. Binocular-Mirror-pocket Stereoscopes. Photogrammetric problems.

*Module – 2*

Introduction to remote sensing- land use-land cover mapping-NDVI. Applications of remote sensing in Water resources management; Disaster management, Public Health, Urban Planning and Environmental management. Geographic coordinates. Map projections. Global Positioning System: Basic features, NAVSTAR GPS, GLONASS, IRNASS.

*Module – 3*

Fundamentals of Geographic Information System – data input, data management, data manipulation, data output. Data Input and Editing: Coordinate Conversion. Digitizing, data encoding, re-projection and transformation. Vector and Raster data analysis.Applications of GIS inmapping, Urban planning, Water resources management; Disaster management; Environmental management and public health.

***Evaluation &Grading***
Skill development (Analytical, Writing and Presentation) – 20%
Class Test – 20%

***End Semester Assessment* – 60%**

**References**


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- Lillesand, T.M., Kiefer,R.W. and Chipman, J.W. (2004), Remote sensing and image interpretation, Fifth Edition, Wiley, NJ, 812p.
- Mather, P.M. and Koch, M. (2011),Computer Processing of Remotely-Sensed Images – An Introduction, Fourth Edition, John Wiley, New York, 462p.
- McCoy, R. M. (2005), Field methods in remote sensing, Guilford Press, New York, 177p.
- DeMers, M. N. (2009), GIS for dummies, Wiley, NJ, 388p.
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- Shekar, S., Xiong, H. eds. (2008), Encyclopaedia of GIS, Springer-Verlag, New York, 1392p.
- Sickle, J. V. (2010), Basic GIS Coordinates, CRC Press, FL, 190p.
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