MAJOR-XX

DM-THM- 482	Techniques of Hazard Mapping	Cr. H. 3

Course Description

Upon successful completion of the course, the student will be able to:
Understand the basic elements of a map.
Illustrate the hazard variables.
Apply methods and techniques of hazard mapping.

COURSE OUTLINE

1. **Introduction**
   - Maps (Definition, Importance and Use)
   - Types of Maps (Scale, Purpose and Content)
   - Basic Elements of a Map
2. **Types and variables of Hazards**
   - Standard definition of a hazard
   - Derivation of variables
   - Listing of map-able variables
   - Interlinking of variables and map components
3. **Cartography and Map drawing in Lab**
   - Sketch Map
   - Drawing Tools
   - Surveying Tools
   - Computer Aided Cartography
   - GIS &RS
   - Multi-Tool Mapping
4. **Practical: Hazard Mapping**
   - Data availability
   - Spatio-temporal dynamics
   - Multi-variables
   - Hazard mapping

- Vulnerability mapping
- Risk Mapping
- Multi-Hazard mapping

Teaching Methodology
- Lectures
- Written Assignments
- Seminar
- lab work

Assessment Criteria:

1st Term (25%) Assignments/Quizzes and Presentations
Mid Term (35%) Written (Long Questions, Short Questions, MCQs)
Final Term (40%) Written (Long Questions, Short Questions, MCQs)

Textbooks:

1. Malloy, N. R. (2020). *Essential Modeling Techniques for Geospatial Analysis Using ArcGIS: An Intermediate-Level GIS Workbook, First Edition*. United States: Independently Published.
2. Chang, K. T. (2019). *Introduction to Geographic Information Systems*. McGraw Hill LLC. Libgen.lc
3. McHaffie, P., Hwang, S., Follett, C. (2023). *GIS: An Introduction to Mapping Technologies, Second Edition*. United Kingdom: CRC Press.
4. Campbell, J. B., Wynne, R. H., & Thomas, V. A. (2022). *Introduction to Remote Sensing*. Guilford Publications
5. Bolstad, P., Manson, S. (2022). *GIS Fundamentals: A First Text on Geographic Information Systems*. United States: Elder Press.
6. Gorr, W. L., Kurland, K. S. (2020). *GIS Tutorial for ArcGIS Desktop 10.8*. United States: Esri Press.
7. Kurland, K. S., Gorr, W. L. (2021). *GIS Tutorial for Health for ArcGIS Desktop 10. 8*. United States: ESRI, Incorporated.
8. Law, M., Collins, A. (2022). *Getting to Know ArcGIS Desktop 10.8.* United States: Esri Press.
9. Wu, F., & Wang, J. (2021). *Advances in Cartography and Geographic Information Engineering.* Singapore: Springer Nature Singapore.
10. Price, M. H. (2023). *Mastering ArcGIS Pro*. United States: McGraw Hill LLC.