

**DEPARTMENT OF INDUSTRIAL ENGINEERING AND MANAGEMENT
MEHRAN UNIVERSITY OF ENGINEERING & TECHNOLOGY, JAMSHORO**

Title of subject	:	Applications of GIS in Industrial Engineering	INM-704 (2+0)
Discipline	:	Industrial Engineering & Management	
Semester	:	1 st Semester	1 st Year
Effective	:	21S Batch and onwards	
Credit hours	:	Th. 02 & Pr. 00	
Marks	:	Th. 50 & Pr. 00	
Minimum Contact Hours	:	28 (For Theory)	

Aim: To provide knowledge of multidisciplinary tools for implication in the various areas of the industrial engineering to get the remedial solutions of the industrial engineering problems.

Objectives: After completing this course, the student will be able to:

- To utilize the GIS tool for the solution of the various issues of industrial engineering and management.
- Know the interrelationship of the multidisciplinary fields to integrate them and get the required output for the quality.
- To focus the balance of degree of fit between manufacturing and marketing strategic interface for developing the quality of the production system.

Contents:

Introduction to Geographical Information Systems (GIS): Definition, scope, GIS components, GIS data, vector data interpretation, Technical elements of Digital GIS , GIS data a analysis, GIS data manipulation, spatial data, Point, line and polygon etc. Spatial Statistics, Map algebra, scalable mapping solutions. Use of Arc View/ArcGiS softwares

GIS in facilities and location Planning : Development for Criteria for facilities an location Planning for industries, parameters development based on factory location criteria, converting parameters in GIS data form, data analysis using sub setting, map calculation.

GIS in Customers location for retail marketing: Vector data for roads, optimal road network analysis using statistical techniques of GIS with the help of Arc view software's extension road network.

GIS in warehousing and distribution centers: Data base for the location of the warehouses and distribution centers, Point data, its generation and developing the warehouse and distributions centers using data based records from the companies.

Recommended Books.

1. Remote sensing techniques for Geo-information Systems By: walter Fisher , NYX Academics USA, , latest editions
2. Application of GIS and remote sensing in Environmental management,, latest editions
3. The History of geographical information systems Timothy W Foresman , Prentice hall USA , latest editions
4. Operations Management, Sustainability and Supply Chain management, By Jay Heizer, Barry Render, Latest Edition

Approval:	Board of Studies:	Res. No. 3.1	Dated: 27.08.2019
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	Academic Council	Res. No. _____	Dated: _____