SET 420 - 102, Geographic Inforamtion Systems

COURSE NUMBER	SET 420
COURSE NAME	Geographic/Land Information Systems (GIS/LIS)
COURSE STRUCTURE	(3-1-4) (lecture hr/wk - lab hr/wk – course credits)
COURSE DESCRIPTION	GIS/LIS are special-purpose digital databases in which a common spatial coordinate system is the primary means of reference. GIS/LIS entails means of data input, storage, retrieval, and query on which basis data transformation, analysis and modeling can be undertaken and reported through maps, reports and plans. The course emphasizes the concepts needed to use GIS/LIS correctly and effectively. It also develops basic proficiency in industry-standard GIS software usage for analyzing spatial patterns in social, economic, environmental and geologic data, and for generating cartographic output from the analysis. Special emphasis is placed on the design, implementation, and maintenance of Land Information Systems (LIS) or Multi-Purpose Cadastres and database development for application in diverse fields like criminal justice, economics, and infrastructure.
PREREQUISITE(S)	SET 307, MET205 or equivalent.
COREQUISITE(S)	SET 307, MET205 or equivalent.
REQUIRED, ELECTIVE OR SELECTED ELECTIVE	Required
REQUIRED MATERIALS/TEXT BOOKS	A. ***GIS Fundamentals –*** A First Text on Geographic Information Systems, Third Edition by Bolstad, P., Eider Press, White Bearlake, MN 2008 B. **Geographic Information *Systems*** *– An Introduction, Bernhardsen, Tor., 3rd Edition, John Wiley & Sons, 20* C. **GIS Guidelines for Assessors**, 2nd Ed. URISA (Digital) D. Text provided by the instructor.
COMPUTER USAGE	Microsoft Access, Excel, Oracle
CLASS TOPICS	Introduction to LIS/GIS, Land Recording Systems and Parcel Mapping, GIS Data Models, Data Collection and Archiving, Data Base Design, Data Analysis, GIS implementation, Technical Issues, Advanced Applications and Topics in GIscience. A GIS project involving components of spatial or image analysis is an integral part of the course. Term project will be given to the class during the lecture period. It may follow, but wil not be limited to, the protocol set below.
COURSE LEARNING OUTCOMES (CLO)	By the end of the course students should be able to: 1. Understand the fundamental concepts of geographic/land information systems and their differences from other types of information systems. 2. Understand the difference between vector and raster data formats as well as advantage and limitations of both. 3. Utilize modern industry-standard GIS software for conducting basic GIS analyses and producing cartographic output 4. Demonstrate the use of GIS tools to perform data transformation, analysis and presentation. 5. Theoretically and experimentally handle GIS database design 6. Explain mapping and Land registration in different sectors of governement 7. Write an effective laboratory/survey report 8. Present orally technical information in a professional and concise manner. 9. Effectively interact with other team members to analyze GIS/LIS related problems and complete assignments. 10. Identify the uses of GIS/LIS beyond Surveying 11. Demonstrate the use of computer programming skills (i.e., SQL) to perform DBMS searches.

MODIFICATION TO COURSE	The Course Outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. Students will be notified in class of any changes to the Course Outline.
COURSE COORDINATED BY	Dr. L. Potts