

SAULT STE. MARIE, ON
SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

COURSE OUTLINE

COURSE TITLE: GEOGRAPHICAL INFORMATION SYSTEMS

CODE NO.: CIV307 SEMESTER: VI

PROGRAM: CIVIL ENGINEERING TECHNOLOGY

AUTHOR: D. J. ELLIOTT

DATE: JANUARY, 1995 PREVIOUS OUTLINE DATED: JANUARY, 1994

APPROVED: *L.P. Cleary* *94-01-03*
DEAN DATE

M. Chen
Jan 3/95

GEOGRAPHICAL INFORMATION SYSTEMS
COURSE NAME

CIV307
COURSE CODE

TOTAL CREDIT HOURS: 64

PREREQUISITE(S): CAD120, SUR201

I. PHILOSOPHY/GOALS:

This course is designed to provide the student with an understanding of GIS, Total Station Survey and Data Management technology. The course will consist of both lecture and hands-on applications.

II. STUDENT PERFORMANCE OBJECTIVES (OUTCOMES):

Upon successful completion of this course the student will:

- 1) Demonstrate a working knowledge of Total Station Survey and its applications for municipal and survey projects.
- 2) Demonstrate a basic knowledge of Geographical Information Systems.
- 3) Describe Spatial Referencing systems.
- 4) Demonstrate a basic understanding of data input and output methods, and data management including coding existing hardcopy maps and plans.
- 5) Be able to manage and analyze existing digitized data using GIS software.

III. TOPICS TO BE COVERED:

- 1) Total Station Survey and Applications
- 2) Fundamentals of GIS Technology
- 3) Spatial Referencing
- 4) Data Management
- 5) Map Analysis with GIS Techniques

IV. LEARNING ACTIVITIES/REQUIRED RESOURCES

1. Total Station Survey and Applications

Learning Activities: In class instruction, computer and field exercises on:
- TSS field and office procedures
- Data pickup in field
- Plan generation and presentation, data management
- Digital Terrain Modelling

Resources: Handouts

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2. **Fundamentals of GIS Technology**

Learning Activities: In class instruction and exercises on Geographical Information Systems

Resources: Handouts

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3. **Spacial Referencing**

Learning Activities: In class instruction and exercises on:
- Spacial referencing techniques
- UTM System of coordinates
- Raster versus Vector input

Resources: Handouts and Tutorials

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4. **Data Management**

Learning Activities: In class instruction and exercises on:
- Data input
- Data management
- Data output

Resources: Handouts and Tutorials

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5. **Map Analysis with GIS Techniques**

Learning Activities: In class instruction and tutorials on:
- Spacial analysis
- Graphic output
- User/GIS interaction

Resources: Handouts and Tutorials

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V. **EVALUATION METHODS: (INCLUDES ASSIGNMENTS, ATTENDANCE REQUIREMENTS, ETC.)**

A final grade will be derived as follows:

Assignments	40%
Term Tests	<u>60%</u>
Total	100%

The grading system used will be as follows:

A+	90% - 100%
A	80% - 89%
B	70% - 79%
C	55% - 69%
R	Repeat

- 1) Late assignments will be penalized 10% for each day late.
- 2) Minimum acceptable grade for this course is 55%.
- 3) If at the end of the semester the overall mark is below 55%, then it will be up to the instructor whether or not a rewrite test will be granted. The criteria employed for arriving at that decision is class attendance, class participation and overall grade, which should be at least 45%.
- 4) In the case a rewrite is granted, it will be permitted only once, it will cover the entire course outline and will limit the maximum obtainable grade for the course to 60%.

VI. REQUIRED STUDENT RESOURCES

Required Text Handouts will be provided by instructor

VII. ADDITIONAL RESOURCE MATERIALS AVAILABLE IN THE COLLEGE LIBRARY:

Book Section Software documentation as required.

VIII. SPECIAL NOTES

Students with special needs (eg. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.

Field work may be reserved for the latter part of the course, when better weather is anticipated.