SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

SAULT COLLEGE

COURSE OUTLINE

COURSE TITLE: INTRODUCTION TO GIS

CODE NO. : SUR205   **SEMESTER:** 12W

PROGRAM: CIVIL

AUTHOR: MARIE ALEXANDER

DATE: JAN 2012   **PREVIOUS OUTLINE DATED:**

APPROVED: *"Corey Meunier"*

                           CHAIR   **DATE**

TOTAL CREDITS: FOUR

PREREQUISITE(S): MCH100

HOURS/WEEK: THREE

I. COURSE DESCRIPTION:
Geographical Information Systems (GIS) is a tool used by engineers and planners. As a technician you work with the engineering or planning team. Consequently a working knowledge of GIS is necessary.

This course is designed to provide you with a basic understanding of Geographical Information Systems. The primary software for this course is ArcGIS.

II. LEARNING OUTCOME:

1. Demonstrate relevant mathematical, computer and technical problem solving skills as it relates to civil engineering / construction projects.

2. Demonstrate an understanding of the working roles and inter-relationships required to adhere to the objectives of the project and work in accordance to labour-management principles and practices

III. TOPIC OUTLINE

Outcome	Topic and Content	Reading	Week
1,2	**1. Introduction and GIS Data**	Introduction Chapter 1	1
	1.1. What is GIS?		
	1.2. A history of GIS		
	1.3. What can a GIS do?		
	1.4. Types of GIS projects		
	1.5. Representing real-world objects in GIS		
	1.6. Modeling feature behavior		
	1.7. Citing GIS data sources		
	1.8. ArcGIS overview		
	1.9. Data files in ArcGIS		
	1.10. About ArcToolbox		
	1.11. The Help System		
	1.12. Teaching Tutorial		
	1.13. Assignment #1		
1,2	**2. Mapping GIS Data**	Chapter 2	2
	2.1. Map scale concepts		
	2.2. Types of maps		
	2.3. Classifying numeric data		
	2.4. Data frame coordinate system		
	2.5. Teaching Tutorial		
	2.6. Assignment #2		

1,2	**3. Coordinate Systems**	Chapter 11	3,4

3.1. About coordinate systems
3.2. Geographic coordinate systems
3.3. Spheroids and datums
3.4. Map projections
3.5. Raster coordinate systems
3.6. Common projection systems
3.7. Choosing projections
3.8. Labeling coordinate systems
3.9. On-the-fly projection
3.10. Projecting data
3.11. Troubleshooting coordinate systems
3.12. Teaching Tutorial
3.13. Assignment #3

1,2	**4. Presenting GIS Data**	Chapter 3	5

4.1. Basic elements of map design
4.2. Choosing symbols
4.3. Choosing coordinate systems
4.4. Maps and reports in GIS
4.5. Assigning map scales
4.6. Setting up scale bars
4.7. Labeling and annotation
4.8. Teaching Tutorial
4.9. Assignment # 4

1,2	**5. Attribute Data**	Chapter 4	6

5.1. Overview of tables
5.2. Database Management Systems
5.3. Queries on tables
5.4. Joining and relating tables
5.5. Summarizing tables
5.6. Field types
5.7. Tables in ArcGIS
5.8. Table formats
5.9. Editing and calculating fields
5.10. Teaching Tutorial
5.11. Assignment #5

	6. Mid-term Test		7

1,2	**7. Queries**	Chapter 6	8-9

7.1. About queries
7.2. Attribute queries
7.3. Spatial queries
7.4. Selection states
7.5. Interactive selection
7.6. Selecting by attributes
7.7. Selecting by location
7.8. Choosing the selection method

**III.   REQUIRED
             RESOURCES/TEXTS/MATERIALS:**

<u>Mastering ArcGIS</u>
Maribeth Price

IV. EVALUATION PROCESS/GRADING SYSTEM:

You will be assigned a final grade based on successful completion of laboratories, assignments and tests, weighted as follows:

Assignments	40%
Mid Term Test	30%
Final Test	30%
TOTAL	**100%**

Each assignment carries equal weight. Late submittals receive only a maximum grade of 60%. However, laboratories or assignments handed in later that one week will receive a grade of 0%.

An average of 50% on laboratories/assignments and 50% on tests is required for successful completion of this course.

The following semester grades will be assigned::

Grade	Definition	Grade Point Equivalent
A+	90 - 100%	4.00
A	80 - 89%	4.00
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

Assignments and Examination Policy:

If a student is unable to write a test or exam at the scheduled time the following procedure shall apply:

- The student shall provide the professor with advance notice (in writing) of the need to miss the test
- The student shall provide documentation as to the reason for the absence and the make-up will be at the discretion of the professor.
- Upon return the student is responsible to make arrangements for the writing of the test. This arrangement shall be made prior to the next scheduled class.
- In the event of an emergency, the student shall telephone the professor as soon as possible at the phone number provided in class.

All late assignments (without documentation) will receive a maximum grade of C (60%).

VI.   SPECIAL NOTES:

Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

VII.   COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.