SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE MARIE, ON

COURSE OUTLINE

Course Title: Customizing GIS

Code No.: GIS 407 **Semester:** 2

Program: GIS Specialist

Author: Dennis Paradine

Date: January, 1999 **Previous Outline Date:** NEW

Approved: K DeRosario Feb 3/99
Dean Date

Total Credits: 4 **Prerequisite(s):** GIS 402
Length of Course: 4 hrs*11 wks **Total Credit Hours:** 60 hrs

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COURSE NAME | COURSE NUMBER

I. COURSE DESCRIPTION:

The power of Geographical Information Systems lies in the automation of repetitive and complex spatial data loading and analysis tasks. Many GIS operations can be automated to save time, produce consistent results and present clients with products usable with limited GIS knowledge. Upon successful completion of this course the student will have a strong foundation in Arc-Info AML and graphic user interface programming.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course the student will demonstrate the ability to:

1) Program Routines in Arc-Info AML

Potential Elements of the Performance:

- use Arc/Info AML programming concepts
- develop database linkages
- develop basic and complex programs to perform various repetitive GIS operations

2) Develop Arc-Info User Interfaces

Potential Elements of the Performance:

- work with graphic user interface (GUI) concepts
- program GUIs to make user interaction easier
- place GUIs on screen at defined locations for project applications

3) Explain Differences Between Windows and Unix Platforms for GIS

Potential Elements of the Performance:

- critique Unix and Windows systems for performance and cost
- program within both Unix and Windows environments

4) Develop Methods to Integrate GIS Data from Different Sources

Potential Elements of the Performance:

- edge-tie GIS data of different origin
- add additional information to existing GIS polygons
- develop routines to perform data integration as seamlessly as possible

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II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE (Continued)

5) Recognize and Handle Potential Database Problems, Relevance and Associated Costs

Potential Elements of the Performance:

- know what database problems can exist and how serious they are
- foresee avoidable database problems
- provide clients with a summary of potential costs and data legitimacy concerns associated with database problems

6) Install Geomatics Software and Load Geomatics Data onto a Computer System

Potential Elements of the Performance:

- load geomatics software and data onto a computer system
- recognize problems that can occur and how to resolve them

III. TOPICS:

1) Program Routines in Arc-Info AML (20 hours)
- AML programming concepts (4 hours)
- database linkages (2 hours)
- development of basic and complex programs for repetitive GIS operations (14 hours)

2) Develop Arc-Info User Interfaces (10 hours)
- graphic user interface (GUI) concepts (2 hours)
- programming GUIs for easier user interaction (6 hours)
- placing GUIs at defined locations for project applications (2 hours)

3) Explain Differences Between Windows and Unix Platforms for GIS (2 hours)

4) Develop Methods to Integrate GIS Data from Different Sources (4 hours)

5) Recognize and Handle Potential Database Problems, Relevance and Associated Costs (4 hours)

6) Install Geomatics Software and Load Geomatics Data onto a Computer System (4 hours)
- installing geomatics software
- loading geomatics data

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IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

ESRI. 1997. Understanding GIS, The ARC/INFO Method. Version 7.1 for Unix and Windows NT. Cambridge, Environmental Systems Research Institute, Inc. n.p.

ADDITIONAL RESOURCE MATERIALS

Burrough, P.A. 1991. Principles of Geographical Information Systems for Land Resources Assessment. Toronto, Ontario. Oxford Science Publications. 194 pp.

ESRI. 1997. Arc Macro Language Workbook With CD: for Unix and Windows NT. Cambridge, Environmental Systems Research Institute, Inc. n.p.

V. EVALUATION PROCESS/GRADING SYSTEM

Practical Assignments	50%
Project	30%
Tests	20%
Total	100%

Grading:
A+ = 85% and over consistently
A = 75-84%
B = 68-74%
C = 60-67%
R = less than 60%

VI. SPECIAL NOTES:

Special Needs

If you are a student with special needs (eg. physical limitations, visual impairments, hearing impairments, learning disabilities), you are encouraged to discuss required accommodations with the instructor and/or contact the Special Needs Office, Room E1204, Ext. 493, 717, 491 so that support services can be arranged for you.

Retention of Course Outlines

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other post-secondary institutions.

Plagiarism

Students should refer to the definition of "academic dishonesty" in the "Statement of Students Rights and Responsibilities."

Students who engage in "academic dishonesty" will receive an automatic failure for that submission and/or such other penalty, up to and including explusion from the course, as may be decided by the professor.

In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course Curriculum Changes

The instructor reserves the right to change course curriculum as necessary

VII. PRIOR LEARNING ASSESSMENT

Students who wish to apply for advanced credit in the course should consult the instructor. Credit for prior learning will be given upon successful completion of the following: