SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE:	Fundamentals of GIS (ArcView Software)
CODE NO. :	GIS 414 **SEMESTER:** F2001
PROGRAM:	Geographic Information Systems Applications Specialist
AUTHOR:	Dennis Paradine
DATE:	June, 2001 **PREVIOUS OUTLINE DATED:** June 1999

APPROVED: _____   _____

                                        DEAN   **DATE**

TOTAL CREDITS:	3
PREREQUISITE(S):	None
LENGTH OF COURSE:	7hrs/wk x 5 wks **TOTAL CREDIT HOURS:** 35

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Course Name   Code No.

I.   COURSE DESCRIPTION:
This course introduces GIS data processing and map production
operations. Students will gain extensive experience in the production of
maps and tabular data using ArcView software. Topics covered include:
data import and conversion, building a project, querying and editing tables,
map fundamentals, layouts, integration of remote sensing data and
database management.

II.   LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1.   Create and modify ArcView projects

        Potential Elements of the Performance:
        • Open, save, reload and create new ArcView projects
        • Modify project views and tables
        • Create new layouts
        • Save themes as shapefiles
        • Practice good ArcView file management

2.   Produce high-quality ArcView maps, tables and charts

        Potential Elements of the Performance:
        • Determine the purpose, components and layout of a map
        • Add attributes and external databases to ArcView tables
        • Create charts and reports
        • Add graticules, scales, legends and north arrows to layouts
        • Modify projection meta-data as required
        • Digitize Earth surface features
        • Hot-link photos and files
        • Work with external GIS, GPS and remote sensing data

3.   Perform spatial and 3-D analyses in ArcView

        Potential Elements of the Performance:
        • Work with the geoprocessing wizard, 3-D Analyst and Spatial
          Analyst extensions
        • Perform query operations, and clipping, overlaying, buffering and
          intersecting of themes

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4.   Perform business geographic analyses in ArcView

       Potential Elements of the Performance:
       • Read CAD (Computer Aided Design) files
       • Create address matching files and reports
       • Best locate businesses with the Network Analyst extension

5.   Customize the ArcView interface

       Potential Elements of the Performance:
       • Describe the role of Avenue programming in ArcView
       • Customize the ArcView interface with built-in tools
       • Customize ArcView with the Avenue

III.   TOPICS:

1.   ArcView Projects (7 hours)
       • Course overview
       • Projects, views, tables and layouts
       • Shapefiles
       • Opening, saving and reloading projects
       • ArcView file management
       • Queries

Laboratory #1.   Modifying an existing ArcView project

2.   Producing Maps, Tables and Charts (10 hours)
       • The purpose, components and layout of a map
       • Adding attributes and external databases to ArcView tables
       • Creating charts and reports
       • Adding graticules, scales, legends and north arrows to layouts
       • Modifying projection meta-data
       • Digitizing in ArcView
       • Working with GIS, GPS and remote sensing data
       • Hot-linking photos and files

Laboratory #2. Creating a new ArcView project

Practical Test #1. Units 1 & 2

3.   3-D and Spatial Analysis (7 hours)
- The geoprocessing wizard and Spatial Analyst extensions
- Queries, clipping, overlaying, buffering and intersecting themes
- Three-dimensional elevation modeling in ArcView (3-D Analyst)

Laboratory #3 – 3-D and Spatial Analysis

4.   Business Geographics (7 hours)
- Reading CAD (Computer Aided Design) files
- Creating address matching files and reports
- Locating businesses with the Network Analyst extension

5.   Customizing ArcView (4 hours)
- The role of Avenue programming in ArcView
- Customizing ArcView with built-in tools
- Customizing ArcView with Avenue

Laboratory #4. Business Geographics and Customizing ArcView

Practical Test #2.   All topics covered in the course

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IV.   REQUIRED RESOURCES/TEXTS/MATERIALS:

GeoInformation International. 1997. Getting to Know ArcView® GIS. 2nd Edition. Environmental Systems Research Institute.

V.   EVALUATION PROCESS/GRADING SYSTEM:

Grading System:

Laboratories (4)   60%
Practical Tests (2)   <u>40%</u>
                            100%

The following semester grades will be assigned to students in post-secondary courses:

Grade	Definition	Grade Point Equivalent
A+	90 – 100%	4.00
A	80 – 89%	3.75
B	70 – 79%	3.00
C	60 – 69%	2.00
R (Repeat)	59% or below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field placement or non-graded subject areas.	
X	A temporary grade. This is used in limited situations with extenuating circumstances giving a student additional time to complete the requirements for a course (see *Policies & Procedures Manual - Deferred Grades and Make-up*).	
NR	Grade not reported to Registrar's office. This is used to facilitate transcript preparation when, for extenuating circumstances, it has been impossible for the faculty member to report grades.	

VI.   SPECIAL NOTES:

Special Needs:
If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your instructor and/or the Special Needs office. Visit Room E1204 or call Extension 493, 717, or 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.

The Professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

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:

VIII.   DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.