SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: JAVA PROGRAMMING

CODE NO. : ELN 321   **SEMESTER:** SIX

PROGRAM: ELECTRICAL/ELECTRONICS ENGINEERING TECHNOLOGY

AUTHOR: R. McTaggart / C. Trainor

DATE: 01/2005   **PREVIOUS OUTLINE DATED:** 01/2004

APPROVED:

                        _____ _____
                                        DEAN   **DATE**

TOTAL CREDITS: 3

PREREQUISITE(S): ELN 331

HOURS/WEEK: 3

COURSE DESCRIPTION:

I. This course covers the fundamentals of object oriented programming using Java. Students will learn to develop Java programs utilizing classes, polymorphism and inheritance. Internet applications such as Applets and Java Script will be introduced. Programming assignments will be related to solving problems in the Electronics and Electrical Technology fields.

II. **LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

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

1. Write structured code in the Java programming environment.

   Potential Elements of the Performance:
   - Describe the history of the Java programming environment.
   - Compare and contrast Java and C++.
   - Describe the components of a Java program.
   - Describe the Java programming environment and the process of Java program development/execution.
   - Describe primitive Java data types.
   - Write and debug simple Java applications in command line and IDE environments.
   - Perform I/O using keyboard, screen and files.

2. Utilize the various control structures available with Java.

   Potential Elements of the Performance:
   - Define algorithm.
   - Describe the concepts of sequential execution and transfer of control.
   - List and describe the control structures available with Java.
   - Write programs utilizing the control structures available with Java.

Java Programming   ELN321

3.   Write Java programs using object oriented programming techniques.

      <u>Potential Elements of the Performance</u>:
      - Describe Java methods and classes and how they are used to modularize Java programs.
      - Utilize Java's predefined classes and methods.
      - Write and utilize recursive methods.
      - Describe the concepts of encapsulation and data hiding.
      - Describe data abstraction and abstract data types.
      - Create, use and destroy objects.
      - Describe the scope of identifiers for variables, references and methods.

4.   Utilize HTML, Applets and Java Script to develop basic Internet applications.

      <u>Potential Elements of the Performance</u>:
      - Create a basic web page using HTML.
      - Utilize Java Script to enhance a web page.
      - Differentiate between applets and applications.
      - Write simple Java applets.
      - Write simple HTML files to load an applet into an applet viewer or a browser.
      -

III.   TOPICS:

1.   The Java programming environment.

2.   Structured programming using Java.

3.   Object oriented programming with Java.

4.   Internet applications.

IV.   REQUIRED RESOURCES/TEXTS/MATERIALS:

JAVA How to Program, Fifth Edition by Deitel & Deitel
Published by Prentice Hall ISBN: 0-13-101621-0

V.   EVALUATION PROCESS/GRADING SYSTEM:

Theory Tests*   50%
Laboratory Work*   50%

Total   100%

*Refer to SPECIAL NOTES, last two items.
The following semester grades will be assigned to students in postsecondary courses:

Grade	Definition	Grade Point Equivalent
A+	90 – 100%	4.00
A	80 – 89%	
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.

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 professor and/or the Special Needs office. Visit Room E1101 or call Extension 493 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 postsecondary institutions.

Plagiarism:
Students should refer to the definition of "academic dishonesty" in *Student 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 expulsion from the course/program, as may be decided by the professor/dean. 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 Outline Amendments:
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.

 Attendance to scheduled lab activities is compulsory, unless permission has been granted by the instructor (see note below). Lab attendance and final grade are directly related.
The student must maintain a minimum 50% average in **both** the **theory** portion **and lab** portion of the class in order to receive a passing grade.
If a student misses a test/lab he/she must have a valid reason (i.e. medical or family emergency – documentation may be required). In addition, the instructor **must** be notified **prior** to the theory test or lab sitting. If this procedure is not followed the student will receive a mark of zero on the test/lab with no make-up option.

VII.   PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

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.