



**DEPARTMENT OF SCIENCE**

**COURSE OUTLINE – FALL 2014**

**CS2290 – COMPUTER ORGANIZATION AND ARCHITECTURE I – 3 (3-0-3) 90 HOURS**

**INSTRUCTOR:** Libero Ficocelli

**PHONE:** 780 539 - 2825

**OFFICE:** C424

**E-MAIL:** LFicocelli@gprc.ab.ca

**OFFICE HOURS:** TBA

**PREREQUISITE(S)/COREQUISITE:** CS1150

**REQUIRED TEXT/RESOURCE MATERIALS:**

Assembly Language for x86 Processors, 7th Edition  
By Kip R. Irvine, Pearson Publishing,  
ISBN 0-13-376940-2

**CALENDAR DESCRIPTION:**

General introduction to number representation, architecture and organization concepts of von Neumann machines, assemble level programming, exception handling, peripheral programming, floating point computations and memory management.

**CREDIT/CONTACT HOURS:** 3 (3-0-3) 90 Hours

**DELIVERY MODE(S):** In class lecture

**OBJECTIVES (OPTIONAL):**

**TRANSFERABILITY:** University of Alberta, University of Calgary, University of Lethbridge, Athabasca University, Augustana Faculty ( University of Alberta), Grant MacEwan University

**GRADING CRITERIA:**

\*\* Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions.

<b>GRANDE PRAIRIE REGIONAL COLLEGE</b>			
<b>GRADING CONVERSION CHART</b>			
<b>Alpha Grade</b>	<b>4-point Equivalent</b>	<b>Percentage Guidelines</b>	<b>Designation</b>
<b>A<sup>+</sup></b>	<b>4.0</b>	<b>90 – 100</b>	<b>EXCELLENT</b>
<b>A</b>	<b>4.0</b>	<b>85 – 89</b>	
<b>A<sup>-</sup></b>	<b>3.7</b>	<b>80 – 84</b>	<b>FIRST CLASS STANDING</b>
<b>B<sup>+</sup></b>	<b>3.3</b>	<b>77 – 79</b>	
<b>B</b>	<b>3.0</b>	<b>73 – 76</b>	<b>GOOD</b>
<b>B<sup>-</sup></b>	<b>2.7</b>	<b>70 – 72</b>	
<b>C<sup>+</sup></b>	<b>2.3</b>	<b>67 – 69</b>	<b>SATISFACTORY</b>
<b>C</b>	<b>2.0</b>	<b>63 – 66</b>	
<b>C<sup>-</sup></b>	<b>1.7</b>	<b>60 – 62</b>	
<b>D<sup>+</sup></b>	<b>1.3</b>	<b>55 – 59</b>	<b>MINIMAL PASS</b>
<b>D</b>	<b>1.0</b>	<b>50 – 54</b>	
<b>F</b>	<b>0.0</b>	<b>0 – 49</b>	<b>FAIL</b>
<b>WF</b>	<b>0.0</b>	<b>0</b>	<b>FAIL, withdrawal after the deadline</b>

Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability

## **EVALUATIONS:**

Lab/Homework	
Assignments	30%
Class Quizzes	10%
Midterm	25%
Final Exam	35%

## **STUDENT RESPONSIBILITIES:**

- The Student must pass the theory/concepts portion of the course in order to obtain a passing grade for the term. In other words a student must obtain 50% out of a possible 70 points - which includes all components except the lab assignments.
- No late project assignments will be accepted. The student is responsible for adhering to all requirements as specified for each project assignment.
- When necessary lab time may be utilized for lecturing on specific Java features. The remainder of the lab time will generally be used as "hands-on" programming time.

## **STATEMENT ON PLAGIARISM AND CHEATING:**

Refer to the Student Conduct section of the College Admission Guide at

[https://www.gprc.ab.ca/files/forms\\_documents/Student\\_Misconduct.pdf](https://www.gprc.ab.ca/files/forms_documents/Student_Misconduct.pdf)

\*\*Note: all Academic and Administrative policies are available at

<https://www.gprc.ab.ca/about/administration/policies/>

## **COURSE SCHEDULE/TENTATIVE TIMELINE:**

### **Introduction to Computer Architecture:**

- Microprocessor and computer architecture
- Operations and operands of computer hardware
- Representing instructions

## **Number systems and Arithmetic**

- Signed and Unsigned Numbers
- Addition and Subtraction
- Logical Operations
- Constructing an Arithmetic Logic Unit
- Multiplication and Division
- Floating Point numbers

## **80x86 Assembly**

- Overview of 80x86 assembler (segments, registers and organization)
- Program structure
- I/O operations
- Data movement instructions
- Conditionals and Branching instructions
- Arrays
- Macros and Procedures
- Interrupts
- String processing
- Video operations (text and graphics)
- Parameter passing and stack operations