



## CIS 1050

**Division:** Career and Technical Education

**Department:** Information Technology

**Course:** CIS 1050

**Title:** Logical Analysis and Program Design

**Catalog Description:**

This class examines structures, methodologies, and tools used to solve problems through the use of critical thinking and logical analysis using structures program design. This course requires students to think creatively, integrate and synthesize knowledge, and apply systems methodologies to the solution of problems.

**General Education Requirements:** N/A

**Semesters Offered:** TBA

**Credit/Time Requirement:** Credit: 3; Lecture: 3; Lab: 1

**Clock/Hour Requirements:** 60

**Offered for Non-Credit:** Yes

**Prerequisites:** N/A

**Corequisites:** N/A

**Justification:**

This course is fundamental to and a prerequisite for all other CIS programming language courses. It introduces general concepts and prepares students for job readiness at graduation and/or transfer to a four-year college.

**Student Learning Outcomes:**

Upon successful completion of this course, students will understand the following:

- structured programming constructs of sequence, iteration, and selection
- basic forms of data representation (strings, numeric and floating point numbers, and some coding approaches)
- flowchart and pseudo-code in planning a program
- interactive debugging, using error messages to assist in diagnosing problems
- organizing a program into its various steps
- formatting reports and display screens
- handling both sequential and random access files
- table and arrays and how to construct and utilize them in programming.

Students will gain an awareness of the importance of correct programming methodologies to include:

- structured programming concepts: control structures (sequences, decisions, iterations); flowcharts and pseudo-code; IPO and other charts; decision tables and trees
- problem solving: defining a problem and breaking a problem into parts
- top down design and development: subroutines and modularity
- design alternatives: data flow and data structure methodologies
- debugging and testing: types of testing, diagnostic trees, what constitutes an easy to debug program, and putting it all together.

### **Content:**

Course objectives will be accomplished by providing students with learning experiences in the following subject areas:

- modular programming and subroutines
- logic theory and program flow
- diagnostic and debugging techniques
- conditional selections
- single and multi-dimensional tables
- sequential and binary searches
- file structure
- array and string manipulations
- data validation
- interactive programs
- menus and graphics
- Binary, Octal, and Hexadecimal arithmetic.

During the labs, students will be able to apply the principles learned by writing computer programs demonstrating the respective principles.

### **General Education Outcomes:**

### **Applied Education Outcomes:**

1) Students will acquire entry-level skills specific to and appropriate for employment in their chosen field of study.

This course is focused on introducing students to the programming field. It gives the students an opportunity to use creative skills to see if that is something they would enjoy doing for several years in the industry.

### **Key Performance Indicators:**

Student Learning Outcomes will be assessed by two or more of the following Key performance Indicators:

- understanding of concepts studied
- "hands-on" practice of concepts learned

- demonstrated skill and understanding of each unit studied
- exams or project
- proficiency in the vehicle language
- quizzes
- lab exercises
- success in subsequent courses.

**Representative Text and/or Supplies:**

- Shelly and Rosenblatt, *Systems Analysis and Design*, 8th Edition, Thompson.

**Optimum Class Size:** 16

**Maximum Class Size:** 32

**Signatures:**

I hereby submit this course syllabus:

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Michael P. Medley, MBA, Assistant Professor

I hereby find this course consistent with the goals and resources of the Information Technology Department:

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Michael P. Medley, MBA, Assistant Professor, Chair

I hereby find this course consistent with the goals and resources of the Career and Technical Education Division:

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Michael P. Medley, MBA, Assistant Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

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Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

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Michelle Olsen, MLS, Campus Librarian (Richfield Campus)