

**JOLIET JUNIOR COLLEGE
DEPARTMENT OF COMPUTER INFORMATION
AND OFFICE SYSTEMS**

COURSE SYLLABUS

Course Prefix and Number	CIS 134
Course Title	FORTRAN Programming
Curriculum	Computer Information Systems
Semester Hours	4
Lecture	4
Lab	0
Prerequisites	CIS 122 and Math 094 or equivalent or consent of department

Catalog Description

An introduction to an algorithmic language (FORTRAN) to enable students to solve scientific, mathematical, engineering and business related problems. This course is designed to teach problem analysis, program design and programming using the FORTRAN language. Includes a brief history of computer technology, beginning FORTRAN techniques, problem formulation procedures and numerical methods.

Course Objectives: See attached.

Prepared by:

Reviewed by:

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Department Chairperson Date

Revised 1/03
Updated 12/00
Revised 1/99
Revised 7/97
Revised 12/93
Revised 10/92
Revised 11/91

STUDENT MATERIALS

A. Textbooks:

Title: Essential Fortran 90 + 95

Author: Meissner

Publisher: Lahey Publications

B. Other Required Materials

3.5 inch disk

Other Course Requirements

Student Evaluation (Type of Grading)

Evaluation, grading and attendance policies are established by the individual instructor. Class projects and class participation will also be evaluated. A comprehensive final exam will be given.

<u>Week/Days</u>	<u>Topic or Class Activity</u>	<u>Teaching Aids or Special Instruction</u>
1	Chapter 1; Computing Systems, Computer Organization, Programming & Problem Solving	
2	Chapter 2; Basic Fortran, Data Types, Algorithms, Arithmetic Operations, Assignment statement, Input and output, Arithmetic Errors	
3	Chapter 3; Logical Expressions, If constructs, Case construct, Logical data type	
4	Chapter 4; Do loops, Program testing and debugging	
5	Chapter 5; Formatted input/output, Write statement, Read Statement, File processing	
6	Chapter 6; Intrinsic functions, Modules, External functions	
7	Chapter 6; Recursion	
8	Chapter 7; Subroutine subprograms	
9	Chapter 8; One-dimensional arrays, Array processing, Searching	
10	Chapter 9; multidimensional arrays, Input/out	
11	Chapter 9; Processing arrays	
12	Chapter 10; Derived types, Processing structures, Creating new data types	
13	Chapter 11; Other data types, Parameterized types, Complex Data type, Character data type, Character functions	
14	Chapter 12; File processing, Open-Close-inquire statements, Direct access files, Merging files	
15	Chapter 13; Linked lists, Pointers, Implementing linked lists, Trees	
16	Review	
17	Comprehensive Final	

OBJECTIVES

At the completion of this course the student will be able to:

1. Discuss computer history and related hardware and software essential to FORTRAN applications;
2. Operate a computer for creating, compiling, loading and executing utilities, and diagnosing error code for FORTRAN programs;
3. State and analyze a problem for coding and flow charting;
4. Pseudocode and code problems in FORTRAN using appropriate programming methods;
5. Properly document FORTRAN programs using both good internal and good external documentation;
6. Create, manipulate and merge external files;
7. Utilize and create one- and two-dimensional arrays;
8. Search, manipulate and sort numerical arrays or alphabetical lists;
9. Demonstrate modularized programming by writing independent subprogram modules;
10. Demonstrate structured programming skills by coding progressively more difficult problems;
11. Create sample application programs for both business and engineering;
12. Utilize the System editor to create and patch data and program files;
13. Create and update sequential and direct-access files.