Code	Subject Title	Cr. Hrs	Semester
MATH-405	**Fortran Programming**	**3**	**VII**
Year	Discipline		
4	**Mathematics**		

Objectives:

Simple Fortran 90 Programs

- Writing a program
- Input statement
- Some FORTRAN 90 program examples

Numeric Constants and Variables

- Constants
- Scalar variables
- Declaring variable names
- Implicit declaration
- Named constants

Arithmetic Expressions

- Arithmetic operators and modes of expressions
- Integer expressions
- Real expressions
- Procedure of operations in expressions
- Assignment statements
- Defining variables
- Mixed mode expressions
- Intrinsic functions

Conditional Statements

- Relational operators
- The block if construct
- Example programs using if structures

Implementing Loops in Programs
- The block do loop
- Count controlled do loop

Logical Expressions and More Control Statements

- Logical constants, variables and expressions
- Precedence rules for logical operators
- The case statement

Functions and Subroutines

- Function subprograms
- Syntax rules for function subprograms
- Generic functions
- Subroutines

Defining and Manipulating Arrays

- Arrays variables
- Use of multiple subscripts
- Do type notation for input/output statements
- Initializing arrays
- Use of arrays in do loops
- Whole array operations

Elementary Format Specifications

- Format description for numerical data; read statement
- Format description for print statement
- Multi-record formats
- Printing character strings

Recommended Books:

- Michel Metcalf, John Reid and Malcolm Cohen, Fortran 95/2003 Explained, (Oxford University Press, 2004)
- V. Rajaraman, Computer Programming in Fortran 90 and 95, (Prentice Hall of India, New Delhi, 1999)
- Larry Nyhoff and Sanford Leestma, Fortran 90 for Engineers and Scientists , (Prentice Hall, 1997)
- Stephen J. Chapman, Introduction to Fortran 90/95, (Mc Graw-Hill International Edition, 1998)