Shifted from Sem-III to Sem-IV from 2017-18

Semester – III **MAT 521 MATLAB Programming** **Credits 6**

Objective: The main objective of the paper is to study the MATLAB programming language to solve numerical problems

Unit – IIntroduction: Input / out put of Data from MATLAB Command, file Types, Creating saving and, Executing the Script file, Creating and executing functions file, working with files and directories.
Matrices: Matrix manipulation, creating vectors. Arithmetic operations. Relational operations, Logical operations, matrix functions, Determinant of matrix, Eigen values and Eigen vectors.

Unit – IIProgramming in Matlab: function files, sub functions, Global Variables, Loops, branches and control flow, Interactive input, Recursion, Publishing a report, Controlling Command Windows, Command line Editing.

Unit – IIILinear algebra and Interpolation: solving a linear system, Gaussian elimination, Matrix factorizations, Curve fitting, Polynomial curve fitting, Least squares curve fitting, General nonlinear fits, Interpolation.

Unit – IVDifferential equations & Graphics: First order linear ODE, Second order ODE, Double integration, Roots of Polynomial, 2-d plots, 3-D plots, Matlab Plotting tools, Mesh and Surface Plots.

Unit –V.. Project: **Research Component.**

Outcome: After learning this paper student will be able to write the mathematical programs in MATLAB

Text Books: (1)1.Applied Numerical Methods Using MATLAB, Won Young Yang, Tae-Sang chung, John Morris, A John Wiley and Sons. Inc. Publication.

(2).Solving ODE's with Maltab, L.F. Shampine, I Gladwell, S. Thompson, Cambridge University Press.

(3).Getting Started with MATLAB 7, Rudra Pratap. OXFORD Press.

Reference Books:

1. Brain D. Hahn Dan: essential MATLAB for engineers and Scientists, 3rd Edition Valentine.
2. Gunnar Backstrom: practical Mathematics Using Matlab.

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Old Course upto 2017

Course No :MAT521 **Number of Credits :6**

Semester – III -Programming in C

Unit – I Introduction:
Introduction to computers, Characteristics of Computers, Application area's of computer, Classification of computers, Overview of programming, types of programming languages (classification), Introduction to c, Features of C, Program structure, characteristics of programs, concept of header file.
(15 lectures)

Unit – II C Fundamental
Preprocessor, Character Set, Identifiers, reserved words, constants and variables, Data types, type modifiers, types of statements, Declaration and Initialization, comments, (15 lectures)

Unit – III I/O operation
Types of I/O statements: formatted and Unformatted, getchar(), putchar(), printf() scanf(), escape sequences and format specifiers(%d, %f, %c,....)
(15 lectures)

Unit- IV Operator and expressions
Types of operators (unary binary and ternary) Classification of operators: assignment, arithmetic, relational, logical, comma operator, sizeof operator, operator, Hierarchy and associatively Type conversion (explicit and implicit), library functions. (15 lectures)

Unit- V Control statements:
Conditional statements, (if, if else, switch case), Looping Statement (for, while, do while), Nested Loops Infinite Looping, break and continue. (15 lectures)

Text Books:

1) Balaguruswamy: Programming in ANSI C
2) Yeshwant Kanetkar: Let US C.

Reference Books:

1) Gottlried: Programming in C Schism's Series
2) Brian W. Kernighan, Dennis Ritchie, and Dennis M. Ritchie: The C Programming Language (2nd edition)
3) Peter Darnell & P. E. Marglis: C- Asogtware Engineering approach, Narosa Publication New Delhi 1993.

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