

III YEAR VI SEMESTER

Paper-VII: Elective-A

Operating Systems

UNIT - I

Operating System Introduction: Operating Systems Objectives and functions, Computer System Architecture, OS Structure, OS Operations, Evolution of Operating Systems - Simple Batch, Multi programmed, time shared, Parallel, Distributed Systems, Real-Time Systems, Operating System services.

UNIT - II

Process and CPU Scheduling - Process concepts - The Process, Process State, Process Control Block, Threads, Process Scheduling - Scheduling Queues, Schedulers, Context Switch, Preemptive Scheduling, Dispatcher, Scheduling Criteria, Scheduling algorithms,
Process Coordination - Process Synchronization, The Critical section Problem, Synchronization Hardware, Semaphores, and Classic Problems of Synchronization, Monitors

UNIT - III

Memory Management and Virtual Memory - Logical & physical Address Space, Swapping, Contiguous Allocation, Paging, Structure of Page Table. Segmentation, Segmentation with Paging, Virtual Memory, Demand Paging, Performance of Demanding Paging, Page Replacement Page Replacement Algorithms, Allocation of Frames.

UNIT - IV

File System Interface - The Concept of a File, Access methods, Directory Structure, File System Mounting, File Sharing, Protection, File System Structure, Mass Storage Structure - Overview of Mass Storage Structure, Disk Structure, Disk Attachment, Disk Scheduling.

UNIT - V

Deadlocks - System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery from Deadlock.

REFERENCES BOOKS:

1. Operating System Principles, Abraham Silberchatz, Peter B. Galvin, Greg Gagne 8th Edition, Wiley Student Edition.
2. Principles of Operating Systems by Naresh Chauhan, OXFORD University Press
3. Operating systems - Internals and Design Principles, W. Stallings, 6th Edition, Pearson.
4. Modern Operating Systems, Andrew S Tanenbaum 3rd Edition PHI.
5. Operating Systems A concept - based Approach, 2nd Edition, D. M. Dhamdhare, TMH.
6. Principles of Operating Systems, B. L. Stuart, Cengage learning, India Edition.
7. Operating Systems, A. S. Godbole, 2nd Edition, TMH

Student Activity:

1. Load any new operating system into your computer.
2. Partition the memory in your system
3. Create a semaphore for process synchronization

SRI RAMAKRISHNA DEGREE COLLEGE: NANDYAL
III B.Sc- Semester VI-
PAPER-VII: ADVANCED ADVANCED NUMERICAL ANALYSIS

Unit – I (10 Hours)

Curve Fitting: Least – Squares curve fitting procedures, fitting a straight line, nonlinear curve fitting, Curve fitting by a sum of exponentials.

UNIT- II : (12 hours)

Numerical Differentiation: Derivatives using Newton's forward difference formula, Newton's backward difference formula, Derivatives using central difference formula, Stirling's interpolation formula, Newton's divided difference formula, Maximum and minimum values of a tabulated function.

UNIT- III : (12 hours)

Numerical Integration: General quadrature formula on errors, Trapezoidal rule, Simpson's 1/3 – rule, Simpson's 3/8 – rule, and Weddle's rules, Euler – Maclaurin Formula of summation and quadrature, The Euler transformation.

UNIT – IV: (14 hours)

Solutions of simultaneous Linear Systems of Equations: Solution of linear systems – Direct methods, Matrix inversion method, Gaussian elimination methods, Gauss-Jordan Method, Method of factorization, Solution of Tridiagonal Systems, Iterative methods. Jacobi's method, Gauss-siedal method.

UNIT – V (12 Hours)

Numerical solution of ordinary differential equations: Introduction, Solution by Taylor's Series, Picard's method of successive approximations, Euler's method, Modified Euler's method, Runge – Kutta methods.

Reference Books :

1. Numerical Analysis by S.S.Sastry, published by Prentice Hall India (Latest Edition).
2. Numerical Analysis by G. Sankar Rao, published by New Age International Publishers, New – Hyderabad.
3. Finite Differences and Numerical Analysis by H.C Saxena published by S. Chand and Company, Pvt. Ltd., New Delhi.
4. Numerical methods for scientific and engineering computation by M.K.Jain, S.R.K.Iyengar, R.K. Jain.

513-A

PHYSICS PAPER-VII

Semester –VI

Analog and Digital Electronics- SYLLABUS

Unit-1.

1. FET-Construction, Working, characteristics and uses; MOSFET enhancement MOSFET, depletion MOSFET, construction and working, drain characteristics of MOSFET, applications of MOSFET

2. **Photo electric devices:** Structure and operation, characteristics, spectral response and application of LDR, LED and LCD

Unit-II

3. **Operational Amplifiers:** Characteristics of ideal and practical Op-Amp (IC 741), Basic differential amplifiers, Op-Amp supply voltage, IC identification, Internal blocks of Op-Amp, its parameter offset voltages and currents, CMRR, slew rate, concept of virtual ground.

Unit-III

4. **Applications of Op-Amp:** Op-Amp as voltage amplifier, Inverting amplifier, Non-inverting amplifier, voltage follower, summing amplifier, difference amplifier, comparator, integrator, differentiator.

Unit-IV

5. **Data processing circuits:** Multiplexers, De-multiplexers, encoders, decoders, Characteristics for Digital ICs -RTL, DTL, TTL, ECL CMOS (NAND & NOR Gates).

6. **IC 555 Timer** -Its pin diagram, internal architecture, Application as astable multivibrator and mono stable multivibrator.

Unit-V

7. **Sequential digital circuits:** Flip-flops, RS, Clocked SR, JK, D, T, MasterSlave, Flip-flop, Conversion of Flip flops.

8. **Code Converters:** Design of code converter, BCD to 7 segments, binary/BCD to gray, gray to binary/BCD, design of counters using state machine

SRI RAMAKRISHNA (AUTONOMOUS) DEGREE COLLEGE, NANDYAL
III B.Sc Mathematics -VIII - VI SEMESTER
SYLLABUS (2017-2018 Regulations)
PAPER :VIII LAPLACE TRANSFORMS & FOURIER TRANSFORMS

UNIT-I LAPLACE TRANSFORMS -I (10 hours)

Definition of integral transforms-Laplace transform Linearity Property, Piece wise or Section ally continuity Function of exponential order -Function of class A - The Transform concept – Laplace Transform – Notation Some Standard Results. First Shifting Theorem, Second Shifting Theorem, Change of Scale Property, Laplace Transform of the derivative of $F(t)$ initial Value Theorem and Final value Theorem

UNIT-II - LAPLACE TRANSFORMS -II (10 hours)

Laplace Transforms of Integrals-multiplication by t , Multiplication by t^n - Division by t ,Laplace transform of Bessel function, Laplace Transform of Error Function, Laplace Transform of sine and cosine integrals

UNIT -III- INVERSE LAPLACE TRANSFORMS : (15hours)

Definition -of inverse –Laplace Transforms . Linearity property, First Shifting Theorem, Second Shifting Theorem, Change of Scale Property, use of Partial Fractions ,Examples .Inverse Laplace Transforms of Derivatives-inverse Laplace Transforms of Integrals-Multiplication by powers of t -Division by powers of t - Convolution Definition-Convolution Theorem proof and Applications– Heaviside s - Expansion formula solved problems and its applications

UNIT – IV-APPLICATIONS TO DIFFERENTIAL EQUATIONS (15hours)

Differential Equations ,Notation & solved problems Ordinary differential equations with constant coefficients – Ordinary differential equations with variable coefficients (**up to page number 150- Exercise -3**)

UNIT- V - FOURIER TRANSFORMS (10 hours)

(CHAPTER 2 –part –I only pages 190 - 227)

Infinite Fourier sine transforms of $F(x)$, Infinite Fourier cosine transforms of $F(x)$ Infinite Fourier transforms of $F(x)$ and worked examples with Exercises problems

SRI RAMAKRISHNA(AUTONOMOUS) DEGREE COLLEGE
III B.Sc; PHYSICS (SEMESTER-VI)
PAPER- XIII(2017-2018 Regulation)
PAPER: MICROPROCESSOR AND MICRO CONTROLLER

Unit – I (10Hours)

1. Introduction to microcontrollers:General purpose of computer systems,architecture of embedded system, classification, applications and purposes, challenges and designs, operational and non operational quality attributes, elemental description of embedded processors and micro controllers

Unit –II (10Hours)

2. Microprocessors:Organisation of microprocessorbased system, 8085 microprocessor,its pin diagram and architecture, concept of data bus, and address bus, 8085 programming, instruction classification, stacks and its implementation, hardware and software interrupts.

Unit– III (15Hours)

3. 8051 microcontroller:Introduction , block diagram, assembly language programming, programme counter, ROM memory, data types and directives, flag bits PSW register, jump, loop and call constructions

4. 8051 I/O Programming: Introduction to I/O port programming, pin out diagram, I/O port pin programming, bit manipulation, addressing modes, accessing memory, arithmetic and logic instructions.

Unit – IV (13 Hours)

5. Timers:Programming of 8051 timers, counter programming, interrupts, externalhardware interrupts, serial communication interrupts, interrupt priority.

6. Embedded system programming:Structure of programming, infinite loop, compiling, linking locating, down loading and debugging.

Unit –V (12Hours)

7. Embedded system design and development:Embedded system development environment, file type generated after cross compilation, dissembler, decompiler, simulator, emulator and debugging.

8. Embedded product life cycle:Embedded product development life cycle, trends in embedded industry.

Reference Books

- 1)Embedded Systems.. Architecture,programming and design, R Kamal, 2008, TMH
- 2) The 8051 micro controller and embedded systems using Assembly and C, M.A.Mazidi, J.G.Mazidi and R.D.McKinlay, second Ed., 2007 pearson Education India
- 3) Introduction to embedded systems K.V. Shibu, 1st edition, 2009 McGraw Hill
- 4) Micro Controllers in practice, I Susnea and Mitescu,2005,spinger

III B.Sc VI SEMESTER EXTERNAL EXAMINATIONS: MARCH 2018**SEMESTER-VI****PAPER-VII : ELECTIVE-I (A) : PHP and My SQL**

Unit-I: Building blocks of PHP: Variables, Data Types, Operators and Expressions, Constants. **Flow Control Functions in PHP:** Switching Flow, Loops, Code Blocks and Browser Output. **Working with Functions:** Defining Functions, Calling functions, Returning the values from User-Defined Functions, Variable Scope, Saving State between Function calls with the Static statement, more about arguments.

Unit-II: Working with Arrays: Arrays, Creating Arrays, Some Array-Related Functions. **Working with Objects:** Creating Objects, Object Instance. **Working with Strings, Dates and Time:** Formatting Strings with PHP, Investigating Strings with PHP, Manipulating Strings with PHP, Using Date and Time Functions in PHP.

Unit-III: Working with Forms: Creating Forms, Accessing Form - Input with User defined Arrays, Combining HTML and PHP code on a single Page, Using Hidden Fields to save state, Redirecting the user, Sending Mail on Form Submission, Working with File Uploads. **Working with Cookies and User Sessions:** Introducing Cookies, Setting a Cookie with PHP, Session Function Overview, Starting a Session, Working with session variables, passing session IDs in the Query String, Destroying Sessions and Unsetting Variables, Using Sessions in an Environment with Registered Users.

Unit-IV: Working with Files and Directories: Including Files with include(), Validating Files, Creating and Deleting Files, Opening a File for Writing, Reading or Appending, Reading from Files, Writing or Appending to a File, Working with Directories, Open Pipes to and from Process Using popen(), Running Commands with exec(), Running Commands with system() or passthru(). **Working with Images:** Understanding the Image-Creation Process, Necessary Modifications to PHP, Drawing a New Image, Getting Fancy with Pie Charts, Modifying Existing Images, Image Creation from User Input.

Unit-V: Interacting with MySQL using PHP: MySQL Versus MySQL Functions, Connecting to MySQL with PHP, Working with MySQL Data. **Creating an Online Address Book:** Planning and Creating Database Tables, Creating Menu, Creating Record Addition Mechanism, Viewing Records, Creating the Record Deletion Mechanism, Adding Sub-entities to a Record.

Reference Book:

1. Julie C. Meloni, PHP MySQL and Apache, SAMS Teach Yourself, Pearson Education (2007).
2. Xue Bai Michael Ekedahl, The Web Warrior Guide to Web Programming, Thomson (2006).