

ANANDA COLLEGE

DEVAKOTTAI

M.Sc. COMPUTER SCIENCE**(IInd YEAR ODD SEMESTER SYLLABUS 2020-2021)**

Sem	Course		Cr.	Hrs./ Week	Max. Marks		Total
	Course Code	Title of the Course			Int.	Ext.	
III	7MCE3C1	Core - X – Cryptography and Network Security	4	5	25	75	100
	7MCE3C2	Core - XI – Programming in PHP	4	5	25	75	100
	7MCE3C3	Core - XII – Data Mining and Data Warehousing	4	5	25	75	100
	7MCE3P1	Core - XIII – Programming in PHP Lab	4	5	40	60	100
		Elective - IV	4	5	25	75	100
		Elective - V	4	5	25	75	100
		Total	24	30	--	--	600

M.Sc COMPUTER SCIENCE

IInd Year-IIIrd Semester Syllabus-2020-2021

II YEAR – III SEMESTER
COURSE CODE: 7MCE3C1

CORE COURSE-X-CRYPTOGRAPHY AND NETWORK SECURITY

Unit I

Overview: Computer Security Concepts – The OSI Security Architecture – Security Attacks – Security Services – Security Mechanisms – A model for Network Security – Classical Encryption Techniques: Symmetric Cipher model – Substitution Techniques – Transposition Techniques – Rotor Machines – Stenography.

Unit II

Block Ciphers and the Data Encryption Standard: Block Cipher Principle – The data encryption Standard – The strength of DES – Differential and Linear Cryptanalysis – Block Cipher Design Principles – Advanced Encryption Standard: Finite Field Arithmetic – AES structure – AES transformation function – AES key expansion – AES implementation.

Unit III

Public-key Cryptography and RSA: Principles of Public-Key Cryptosystems – The RSA algorithm – Other Public key Cryptosystems: Diffie-Hellman Key exchange – ElGamal Cryptographic system – Elliptic curve Arithmetic – Elliptic Curve Cryptography – Pseudorandom Number Generation Based on an Asymmetric cipher.

Unit IV

Message Authentication Codes: Message Authentication Requirements – Message Authentication Functions – Requirements for Message Authentication Codes – Security of MACs – MACs Based Hash Functions – MACs Based Ciphers – Authenticated encryption – Digital Signatures: Digital Signatures – ElGamal Digital Signature Scheme – Schnorr Digital Signature Scheme – Digital signature Standard.

Unit V

Transport Level Security: Web Security Considerations – Secure Socket Layer and Transport Layer security – Transport Layer Security – Electronic Mail Security: Pretty Good privacy – S/MIME – Domain Keys Identified mail – IP security: IP security Overview – IP Security Policy – Encapsulating Security Payload.

Text Book:

1. William Stallings, “Cryptography and Network Security Principles and Practice”, Pearson, 5th Edition.

Book for Reference:

1. William Stallings - “Data Communication” - Pearson



II YEAR – III SEMESTER
COURSE CODE: 7MCE3C2
CORE COURSE-XI–PROGRAMMING IN PHP

Unit I Introduction

The Origin of PHP-PHP is better than Its alternatives-How PHP works with the Web Server-Hardware and Software requirements and installation-PHP Pros and Cons-PHP: past, present and future (PHP 3.0, PHP 4.0, and PHP 5)-Strength of PHP **Basic PHP Development**-How PHP scripts work-Basic PHP syntax-PHP variables-PHP data types-Displaying type information-Testing for a specific data type-Operators-Variable manipulation-Dynamic variables-String in PHP **Control Structures**-The if statement-Using the else clause with if statement, multiple if, nested if-The switch statement-Using the ? Operator- Summary

Unit II Arrays

Single-Dimensional Arrays-Multidimensional Arrays-Casting Arrays-Associative arrays-Accessing arrays-Getting the size of an array-Looping through an array-Looping through an associative array- Examining arrays-Joining arrays-Sorting arrays- Sorting an associative arrays **Loops**-The while statement-The do while statement-The for statement-Break & continue Nesting loops-For each loops **Functions**-Introduction of functions -**PHP Library Function**-Array functions-String functions-Date and time functions-Other important functions-**User Defined Function**-Defining a function with parameters and without parameters-Returning value from function-Dynamic function calls Accessing variable with the global statement-Function calls with the static statement-Setting default values for arguments-Passing arguments to a function by value-Passing arguments to a function by reference

Unit III Working With the File System

Creating and deleting a file-Reading and writing text files Working with directories in PHP-Checking for existence of file-Determining file size-Opening a file for writing, reading, or appending-Writing Data to the file-Reading characters **Working With Forms**-Forms-Super global variables-The server array-A script to acquire user input-Importing user input -Accessing user input-Combine HTML and PHP code-Using hidden fields - Redirecting the user - File upload and scripts .

Validation-Server side validation - Client side validation (Javascript) Working With Regular Expressions.

Unit IV Classes And Objects

Introduction of Objects oriented programming Define a class-Creating an object-Object properties-Object methods-Object constructors and destructors Class constants, Access modifier, Class inheritance-Abstract classes and methods-Object serialization

Checking for class and method existence-Exceptions-Summary **Introduction To Database-** Introduction to SQL-Connecting to the MYSQL-Database creation and selection-Database table creation, update table structure-insert, update, delete data to a table-Fetch data from table, Acquiring the value, Joins, sub query-Finding the number of rows-Executing multiple queries- **Cookies**-The anatomy of a cookie-Setting a cookie with PHP-Deleting a cookie-Creating session cookie-Working with the query string-Creating query string

Unit V Session

What is session-Starting a session-Working with session variables -Destroying session-Passing session Ids-Encoding and decoding session variables **Disk Access, I/O, And Mail**-File upload-File download-Environment variables-E-mail in PHP-Random numbers **AJAX (Asynchronous JavaScript and XML)**-Introduction to AJAX-Introduction to XMLHttpRequest Object-Method and Properties of XMLHttpRequest-Application of AJAX in web application

Books for Reference:

1. David Sklar, Nathan Torkington, "*Learning PHP 5*", 2004, O'Reilly.
2. W. Jason Gilmore, "*Beginning PHP and MySQL 5*", 2006 2nd edition, Apress
3. Kevin Yank, "*Build Your Own Database Driven Web Site Using PHP & MySQL*" 2011, 4th edition, Sitepoint.
4. Ahsanul Bari, "*Cake Php Application Development*", 1st edition, 2008, Packet publishing ltd.

E-References:

1. www.w3schools.com/php
2. php.net/downloads.php



**II YEAR – III SEMESTER
COURSE CODE: 7MCE3P1**

CORE COURSE-XIII–PROGRAMMING IN PHP LAB

1. Get name of the user from a form and show greeting text
2. write a calculator program
3. write a program using functions
4. write a program to use loops, control flow statements
5. write a program to manipulate arrays
6. write program to read and write files
7. write a hit counter using cookies
8. write a user login system using sessions
9. write a addressbook using mysql
10. write a blog system with comments using classes
11. Write a PHP program to check whether the given number is perfect or not.
12. Write a PHP program to check whether the given string is Palindrome or not.
13. Write a PHP program to display the system date and time.
14. Write a PHP program to find whether the given number is Prime or not.
15. Write a PHP program to check whether the given umber is Armstrong or not.
16. Write a PHP program to find largest value of two numbers using nesting of member functions.
17. Create a PHP page for login using SQL connection.
18. Create a PHP page for login without using SQL connection.
19. Create a PHP page for displaying the personal information by using various tags.
20. Create a PHP page which includes images for any application.
21. Create a PHP page for displaying the tender notice which is given to you.
22. Create a PHP page for displaying your curriculum vita.
23. Create a web page to advertise a product of the company using images and audio.
24. Create your own personal web page.
25. To create a web page for a web magazine.
26. Design a web page for travel agency using frames.
27. Design a web page of a company using hyperlink.



II YEAR – III SEMESTER
COURSE CODE: 7MCE3C3
CORE COURSE-XII–DATA MINING AND DATA WAREHOUSING

Unit I

Data Mining And Data Preprocessing: Data Mining – Motivation – Definition – Data Mining on Kind of Data –Functionalities – Classification – Data Mining Task Primitives – Major Issues in Data Mining – Data Preprocessing – Definition – Data Clearing – Integration and Transformation – Data Reduction.

Unit II

Data Warehousing: Multidimensional Data Model –Data Warehouse Architecture – Data Warehouse Implementation –From data Warehousing to Data Mining – On Line Analytical Processing - On Line Analytical Mining.

Unit III

Frequent Patterns, Associations And Classification: The Apriori Algorithm – Definition of Classification and Prediction – Classification by Decision Tree Induction – Bayesian Classification – Rule Based Classification – Classification by Back Propagation – Lazy Learners – K-Nearest Neighbor – Other Classification Methods.

Unit IV

Cluster Analysis: Definition – Types of data in Cluster Analysis – Categorization of major Clustering Techniques – Partitioning Methods – Hierarchical Clustering – BIRCH - ROCK – Grid Based Methods – Model Based Clustering Methods – Outlier Analysis.

Unit V

Spatial, Multimedia, Text And Web Data: Spatial Data Mining – Multimedia Data Mining – Text Mining – Mining the World Wide Web – Data Mining Applications – Trends in Data Mining.

Text Book:

1. Jiawei Han and Micheline Kamber, “Data Mining Concepts and Techniques”, 2nd Ed., Morgan Kaufmann Publishers, 2006.

Book for Reference:

1. Margret H. Dunham, “Data Mining: Introductory and Advanced Topics”, Pearson Education, 2003.



II YEAR – III SEMESTER
COURSE CODE: 7MCE3E3
ELECTIVE COURSE-IV (C)–MULTIMEDIA SYSTEM

Unit I

Definition – Multimedia Hardware – Multimedia software – Multimedia Networking – Multimedia applications – Multimedia environments – Multimedia computer components – Multimedia standards – Multimedia PC.

Unit II

Text : Engineering Text – Positioning – Sizing – Editing – Fonts – Shadowing – Cloning – Building– Image and Graphics: Backdrops – Hanging Pictures – Positioning capturing and converting graphics – Compressing bitmaps – Controlling Palettes – Triggering – Hypertext – Hyper Picture – Buttons – Editing Links – Triggers in Backdrops – Analog Video – Digital Video – Digital Audio – Music – Animation – Operating Systems Support for Multimedia – CD Family – various CD Formats – CD-ROM Format.

Unit III

Digital Audio Representation and Processing : Digital representation of Sound – Transmission of digital sound – Digital Signal Processing of sound – Speech Recognition and Synthesis. Wave form Audio Recording – CD Audio Clip making – MIDI Sequencing Video Technology – Digital Video and Image Compression: Video Compression Technique – JPEG Image Compression Standards – MPEG Motion Video Compression standards – Various File storage – Digital Video Recording – Video Clip Making.

Unit IV

File Standard for Internet : SGML, HTML, XML – MIME – Voice Mail – Video Tele conferencing – Problems: Bandwidth – Performance measurement, Multimedia Presentation and Authoring Design Paradigms and User Interfaces – Multimedia Applications with case studies.

Unit V

Virtual Reality : Introduction – A generic VR system: Virtual environment – Technology – Modes of Interaction – VR Hardware: Sensor Hardware, Head Coupled displays – Acoustic hardware – Integrated VR – VR Software: Modeling Virtual worlds – Physical simulations – VR Applications.

Text Books:

1. Fred T.Hofstetter, “Multimedia Literacy”, Mcgraw Hill 1995 (Unit I & II)
2. Simon J.Gibbs, Dionysios C.Tsichritziz, “Multimedia Programming” Addison Wesley 1995 (Unit II)
3. John F Koegel Buford, “Multimedia Systems” Addison Wesley 1994 (Unit III & IV)
4. John Vince, “Virtual Reality Systems” Addison Wesley 1995 (Unit V)



II YEAR – III SEMESTER
COURSE CODE: 7MCE3E5
ELECTIVE COURSE-V (B)–CLOUD COMPUTING

Unit I

Understanding Cloud Computing : Cloud Computing – History of Cloud Computing – Cloud Architecture – Cloud Storage – Why Cloud Computing Matters – Advantages of Cloud Computing – Disadvantages of Cloud Computing – Companies in the Cloud Today – Cloud Services

Unit II

Developing Cloud Services : Web-Based Application – Pros and Cons of Cloud Service Development – Types of Cloud Service Development – Software as a Service – Platform as a Service – Web Services – On-Demand Computing – Discovering Cloud Services Development Services and Tools – Amazon Ec2 – Google App Engine – IBM Clouds

Unit III

Cloud Computing For Everyone : Centralizing Email Communications – Collaborating on Schedules – Collaborating on To-Do Lists – Collaborating Contact Lists – Cloud Computing for the Community – Collaborating on Group Projects and Events – Cloud Computing for the Corporation

Unit IV

Using Cloud Services : Collaborating on Calendars, Schedules and Task Management – Exploring Online Scheduling Applications – Exploring Online Planning and Task Management – Collaborating on Event Management – Collaborating on Contact Management – Collaborating on Project Management – Collaborating on Word Processing – Collaborating on Databases – Storing and Sharing Files

Unit V

Other Ways To Collaborate Online : Collaborating via Web-Based Communication Tools – Evaluating Web Mail Services – Evaluating Web Conference Tools – Collaborating via Social Networks and Groupware – Collaborating via Blogs and Wikis

Text Book:

1. Michael Miller, Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online, Que Publishing, August 2008.

Book for Reference:

1. Haley Beard, Cloud Computing Best Practices for Managing and Measuring Processes for On-demand Computing, Applications and Data Centers in the Cloud with SLAs, Emereo Pty Limited, July 2008.

