B.C.A.SYLLABUS

MANONMANIAM SUNDARANAR UNIVERISTY, TIRUNELVELI-12

UG - COURSES – AFFILIATED COLLEGES
Course Structure for

B.C.A
(Choice Based Credit System)
(With effect from the Academic Year – 2020-21)

Semester-III				
Part	**Subject Status**	**Subject Title**	**Subject Code**	**Credit**
3	Core	Java Programming	AMCA31	4
3	Core	Financial accounting	AMCA32	4
3	Core	Introduction to Internet with HTML	AMCA33	4
3	Allied - III	Data Structure	AACA31	3
3	Skill based Core	Programming with PHP and MySQL	ASCA3A	4
4	Non major elective	Fundamentals of Statistics-I	ANMA32	2
4	Non major elective	அறிமுகத்தமிழ்	ANTL31	2
4	Major Practical III	Java Programming Lab	AMCAP3	2
3	Allied Practical III	Data Structure LAB	AACAP3	2
4	Common	Yoga	AYOG31	2

Total Marks: 100   Internal Exam: 25 marks + External Exam: 75 marks

A. **Scheme for internal Assessment**:
   Maximum marks for written test: **20 marks**
   3 internal tests, each of **I hour** duration shall be conducted every semester.
   To the average of the **best two** written examinations must be added the marks scored in. The **assignment** for 5 marks.

   The break up for internal assessment shall be:
   Written test- 20 marks; Assignment -5 marks   Total - 25 marks

B. **Scheme of External Examination**
   3 hrs. examination at the end of the semester
   A – Part : 1 mark question two - from each unit
   B – Part : 5 marks question one - from each unit
   C – Part : 8 marks question one - from each unit

➢ **Conversion of Marks into Grade Points and Letter Grades**

S.No	Marks	Letter Grade	Grade point (GP)	Performance
1	90-100	O	10	Outstanding
2	80-89	A+	9	Excellent
3	70-79	A	8	Very Good
4	60-69	B+	7	Good
5	50-59	B	6	Above Average
6	40-49	C	5	Pass
7	0-39	RA	-	Reappear
8	0	AA	-	Absent

➢ **Cumulative Grade Point Average (CGPA)**

$$CGPA = \frac{\Sigma\,(GP \times C)}{\Sigma C}$$

- **GP** = Grade point, **C** = Credit
- CGPA is calculated only for Part-III courses
- CGPA for a semester is awarded on cumulative basis

➢ **Classification**
   a) First Class with Distinction   : CGPA ≥ 7.5**
   b) First Class   : CGPA ≥ 6.0
   c) Second Class   : CGPA ≥ 5.0 and < 6.0
   d) Third Class   :   CGPA < 5.0

JAVA PROGRAMMING

COURSE OBJECTIVES:
- To learn Object Oriented Programming language.
- To handle abnormal termination of a program using exception handling.
- To design user Interface using AWT.

UNIT – 1
History, Data Types and Operators

History & Evolution of Java: Creation of Java – The java Buzz words – An overview of Java Object Oriented Programming. Data types: Primitive types – Floating point types – Characters – Booleans – A closer Look at Literals – Variables – Type conversion and casting – Automatic type promotion in Expressions. Arrays: One Dimensional Array – Multi Dimensional Arrays. Operators: Arithmetic Operators – Bitwise operators – Relational operators – Boolean Logical operators – Assignment operators – Conditional operators–Operator Precedence.

UNIT - 2
Classes, Methods and Inheritance

Class Fundamentals – Declaring objects – Assigning object Reference variables – Introducing Methods – Constructors – This Keyword - Garbage collection– Stack class. A Closer Look at Methods and Classes: Overloading Methods – Using object as parameters – Argument passing – Returning objects – Recursion – Introducing Access control – understanding static – Introducing final – Nested and Inner classes – String class – Using command line arguments. Inheritance: Basics – Using super – creating Multilevel Hierarchy – Method overriding – Dynamic Method Dispatch – Using Abstract class – Using final with inheritance – The object class.

UNIT - 3
Packages, Interfaces, Exception Handling and Multithreading

Packages – Package and Member Access-Importing packages – Interfaces. Exception Handling: Fundamentals – Exception Types – Uncaught Exceptions – Using try and catch – Multiple catch clauses – Nested try statements – throw- throws-finally – Java's Built – in Exception – creating your own Exception subclasses – Chained Exceptions. Multithreaded Programming: Java Thread Model – Main Thread – Creating a Thread - Creating Multiple Threads–Using is Alive () and join () – Thread priorities – Synchronization – Interthread Communication – Suspending Resuming: and stopping Threads – Using Multithreading.

UNIT – 4
Networking and Event Handling

Basics – Networking Classes and Interfaces – Inet Address – Inet4 Address and Inet6 Address – TCP/IP client Sockets – URL – URL Connection – HTTP URL Connection – Cookies. Event Handling: Two Event handling Mechanisms – Delegation Event Model – Event classes – Sources of Events – Event Listener Interfaces.

UNIT - 5
AWT and AWT Controls

AWT Classes – Window fundamentals – working with Frame Windows - working with Graphic Using AWT controls: Controls fundamentals – Labels – using Buttons – Applying check Boxes – Check Box group – Choice controls – Using a Text field – Using a Text Area – Understanding Layout Managers (Flow Layout only) – Menu Bars and Menus.

COURSE OUTCOMES:

- To get knowledge of the structure and model of the Java programming language.
- Able to use the Java programming language for various programming technologies.
- To get Knowledge for developing software in the Java programming language.

TEXT BOOK:

JAVA - The Complete Reference, Eleventh Edition, E Herbert Schildt, Oracle Press, 2019

REFERENCE BOOKS:

1. Core and Advanced Java Programming – Black Book, Dreamtech Press, 2018
2. Programming with Java - A Primer, E. Balaguruswamy, Sixth Edition, 2016

CORE SUBJECT – II
FINANCIAL ACCOUNTING

COURSE OBJECTIVES:
- To impart basic accounting knowledge.
- To provide knowledge on the fundamental of financial accounting.
- To expose the student to various financial transaction and its current applications.

UNIT -1
BASIC CONCEPTS OF ACCOUNTING

Introduction to Accounting : Need for Accounting –Accounting as the language of business – Attributes and steps of Accounting –Book keeping Vs Accounting – Branches of Accounting – Methods of Accounting – Types of Accounting – Accounting Rules - Bases of Accounting – Accounting terminology. Basic Accounting Concepts: Meaning and classification of Accounting- Accounting Concepts – Accounting Conversion – Accounting equations.

UNIT – 2
JOURNAL AND LEDGER

Recording a Financial Data: Memorandum Book, business transaction, Journal, Rules for Debit and Credit, Compound Journal entry, Advantages of Journal, Ledger, Ledger Account, Ledger Posting, Process of Posting, Balancing of An Account, Significance of Balances, Relation between Journal and Ledger-Subsidiary Books.

UNIT – 3
PREPARING TRIAL BALANCE

Trial Balance: Objects, Methods of Preparing Trial balance, how to locate errors, hints for the preparation of trial balance & problems.

UNIT -4
FINAL ACCOUNTS

Trading account – individual items posted to the debit of trading account – individual items credited to trading account – advantages of trading account – profit & loss account - advantages of profit & loss account- manufacturing account- balance sheet- classification of assets & liabilities.

UNIT – 5
ACCOUNTS FOR NON PROFIT ORGANISATION

Introduction – Final accounts of no trading concern- receipts and payments account – features- income & expenditure account – feature- distinction between the two – treatment of special items – some important adjustments – types of

problems – Distinction between income and expenditure account and profit and loss account – accounts of professional men.

COURSE OUTCOMES:
- To acquire knowledge about general aspects of business operations.
- To explain the concepts and procedures of financial reporting, including income and expenditure statement, balance sheet etc.
- To locate and analyze financial data from annual reports of corporations.

TEXT BOOKS:
1. Financial Accounting by T.S.Reddy, A.Murthy – Margham Publications, 2012.
2. Fundamentals of Advanced Accounting by R.S.N.Pillai, Bagavathi, S,Uma, 5th Edition, Schand Publication, 2012.

REFERENCE BOOKS:
1. Essentials of Financial Accounting – by Asish K.Bhattacharayya, PHI, 2020
2. Advanced Accountancy by S.P.Jain and Narang – Kalyani Publications, 2017.

CORE SUBJECT - III
INTRODUCTION TO INTERNET WITH HTML

COURSE OBJECTIVIES
- To learn the principle of Web page design.
- To visualize the basic concept of HTML.
- To recognize the elements of HTML.

UNIT I
INTRODUCTION TO INTERNET
Computer in business-networking-Internet- e-mail-gopher-world wide web, Internet Technologies – Internet Browsers.

UNIT II
INTRODUCTION TO HTML
History of HTML - HTML generation and Documents – Tags and Links Head and Body Section.

UNIT III
DESIGNING TABLES
Designing Body Section – Ordered and Unordered List – Table Handling

UNIT IV
INTRODUCTION TO DHTML
Features of DHTML – Defining styles – Working with Colors – Text and Fonts with Style.

UNIT V
FRAMES
Frame set Definition – Nested frames – A web design project – forms.

COURSE OUTCOMES:
- To create a web page.
- To validate a web page.
- To publish a web page.

TEXT BOOK:
World Wide Web Design with HTML, C.XAVIER, McGraw Hill Education, 2017

REFERENCE BOOK:
1. The Complete Reference HTML & CSS, Thomas A.Powell, McGraw Hill Education, 2017
2. Fundamental of the internet and the World Wide Web by Greenlaw and Hepp. TMH Publications. 2008

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ALLIED SUBJECT – III
DATA STRUCTURES

COURSE OBJECTIVES:
- To understand different methods of organizing large amounts of data.
- To efficiently implement different data structure.
- To efficiently implement solution for different problems.

UNIT – 1
DATATYPES INTRODUCTION
Introduction: Pseudo code – The Abstract Data Type – A Model for an Abstract Data Type – Algorithms Efficiency. Searching: List Searches – Hashed List Searches – Collision Resolution.

UNIT – 2
LINKED LISTS
Linear List Concepts – Linked List Concepts – linked List Algorithms – Processing a Linked List – Complex Linked List Structures.

UNIT – 3
STACKS AND QUEUES
Basic Stacks Operations – Stack Linked List Implementation – Stack Applications – Queue operations – Queue Linked List Design.

UNIT – 4
TREES
Basic Tree Concepts – Binary Tree - Binary Tree Traversals – Expression Trees- General Trees – Binary Search Trees – Heap definition – Heap Structure – Basic Heap Algorithm.

UNIT – 5
INTRODUCTION TO GRAPHS
Sorting And Graphs: General Sort Concepts – Quick sort – External sorts. Graphs: Terminology – Operations–Graph storage Structure–Networks.
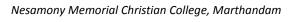
COURSE OUTCOMES:
- An understanding of the basic data structures.
- An understanding of the basic search and sort algorithms.
- The appropriate use of a particular data structure and algorithm to solve a problem.

TEXT BOOK:
1. Data Structures a Pseudo code Approach with C++, Richard F. Gilberg & Behrouz A forouzan, Thomsan Brooks/Cole. Chapters: 1,2.1,2.3,2.4,3.1-3.4,3.6,4.1-4.3,5.1,5.2,7.1-7.5,8.1,9.1- 9.5,11.1,11.4 (Quick Sort only) 11.6, 12.1-12.5.

REFERENCE BOOKS:
1. Fundamentals of Data Structures - Eilis Horowitz & Sartaj, Galgotia Publications 2008
2. Data Structures - Seymour Lipschutz, Tata McGrawHill, 2014

SKILL BASED CORE THEORY – I
PROGRAMMING WITH PHP & MYSQL

COURSE OBJECTIVES:
- To understand the concepts of open sources.
- To learn and use open-source database management system MySQL
- To create dynamic web pages and websites.
- To connect webpages with database.

UNIT-1
Introduction:

Introduction- Open source PHP – PHP history- features-variables- statements operators conditional statements-if-switch-nesting conditions-merging forms with conditional statements-loops-while-do-for – loop iteration with break and continue.

UNIT – 2
Arrays and Functions:

Arrays: Creating an array- modifying array-processing array-grouping form with arrays- using array functions- creating user defined functions- using files-sessions cookies- executing external programs – Creating sample applications using PHP.

UNIT – 3

File Handling Opening files using fopen - looping over a files content with feof- reading text from a file using fgets - closing a file- reading character with fgetc-reading whole file with file_get_contents reading a file into an array with file-checking if a file exists- fscan fparse_ini_file- Getting file information with stat-fseek-copying files with copy- deleting files writing to a file-reading and writing binary files – locking files.

UNIT – 4
MySQL:

Effectiveness of MySQL -MySQL Tools-Prerequisites for MySQL connection Databases and tables- MySQL data types-Creating and manipulating tables-Insertion-updation and deletion of rows in tables -Retrieving data- Sorting and filtering retrieved data -Advanced data filtering Data manipulation functions-Aggregate functions -Grouping data-Subqueries Joining Tables- Set operators-Full text searching.

UNIT- 5
PHP with MySQL:

Working MySQL with PHP-database connectivity- usage of MYSQL commands in PHP processing result sets of queries- handling errors-debugging and diagnostic functions validating user input through Database layer and
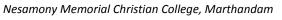
Application layer formatting query output with Character- Numeric- Date and time – sample database applications.

TEXT BOOKS
1. VIKRAM VASWANI- "PHP and MySQL"- Tata McGraw-Hill- 2005
2. BEN FORTA – "MySQL Crash course", SAMS- 2006.
3. Steven Holzner – "The Complete reference PHP", Tata McGraw Hill,2008

REFERENCE BOOKS:
1. Tim Converse- Joyce Park and Clark Morgan- "PHP 5 and MySQL" -Wiley India reprint - 2008.
2. Robert Sheldon- Geoff Moes- "Beginning MySQL"-Wrox- 2005

NON-MAJOR ELECTIVE PAPER
FUNDAMENTALS OF STATISTICS – I

Objectives:
- To introduce the new concept Measures of central tendency to other major students.
- To study about correlation, regression and to solve the simple problems.

Course Learning Outcomes: It enables the students to
- Know formulas to find mean, median mode.
- Understand correlation and regression.

UNIT – 1:

Classification of datas – Bar Diagram – Pie chart.

UNIT – 2:

Measures of central tendency: Mean, median, mode (with frequency).

UNIT – 3:

Measures of dispersion: Range – standard deviation, Variance – Quartile deviation.

UNIT – 4:

Correlation – Rank correlation (Problems only)

UNIT – 5:

Regression equations (Problems only)

Text Book:
1) Dr. S. Arumugam, A.Thangapandi Issac- Statistics, New Gamma Publishing House, Palayamkottai. (2016)

Books for Reference:
1. S. P. Gupta - Elementary Statistical Methods, Sultan Chand & Sons,2017).
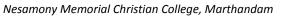2. T. Veerarajan Fundamentals of mathematical Statistics,Yes Dee Publishing Pvt,Ltd..(2017)

MAJOR PRACTICAL – III
JAVA PROGRAMMING LAB

PRACTICAL LIST

1. Write a java program to find the area of Square, Rectangle, and Triangle by
   a. Overloading Constructor Method (b) Overloading Method
2. Define a class called student with data members name, Roll Number and age.
3. Write a suitable constructor and method output () to display the details. Derive another class student 1 from the student with the data member's height and weight.
4. Write a suitable constructor and method output () to display the details which overwrites the super class method output(). (Apply Method Over ridding concepts)
5. Write a java program to create a package "Employee" which contains the classes Emp and Emppay. The data members of Emp are name, empid, category, and Basicpay. Write suitable constructors and methods to compute the net pay of the employee. The class Emppay contains the main method.
6. Write a java program to create and Implement an Interface.
7. Write a java program to create a thread Using Thread Class.
8. Write a java program to Design a calculator to perform arithmetic operations.
9. Write a java program to demonstrate the use of choice box.
10. .Write a java program, which creates a window with a checkbox group with boxes for the colors, violet, indigo, yellow, orange, red, blue and green. When the button is selected the background color must change accordingly.
11. Write a java program to throw the following Exception:
    (a)Negative Array Size (b) Array Index out of Bounds
12. Write a java program to create a file menu with option New, Save and Close, Edit menu with option cut, copy, and paste.
13. Write a java programming to illustrate Mouse Event Handling.

ALLIED PRACTICAL LAB – III
DATA STRUCTURE LAB

PRACTICAL LAB
1. Write a C++ program to implement sequential search and Binary search in array.
2. Write a C++ program to implement linked list and perform the following operations
    a. Add a node as first node. (b) Add a node as last node.
3. Write a C++ program to implement linked list and implement the following Objects.
    a. Delete the first node. (b) Delete the last node.
4. Write a C++ program to implement a stack linear list perform the push and pop Operations.
5. Write a C++ program to implement binary tree using Linked and perform the following traversal:
    a. In order traversal. (b) Pre order traversal. (c) Post order traversal.
6. Write a C++ program to implement merge sort.
7. Write a C++ program to implement quick sort.

தமிழ்மொழியை அறியாத மாணவர்க்குரிய பாடத்திட்டம்.
மூன்றாம் பருவம்
அறிமுகத்தமிழ் - தாள் 1

தமிழ் மொழியைப் பயிலாத மாணவர்களுக்குப் பொது விருப்பப்பாடத் தேர்வு முறைப்படி (Choice Based Credit System) துறைசாரா விருப்பப்பாடத் திட்டத்தின் அடிப்படையில் தமிழ் மொழியினைக் கற்கும் வகையில் எளிமையுடன் அமைக்கப்பட்டுள்ளது. பிறமொழியினைத் தாய்மொழியாகக் கொண்டு கல்வி கற்கும் மாணவருக்குத் தமிழ் மொழியினை அறிமுகப்படுத்தும் வகையில் தமிழ் எழுத்துக்கள் அறிமுகப்படுத்தப்பட்டுள்ளன. மாணவர்களின் எழுதும் திறனும், பேசும் திறனும் சிறப்பாக அமைய கையெழுத்துப் பயிற்சியும், வாய்மொழிப் பயிற்சியும் இன்றியமையாதனவாகக் கருதப்படுவதால், அப்பயிற்சி பெறும் வகையில் பாடங்கள் வகுக்கப்பட்டுள்ளன. மேலும் மாணவரின் அறிவு மேம்படும் வகையிலும் தமிழ்மொழியைக் கற்கத் தூண்டும் வகையிலும் மொழித்திறன் பயிற்சியும் அமைந்துள்ளது.

இப்பாடத்திட்டக் குறிப்பேடு வெளிவருவதற்கு வழிகாட்டிய மனோன்மணியம் சுந்தரனார் பல்கலைக்கழகத் துணைவேந்தர் முனைவர் கி.பாஸ்கர் அவர்களுக்கும் பதிவாளர் முனைவர் அ.ஜாண் டி பிரிட்டோ அவர்களுக்கும் எங்கள் உளமார்ந்த நன்றியைத் தெரிவித்துக் கொள்கின்றோம்.

பொருளடக்கம்

கடவுள் வாழ்த்து

அலகு - **1** எழுத்துக்கள் அறிமுகம்

அலகு - **2** சொல்

அலகு – **3**
அ) வாய்மொழிப் பயிற்சி
ஆ) மாணவர் ஆசிரியர் உரையாடல்
இ) ஒரு பொருள் குறித்து பேசுதல்

ஈ) ஆசிரியர் கூறியதை அப்படியே கூறல்

அலகு - 4 எண்கள், நாட்கள், மாதங்கள்

அலகு - 5 வாக்கியம்

பயிற்சிகள்:
1. கையெழுத்துப் பயிற்சி
2. வாய்மொழிப் பயிற்சி
3. சரியான வாக்கியமாக மாற்றுதல்
4. பட்டியலிட்டு இனமில்லாதவற்றை அடிகோடிட்டுக் காட்டுதல்
5. விடுபட்ட எழுத்துக்களை இணைத்தல்
6. விடையளித்தல்
7. தன் விவரக்குறிப்பு எழுதுதல்

இந்த பாடத்திட்டத்திற்னாக பாடங்கள் மற்றும் மாதிரி வினாக்கள் அடங்கிய கையேடு பல்கலைக்கழக இணையதளத்திலிருந்து பதிவிறக்கம் செய்து கொள்ளலாம்.