

MANNAR THIRUMALAI NAICKER COLLEGE
PASUMALAI, MADURAI- 625 004

(An Autonomous Institution Affiliated to Madurai Kamaraj University)

(Re-accredited with 'A' Grade by NAAC)



BCA

SYLLABUS AND REGULATIONS

UNDER
CHOICE BASED CREDIT SYSTEM (CBCS)
(For those who joined during 2018-2019 and after)

Eligibility for Admission

Candidates should have passed the Higher Secondary Examination with 10 +2 pattern conducted by the Board of Higher Secondary Education, Govt. of Tamil Nadu or any other Examinations accepted by the Syndicate as equivalent there to and the candidate should have studied +2 level Mathematics with Physics/ Commerce/ Economics as subject of study in the 10 +2 pattern

Duration of the course

The duration of the course shall be three academic years comprising six semesters with two semesters in each academic year.

Subject of Study

Part I: Tamil

Part II: English

Part III:

1. Core Subjects
2. Allied Subjects
3. Electives

Part IV :

1. Non Major Electives
2. Skill Based Subjects
3. Environmental Studies
4. Value Education

Part V :

Extension activities

The scheme of Examination

The components for continuous internal assessment are:

Two tests and their average	--15 marks
Seminar /Group discussion	--5 marks
Assignment	--5 marks
Total	--25 marks

Pattern of the questions paper for the continuous Internal Assessment

(For Part I, Part II, Part III , NME & Skilled Paper in Part IV)

The components for continuous internal assessment are:

Part –A

Six multiple choice questions (answer all) 6 x 01= 06 Marks

Part –B

Two questions (‘either or ‘type) 2 x 07=14 Marks

Part –C

One question out of two 1 x 10 =10 Marks

Total		30 Marks

Pattern of the question paper for the Summative Examinations:

Note: Duration- 3 hours

Part –A

Ten multiple choice questions 10 x 01 = 10 Marks
 (No Unit shall be omitted; not more than two questions from each unit.)

Part –B

Five Paragraph questions (‘either or ‘type) 5 x 07 = 35 Marks
 (One question from each Unit)

Part –C

Three Essay questions out of five 3 x 10 =30 Marks
 (One question from each Unit)

Total		75 Marks

The Scheme of Examination (Environmental Studies and Value Education)

Two tests and their average		--15 marks
Project Report		--10 marks*
Total		--25 marks

** The students as Individual or Group must visit a local area to document environmental assets – river / forest / grassland / hill / mountain – visit a local polluted site – urban / rural / industrial / agricultural – study of common plants, insects, birds – study of simple ecosystem – pond, river, hill slopes, etc.

Question Paper Pattern

Pattern of the Question Paper for Environmental Studies & Value Education only) (Internal)

Part –A

(Answer is not less than 150 words)

Four questions (‘either or ‘type) 4 x 05=20 Marks

Part –B

(Answer is not less than 400 words)

One question (‘either or ‘type) 1 x 10=10 Marks

	30 Marks
Total	30 Marks

Pattern of the Question Paper for Environmental Studies & Value Education only) (External)

Part –A

(Answer is not less than 150 words)

Five questions (either or type) 5 x 06 =30 Marks

(One question from each Unit)

Part –B

(Answer is not less than 400 words)

Three questions out of Five 3 x 15 = 45 Marks
each unit (One question from each Unit)

	75 Marks
Total	75 Marks

Minimum Marks for a Pass

40% of the aggregate (Internal +Summative Examinations).

No separate pass minimum for the Internal Examinations.

27 marks out of 75 is the pass minimum for the Summative Examinations.

PROGRAMME SPECIFIC OUTCOMES

PSO1: To understand, analyze and develop software in the areas related to system software, multimedia, web design, big data analytics, networking and algorithms for efficient design of computer-based systems of varying complexities.

PSO2: To apply standard practices and strategies in software project development using open-ended programming environments to deliver a quality product for business success.

PSO3: To employ modern computer languages, environments, and platforms in creating innovative career paths to be an entrepreneur, with zest for research.

PSO4: To analyze and apply latest technologies to solve problems in the areas of computer applications.

BACHELOR OF COMPUTER APPLICATIONS
(For those who joined in 2018-2019 and after)

COURSE PATTERN

Study Component	I Sem.	II Sem.	III Sem.	IV Sem.	V Sem.	VI Sem.	Total Hrs/week	Total Credit	No. of Papers	Total Marks
Part – I Tamil	6(3)	6(3)	6(3)	6(3)	-	-	24	12	4	400
Part - II English	6(3)	6(3)	6(3)	6(3)	-	-	24	12	4	400
Part – III										
Core Subjects	6(4) 4(4)	5(4) 5(4)	5(4) 5(4)	5(4) 5(4)	6(5) 6(5) 6(5)	5(4) 5(4) 4(4) 4(4)	76	63	15	1500
Elective	-	-	-	-	5(4) 5(4)	5(4) 5(4)	20	16	4	400
Allied Subject	4(4)	4(4)	4(4)	4(4)	-	-	16	16	4	400
Part – IV										
Skill Based Subjects/	2(2)	2(2)	2(2)	2(2)	2(2)	2(2)	12	12	6	600
EVS/VE/	2(2)	2(2)	-	-	-	-	4	4	2	200
NME	-	-	2(2)	2(2)	-	-	4	4	2	200
Part – V										
Extension Activities	-	-	-	0(1)	-	-	0	1	1	100
Total	30 (22)	30 (22)	30 (22)	30 (23)	30 (25)	30 (26)	180	140	42	4200

SEMESTER – III							
Subject Code	Subject	No. of Papers	Hours/ Week	Credits	Maximum Marks		
					Int.	Ext.	Tot.
18UTAG31	Part I: Tamil காப்பிய இலக்கியமும் சிறுகதையும்	1	6	3	25	75	100
18UENG31	Part II: English Exploring Language Through Literature-III	1	6	3	25	75	100
18UCAC31 18UCACP3	Part III: Core Subject Data Structures and C++ Data Structures and C++ - Lab	1 1	5 5	4 4	25 40	75 60	100 100
18UCAA31	Part III: Allied Subject Computer based Financial Accounting	1	4	4	25	75	100
18UCASP3	Part IV: Skill Subject Tally – Lab	1	2	2	40	60	100
18UCAN31	Part IV: Non-Major Elective Multimedia - Lab	1	2	2	40	60	100
	Total	7	30	22	220	480	700

SEMESTER – IV							
Subject Code	Subject	No. of Papers	Hours/ Week	Credits	Maximum Marks		
					Int.	Ext.	Tot.
18UTAG41	Part I: Tamil பழந்தமிழ் இலக்கியமும் புதினமும்	1	6	3	25	75	100
18UENG41	Part II: English Exploring Language Through Literature-IV	1	6	3	25	75	100
18UCAC41	Part III: Core Subject Java Programming	1	5	4	25	75	100
18UCACP4	Java Programming – Lab	1	5	4	40	60	100
18UCAAA41	Part III: Allied Subject Cost Accounting	1	4	4	25	75	100
18UCASP4	Part IV: Skill Subject Android Application Development – Lab	1	2	2	40	60	100
18UCAN41	Part IV: Non-Major Elective Animation Lab	1	2	2	40	60	100
18UEAG40-18UEAG49	Extension Activities	1	0	1	-	100	100
	Total	8	30	23	320	480	800



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Programme : UG	Part III	: Core
Semester : III	Hours per week	: 05
Sub code : 18UCAC31	Credit	: 04

DATA STRUCTURES USING C++

Course Outcomes

CO1: Gain knowledge to apply the major object-oriented concepts such as encapsulation, inheritance and polymorphism using C++.

CO2: Ability to summarize searching and sorting techniques

CO3: Gain knowledge about stack, queue and linked list operation

CO4: Ability to have knowledge of tree and graph concepts.

Unit - I

Principles Of Object Oriented Programming: Basic Concepts Of Object Oriented Programming – Benefits Of OOP. **Beginning with C++:** Structure Of C++ Programming. **Tokens, Expressions and Control Structures** : Basic Data Types – User Defined Data Type - Derived Data Types - Operators in C++, Control Structures. **Functions in C++** : Inline Function - Function Overloading. **Classes and Objects:** Specifying A Class – Define Member Function – Nesting Of Member Function – Array Of Objects – Friend Functions. **Constructors and Destructors:** Constructor – Parameterized Constructor – Copy Constructor - Destructor.

Unit - II

Operator Overloading And Type Conversions : Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators – Rules for Overloading Operators. **Inheritance : Extending classes** : – Inheritance – Single Inheritance – Multilevel Inheritance – Multiple Inheritance-Hierarchical Inheritance – Virtual Base Classes. **Pointers , Virtual functions and Polymorphism:** Polymorphism – Pointer – Pointer To Object – This Pointer – Virtual Functions – Pure Virtual Functions.

Unit - III

Arrays , Records and Pointers : Arrays – Introduction – Linear Array – Representation Of Linear Array in Memory – Traversing Linear Array – Sorting – Linear Search – Binary Search – Multidimensional Array – Pointers – Records – Representation of Records in Memory – Matrices – Sparse Matrices.

Unit - IV

Linked List : Linked List – Introduction – Representation Of Linked List In Memory – Traversing a Linked List – Searching a Linked List – Memory Allocation – Insertion And Deletion in a Linked List – **Stack , Queues, Recursion** : Stack – Array Representation of Stacks - Linked Representation of Stacks – Application Of Stack – Recursion – Queues – Linked Representation Of Queues.

Unit - V

Trees :Introduction – Binary Trees – Representing Binary Trees in Memory –Traversing Binary trees – Binary Search Trees – Searching and Inserting in Binary Search Trees.

Text books:

1.Balagurusamy.E, “**Object Oriented Programming with C++**”, McGraw Hill Education Private Limited, Sixth Edition, 2014, New Delhi.

Unit I: Chapter 1: 1.5,1.6,1.8
Chapter 2: 2.6
Chapter 3: 3.5,3.6,3.7,3.13,3.24
Chapter 4: 4.6,4.7
Chapter 5: 5.3,5.4,5.7,5.15
Chapter 6 : 6.2,6.3,6.7
Unit II: Chapter 7: 7.2,7.3,7.4,7.7
Chapter 8 : 8.3,8.6,8.7,8.9
Chapter 9: 9.1,9.2,9.3,9.4,9.6,9.7

2. Sermour Lipschultz, “**Data Structure**”, Tata McGraw – Hill Education Private Limited, Twentieth Reprint, 2011,New Delhi,

Unit III: Chapter 4 : (Full)
Unit IV: Chapter 5 : 5.1,5.2,5.3,5.4,5.5,5.6,5.7,5.8
Chapter 6 : 6.2,6.3,6.4,6.6,6.7,6.10,6.11
Unit V: Chapter 7 :7.1,7.2,7.3,7.4,7.7,7.8

Reference Books:

1. Ravichandran.D, “**Programming with C++**”,Tata McGraw Hill Education (India) Private Limited, Sixth Reprint,2005, New Delhi.
2. Chitra.A, RajanPT, “**Data Structure**”, Tata McGraw-Hill Education (India) Private Limited, Fifth Reprint,2011,New Delhi.
3. Ashok Kamthane.N , “**Introduction to Data Structure in C**”, Pearson Education, 2004, New Delhi.

Website Reference:

1. <https://www.tutorialspoint.com/cplusplus/>
2. https://en.wikipedia.org/wiki/Data_structure
3. <https://www.coursera.org/learn/data-structures>



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Programme	: UG	Part III	: Core
Semester	: III	Hours per week	: 05
Sub code	: 18UCACP3	Credit	: 04

DATA STRUCTURES USING C++ - LAB

Course Outcomes

- CO1:** Understand fundamentals of object-oriented programming concepts and helps students to develop programming skill in 'C++' language
- CO2:** Use classes, constructors, destructors, inheritance, and operator over loading.in C++
- CO3:** Be aware of practical knowledge on the applications of data structures like arrays, strings, lists and trees.
- CO4:** Have practical knowledge on the applications of data structures
Create Data structures and C++ Programming in the following concept:

1. To perform area calculation using function overloading (min 3 functions)
2. To perform string manipulation(three different types)using function overloading.
3. To swap two values between two class object using friend functions.
4. To find minimum of two numbers between twoclass objects using friend function.
5. To overload unary minus operator which changes sign of given vector(3 elements)
6. To overload binary + operator to adds two complex numbers.
7. To process electricity billing using single inheritance.
8. To process student mark list using multiple inheritance.
9. To process family details using hierarchical inheritance.
10. To process Multilevel inheritance.
11. To search an elements using linear search and binary search.
12. To perform stack operations using array.
13. To perform queue operations using array.
14. To perform stack operations using Linked List.
15. To perform queue operations using Linked List.
16. To sort N numbers using Bubble Sort.
17. To sort N numbers using Quick Sort.
18. To manipulate single Linked List.
19. To develop a Binary Search Tree.
20. To perform Tree Traversals.

Website Reference:

1. <http://www.cppforschool.com/assignments.html>
2. <http://www.cs.miami.edu/home/geoff/Courses/MTH517-00S/Assessment/LabTasks.html>
3. <http://mjcollege.ac.in/images/labmanuals/DATASTRLABMANUALBIT232.pdf>



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Programme	: UG	Part III	: Allied
Semester	: III	Hours per week	: 4
Sub code	: 18UCAA31	Credit	: 4

COMPUTER BASED FINANCIAL ACCOUNTING

Course Outcomes

CO1:To get the Knowledge about the important concepts and characteristics of accounting.

CO2:To study the application of accounting in the general business environment.

CO3:To make the student familiar with generally accepted accounting principles of financial accounting and their applications in business organizations and to enhance their accounting skill.

CO4: Understand the importance and usefulness of Job costing and Job order processing.

UNIT I

Introduction – Book Keeping – Accounting Principles – Concepts - Conventions – Classification of Accounts – Double Entry System.

UNIT II

Journal – Ledger – Subsidiary books – Trial balance.

UNIT III

Final accounts of Sole trading concern with adjustments. (Simple Problems only)

UNIT IV

Introduction to Tally ERP 9 – Creating a Company - Altering and Deleting a Company - Gateway of Tally & User Interface - Accounts Group - Vouchers - VAT(Value Added Tax) - Accounts Reports.

UNIT V

GST(Goods & Service Tax) - Activating Tally in GST - Setting up GST(Company Level, Ledger Level or Inventory Level) - GST Taxes & Invoices - Understanding CGST, SGCT, IGST & UTGST - Creating GST masters in Tally(Purchase voucher with GST, Sales voucher with GST, etc.,) - GST Reports and Returns.

Text Book:

1. Gupta.R.L, RadhaSwamy,"**Advanced Accountancy**", Sultan Chand & Sons (P) Ltd., Reprint 2011, New Delhi.
Unit 1: Chapter 2 (1.2.1-1.2.16)

Chapter 3 (1.3.1-1.3.6)
Unit 2: Chapter 5 (1.5.1-1.5.25)

Chapter 6 (1.6.1-1.6.34)
Unit 3: Chapter 7 (1.7.1-1.7.39)

Chapter 8 (1.8.1-1.8.40)
2. Palanivel.S, "**Tally Accounting Software**", Margham Publications, 2007, Chennai.

Unit 4: Page No. 21-30, 85-98.
3. Rajesh chheda," **Learn Tally ERP 9 with GST & E-Way Bill**",2018

Unit 5: Page No. 99-178,351-384.

Reference Books:

1. Jain.S.P,Narang.L," **Advanced Accountancy**", Kalyani Publishers,2004, New Delhi.
2. Vikas Gupta,"Comdex Business Accounting with MS Excel 2010 and Tally. ERP 9 Course Kit", Dream Tech Press, 2010, New Delhi.
3. "**Official guide to Financial accounting using Tally ERP 9 with GST**", BPB Publications,2018.

Website Reference:

1. <http://ncert.nic.in/ncerts/l/keac213.pdf>
2. <https://study.com/academy/lesson/what-is-a-computerized-accounting-system-types-advantages- disadvantages.html>
3. <https://www.slideshare.net/GaganJyoti/gndu-bcr>



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Programme :UG	Part IV	: Skill
Semester : III	Hours per week	: 02
Sub code : 18UCASP3	Credit	: 02

TALLY - LAB

Course Outcomes

CO1:To impart knowledge regarding concepts of Financial accounting. Tally is an accounting package which is used for learning to maintain accounts.

CO2:To impart practical training on this software so that students could apply its various aspects in their day to day business/professional activities

CO3:To help future entrepreneur in managing their financial accounting along with business operation through practical session

CO4:To familiarize financial reporting and related key accounting assumptions and principles.

1. Company Creation
2. Ledger Creation
3. Voucher Creation
 - a) Receipt voucher
 - b) Payment voucher
 - c) Contra voucher
 - d) Journal voucher
 - e) Sales voucher
 - f) Purchase voucher
4. View Reports
 - a) Purchase Register
 - b) Sales Register
 - c) Journal Register
 - d) Outstanding Receivable
 - e) Outstanding Payable
 - f) Final accounts
 - g) Day Book
5. Printing the Reports
 - a) Multi-Accounts printing
 - b) Final Accounts Printing
 - c) Cheque printing

Website References

1. <https://tallylab.com>
2. <https://www.scribd.com/doc/50377618/Tally-lab-manual-doc>
3. <http://www.wbcsoftwarelab.com/tally-erp9.html>



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Programme	: UG	Part IV	: NME
Semester	: III	Hours per week	: 2
Sub code	: 18UCAN31	Credit	: 2

MULTIMEDIA - LAB

Course Outcomes

CO1: To familiarize with Photoshop tools.

CO2: To understand the animation techniques using Adobe Flash.

CO3: To understand the concept of mixing audio and video with text.

CO4: To motivate them towards developing their career in the area of multimedia and internet applications to improve employability skill

PHOTOSHOP

1. Changing Color Modes.
2. Pattern Setting.
3. Mirror Image.
4. Changing Black /White Image to Color and vice versa.
5. Stroking Effect.
6. Merge Text and Image.
7. Shadow of an image.
8. Morphing.
9. Composite of two Images.

FLASH

1. Create an animation with the following features: WELCOME
 - i) Letters should appear one by one.
 - ii) The fill color of the text should change to a different color after the display of the Full word.
2. Simulate movement of a Cloud.
3. Create an animation to indicate a ball bouncing on steps.

Website References

1. <http://mmlab.ie.cuhk.edu.hk/>
2. <http://multimedialab.truman.edu/>
3. <https://it.brown.edu/services/type/multimedia-labs>



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Programme :UG	Part III	: Core
Semester : IV	Hours per week	: 05
Sub code : 18UCAC41	Credit	: 04

JAVA PROGRAMMING

Course Outcomes

CO1: Gain knowledge about basic java language syntax and semantics to write java programs and use concepts such as variables, conditional and iterative execution methods etc.

CO2: Understanding the fundamentals of object-oriented programming in java, including defining classes, objects, invoking methods etc. and exception handling mechanisms.

CO3: Understand the principles of inheritance, packages and interfaces.

CO4: To learn the uses of Java in a variety of technologies and on different platforms

UNIT I

Fundamentals of object-oriented programming: Introduction-Object oriented paradigm- Basic concepts of object oriented programming-Benefits of OOP-Applications of OOPs. **Java**

Evolution: Java Features – Java and Internet– Simple Java Programs – Java Program Structure.

Class, Objects and Methods: Defining a Class – Fields Declaration – Methods Declaration – Creating Objects – Accessing class members – Constructors – Methods Overloading – Static Members – Nesting of Methods – Inheritance – Overriding Methods – Final Variables and Methods – Final Classes – Finalizer Methods – Abstract Methods and Classes

UNIT II

Arrays, Strings and Vectors: One – dimensional Arrays – creating an Array – Two dimensional Arrays – Strings – Vectors – Wrapper Classes – Enumerated Types. **Interfaces:Multiple**

Inheritance : Defining Interfaces – Extending Interfaces – Implementing Interfaces – Accessing Interface Variables. **Packages:** Java API Packages – Using system Packages – Naming

Conventions – Creating Packages – Accessing a Package – Using a Package – Adding a Class to a Package – Hiding Classes – Static Import.

UNIT III

Multithreaded Programming: Creating Threads – Extending the Thread Class – Stopping and Blocking a Thread – Life Cycle of a Thread – Using Thread Methods – Thread Exceptions – Thread Priority – Synchronization – Implementing the Runnable Interface. **Managing Errors and Exceptions:** Types of Errors – Exceptions – Syntax of Exception Handling Code – Multiple Catch Statements – Using Finally Statement – Throwing our own Exceptions – Using Exceptions for debugging.

UNIT IV

Applet Programming: How Applets differ from Applications – Preparing to write Applets – Building Applet Code – Applet Life Cycle – Creating an executable Applet – Designing a WebPage – Applet Tag – Adding Applet to HTML file – Running the Applet. **Graphics Programming:** The Graphics Class – Lines and Rectangles – Circles and Ellipses, Drawing Arcs – Drawing Polygons – Line Graphs – Using Control Loops in Applets – Drawing Bar Charts.

UNIT V

Managing Input/Output Files in Java: Concept of Streams – Stream Classes – Byte Stream Classes – Character Stream Classes – Using Streams – Other Useful I/O Classes – Using the file Class – I/O Exceptions – Creation of Files – Reading / Writing Characters – Reading / Writing Bytes – Handling Primitive Data Types – Concatenating and Buffering Files – Random Access Files – Interactive Input and Output.

Text Book:

1. Balagurusamy.E, “**Programming with Java**”, Tata McGraw Hill Private Limited, 4th Edition, 2010, New Delhi.

Unit I: Chapter 1(Full)

Chapter 2 (2.2,2.4)

Chapter 3(3.2,3.5)

Chapter 8(8.1-8.16)

Unit II: Chapter 9(9.2 to 9.8),

Chapter 10(10.2 to 10.5),

Chapter 11(11.2 to 11.10),

Unit III: Chapter 12(12.2 to 12.10),

Chapter 13(13.2 to 13.8),

Unit IV: Chapter 14(14.2 to 14.10),

Chapter 15(15.2 to 15.10),

Unit V: Chapter 16(16.2 to 16.16)

Reference Books:

1. Radha Krishna.P, “**Object Oriented Programming with Java**”, University Press India Private Limited, 3rd Edition, 2008,Hyderabad.
2. Debasish Jana, “**Java Object Oriented Programming Paradigm**”, Prentice Hall of India Private Limited, 3rd Edition, 2008 New Delhi.
3. Xavier.C, “**Programming with Java**”, Scitech Publication India Private Limited, 3 rd Edition, 2004, Chennai.
4. Herbert Schildt, “**Java 2 - The Complete Reference**”, TMH, 5th Edition, 2005, New Delhi.

Website References

1. <https://www.programiz.com/java-programming/examples>
2. <https://www.programiz.com/java-programming>
3. <https://www.programmingsimplified.com/java-source-codes>



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Programme :UG	Part III	: Core
Semester : IV	Hours per week	: 05
Sub code : 18UCACP4	Credits	: 04

JAVA PROGRAMMING - LAB

Course Outcomes

CO1: Understand fundamentals of programming such as variables, conditional and iterative execution, methods, etc

CO2: Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.

CO3: Be aware of the important topics and principles of software development.

CO4: Have the ability to write a computer program to solve specified problems.

Create Java Programming in the following concept:

1. To find Sum of Digits of a given number using class and Objects.
2. To perform addition of complex numbers using class and objects.
3. To perform multiplication of matrices using class and methods.
4. Program using conscetors
5. To perform volume calculation using method overloading
6. Program using array concept.
7. String manipulation functions
8. Using command line arguments, test if the given string is palindrome or not.
9. Create a list with set of names and copy them into another list in reverse order. If any name contains numeric value, throw an exception “InvalidName”.
10. To calculate area using single inheritance
11. Using multilevel inheritance, process student marks
12. Create a package called “Arithmetic” that contains methods to deal with all arithmetic operations. Also, write a program to use this package
13. Program using final class.
14. Create two threads such that one thread should print even no’s and another to print odd no’s up to a given range.
15. Define user defined exception called “Marks Out Of Bound”, that is thrown if the entered marks are greater than 100.

16. Write an Applet to draw a Human Face.
17. Write an Applet to illustrate the sequence of events in an applet.
18. Write an Applet to design a simple calculator.
19. Write an Applet to receive three Numeric values as input from the user and to display the largest of these on the screen.
20. Program using file operation.

Website References

- 1.<http://www.buildingjavaprograms.com/labs/lab1-basics.shtml>
- 2.<http://dte.kar.nic.in/STDNTS/CS%20IS/java%20programming.pdf>
- 3.<http://www.cse.iitd.ernet.in/~naveen/courses/CSL201/module-java.pdf>



MANNAR THIRUMALAI NAICKER COLLEGE (AUTONOMOUS)
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Programme	:UG	Part III	:Allied
Semester	: IV	Hours per week	: 4
Sub code	: 18UCAA41	Credit	: 4

COST ACCOUNTING

Course Outcomes

CO1:To acquaint the students with basic concepts used in cost accounting and various methods involved in cost ascertainment systems.

CO2:To train the students in finding the cost of products using different methods of costing.

CO3:To provide the student knowledge about use of costing data for planning, controls and decision making and enhance their accounting skill.

CO4: Use accounting methods of cost calculation.

UNIT I

Introduction: Definition of Costing – Important use of costing – Objects & advantages of costing – Difference between Cost & Financial accounts – Installation of costing system – Analysis and classification of costs – Preparation of cost sheet.

UNIT II

Materials: Maintenance of stores & records, Different levels of stock of materials – E.O.Q – Perpetual Inventory System – ABC Analysis – Stores Ledger – Pricing of material issues (FIFO, LIFO and Average Methods)

UNIT III

Labour: Labour Turn over – Methods of Remunerating Labour – Incentive Schemes.

UNIT IV

Overheads: Meaning – Classification of overhead – Allocation – Apportionment & Absorption of overheads.

UNIT V

Budget and Budgetary Control: Meaning – Objectives – Advantages – Limitations – Classification of Budgets – Preparation of Functional budgets – Cash, Flexible and Master budget.

Text Book

1. Maheswar.S.N,“**Cost Accounting**”, Sultan Chand & Sons (P) Ltd., Reprinted 2011, New Delhi.

Unit I – Chapters 1(Full), 2(Full)

Unit II – Chapters 3(Full), 4(Full)

Unit III – Chapters 6(Full), 7(Full)

Unit IV– Chapters 9(Full), 10(Full)

Unit V - Section C (C.1-C.52)

Reference Books:

1. Jain.S.P and Narang.K.L,“**Cost Accounting**”, Kalyani Publishers, Reprinted 2011, New Delhi.
2. Pillaiand.R.S.N, Bhagavathy.S,“**Cost Accounting**”,S.Chand Company Ltd, Reprint with corrections 2011, New Delhi.
3. Jain, Narang.S, 8th rev ed Kalyani.K,“ **Advanced Cost & Management Accounting**”, 4th edition Note: The Questions should be asked in the ratio of 60% as problems and 40% as theory.

Website Reference:

1. <https://cleartax.in/s/cost-accounting>
2. <https://www.accountingcoach.com/blog/what-is-cost-accounting>
3. <https://www.investopedia.com/terms/c/cost-accounting.asp>



MANNAR THIRUMALAI NAICKER COLLEGE (AUTONOMOUS)
DEPARTMENT OF COMPUTER APPLICATIONS
(For those who joined in 2018-2019 and after)

Programme	: UG	Part IV	: Skill
Semester	: IV	Hours per week	: 2
Sub code	: 18UCASP4	Credit	: 2

ANDROID APPLICATION DEVELOPMENT- LAB

Course Outcomes

CO1: To learn the basic concepts of Android platform.

CO2: To write simple GUI applications, use built-in widgets and components, work with the database to store data locally, and much more.

CO3: Ability to write apps for Android devices.

CO4: Integrate applications with enterprise web and location-based services provide employability skill

All the Experiments of Mobile Application Development Lab are developed using Android Studio.

1. Write a program to develop an application that uses GUI components Font and Colours.
2. Write a program to design a simple User Interface layout
3. Create an application that uses Layout Managers and Event listeners.
4. Develop a native calculator application.
5. Write an application that draws basic graphical primitives on the screen.
6. Write a mobile application that creates alarm clock.
7. Develop an application that makes use of database.
8. Develop an application that makes use of RSS Feed.
9. Develop an application that implements Multithreading.
10. Develop a native application that uses GPS location information.
11. Implement an application that writes data to the SD card.
12. Implement an application that creates an alert upon receiving a message.

Website Reference:

1. <https://www.tutorialspoint.com/android/>
2. <https://www.javatpoint.com/android-tutorial>
3. <https://developer.android.com/guide/>



MANNAR THIRUMALAI NAICKER COLLEGE (AUTONOMOUS)
DEPARTMENT OF COMPUTER APPLICATIONS
(For those who joined in 2018-2019 and after)

Programme : UG	Part IV	: NME
Semester : IV	Hours per week	: 2
Sub code : 18UCAN41	Credit	: 2

ANIMATION - LAB

Course Outcomes

CO1: Develop the skill & knowledge in 3D Modelling & Animation.

CO2: Understand the function either as an entrepreneur or can take up jobs in the multimedia and animation industry,

CO3: Develop the skill and creativity by practicing video studios, edit set-up and other special effects

CO4: Create a 3D environment featuring lighting and textures.

1-Animation exercises on following principles:

Squash and Stretch,

Anticipation,

Staging,

Straight ahead and pose to pose,

Follow through and

Overlapping action

Ease in and ease out

Motion in Arcs

Secondary action

Timing

Exaggeration

Solid drawing,

Appeal,

Mass and weight,

Character acting

Volume.

2-Create a white board animation with stop motion technique.

3-Create a Paper cut out Animation

4-Clay modeling of a character and its prop

5-Create a short animation with clay characters.

Website References

1. http://minyos.its.rmit.edu.au/aim/a_notes/anim_contents.html
2. <https://www.comp.nus.edu.sg/~pptlabs/docs/animation-lab.html>
3. <http://dte.kar.nic.in/STDNTS/CS%20IS/multimedia%20lab%20programs.pdf>