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 x01= 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

                                    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)   -----------------

                                    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.

MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
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

Subject Code	Subjects	No.of Papers	Hours/ Week	Credits	Maximum Marks		
SEMESTER – I							
					Int.	Ext.	Total
18UTAG11	பகுதி-**I**தமிழ் தற்கால கவிதையும் உரைநடையும்	1	6	3	25	75	100
18UENG11	English-I: Exploring Language Through Literature-1	1	6	3	25	75	100
18UCAC11	**Part III :Core Subject** Digital Computer Fundamentals	1	6	4	25	75	100
18UCACP1	Multimedia – Lab	1	4	4	40	60	100
18UCAA11	**Part III :Allied Subject** Discrete Mathematics	1	4	4	25	75	100
18UCASP1	**Part IV :Skill Subject** PC Software – Lab	1	2	2	40	60	100
18UEVG11	**Part IV : Mandatory** Environmental Studies	1	2	2	25	75	100
	Total	**7**	**30**	**22**	**205**	**495**	**700**

Subject Code	Subject	No.of Papers	Hours/ Week	Credits	Maximum Marks		
SEMESTER - II							
					Int.	Ext.	Tot.
18UTAG21	பகுதி-**I** தமிழ் பக்தி இலக்கியமும் நாடகமும்	1	6	3	25	75	100
18UENG21	English-II: Exploring Language Through Literature-II	1	6	3	25	75	100
18UCAC21	**Part III :Core Subject** Programming in C	1	5	4	25	75	100
18UCACP2	Programming in C – Lab	1	5	4	40	60	100
18UCAA21	**Part III :Allied Subject** Statistical and Numerical Methods	1	4	4	25	75	100
18UCASP2	**Part IV :Skill Subject** Web Programming – Lab	1	2	2	40	60	100
18UVLG21	**Part IV : Mandatory** Value Education	1	2	2	25	75	100
	Total	**7**	**30**	**22**	**205**	**495**	**700**

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 18UCACP4	**Part III: Core Subject** Java Programming Java Programming – Lab	1 1	5 5	4 4	25 40	75 60	100 100
18UCAA41	**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**

SEMESTER V

Subject Code	Subject	No. of Papers	Hours / Week	Credits	Maximum Marks		
					Int.	Ext	Tot
18UCAC51	Operating System	1	6	5	25	75	100
18UCAC52	Relational Database Management System	1	6	5	25	75	100
18UCACP5	VB.Net Programming and RDBMS Lab	1	6	5	40	60	100
18UCAS51	Computer Networks	1	2	2	40	60	100
18UCAE51 18UCAE52 18UCAE53	**Elective I** Data Mining and Warehousing Web Technology Computer Graphics	1	5	4	25	75	100
18UCAE54 18UCAE55 18UCAE56	**Elective II** Internet of Things Digital Image Processing Information Security	1	5	4	25	75	100
	Total	6	30	25	180	420	600

SEMESTER VI

Subject Code	Subject	No. of Papers	Hours / Week	Credits	Maximum Marks		
					Int.	Ext	Tot
18UCAC61	Python Programming	1	5	4	25	75	100
18UCAC62	Software Project Management	1	5	4	25	75	100
18UCACP6	Python Programming Lab	1	4	4	40	60	100
18UCAPR1	Project Work and Viva Voce	1	4	4	40	60	100
18UCASP6	Web Technology Lab	1	2	2	40	60	100
	Elective I						
18UCAE61	Big Data Analytics	1	5	4	25	75	100
18UCAE62	Cloud Infrastructure and Services						
18UCAE63	Machine Learning Algorithm						
	Elective II						
18UCAE64	Cryptography	1	5	4	25	75	100
18UCAE65	Software Testing						
18UCAE66	Mobile Computing						
	Total	7	30	26	220	480	700

MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)

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

Programme : BCA	**Part III**	: Core
Semester : I	**Hours**	: 06
Sub code : 18UCAC11	**Credits**	: 04

DIGITAL COMPUTER FUNDAMENTALS

Course Outcomes:

CO1: To identify various Number systems and Logic gates.

CO2: To understand the Basic Structure and Operation of Digital Computer.

CO3: To familiarize the students with hierarchical memory system including cache memories and virtual memory.

CO4: To lay foundation for employability in hardware.

Unit - I

Computer Basics: Algorithms – A simple model of a Computer – Characteristics of computers – Problem solving using computers. **Input/ Output Units:** Description of computer Input units – Other Input methods – Computer Output Units.

Unit - II

Programming languages: Why programming language – Assembly language – Higher level programming languages – Compiling High level language program – Some high level languages.

Unit – III

Digital Logic: The basic gates – NOT, OR, AND – Universal Logic Gates – NOR, NAND – AND – OR – Invert Gates.

Unit - IV

Number Systems and Codes: Binary number system – Binary to decimal conversion – Decimal to binary conversion – Octal numbers – Hexadecimal numbers.

Unit – V

     Arithmetic Circuits: Binary Addition – Binary Subtraction – Unsigned binary numbers – Sign-magnitude numbers – 2's complement representation – 2's complement arithmetic – Arithmetic Building Blocks.

Text Book(s):

1. Rajaraman V, **Fundamentals of Computers**, PHI learning private limited, Delhi, Fifth edition, 2013

    Unit I: Chapter 1, Chapter 3

    Unit II: Chapter 9

2. Donald P Leach, Albert Paul Malvino, Goutam Saha, **Digital Principles and Applications**, Mc Graw Hill publication, New Delhi, Seventh Edition, 2011.

    Unit III: Chapter 2– Section: 2.1 to 2.3

    Unit IV: Chapter 5– Section: 5.1 to 5.5

     Unit V: Chapter 6 – Section: 6.1 to 6.7

Reference Book(s):

1. Floyd Thomas, **Digital Principles**, Pearson Education Private Limited, 2011, Tenth edition, 2003

2. Katre, **Digital Electronics**, Mac Millian India Limited, 2011.

3. Morris Mano, **Digital Logic and Computer Design**, Prentice Hall Incorporation of India Private Limited, 1979.

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

Programme : BCA	**Part III : Core**
Semester : I	**Hours : 04**
Sub code : 18UCACP1	**Credits : 04**

MULTIMEDIA LAB

Course Outcomes:

CO1 To understand the professional requirements of participating in a media team environment.

CO2 To explore multimedia software applications.

CO3 To explore the knowledge of graphics and animation.

CO4: To provide the skill on applications and enhancing entrepreneur skills.

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. 3D & Lighting Effects.
9. Morphing.
10. Composite of two Images.

Flash

1. Create an animation with the following features:
   WELCOME

   i) Letters should appear one by one.
   a. 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.
4. Create an animation to represent the growing moon.
5. Animate a Globe.
6. Converting Text into Shapes.
7. Animate using motion- shape- Tweening and actions.

Corel Draw

1. Creating a greeting card by drawing and editing objects.
2. Create a motivational poster using photographs.
3. Create a letterhead and apply data merge

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

Programme	: **BCA**	**Part III**	: **Allied**
Semester	: **I**	**Hours**	: **04**
Sub code	: **18UCAA11**	**Credits**	: **04**

DISCRETE MATHEMATICS

Course Outcomes:

CO1: To train the students with fundamental concepts of mathematics

CO2: To inculcate the essential mathematical concepts for computer applications.

CO3: To equip the students with logical thinking and analytical thinking on algebraic structures, graph theory with examples.

CO4: This course enable the students to use the problem solving skills in a wide variety of situations.

UNIT I

Set theory–Introduction – Sets – Venn - Euler diagrams – Operations on Sets –Verification of basic laws of algebra by Venn diagram – Principle of Duality.

Relations – Cartesian Product of Two Sets - Relations – Representation of Relations - Operation on relations – Equivalence relation – Closure and Warshall's Algorithm.

UNIT II

Functions - Functions and operators – One -To– One, Onto functions – Special type of functions – Invertible functions – Composition of functions

Mathematical Induction: Techniques of Proof – Mathematical Induction

UNIT III : Logic

Introduction – TF – Statements - Connectives – The Truth table of a Formula – Tautology – Tautological implications and equivalence of formulae.

UNIT IV :Matrix Algebra

Introduction – Operations – Inverse of a Square Matrix, Elementary Operations and Rank of matrix –Simultaneous linear equations – Eigen values & Eigen vectors.

UNIT V: Graph Theory:

Introduction – Definitions and examples – Degrees – Sub graphs- Trees: Introduction –

Characterization of Trees – Centre of a Tree – Some Applications: Introduction –

Connector problem – Shortest path problem.

Text Books:

1. M.Venkatraman, N.Sridharan and N.Chandrasekaran, **Discrete Mathematics,** The National Publishing Company, Chennai, Reprint, 2006.
2. S.Arumugam, S.Ramachandran, **Invitation to Graph Theory**, Scitech Publications India Pvt Ltd, Chennai, Reprint 2006.

Unit I   : Book 1   Chapter: 1   Sections: 1.1, 1.2, 1.5, 1.6, 1.8, 1.9
                         Chapter: 2   Sections: 2.1 to 2.6
Unit II : Book 1   Chapter: 3   Sections: 3.1 to 3.4
                         Chapter: 4   Sections: 4.1, 4.2
Unit III: Book 1   Chapter: 9   Sections: 9.1 to 9.3, 9.6 to 9.8.
Unit IV: Book 1   Chapter: 6.   Sections: 6.1 to 6.5, 6.7
Unit V   : Book 2:   Chapter: 2   Sections 2.0 to 2.3.
                         Chapter: 6   Sections 6.0 to 6.2.
                         Chapter: 11   Sections 11.0 to 11.2.

REFERENCE BOOKS

1. SeymourLipchitz,**Discrete Mathematics,** Marc Lipson(Schaum's Outline Series)-Second Edition.
2. Dr S Arumugam&Issac SciTech, **Modern Algebra ,** Publishers (for Units 1,2,4).
3. T.VeeraRajan, **Discrete Mathematics with Graph Theory and Combinations,** Tata McGraw Hill Publishing Company Ltd.

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

Programme : BCA	**Part IV : Skill**
Semester : I	**Hours : 02**
Sub code : 18UCASP1	**Credits : 02**

PC SOFTWARE - LAB

Course Outcomes:

CO1 To master the basics of Microsoft Word, Excel,

CO2 To learn PowerPoint presentation and Database management using Access

CO3 To learn how to employ these applications.

CO4: To provide the skill in office software for supporting employability.

Windows

1. Creating folder and managing file and folder (operations like rename, cut, copy, paste and delete)
2. Arranging icons and setting display properties.
3. Adding and removing software and hardware.
4. Setting date and time, screen saver and appearance.
5. Using windows accessories.
6. Settings of control panel items (Date and Time).
7. Searching file.

Microsoft Word

1. Formatting text – Character formatting, Paragraph formatting.
2. Working with Objects – Images, Picture, Clip art, Shapes and Header and footer.
3. Working with Tables – Insert, Delete, Select, Auto format and Functions.
4. Working with page layout – Page Setup, Page background and Alignment.
5. Mail merge.
6. References: Adding footnotes, Citations and bibliography, Captions and index.
7. Create document using Template/Wizard.

Microsoft Excel

1. Creating & Editing Worksheet, Auto Fill.

2. Working with Functions.

3. Working with charts.

4. Working with Data tools: Sorts and filters and Pivot table.

Microsoft Access

1. Creating simple tables and working with queries.

2. Creating simple table and working with Forms.

3. Creating simple table and generating reports.

Microsoft PowerPoint

1. Creating, Manipulating & Enhancing Slides.

2. Inserting Organizational Charts, Excel Charts.

3. Working with design: Page setup, Themes, Design Template and Back ground.

4. Working with animations: Custom animation and Slide transition with Sound.

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

Programme	: BCA	Part IV	: Mandatory
Semester	: I	Hours	: 02
Sub Code	: 18UEVG11	Credits	: 02

ENVIRONMENTAL STUDIES

COURSE OUTCOMES
CO1: To gain knowledge on the importance of environmental education and ecosystem.
CO2: To acquire knowledge about environmental pollution- sources, effects and control measures of environmental pollution
CO3: To understand the various energy sources, exploitation and need of alternate energy resources. Disaster management To acquire knowledge with respect to biodiversity, its threats and its conservation and appreciate the concept of interdependence
CO4: To make the student to understand the various pollution problems control mechanisms.

UNIT I	:	**Environment and Earth:** Environment – Meaning – Definition - Components of Environment – Types of Environment. Interference of man with the Environment. Need for Environmental Education. Earth – Formation and Evolution of Earth– Structure of Earth and its components – Atmosphere, Lithosphere, Hydrosphere and Biosphere. **Natural Resources:** Renewable Resources and Non-Renewable Resources. Natural Resources and Associated Problems. Use and Exploitation of Forest, Water, Mineral, Food, Land and Energy Resources.
UNIT II	:	**Ecology and Ecosystems:** Ecology – Meaning - Definition – Scope – Objectives – Subdivisions of Ecology. **Ecosystem**–Concept - Structure - Functions – Energy Flow – Food Chain and Food Web – Examples of Ecosystems (Forest, Grassland, Desert, Aquatic).
UNIT III	:	**Biodiversity:** Definition – Biodiversity at Global, National and Local Level. Values of Biodiversity – Threats to Biodiversity – Conservation of Biodiversity. **Biodiversity of India:**Biogeographical Distribution – Hotspots of Indian Biodiversity – National Biodiversity Conservation Board and Its functions. Endangered and Endemic Species of India
UNIT IV	:	**Pollution Issues:** Definition – Causes – Effects and Control Measures of Air, Water, Soil, Marine, Noise, Thermal and Nuclear Pollutions. **Global Issues:** Global Warming and Ozone Layer Depletion. Future plans of Global Environmental Protection Organisations.
UNIT V	:	**Sustainable Development:**Key aspects of Sustainable Development – Strategies for Sustainable Development - Agriculture – Organic farming – Irrigation – Water Harvesting – Water Recycling – Cyber Waste and Management. **Disaster Management:**Meaning – Types of Disasters - Flood and Drought – Earth quake and Tsunami – Landslides and Avalanches – Cyclones and Hurricanes – Preventions and Consequences. Management of Disasters -

Text Book:

Study Material for **Environmental Studies**, Mannar Thirumalai Naicker College, Pasumalai, Madurai – 625 004.

Reference Books:

1. Study Material for **Environmental Studies**, Publications Division, Madurai Kamaraj University, Madurai – 625 021.

2. R.C. Sharma and Gurbir Sangha,**Environmental Studies**, Kalyani Publishers, 1, Mahalakshmi Street, T.Nagar, Chennai – 600 017.

3. Radha,**Environmental Studiesfor Undergraduate Courses of all Branches of Higher Education, (Based on UGC Syllabus),** Prasanna Publishers & Distributors, Old No. 20, Krishnappa Street, (Near Santhosh Mahal), Chepak, Chennai – 600 005.

4. S.N.Tripathy and Sunakar Panda,**Fundamentals of Environmental Studies**, Vrinda Publications (P) Ltd. B-5, Ashish Complex, (opp. To Ahicon Public School), MayurVihar, Phase-1, Delhi– 110 091.

5. G.Rajah,**Environmental Studies** for All UG Courses, (Based on UGC Syllabus), Margham Publications, 24, Rameswaram Road, T.Nagar, Chennai – 600 017.

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

Programme	: BCA	**Part III**	: Core
Semester	: II	**Hours**	: 05
Sub code	: 18UCAC21	**Credits**	: 04

PROGRAMMING IN C

Course Outcomes:

CO1: To be exposed to the syntax of C.

CO2: To learn to use arrays, strings, functions, pointers, structures and unions in C.

CO3: To be familiar with file handling in C.

CO4: To provide the skill about C programming which supports employability.

Unit – I:

Overview of C: History of C- Basic structure of C program. **Constant, Variables and Data types**: Character Set - C Tokens – Keywords- Identifiers – Constants- Variables- Data types-Declaration of Variable.**Operators and expressions**: Arithmetic operators - Relational operators - Logical operators - Assignment operators – Increment and Decrement operators - Conditional operators – Bitwise operators – Special operators.

Unit – II:

Managing Input and output functions: Reading a character – Writing a character – Formatted Input –Formatted Output.**Decision Making and Branching**: Decision making with If statement – Simple If statement - IF-Else Statement- Switch statement - The ?: operator – The goto statement. **Decision making and Looping**: The While statement - The Do statement – The For statement.

Unit – III:

Arrays: One Dimensional Arrays – Declaration – Initializing - Twodimensional Arrays - Declaration – Initializing – Multidimensional Arrays. **Character Arrays and Strings** : Declaring and Initializing String variables – Reading strings – Writing strings – Putting strings together – Comparing of two strings - String handling Functions.

Unit – IV:

User defined Function: Need for User-defined Functions- Definition of Functions- Return Values and their Types- Function Calls- Function Declaration- Category of Functions- No arguments and no return values - Arguments and no return values - Arguments with return values - No arguments with return values- Nesting of Functions- Recursion.**Structures and Union:** Defining a Structure- Declaring Structure Variables- Accessing Structure Members- Structure Initialization- Copying and Comparing Structure Variables- Operations on Individual Members- Unions.

Unit – V:

Pointers: Understanding Pointers- Accessing the Address of a Variable- Declaring Pointer Variables- Initialization of Pointer Variables- Accessing a Variable through its Pointer .
Files : Defining and Opening a File- Closing a File- Input/output Operations on Files- Error Handling during I/O Operations- Random Access to Files- Command Line Arguments.

Text Book(s):

1. E. Balaguruswamy, **Programming in ANSI C**, TMH, New Delhi, 7th Edition, 2017.

```
    Unit I  : Chapter 1(1, 1.4)
              Chapter 2 (2.1 to 2.4)
              Chapter 3 (3.1 – 3.2)
    Unit II : Chapter 4 (4.1 – 4.4)
              Chapter 5 (5.1 – 5.5)
              Chapter 6 (6.1 – 6.3)
    Unit III:Chapter 7 (7.1 – 7.5)
              Chapter  8 (8.1 to 8.4)
    Unit IV: Chapter 9 (9.1 -9.4)
              Chapter 10 (10.1 – 10.2,10.5)
    Unit V :  Chapter 11 (11.1 –11.2)
              Chapter 12 (12.1 – 12.5)
```

Reference Books:

1. KannetkarYashavant, **Let us C**, BPB, New Delhi, 6th Edition, 2005.

2. Byron Gottfried, **Programming with C,** Schaum's Outlines, TMH, New Delhi, 2nd Edition, 2006.

3.Ashok N.Kamathane**, Programming with ANSI and Turbo C,** Dorling Kindersley(India) Pvt.Ltd, Pearson Education2006.

4. WEBSITE **:**https://www.spoken-tutorial.org

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

Programme : BCA	**Part III** : Core
Semester : II	**Hours** : 05
Sub code : 18UCACP2	**Credits** : 04

PROGRAMMING IN C – LAB

Course Outcomes:

CO1 To familiarize the trainee with basic concepts of computer programming and developer tools.

CO2 To present the syntax and semantics of the "C" language as well as data types offered by the language

CO3 To allow the trainee to write their own programs using standard language infrastructure regardless of the hardware or software platform

CO4: To provide the skill in C programming which supports employability

MS-DOS EDITOR COMMANDS

Creating file using commands – Directory related commands (MD, CD, RD)

Implement the following concept using C Programming Language:

1. Formatted and Unformatted Statements

2. Operators and expressions

3. Program using Simple-if

4. Program using If-else

5. Program using Nesting-if

6. Program using Switch case

7. Program using While Statement

8. Program using Do-While Statement

9. Program using WhileStatement

10. Program using For loop

11. One-Dimensional Array

12. Two-Dimensional Array

13. Functions

14. Program using Recursive function

15. Program using Structures

16. Program using Unions

17. Program using Pointers

18. String Handling Functions

19. File Handling

20. Bitwise operators and Command line arguments

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

Programme	**: BCA**	**Part III**	**: Allied**
Semester	**: II**	**Hours**	**: 04**
Sub code	**: 18UCAA21**	**Credits**	**: 04**

STATISTICAL AND NUMERICAL METHODS

Course Outcomes:

CO1:To make the students understand the Statistical and Numerical Methods concepts.

CO2:To design and conduct experiments as well as to analyze and interpret data.

CO3:To Identify formulate and solve the problems.

CO4: This course enable the students to use the problem solving skills in a wide variety of situations.

Unit- I

Measures of averages - Measures of dispersion – Skewness based on moments

Unit – II

Correlation and regression- Rank correlation coefficient.

Unit – III

Index numbers and Curve fitting (all types of curves)

Unit - IV

Errors in Numerical Computation – Iteration method – Bisection method – Regulafalsi method – Newton Raphson method.

Unit - V

Interpolation: Newton's Interpolation formulae – Central Difference Interpolation formulae(Gauss forward and backward formulae only) – Lagrange's Interpolation formula – Inverse Interpolation.

Textbook:

1. Dr.S.Arumugam& Isaac, **Statistics**, New Gamma Publications, Reprint 2012.

2.S.Arumugamand A.ThangaPandi Isaac, A.SomaSundaram, **Numerical Methods**,

Scitech Publication, Third Edition, 2007.

Unit I: Chapters   2, 3, 4

Unit II: Chapter   6

Unit III: Chapters   5 and 9

Unit IV: Chapter   3 – Section 3.1 – 3.5.

Unit V: Chapter   7 – Section 7.1, 7.2, 7.3, 7.6.

Reference Books:

1. S.C. Gupta,V.K.Kapoor, **Elements of Mathematical Statistics,** Sultan Chand & Sons

Publications, New Delhi, 2001.

2. T.Veerarajan and T.Ramachandran, **Numerical Methods,** Tata McGraw Hill, Second Edition, New Delhi, 2006.

3. S.S.Sastry, **Introductory Methods of Numerical Analysis**, Prentice Hall India Private Limited, Fourth Edition, New Delhi, 2008.

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

Programme	**: BCA**	**Part IV**	**: Skill**
Semester	**: II**	**Hours**	**: 02**
Sub code	**: 18UCASP2**	**Credits**	**: 02**

WEB PROGRAMMING – Lab

Course Outcomes:

CO1 To understand the Essentials of Web Application Development.

CO2 To understand and practice web page designing techniques.

CO3 To implement dynamic websites with good aesthetic sense of designing

CO4: To provide the skill in webpage development which supports employability in industry

1. Create simple web page using various text formats.
2. Working with Formatting tags.
3. Working with List.
4. Working with subscript and superscript
5. Working with Tables.
6. Working with frames.
7. Working with Images.
8. Working with CSS.
9. Working with forms.
10. Create Marksheet using HTML Tags.
11. Create MTN COLLEGE website using HTML tags.
12. Create own website using HTML tags.

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

Programme	: BCA	Part IV	: Mandatory
Semester	: II	Hours	: 02
Sub code	: 18UVLG21	Credits	: 02

VALUE EDUCATION

COURSE OUTCOMES
CO1: Clarifying the meaning and concept of value - value education.
CO2: To inspire **students** to develop their personality and social **values** based on the principles of human **values.**
CO3: Developing sense of Love, Peace and Brotherhood at Local, national and international levels.
CO4: To enable the students to understand the social realities and to inculcate an essential value system towards building a health society

UNIT I	:	**Values and The Individual:** Values – Meaning – Definition – Importance – Classification of Values, Value Education – Meaning – Need for Value Education. Values and the Individual – Self-Discipline – Meaning – Tips to Improve Self-Discipline. Self-Confidence – Meaning - Tips to Improve Self-Confidence. Empathy – Meaning – Role of Empathy in motivating Values. Compassion – Role of Compassion in motivating Values. Forgiveness – Meaning - Role of Forgiveness in motivating Values. Honesty – Meaning – Role of Honesty in motivating Values. Courage – Meaning – Role of Courage in motivating Values.
UNIT II	:	**Religions and Communal Harmony:** Religions – Meaning **–** Major Religions in India - Hinduism – Values in Hinduism. Christianity – Values in Christianity. Islam – Values in Islam. Buddhism – Values in Buddhism. Jainism – Values in Jainism. Sikhism – Values in Sikhism. Need for Religious Harmony in India. Caste System in India – Need for Communal Harmony in India. Social Justice – Meaning – Factors Responsible for Social Justice.
UNIT III	:	**Society and Social Issues:** Society – Meaning – Values in Indian Society. Democracy – Meaning – Values in Indian Democracy. Secularism – Meaning – Values in Indian Secularism. Socialism – meaning – Values in Socialism. Social Issues – Alcoholism – Drugs – Poverty – Unemployment.

UNIT IV	:	**Human Rights and Marginalised People:** Human Rights – Meaning – Problem of Violation of Human Rights in India – Authorities available under the Protection of Human Rights Act in India. Marginalised People like Women, Children, Dalits, Minorities, Physically Challenged – Concept – Rights – Challenges. Transgender – Meaning – Issues.
UNIT V	:	**Social Institutions in Value Formation:** Social Institutions – Meaning – Important Social Institutions. Family – Meaning – Role of Families in Value Formation. Role of Press & Mass Media in Value Formation – Role of Social Activists – Meaning Contribution to Society – Challenges.

Text Book:

Text Module for **Value Education**, Mannar Thirumalai Naicker College, Pasumalai, Madurai – 625 004

Reference Books:

1. Text Module for **Value Education**, Publications Division, Madurai Kamaraj University, Madurai – 625 021.

2. N.S.Raghunathan, **Value Education**, Margham Publications, 24, Rameswaram Road, T.Ngar, Chennai – 600 017.

3. Dr.P.Saravanan, and P.Andichamy, **Value Education**, Merit India Publications, (Educational Publishers), 5, Pudumandapam, Madurai-625001.