



MANONMANIAM SUNDARANAR UNIVERISTY,  
TIRUNELVELI-12

## SYLLABUS

### UG - COURSES – AFFILIATED COLLEGES

Course Structure for B. Sc. Computer Science

(Choice Based Credit System)

(with effect from the academic year 2021-2022 onwards )



Semester-IV				
Part	Subject Status	Subject Title	Subject Code	Credit
I	Language	TAMIL/MALAYALAM/HINDI	C1TL41/ C1MY41/ C1HD41	4
II	Language	ENGLISH	C2EN41	4
III	CORE	DATA STRUCTURES	CMCS41	4
III	Major Practical - IV	DATA STRUCTURES LAB	CMCSP4	2
III	Allied -IV	MACHINE LEARNING TEQUINQUES	CACS41	3
III	Allied Practicals	PYTHON	CACSP4	2
III	Skill Based – Core II	COMPUTER ARCHITECHTURE	CSCS41	4
IV	Non-Major Elective	FUNDAMENTALS OF STATISTICS – II/ ARIMUGA TAMIL	CNMA42/ CNTL41	2
IV	Common	COMPUTERS FOR DIGITAL ERA	CCDE41	2
V	Extension Activity	NCC, NSS, YRC, YWF	C5EA41	1



**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 **1 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**

- First Class with Distinction : CGPA  $\geq$  7.5\*
- First Class : CGPA  $\geq$  6.0
- Second Class : CGPA  $\geq$  5.0 and  $<$  6.0
- Third Class : CGPA  $<$  5.0



## பொதுத்தமிழ்

பாடத்திட்டத்தின் நோக்கங்கள் ( Course Objectives) சங்க இலக்கியத்தின் சிறப்புகளை உணர வைத்தல்		
எதிர்பார்க்கும் படிப்பின் முடிவுகள் (Expected Course Outcomes)		
CO1	மாணவர் பண்டைத் தமிழரின் பண்பாட்டினை அறிந்து கொள்வர்	K <sub>1</sub> ,K <sub>4</sub> ,K <sub>6</sub>
CO2	வாழ்வியலுக்கான பொருள் இலக்கணத்தைக் கற்றுக் கொள்வர்	K <sub>2</sub> ,K <sub>5</sub>
CO3	இலக்கியங்கள் வாயிலாக வாழ்வியல் அறங்களைப் புரிந்து கொள்வர்.	K <sub>1</sub> ,K <sub>3</sub> ,K <sub>5</sub>
CO4.	வரலாற்றுப் பின்புலங்களை மையமாகக் கொண்டு நாடகங்கள் படைக்கும் உந்துதலைப் பெறுவர்.	K <sub>2</sub> ,K <sub>6</sub>
CO5	சங்க இலக்கியங்களின் வரலாற்றையும், தனிச்சிறப்புகளையும் அறிந்து கொள்வர்.	K <sub>2</sub> ,K <sub>5</sub>
K1 – நினைவில் கொள்ளுதல் (Remember) K2 – புரிந்து கொள்ளுதல் (understand) K3 – விண்ணப்பித்தல்(Apply) K4 – பகுத்தாய்தல் ( Analyze) K5 – மதிப்பீடு		

### அலகு:1 - செய்யுள்

நற்றிணை முதல் பட்டினப்பாலை வரை  
நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட்., திருநெல்வேலி-1  
தொலைபேசி எண்: 0462 2323990

### அலகு:2 - இலக்கணம்

1. பொருள் இலக்கணம்
2. ஒரெழுத்து ஒருமொழிகள்
3. மரபுச் சொற்கள்
4. பிறமொழிச் சொற்களை நீக்கி எழுதுதல்

### அலகு:3 - உரைநடை

வாழ்வியல் அறம் - தொகுப்பாசிரியர் - முனைவர் ச.பொ.சீனிவாசன்  
நெஸ்லிங் புக்ஸ் பப்ளிஷிங் அன்ட் டிஸ்ட்ரிபிட்டர்ஸ் (பி) லிட்., சென்னை -50  
தொலைபேசி எண் : 044-26251968, 26258410, 48601884

### அலகு:4 - நாடகம்

ஆதி அத்தி - ஆசிரியர் - பெ.தூரன் - பதிப்பாசிரியர் - முனைவர் சொ.சேதுபதி  
நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட்., சென்னை -50  
தொலைபேசி எண் : 044-26251968, 26258410, 48601884



**அலகு:5 - இலக்கிய வரலாறு**

1. எட்டுத்தொகை நூல்கள்
2. பத்துப்பாட்டு நூல்கள்
3. சங்க இலக்கியங்களின் சிறப்பியல்புகள்

**மேற் பார்வை நூல்கள்**

இலக்கணம் : புறப்பொருள் வெண்பாமாலை

இலக்கிய வரலாறு : ஆசிரியர் முனைவர் சி. பாலசுப்பிரமணியன்.

பாவை பப்ளிகேஷன்ஸ் 142இ ஜானி ஜான் கான் சாலை இராயப்பேட்டை

சென்னை - 14 தொலைபேசி எண் : 28482441

முனைவர் பெ. சுயம்பு

பாரதி பதிப்பகம் 113இ இராஜீவ் தெரு திசையன்விளை -57

தொலைபேசி எண் :04637 - 272096

மாணவர்களைக் களஆய்விற்கு அழைத்துச் செல்லலாம்

**Mapping with Programme Outcomes**

CO <sub>5</sub>	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	M	S
CO2	M	S	M	M	M
CO3	S	M	S	S	M
CO4	S	M	M	S	S
CO5	M	S	S	M	M

S- மிகையான (Strong) M- நடுநிலையான (Medium) L- குறைவான (Low)



# MALAYALAM

## UNIT – 1

### മാധ്യമമോഷ

മാധ്യമം - നിർവ്വചനം - ചരിത്രം - സാങ്കേതികവിദ്യ - വിവിധതരം മാധ്യമങ്ങളെ - സമൂഹം - സംസ്കാരം - സ്വാധീനം

### FOR DETAILED STUDY

1. ഡോ. ടി. അനിതകുമാരി - മാധ്യമമോഷ ഇന്റ

## UNIT – 2

### അച്ഛിദ്രമാധ്യമം

അച്ഛിദ്രിയുടെ ചരിത്രം - കരളേതീലയെ ആദ്യകാല പ്ലവർത്തനങ്ങളെ - പർമാസികകളുടെ ആദ്യകാലം - പുതിയ കാലത്തെ അച്ഛിദ്ര രീതികളെ - ലിപി പരിഷ്കരണം - ഡിടിപി - തനതു ലിപികളെ

### FOR DETAILED STUDY

2. ഡോ. എസ്.എസ്. ശ്രീകുമാർ - മലയാള ലിപി പരിഷ്കരണം വരുത്തിയ വിനകളെ

## UNIT – 3

### ഭൃശ്ശരവ്യാധിമാധ്യമം

റഡിയോ - ടെലിവിഷൻ - മട്ടുടിമീഡിയ - സിനിമ - പൊതു സ്വഭാവം - ഗുണഭോഷവശങ്ങളെ

### FOR DETAILED STUDY

3. ടെലിവിഷൻ പഠനങ്ങളെ - സി. എസ്. വെങ്കടേശ്വരൻ ലഖേനം - ജനകീയതയും റിയാലിറ്റിഷോകളും

## UNIT – 4

### സംബന്ധമാധ്യമം

ഇന്റർനെറ്റ് - ചരിത്രം - മലയാളത്തിലയെ ബ്ലോഗുകളെ - സംബന്ധ സാന്നിദ്ധ്യം - സോഷ്യൽ മീഡിയ - സ്മാർട്ട് ഫോൺ ഉപയോഗം - ഗുണഭോഷവശങ്ങളെ

### FOR DETAILED STUDY

4. ഡോ. അച്ഛിദ്ര ശങ്കർ എസ്. നായർ - സംബന്ധ മലയാളം



UNIT – 5

**പരസ്യകല**

പരസ്യം - നിർവ്വചനം - സംസ്കാരം - സ്വാധീനം- വിവിധതരം പരസ്യങ്ങളുടെ - ആശയബോധനം

**FOR DETAILED STUDY**

5. പ്ലായോഗികപരിചയം നേടുന്നതിനാവശ്യമായ പരവർത്തനങ്ങളെ നടത്തുക. പരസ്യം നിർമ്മിക്കുന്നതിനുള്ള വിഷയം നൽകുക.

**REFERENCE BOOKS**

പന്തലോകം - ഒരു സംഘം ലേഖകർ - കരള ഭാഷാ ഇൻസ്റ്റിറ്റ്യൂട്ട്  
 ആ ലോകം മുതൽ ഇ-ലോകം വരെ - ഡോ. ജെ. വി. വിളനിലം  
 മാധ്യമങ്ങളും മലയാളസാഹിത്യവും - കരള ഭാഷാ ഇൻസ്റ്റിറ്റ്യൂട്ട്  
 പന്തലോകം - കരള പരസ്യ അക്കാദമി  
 മലയാളഭാഷയും ആഗോളവൽക്കരണവും - ഡോ. കെ. എസ്. പ്ലക്കാശ്, ഡോ. എസ്. എ. ഷാനവാസ് (പ്രകാശനവിഭാഗം, കരള സർവ്വകലാശാല)  
 ഭാഷയും മാധ്യമവും - വി. കെ. നാരായണൻ  
 മാധ്യമഭാഷാ മാറ്റങ്ങളുടെ - കെ. കെ. ശ്രീരാജ്  
 ടലിവിഷൻ പഠനങ്ങളുടെ - സി. എസ്. വെങ്കിടശ്വരൻ  
 മാധ്യമങ്ങളും മലയാളസാഹിത്യവും - എം. വി. തോമസ്  
 ഇൻറർനെറ്റ്യും ഇൻഫർമേഷൻ വിപ്ലവവും - കെ. രവീന്ദ്രൻ, ഡോ. കെ. ഇബ്രാഹിം  
 ഇൻഫർമേഷൻ സയൻസ് - ഒരാമുഖം - ഡോ. ജി. ദേവരാജൻ  
 മലയാള സബ്ബർ സാഹിത്യം - ഡോ. മനോജ് ജെ. പാലക്കുടി  
 സബ്ബർ മലയാളം - സുനീത ടി. വി. (എഡി.)  
 മാറുന്ന ലോകം മാറുന്ന മാധ്യമലോകം - എൻ. പി. രാജനേദ്രൻ  
 Progress in Information Technology - Dr. G. Devarajan  
 The Mass Media and You - Desmond D' Abreo  
 Advertising - Dr. C. N. Santakki



## HINDI

### Objectives:

1. To acquire knowledge regarding fundamental concepts in Hindi grammar.
2. To acquire the ability to master translation skills
3. To develop writing skills for official documentation – Letter, Banking terminologies

### Course Outcomes:

C.O. No.	Upon the completion of this course, students will be able to	PSOs Addressed	Cognitive Level
CO 1	Understand the writing skills of novelist - Premchand	F,G	K1,K4
CO 2	Understand the basics of navras, vrith and alankars	B,D	K1,K2
CO 3	Understand the history of Hini Literature – modern and medieval	A,C	K3,K5
CO 4	Apply and analyse administrative Hindi	A,C	K5
CO 5	Writing skills - Essay	B,C,D	K4,K5

K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyse, K5 – Evaluate, K6 – Create

### UNIT I

#### NOVEL

1. Nirmala

### UNIT II

#### POETICS

#### KavyaPradeep

1. Ras - Navras
2. Chand – Rola, Doha, Soratta
3. Alankar – Anupras, Upama, Roopak

### UNIT III

#### HISTORY OF HINDI LITERATURE

1. Reethikal – Visheshatha, Pramukh Kavi – Bihari Lal



2. Adhunik Kaal – Chaya Vaad – Pramukh Kavi
3. Gadya Sahithya – Bharadendu, Prem Chand

#### UNIT IV

##### ADMINISTRATIVE HINDI

#### UNIT V

##### ESSAY WRITING

(General Topics – Paryavaran Aur Pradooshan, Bhoomandalikaran Aur Hindi, Varthaman Yug Aur Technique, Nari Ki Desha Aur Disha, Desh Vikas Mein Yuva Peedi Ka Yogdaan)

##### Text book:

1. Nirmala – Premchand – Published by Gyan Bharathi Prakashan, Dariabad, Allahabad
2. Kavya Pradeep – Ram Bhaori Shukla – Published by Lok Bharathi Prakashan, Pehli Manzil, Darbari Building, Mahatma Gandhi Maarg, Allahabad
3. Hindi Sahithy ka Saral Ithihas – Viswanath Tripathi – Published by Orient Publication Private Limited, Himayath Nagar, Hyderabad

##### Books for Reference:

1. Hindi Vathayan – Dr. K M Chandra Mohan – Published by Viswavidyalay Prakashan, Varanasi
2. Essay Writing – General Topics

##### Mapping with POs

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S	S	S	S	S	S	S	M
CO 2	S	S	M	S	M	S	S	S
CO 3	S	S	S	S	S	S	M	S
CO 4	S	S	S	S	S	S	S	S
CO 5	S	S	M	S	S	S	L	S
CO 6	S	S	S	S	M	M	S	S

S – Strong, M – Medium, L – Low





## ENGLISH

### PROGRAMME OUTCOMES – PO

At the end of the course students will be able to

**PO1:** Imbibe moral, ethical, and cultural values through various forms of literature.

**PO 2:** Enable the learner to communicate effectively and appropriately in real life situation.

**PO3:** Able to think, speak, and write independently using grammatical forms and Vocabulary.

**PO4:** Improve their writing and reading fluency skills through extensive reading.

**PO5:** Develop their pronunciation by studying the sounds of language.

### PROGRAMME SPECIFIC OUTCOME: PSO

At the end of the course students will be able to:

**PSO1:** Provide the students with an ability to build and enrich their communication skills.

**PSO2:** Critically analyse and appreciate poetry, prose, fiction and play.

**PSO3:** Enhance sufficient practice in Vocabulary, Grammar, Comprehension.

**PSO4:** Study the Phonetic symbols for correct pronunciation.

**PSO5:** Spot language errors and correct them.

### GENERAL ENGLISH -- PROSE, POETRY, DRAMA, GRAMMAR, LANGUAGE STUDY& ORAL COMMUNICATION SKILLS

#### UNIT I - PROSE

1. Give us a Role Model – A.P.J.Abdul Kalam.
2. The Best Investment I have ever made – A.J. Cronin
3. Seven Good Habits – Robin Sharma
4. How much Land does a Man Need - Leo Tolstoy

#### UNIT II – POETRY

1. 1.Anxiety – A.K.Ramanujam
2. Incident on the French Camp – Robert Browning.
3. Stopping by the woods – Robert Frost
4. Still I raise – Maya Angelo

#### UNIT III - DRAMA - Select scenes from William Shakespeare

1. Antony and Cleopatra – Death Scene of Cleopatra – Act V, Scene II
2. Macbeth – Sleep Walking Scene – Act V, Scene I
3. King Lear – Heath, before a Hovel – Act III, Scene IV.



**UNIT IV – GRAMMAR**

1. Transformation of Sentences
2. Synthesis of Sentences
3. Spot the Error

**UNIT V – LANGUAGE STUDY AND ORAL COMMUNICATION**

1. Phonetics – Vowel sounds
2. Dialogue Writing
3. One word Substitution
4. Report writing.

**COURSE OUTCOMES:** At the end of the course students will be able to

Course Outcomes		Cognitive level
CO1	Use English accurately across the curriculum	K1, K2, K3
CO2	Attained enhanced vocabulary and improved language skills	K2, K3, K4
CO3	Analyse and interpret prescribed text	K2, K4
CO4	Conceptualize the Shakespearean drama in the prescribed text	K2, K4
CO5	Gain proficiency in LSRW skills	K1, K2, K3, K4, K6

K1- Remember, K2- Understand, K3- Apply ,K4- Analyse , K5- Evaluate,K6- Create

**MAPPING OF COURSE OUTCOMES WITH PROGRAMME OUTCOMES**

CO/ PO	PO1	PO2	PO3	PO4	PO5	POS1	POS2	POS3	POS4	POS5
CO1	S	M	S	S	S	S	M	S	M	S
CO2	M	S	M	M	M	M	M	M	S	M
CO3	M	S	M	S	M	S	M	§	M	S
CO4	S	M	S	M	M	S	S	M	S	M
CO5	M	M	M	S	M	S	S	M	S	M

S – Strongly correlated, M – Moderately Correlated, w- weakly correlated, No Correlation - 0

### E- LINKS

1. [https:// www.msuniversity.ac.in](https://www.msuniversity.ac.in)
2. <https://www.bdu.ac.in>
3. <https://www.scribd.com>
4. <https://www.goodreads.com>
5. <https://casenglishdepartment.wordpress.com>
6. <https://www.poetryfoundation.org>
7. <https://www.britannica.com>
8. <https://englishgrammar.org>



# DATA STRUCTURES

## COURSE OUTCOMES

On Successful completion of the course, the student will be able to

**CO1:** To understand the concepts of basic data structures.

**CO2:** To acquire the knowledge about stack, Queues and Linked list.

**CO3:** To have general understanding of the network structures through trees and graph.

**CO4:** To make the students to understand the basic algorithms for sorting.

**CO5:** Define data structure Algorithms

## Unit I

**Basic Concepts:-** Algorithm specification – Data Abstraction – Performance Analysis. Arrays and Structures:- Arrays: Abstract data type – Polynomials – Sparse Matrices – Representation of Multidimensional Arrays.

## Unit II

**Stacks and Queues:-** Stacks – Queues – Evaluation of Expressions. Linked Lists:- Singly Linked Lists and Chains – Linked Stacks and Queues – Polynomials: Polynomial Representation – Adding Polynomials. Sparse Matrices: Sparse Matrix Representation. – Doubly Linked Lists.

## Unit III

**Trees:-** Introduction – Binary Trees – Binary Tree Traversals: Inorder Traversal – Preorder Traversal – Postorder Traversal. Heaps – Binary Search Trees Forests: Transforming a Forest into a Binary Tree.

## Unit IV

**Graphs:** - The Graph Abstract Data Type-Elementary Graph Operations – Minimum Cost Spanning Trees: Kruskal’s Algorithm – Prim’s Algorithm. – Sollin’s algorithm Shortest Paths and Transitive Closure: Single Source/ All Destination: Nonnegative Edge Costs - All Pairs Shortest Paths.

## Unit V

**Sorting:-** Motivation – Insertion Sort – Quick Sort – Merge Sort: Recursive Merge Sort. – Heap Sort – External Sorting: Introduction – k-way Merging. Hashing:- Static Hashing: Hash Tables, Hash functions.



**Text Book:**

1. Fundamentals of Data Structures in C by Ellis Horowitz, Sartaj Sahni, Susan Anderson- Freed – Second Edition – Universities Press (India) Private Limited(2019).

**Reference Books:**

1. Data Structures Using C, Second Edition by Reema Thareja – Oxford University Press
2. Data Structures by Dr N Jeya Prakash – Anuradha Publications

## **DATA STRUCTURE LAB**

### **COURSE OUTCOMES**

On Successful completion of the course, the student will be able to

**CO1:** To develop skills in implementing sort and search data structure algorithms

**CO2:** To implement queue and stack techniques

**CO3:** To design tree traversals

**CO4:** To implement binary search tree

**CO5:** To Compile sorting algorithms

### **List of Practicals**

1. Search an element in a list using Binary Search.
2. Implementation of Stack- Push and Pop.
3. Implementation of Queue – Enqueue and Dequeue
4. Implementation of Binary Tree Traversals using recursion.
  - a) Pre-order b) In-order c) Post-Order
5. Implementation of Breadth First Search algorithm.
6. Implementation of Depth First Search algorithm.
7. Implementation of Merge Sort
8. Implementation of Quick Sort



# MACHINE LEARNING TECHNIQUES

## COURSE OUTCOMES

On Successful completion of the course, the student will be able to

**CO1:** To introduce students to the basic concepts of Machine Learning.

**CO2:** To acquire various techniques in Machine learning.

**CO3:** To have a thorough understanding of the Supervised and Unsupervised learning techniques

**CO4:** To study the probability based learning techniques

**CO5:** To understand graphical models of machine learning algorithms

## UNIT I

**INTRODUCTION :** Introduction to analytics and Machine Learning – Why Machine Learning – Framework for Developing Machine Learning Models – Why Python - Python Stack for Data Science. **DESCRIPTIVE ANALYTICS:** Working with Data Frames in Python – Handling Missing values – Exploration of Data using Visualization- Exercises.

## UNIT II

**LINEAR REGRESSION:** Simple Linear Regression – Steps in Building a Regression Model - Building Simple Linear Regression Model – Model Diagnostics – Multiple Linear Regression - Exercises. **CLASSIFICATION PROBLEM:** Classification – Binary Logistic Regression – Credit Classification - Decision Tree – Exercises

## UNIT III

**ADVANCED MACHINE LEARNING:** Overview – Gradient Descent Algorithm – Scikit-Learn Library for Machine Learning – Advanced Regression Model – Advanced Machine Learning Algorithm – Exercises.

## UNIT IV

**CLUSTERING:** Overview – How does Clustering work – K-Means clustering - Creating Product Segments Using Clustering – Hierarchical Clustering. **RECOMMENDER SYSTEMS:** Datasets – Association Rules – Collaborative Filtering – Matrix Factorization – Exercises.

## UNIT V

**TEXT ANALYTICS:** Overview - Sentiment Classification – Naïve-Bayes Model for Sentiment Classification - Using Tf-IDF Vectorizer – Challenges – Exercises.

## TEXT BOOK

1. Machine Learning using Python by Manaranjan Pradhan and U.Dinesh Kumar Wiley publications.

## REFERENCES:

1. Tom M. Mitchell, —Machine Learning, McGraw-Hill Education (India) Private Limited, 2013.



# PYTHON

## COURSE OUTCOMES

On Successful completion of the course, the student will be able to

**CO1:** To understand the basic concepts in python

**CO2:** To understand the concepts and develop python programs

**CO3:** To acquire the knowledge about menu driven programs

**CO4:** To improve the knowledge in CSV files

**CO5:** To understand the functions of python

1. Write a menu driven program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.
2. Write a menu-driven program, using user-defined functions to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user.
3. Write a program (WAP) to display the first n terms of Fibonacci series.
4. WAP to find factorial of the given number.
5. WAP to find sum of the following series for n terms:  $1 - 2/2! + 3/3! - \dots - n/n!$
6. WAP to calculate the sum and product of two compatible matrices.
7. WAP to explore String functions.
8. WAP to create and read a CSV file and display the file contents.
9. WAP to write the text —hello python! in an existing file.
10. WAP to set background color and draw a circle using turtle module

# COMPUTER ARCHITECTURE

## COURSE OUTCOMES

On Successful completion of the course, the student will be able to

**CO1:** Understand the basics of Computers and its Organization

**CO2:** Know the various Technologies behind the Computer Architecture

**CO3:** An ability to apply knowledge about hardware implementation and algorithms

**CO4:** To evaluate various input output organisations

**CO5:** To develop the architecture using various memories

## UNIT I

**Basic Computer Organization And Design :** Instruction codes – Computer Registers - Computer Instructions - Timing and Control - Instruction Cycle - Control



## Memory-Address Sequencing

### UNIT II

**Central Processing Unit** : General Register Organization – Stack Organization – Instruction Formats – Addressing Modes – Data transfer and manipulation – Program Control.

### UNIT III

**Computer Arithmetic** : Hardware Implementation and Algorithm for Addition, Subtraction, Multiplication, Division-Booth Multiplication Algorithm-Floating Point Arithmetic.

### UNIT IV

**Input Output Organization** : Input – Output Interface – Asynchronous data transfer – Modes of transfer – Priority Interrupt – Direct Memory Access (DMA).

### Unit V

**Memory Organisation:** Memory Hierarchy - Main memory - Auxillary memory - Associative memory - Cache memory - Virtual memory.

### Text Book:

1. Computer system Architecture - by Morris Mano, Third Edition. P.H.I Private Limited.

### Reference Books:

1. “Computer System Architecture”, John. P. Hayes.
2. “Computer Organization, C. Hamacher, Z. Vranesic, S.Zaky.
3. “Computer Architecture and parallel Processing “, Hwang K. Briggs.
4. “Computer Organization and Architecture, William Stallings , Sixth Edition, Pearson Education, 2003.

## FUNDAMENTALS OF STATISTICS-II

### Objective:

- To know the concept of attributes and to study the index numbers and simple problems.

### Course Content:

#### UNIT-I

Theory of attributes–two attributes.

#### UNIT –II

Index number –weighted index number.





**UNIT – III**

Consumer Price index number –conversion of index number.

**UNIT –IV**

Time series –measurement of trends.

**UNIT–V**

Curve fitting–Straight line –Parabola –Exponential curve.

**Text Book:**

1. Dr. S. Arumugam, A.ThangapandiIssac- 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, YesDee Publishing Pvt.Ltd.Edition .(2017)



## அறிமுகத்தமிழ்

### அலகு- 1 : செய்யுள் பகுதி

1. கடவுள் வாழ்த்து
2. கல்வி:
3. அறம்
4. ஆத்திசூடி
5. ஓடி விளையாடு பாப்பா
6. பசுவும் கன்றும் பாடல்

### குறிப்பு:- மனப்பாடப்பகுதி

1. கடவுள் வாழ்த்து
2. கல்வி
3. அறம்
4. ஆத்திசூடி

### அலகு-2: கதை வாசித்து கதை சொல்லல்

1. பணிமிருந்தும் பட்டினி
2. அறிவால் வெல்லுவேன்

### அலகு-3 : பொதுக்கட்டுரை

1. ஒன்றுபட்டால் உண்டு வாழ்வு
2. வாய்மையே வெல்லும்

### அலகு -4 : சொற்பொருள் அறிதல்

### அலகு- 5: மொழித்திறன் பயிற்சி



# COMPUTERS FOR DIGITAL ERA

## Objectives:

1. To create the awareness about the digital India among the student community.
2. To make the student to understand the role of computer in the day to day living.
3. To create the awareness about the e-learning and security issues.

## Unit I

### FUNDAMENTALS OF COMPUTERS

The role of computers in the modern society – Types of Computers and their specifications – Server – Desk Top Computers - Lap Top – Tablet – Smart Phones - Block diagram of Digital Computer –Working Principle of Computer, I/O Devices – Central Processing Unit – Types of Memory - Display – Port – UPS – Setting up and Maintenance of Computer.

## Unit II

### TYPES OF SOFTWARE AND OFFICE AUTOMATION

Types of Software with examples – System Software – Application Software – Utility Software - Operating System – Basics on Windows – Introduction to Android –Application Software - Free Open source software – Database and its applications – Office Automation Software – applications of Microsoft Word – Microsoft Power Point – Microsoft Excel.

## Unit III

### INTERNET AND MOBILE APPLICATIONS

Introduction to computer networks – LAN – WAN – MAN – Wired and wireless network – Wi Fi Networks - Network Devices – Modem – Switch – Router – Broad Band – Leased Lines- Internet – WWW – URL- Browser – e-mail – SMS – MMS - Client Server Computing - Cloud – Public and Private cloud – Mobile Applications.

## Unit IV

### E – GOVERNANCE IN INDIA

E-Governance initiative by the Government – Digital India Platform – Agencies enabling Digital India - Electronic Payment and Receipt – Digital Locker – e-district service – electronic signature service – Digital AIIMS – India BPO Scheme – Integrated Nutrient Management – GIS – Mobile Seva App Store- GARV- Grameen Vidyutikaran



**Unit V****E – LEARNING AND MOOC**

E – Learning – Digital Library – E- Journals – Introduction to MOOC – Edex – Course era etc - SWAYAM – NPTEL – Cyber Security – Virus – Malware – Network Security - Hacking – Big Data – Data Analytics – Social Networks – Social Media Analytics- Introduction to IT Act.

➤ **10 Hours Practical Sessions are to be allotted for Computer & Mobile Applications**

**Suggested List of Exercises:**

1. Setting up of computers – Connecting I/O device, UPS, CPU, Printers, Mouse, Key Boards, Pen Drives, etc. (Mandatory)
2. Minor fault findings.
3. Preparing a word Document and saving, copying files, deleting files, renaming files, etc. (Mandatory)
4. Preparing slides – Animation – Slide Transition – Back Ground Changing – Word Art , etc. (Mandatory)
5. Preparing Mark Sheet with Excel - Calculating First Class, second class, etc. (Mandatory)
6. Browsing – Searching for documents – e-mail id creation - Useful mobile apps – downloading. (Mandatory)
7. Data/Wi-Fi Connectivity and Exchanging of Data.
8. Electronic Payment – Online Application Processing
9. Browsing for NPTEL/ SWAYAM Courses
10. Browsing the useful e-learning sites

**Learning Outcomes:**

At the end of the course the students will be able to:

1. apply the computing technology in their day to day life
2. create awareness regarding digital India initiatives to their surroundings
3. identify the areas where he can extend the digital computing for their benefits.

**Text Book:**

1. E- Materials of Manonmaniam Sundaranar University on “Computer for Digital Era”, <http://msuniv.ac.in>

**References:**

1. Andrew S. Tanenbaum, Computer Networks, 4th Edition, Eastern Economy Edition, PHI Private Ltd, New Delhi, 2003.



2. Gautam Shroff, Enterprise Cloud Computing, Technology, Architecture, Applications, Cambridge University Press, First Edition, 2010.
3. Reza B'Far, Mobile Computing Principles, Cambridge University Press, First Edition, 2005.
4. Charles P Pfleeger, Shari Lawrence Pfleeger, Security in Computing, I Edition, Pearson Education, 2003.
5. <https://swayam.gov.in>
6. <http://www.digitalindia.gov.in/content/social-media-analytics>

Scheme of Examination	
Internal – 25 Marks	External – 75 Marks
Internal Break Up - 15 for Continuous Assessment Test (CAT) + 5 for Assignment + 5 for Seminar. 3 CATs ( Two tests on Theory and one on Practical )are to be conducted	

