மனோன்மணியம் சுந்தரனார் பல்கலைக்கழகம

MANONMANIAM SUNDARANAR UNIVERSITY

SYLLABUS FOR DIPLOMA IN COMPUTER APPLICATIONS PROGRAM
OFFERED THROUGH DIRECTORATE OF VOCATIONAL EDUCATION (COMMUNITY
COLLEGES AND VOCATIONAL SKILL DEVELOPMENT CENTRES) FROM 2019 –
2020

கல்விசார் நிலைக்குழுக் கூட்டம்

MEETING OF THE STANDING COMMITTEE ON
ACADEMIC AFFAIRS HELD ON WEDNESDAY
THE 22nd JANUARY 2020

DIPLOMA IN COMPUTER APPLICATIONS

கணினிப்பயன்பாடுகள் பட்டயம்

SCHEME OF EXAMINATION

Subject code	Title of the Course	Credits	Hours	Passing Minimum
Semester I				
C19CA11/E19CA01	Computer Concepts and Office Automation	6	90	40/100
C19CA12/E19CA02	Database Management Systems	6	90	40/100
C19CA13/E19CA03	Object Oriented Programming using C++	6	90	40/100
C19CE10/E19CE10	Communicative English	6	90	40/100
C19CAP1/E19CAP1	Practical I-Object Oriented Programming using C++	4	120	40/100
Semester II				
C19CA21/E19CA04	Python Programming	6	90	40/100
C19CA22/E19CA05	Fundamentals of Creative Multimedia	6	90	40/100
C19LS23/E19LS05	Life Skill	6	90	40/100
C19CAP2/E19CAP2	Practical II- Multimedia Lab	4	120	40/100
C19CAPW/E19CAPW	Internship/Project	10	150	40/100

Eligibility for admission: Pass in 10thstd examination conducted by the Govt. of Tamil Nadu Board of Secondary Education, Government of Tamil Nadu or any other equivalent examination.

Examination: Passing Minimum for each Course is 40%. Classification will be done on the basis of percentage marks of the total marks obtained in all the Courses and as given below:

40 % but less than 50 %	- Third class
50 % but less than 60 %	- Second class
60 % and above	- First class

Theory Paper

Internal Marks-25

External Marks-75

Syllabus

FIRST SEMESTER

Course-I   : Computer Concepts and Office Automation
Course-II   : Database Management System
Course-III   : Object Oriented Programming using C++
Course-IV   : Communicative English
Course-V   : Practical I-Object Oriented Programming using C++

SECOND SEMESTER

Course- VI   : Python Programming
Course-VII   : Fundamentals of Creative Multimedia
Course-VIII   : Life Skill
Course- IX   : Practical II-Multimedia Lab
Course- X   : Internship/Project

*(Semester Pattern for Community College Only)

Program Objective:

  - o To learn the fundamental software that is used to create real time applications and develop communication skills.

<div align="center">

Semester I
COURSE I

(C19CA11/E19CA01)COMPUTER CONCEPTS AND OFFICE AUTOMATION

</div>

Objective:

➢ To acquire knowledge on digital computer basic concepts and virus

➢ To gain knowledge on tools that are used to manage and analyze various types of data and create presentation

UNIT-I   **18 Hrs**

COMPUTER FUNDAMENTALS:
Introduction to Computers - Generation of Computers- Types of Computers- Classification of Computers- Components of a Computer – hardware - central processing unit - memory-secondary storage-Input and Output devices-Printer Types - software-operation system.

UNIT-II   **18 Hrs**

COMPUTER SECURITY:
Computer Virus –Functioning of viruses – Limitations of viruses - Virus categories – Viruses working - Viruses spread – Role of Antivirus – Protection from virus – Antivirus Tools.

UNIT-III   **18 Hrs**

MICROSOFT WINDOW:
Windows basics-concept of windows-desktop-Icons in the desktop-running programs-windows components-Graphical User Interface-Dynamic Data Exchange –Object linking and Embedding-Networking –Concepts of Networking-Networking category-working with programs-programs-Documents-setting-Find-Help-Run-Shutdown-Windows-working with program items-joggle between programs-close a program-properties of window.

UNIT-IV   **18 Hrs**

FILE MANAGEMENT AND OTHER UTILITIES:
Working with files and folders-creating a new folder-moving-copying-renaming-deleting-undelete-restoring folders and files-customizing the view-items on my computer –options under floppy disk-options available in Control panel-Recycle bin-restoring files form recycle bin-emptying recycle bin-allocating space to recycle bin-multiple selection – Hiding Folder & Files - printing options –system tools-windows accessories –installing application programs-Installing hardware.

INTRODUCTION TO MS-OFFICE:

MS office products - Components of Office products-starting Work, creating documents, parts of word window, formatting features, toolbars, Menu and commands and their icons.

MS Excel: starting Excel –Navigating-selecting cells –entering and editing text-Row height – cell Alignment- menus commands-toolbars- and their icons-formulas and entering formulas.

Power point: Introduction to presentation and slides – menus, commands-toolbars-and their icons of Power point application –creating a new presentation-creating, deleting, copying a slide-slide numbering –Transition Effects – Animation - saving and closing presentations.

Outcomes:

After undergoing this course the students:

- ✓ Will be having thorough knowledge on digital computer fundamentals
- ✓ Can able to manage the real time data and perform calculations
- ✓ Can able to prepare presentation using software tool
- ✓ Will gain knowledge on computer security

Reference books:

1. Sanjay Saxena, A first course in Computers (Based on Windows 8 and MS Office 2013), Vikas Publications New Delhi, 2015

2. Computer Basics with Office Automation Archana Kumar,2010, ISBN :9789380578620 I.K. International Publishing House Pvt. Limited

(C19CA12/E19CA02)DATABASE MANAGEMENT SYSTEM

Objective:

- ➢ To enable the students to understand the concepts of relational database management system and design techniques
- ➢ To enable the students to understand the various software used for handling data

UNIT-I   **18 Hrs**

DATABASE AND RELATIONAL DATA BASE MANAGEMENT SYSTEM:

Data and information – Records and Files – Uses of DBMS – Classification of DBMS – DBMS Modules - DBMS architecture – DBMS languages – Data Definition Language – Storage Definition Language – Storage definition language – View Definition Language – Key concepts – Primary key – secondary key –Foreign Key – super key – Entity Relationship diagrams (ER) – Classification of Data Models –Cursors - Concepts of Relational data models – tuple attributes – Integrity constraints – Basic concepts of RDBMS

UNIT- II   **18 Hrs**

MS ACCESS:

Introduction – Getting started – creating a database – modifying – viewing – using wizards to create database – quitting – tables – creating tables – adding and customizing fields – Primary keys and Indexes – Relationships – Adding, Editing data – sorting and grouping of data datasheets and sub datasheets – creating queries – using criteria and expressions to Retrieve data forms – creating and customizing forms – calculating totals – reports – creating reports – printing and previewing reports.

UNIT - III   **18 Hrs**

ORACLE:

The basics of Oracles & Database – Tables – DDL, DML & DCL – Data Dictionary – Pseudo columns – creation – Deletion – Modifications – Query – Sub Query - Objects in Oracle – Index only Tables, views, Sequences, Indexes, synonyms, clusters – constraints – Data control Language – role – rocks in Oracle

UNIT – IV: **18 Hrs**

Record storage and primary file organization – secondary storage devices operations on files – sorted files – Hashing Techniques

UNIT – V   **18 Hrs**

ORACLE:

Partitioned Tables and Indexes – Object Oriented concepts in Oracle – Arrays and Nested Tables using large objects – stored program units procedures functions & Packages – Database triggers – Dynamics SQL.

Reference books:

1.   Oracle PL/SQL Programming, 6th Edition, Steven Feuerstein, Bill Pribyl, O'Reilly Media   Publisher, 2014

 2.   Database Systems using Oracle by Nilesh Shah , Second Edition, PHI Publisher

COURSE III
(C19CA13/E19CA03)OBJECT ORIENTED PROGRAMMING USING C++

Objective:

➢ To enable the students to understand the object oriented concept
➢ To enable the students to solve the problems using C++

UNIT- I 18 Hrs

PRINCIPLES OF OOPS:
Introduction to Object Oriented Programming – Procedure Oriented Programming – Data Abstraction and Encapsulation – Inheritance – Polymorphism – Binding – Advantages of OOP's

UNIT - II 18 Hrs

PROGRAMMING IN C++:
Data types – operators – control statements – arrays

UNIT – III 18 Hrs

CLASSES:
Classes and objects – Constructors- Destructors- Operator Over loading – Type conversions – Derived classes – Virtual functions and Polymorphism based programming.

UNIT -IV 18 Hrs
STRUCTURES:
Structures – Unions – pointers – bit fields – variables can be declared anywhere – New reserved keywords – The scope resolution operator – Const. Keyword – cout and cin – new and delete operators – In-line functions.

UNIT- V 18 Hrs
COMMANDS IN C++:
Prototypes for functions – Default arguments for function parameters – User defined functions – call by value – call by reference – default functions – function overloading – friend function – virtual function – library function

Outcomes :
After learning this course, the students:

✓ Can able to understand the object oriented concepts
✓ Can able to solve the object oriented problems using C++

Reference books
1. The C++ Programming Language –Bjarne Stroustrup - Pearson Edition – 2013
 2. Object Oriented Programming with C++ - E. Balagurusamy – Mc Graw Hill Education (India) Private Ltd. – 6th Edition- 2013

(C19CE10/E19CE10) COMMUNICATIVE ENGLISH

Objective:

➢ To learn the elements of communicative English
➢ To improve the reading , writing and spoken skills of communicative English

1. **Basic Grammar**:
   a. Review of grammar
   b. Remedial study of grammar
   c. Simple sentence
   d. Word passive voice etc.

2. **Bubbling Vocabulary**:
   a. Synonyms
   b. Antonyms
   c. One – work Institution

3. **Reading and Understanding English**
   a. Comprehension passage
   b. Précis – writing
   c. Developing a story from hints.

4. **Writing English**
   a. Writing Business letters.
   b. Paragraph writing
   c. Essay writing
   d. Dialogue writing

5. **Speaking English**
   a. Expressions used under different circumstances
   b. Phonetics

Reference :

1.   V.H.Baskaran – "English Made Easy"
2.   V.H.Baskaran – "English Composition Made Easy" (Shakespeare Institute of English Studies, Chennai)
3.   N.Krishnaswamy – "Teaching English Grammar", (T.R.Publication, Chennai)
4.   "Life Skill" – P.Ravi, S.Prabakar and T.Tamzil Chelvam, M.S.University, Tirunelveli

PRACTICAL – I

(C19CAP1/E19CAP1) Object Oriented Programming using C++

1. Write a C++ program to display the multiplication table.
2. Write a C++ program to find the sum of individual digits of a positive integer.
3. Write a C++ program to print whether a given number is prime or not
4. Write a C++ program to sort the names in ascending order
5. Write a C++ program to perform matrix addition, subtraction
6. Write a C++ program to solve a quadratic equation
7. Write a C++ program to find both the largest and smallest number in a list of integers.
8. Write a C++ program to construct of pyramid of numbers.
9. Write a C++ program that converts Roman numeral into an Arabic integer.
10. Write a C++ program to generate a Fibonacci series using copy constructor
11. Using overloading function write a C++ program to find the area of triangle and square

12. Write a C++ program, which overloads the binary operators so that two strings can be concatenated, and display the resultant string.

Semester II
Course VI
(C19CA21/E19CA04) Python Programming

Objective:

➢ To learn the basics of Python Programming language

UNIT – I   **18 Hrs**
Fundamentals
Fundamentals: Python character set, Tokens, variables and assignments, input output statements – Data Handling: Data types , operators, expressions.

UNIT- II   **18 Hrs**
Conditional and Looping Statements
Conditional and Iterative Statements: If statement , if-else, if-elif and nested if statement – Looping statement : for loop, while loop, loop else, break and continue statement , nested loops.

UNIT-III   **18 Hrs**
List and Tuples
List Creation and Access – List operations: Joining list, Repeating or Replicating List, Slicing the List, List functions and methods. Tuples: Tuple Creation and Access – Tuple Operations : Joining and Slicing the Tuples.

UNIT-IV   **18 Hrs**
String and Dictionary
String Manipulation : - String operators : Basic operators , Membership Operators, Comparison operators , String Slices , string functions and methods. Dictionary - Creating, Accessing elements , characteristics. Working with Dictionaries: Adding elements, updating, deleting elements, Checking for existence of a key, Printing a Dictionary, Counting frequency of elements.

UNIT –V   **18 Hrs**
Program Execution and Debugging
Basic flow of compilation , Understanding Translation Process – Role of Operating System in running a program – Debugging Techniques– Using Debugger Tool : Working with Integrated Debugger tool of Spider IDE- Working with Python Debugger-pdb- Errors and Exceptions.

Outcomes:
        After completing this course, students
  ✓ Will understand the basics of Python
  ✓ Can able to solve problems using Python scripting

Reference books:
1. Computer Science With Python By Sumita Arora, Publisher LDHANPAT RAI & Co. Ltd., Educational and Technical Publisher,2018.
2. Python Programming An Introduction to Computer Science , Second Edition, JOHN ZELLE

(C19CA22/E19CA05)FUNDAMENTALS OF CREATIVE MULTIMEDIA

Objective:

> To learn the basics of computer and types of software
> To learn photo editing software

UNIT-I: **18 Hrs**

Introduction to computers, characteristics and limitations of computer, Block diagram of computer, types of computers, uses of computers, computer generations. Number systems: binary, hexa and octal number system.

UNIT-II: **18 Hrs**

Input and output devices: Keyboard and mouse, inputting data in other ways, Types of Software: system software, Application software, commercial, open source, domain and free ware software, Memories: primary, secondary and cache memory. Windows basics: desktop, start menu, icons.

UNIT –III   **18 Hrs**

Introduction to Adobe Photoshop, Getting started with Photoshop, creating and saving a document in Photoshop, page layout and back ground, Photoshop program window-title bar, menu bar, option bar, image window, image title bar, status bar, ruler, palettes, tool box, screen modes, saving files, reverting files, closing files.

UNIT –IV   **18 Hrs**
Images: working with images, image size and resolution ,image editing, colour modes and adjustments , Zooming & Panning an Image,, , Rulers, Guides & Grids- Cropping & Straightening an Image, image backgrounds ,making selections.

UNIT –V   **18 Hrs**
Working with tool box: working with pen tool, save and load selection- working with erasers-working with text and brushes-Colour manipulations: colour modes- Levels – Curves - Seeing Colour accurately - Patch tool – Cropping-Reading your palettes - Dust and scratches- Advanced Retouching- smoothing skin.

Reference Books:
1. Fundamentals of Computers by Reema Thareja from Oxford University Press,2014
2. Adobe Photoshop CC Class Room in a Book by Adobe Creative Team, First Edition,   Adobe Press,2018
3. Fundamentals of Multimedia by Ze-Nian Li, Mark S. Drew, Jiangchuan Liu, Springer Publication, Second Edition,2014

(C19LS23/E19LS05)Life Skill

Objective:

- To understand the skills that are required for human life
- To develop the technical skills for employability

I <u>Life Coping or adjustment</u>

(a) External and internal influence in one's life
(b) Process of coping or adjustment
(c) Coping with physical change and sexuality
(d) Coping with stress, shyness, fear, anger far live and criticism.

II <u>Attitude</u>

(a) Attitude
(b) Self acceptance, self – esteem and self actualization
(c) Positive thinking

III <u>Problem Solving</u>

(a) Goal Setting
(b) Decision Making
(c) Time Management and stress Management.

IV <u>Computers</u>

(a) Introduction to Computers
(b) M.S.Office
(c) Power Point

V <u>Internet</u>

(a) Introduction to internet
(b) E – mail
(c) Browsing

<u>References:</u>

1) Life Skill Programme course I & II by Dr. Xavier Alphona MCRDCE Publications. R.K.Mutt Road, Chennai – 28
2) ஆளுமை பண்பு வளர்த்தல் மற்றும் தகவல் தொடர்பு by M.Selvaraj Community College, Palayamkottai
3) "Life Skill" –P.Ravi, S.Prabahar & T.Tamil Chelvam, M.S. University, Tirunelveli
4) Personality Development and Soft Skills by Barun K.Mitra, Second Edition, Oxford University Press, 2016.

Course IX
(C19CAP2/E19CAP2)MULTIMEDIA LAB

1. Write a program to justify a text entered by the user on both left and right hand side. For example the text " An architect may have a graphics program to draw an entire building but be interested in only ground floor", can be justified in 30 columns. An architect may have a graphics programs draw an entire building but interested in ground floor.
2. Study the notes of a piano and stimulate them using the keyboard and store them in file.
3. Write a program to read a paragraph and store it to a file name suggested by the author.
4. Devise a routine to produce the animation effect of a square transforming to a triangle
      and then to a circle.
5. Write a program to show a bitmap image on your computer screen.
6. Create a web page for a clothing company which contains all the details of that company and at least five links to other web pages.
7. Write a program by which we can split mpeg video into smaller pieces for the purpose of sending it over the web or by small capacity floppy diskettes and then joining them at the Destination.
8. Write a program to simulate the game of pool table.

Course X

(C19CAPW/E19CAPW)Internship/Project

Attend 10-15 days of internship training at small scale software industry and participate in application development. Produce a certificate for attending internship training.