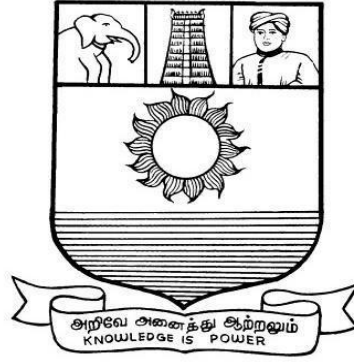


மனோன்மணியம் சுந்தரனார் பல்கலைக்கழகம்  
திருநெல்வேலி – 627 012

**Manonmaniam Sundaranar University  
Thirunelveli – 627 012.**



கல்விசார் நிலைக்குழுக் கூட்டம்

**MEETING OF THE STANDING COMMITTEE ON  
ACADEMIC AFFAIRS HELD ON FRIDAY  
THE 27<sup>th</sup> OCTOBER 2017.**

**Syllabus for Diploma in Software Engineering Course offered  
through Directorate of Vocational Education  
(Community Colleges and Extension Learning Programme)  
from 2017 – 2018**

**DIPLOMA IN SOFTWARE ENGINEERING  
SCHEME OF EXAMINATION**

Subject Code	Title of the Paper	Credit	Hours	Passing Minimum
<b>Semester I</b>				
C17SE11/E17SE01	Computer Fundamentals	6	90	40/100
C17SE12/E17SE02	Fundamentals of Software Engineering	6	90	40/100
C17SE13/E17SE03	Programming with C & C++	6	90	40/100
C17CE10/E17CE10	Communicative English	6	90	40/100
C17SMP1/E17SEP1	C and C++ Programming Lab	6	90	40/100
<b>Semester II</b>				
C17SE21/E17SE04	Programming with Visual Basic	6	90	40/100
C17SE22/E17SE05	Software Project Management	6	90	40/100
C17LS23/E17LS05	Life Skill	6	90	40/100
C17SEP2/E17SEP2	Visual Basic Programming –Lab	4	60	40/100
C17SEPW/E17SEPW	Internship/ Project	12	180	40/100

**Eligibility for admission:** Pass in 12<sup>th</sup> Std 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 paper is 40%. Classification will be done on the basis of percentage marks of the total marks obtained in all the papers and as given below:

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

**Syllabus**

**First Semester:-**

- Paper I - Computer Fundamentals
- Paper II - Fundamentals of Software Engineering
- Paper III - Programming with C & C++
- Paper IV - Communicative English
- Paper V - C and C++ Programming Lab

**Second Semester:-**

- Paper VI -Programming With Visual Basic
- Paper VII - Software Project Management
- Paper VIII - Life Skill
- Paper IX - Visual Basic Programming -Lab
- Paper X - Internship/Project

**\*(Semester Pattern for Community College Only)**

## **I SEMESTER**

### **(C17SE11/E17SE01)Computer Fundamentals**

#### **Unit- 1 Introduction**

Introduction of computer-characteristics of computers-computer's evolution to their present form- computer generations -characteristic features of each computer generation

#### **Unit- 2 Basic computer organization**

Basic operations of computer system- input- storage- output- processing- control-basic organization of a computer system-input unit-output unit - storage unit-processing unit

#### **Unit - 3 Numbers and Data**

Non-positional number system-positional number system-decimal number system-binary number system-octal number system- hexadecimal number system-data types-alphabetic data- alphanumeric data-numeric data-computer codes: representation of data in binary- american standard code for information interchange (ASCII)-binary coded decimal (BCD) code

#### **Unit- 4 Processors and Memory**

Basic processor & memory architecture - central processing unit (CPU)- control unit (CU) - arithmetic logic unit (ALU) -instruction set-registers-processors- types- processor speed- main memory- RAM-ROM- cache

#### **Unit- 5 storage devices**

Primary storages- secondary storages-sequential access device- direct access devices-magnetic disks --hard-disks- zip disk -Winchester disk-optical disks-CD-rw- DVD-memory storage- devices-flash-drive-memory-card

#### **Reference Books:**

- 1.Computer Fundamentals, Sinha & Sinha, 2007
- 2.Computer Fundamentals, Anita Goel,Pearson publishers,2012
- 3.Fundamentals of Computers -2014  
by Rajaraman V (Author), Adabala N (Author)

## **(C17SE12/E17SE02)Fundamentals of software engineering**

### **Unit-1 Introduction**

The software engineering discipline- evaluation and impact- software development projects-program versus products- emergence of software engineering- early computing programming-high level language programming.

### **Unit-2 Software life cycle models**

Classical waterfall model- iterative waterfall model-prototyping model- evolutionary model-spiral model

### **Unit - 3 Software project management**

Project planning- Software Project Management Plan (SPMP)-metrics for project size estimation- Lines of Code (LoC) - project estimation techniques

### **Unit- 4 Software design**

Design process - approaches to software design- function oriented- structured analysis- data flow diagram- structured design-object oriented-concepts- UML-use case- class-interaction- activity-state chart

### **Unit-5 coding and testing**

Coding- coding review- software documentation-testing-unit testing- black box testing- white box testing- integration testing- system testing

### **Reference Books:**

- 1.Fundamentals of software engineering, Rajib Mall,PHI,2010
- 2.Software Engineering, a practitioner 's approach, Roger S.Pressman,2009.

## **(C17SE13/E17SE03)Programming with C and C++**

### **Unit- I Introduction to C Programming**

Introduction to the Course-Overview to C Programming -A Brief History of C- Running C Programs-The Edit-Compile-Link-Execute Process-Structure of C Programs-C's Character Set-The form of a C Program-The layout of C Programs-Pre-processor Directives-Your First Program-Add Comments to a Program

### **Unit-II Data Types in C**

Data Types-Integer Number Variables-Decimal Number Variables-Character Variables-Assignment Statement-Arithmetic Ordering- Initializing Variables-Input and Output Functions-%Format -Formatting Your Output

### **Unit – III Arrays in C**

Arrays- Pointers- Strings- Defining A New Type-Structures and Functions-Pointers to Structures-Malloc- Structures and C++-Header Files

### **Unit- IV Programming in C++**

Fundamentals - Structure of Simple C++ Program- Fundamental Types, Constants, and Variables- Escape Sequences-Names- Variables- Keywords -Operators -Binary Arithmetic Operators-Unary Operators-Assignments-Relational Operators-Logical Operators.

### **Unit- V Storage Classes and Namespaces in C++**

Storage Classes of Objects- The Storage Class extern-The Storage Class static-The Specifiers auto and register-The Storage Classes of Functions -Methods-Arrays-Inheritance - Polymorphism

### **Reference Books:**

- 1.Programming in C- Balagurusamy,2012.
- 2.The Complete Guide to Programming with C++ - Ulla kirch-Prinz Peter Prinz,2011.

## **(C17CE10/E17CE10)Communicative English**

### **Unit I: Learning context**

Concept of learning – Learning style –Grammatical framework – sentence framing – paragraph and texts.

### **Unit II: Reading**

Basic concept – Purposes of reading-Decoding-Reading materials – Barriers of reading

### **Unit III: Writing**

Basic concept-Writing style-Terminology-stages-English spelling and punctuation – Written texts.

### **Unit IV: Speaking**

Language functions-Conversation- Features of spoken English – Types of English course: functional English, English literature, advance English – Phonetic

### **Unit V: Developing Communication Skills**

Meaning –Classroom presence- Features of developing learning process- Practical skills and Listening- uses of communicative English

### **References**

1. Raman,m.&S.Sharma (2011) communication skills,OUP,New Delhi: India
2. Lata,P.&S.Kumar(2011) communication skills,OUP,New Delhi: India,

### **Communication Skills for Technical Students**

by Farhatulla (Author)

## **(C17SMP1/E17SEP1)C and C++ Programming lab**

1. Write C programming to Add Even numbers
2. Write C programming to perform Addition,Subtraction,Multiplication,and Division
3. Write C programming for Decimal to Binary conversion
4. Write a c++ program to display multiplication table.
5. Write a c++ program to print whether a given number is prime or not
6. Write a c++ program to sort the names in ascending order
7. Write a c++ program to perform matrix addition, subtraction
8. Write a c++ program to solve a quadratic equation
9. Write a c++ program to generate a fibonacci series using copy constructor

10. Using overloading, write a function to find the area of triangle and square
11. Write a c++ program, which overloads the binary operators so that two strings can be concatenated, and display the resultant string.

### **(C17SE21/E17SE04)Programming with Visual Basic**

#### **Unit -I Visual Basic programming**

Starting Visual Basic - Creating a New Project - Changing the Characteristics of Objects  
- Adding controls to a form- Designing an interface- Writing the code behind an interface-  
Understanding properties -Understanding Methods -Understanding collections

#### **Unit- II Understanding Events**

Understanding Event Driven programming-Building an event example project- -Building  
an user interface - Changing the name of a form- Changing the appearance of a form - showing  
and hiding forms.

#### **Unit - III Working with Traditional Controls**

Displaying static text with the label control- Allowing users to enter text using a text box-  
Creating Buttons- Creating containers and groups of option buttons- Creating a list with list box-  
Creating- Drop\_Drown lists using the combo Box.

#### **Unit IV Adding Menus and Toolbars to Forms**

Building Menus- Using the Toolbar Control- Creating a status bar- Using Constants, data  
types,variables, and arrays-Understanding data types- definging and using constants-Declaring  
and Referencing variables- Working with arrays- using variables in your picture viewer project.

#### **Unit - V Designing objects using classes**

Understanding Classes-Instantiating object from classes-Working with graphics-  
Understanding the graphics object-Working with pens- Using system colors-Working with  
Rectangles-Drawing shapes-Drawing text.

#### **Reference Books**

- 1.Visual Basic- Marion Cottingham- Peachpit Press,2010.
- 2.Beginning Visual Basic,Bryan Newsome, 2015
3. Visual Basic 6: The Complete Reference (With Cd)  
By Jerke

## **(C17SE22/E17SE05)Software Project Management**

### **UNIT I : PROJECT EVALUATION AND PROJECT PLANNING [9 hours]**

Importance of Software Project Management – Activities Methodologies – Categorization of Software Projects – Setting objectives – Management Principles – Management Control – Project portfolio Management – Cost-benefit evaluation technology – Risk evaluation – Strategic program Management – Stepwise Project Planning.

### **UNIT II : PROJECT LIFE CYCLE AND EFFORT ESTIMATION [9 hours]**

Software process and Process Models – Choice of Process models – mental delivery – Rapid Application development – Agile methods – Extreme Programming – SCRUM – Managing interactive processes – Basics of Software estimation – Effort and Cost estimation techniques – COSMIC Full function points – COCOMO II A Parametric Productivity Model – Staffing Pattern.

### **UNIT III : ACTIVITY PLANNING AND RISK MANAGEMENT [9 hours]**

Objectives of Activity planning – Project schedules – Activities – Sequencing and scheduling – Network Planning models – Forward Pass & Backward Pass techniques – Critical path (CRM) method – Risk identification – Assessment – Monitoring – PERT technique – Monte Carlo simulation – Resource Allocation – Creation of critical patterns – Cost schedules.

### **UNIT IV : PROJECT MANAGEMENT AND CONTROL [9 hours]**

Framework for Management and control – Collection of data Project termination – Visualizing progress – Cost monitoring – Earned Value Analysis- Project tracking – Change control- Software Configuration Management – Managing contracts – Contract Management.

### **REFERENCES:**

- Robert K. Wysocki “Effective Software Project Management” – Wiley Publication,2011.
- Walker Royce: “Software Project Management”- Addison-Wesley, 1998.



## **(C17LS23/E17LS05)LIFE SKILL**

### **UNIT- I ATTITUDE :**

Positive thinking – Goal setting – Problem Solving and Decision making – Leadership and Team Work.

### **UNIT- II COMMUNICATION SKILLS:**

Oral communication: Concept of English language – Fluency – Verbal communication in official and public situations.

### **UNIT-III COMMUNICATION SKILLS:**

Written Communication: Comprehension – Writing a formal letter like application for Job, enquiry, reply, complaint and such others – preparation of Resume, Curriculum Vitae.

### **UNIT- IV COMPUTING SKILLS – 1:**

Introduction to Computers, its various components and their respective functions – Memory storage devices – Microsoft (MS) Office – MS Word.

### **UNIT - V COMPUTING SKILLS – 2**

Internet Basics – Origin of Internet – MODEM – ISP– Upload – Download – e-mail – Origin of worldwide web (www) Browsers – Search engines.

### **Reference books:**

- 1.Life skill, Manonmaniam Sundaranar University Publications Division (2011)
- 2.Developing Entrepreneurial Life Skills: Creating and Strengthening ...  
By Shipra Vaidya

## **(C17SEP2/E17SEP2)Visual Basic Programming Lab**

1. Write a program to calculate the telephone bill for the following range.
  - a. Below 200 - rs.0.80
  - b. 201 to 400 - rs.1.00
  - c. 401 to 700 - rs.1.25

d. Above 700 - rs.1.50

(using if statement)

2. Write a program to get employee details such as code, name, sex, department, salary. You have to calculate DA, HRA, PF, tax and net amount. (using if statement)

a. DA = 16% of bp

b. HRA = 12% of bp

c. PF = 10% of bp

d. Tax is calculated as follows

Dept	Salary	Tax
Computer	Above 10000	10% of bp
Computer	5000 to 10000	13.5% of bp
Computer	Below 10000	9% of bp
Sales	Above 10000	15% of bp
Sales	5000 to 10000	10% of bp
Sales	Below 10000	Nil
Accountant	Above 10000	15.5% of bp
Accountant	5000 to 10000	9.5% of bp
Accountant	Below 10000	7% bp

3. Write a program to get student details such as name, reg.no, marks for 4 subjects. You have to calculate total, average and grade. Grade is evaluated as follows.

a. Above 90 - outstanding

b. 80 to 90 - distinction

c. 60 to 79 - first class

d. 40 to 59 - second class

e. If anyone marks is <40 - fail (using select case)

4. To generate prime numbers within a given range
5. To check a number is Armstrong or not
6. To convert binary number into decimal number and vice versa
7. To find sum of two numbers
8. To find first, second biggest numbers in an given array
9. To get array of values and check whether a particular number is found in your array or not. Display number of occurrences also.
10. To arrange a given set of number in ascending and descending order.
11. Write a program to format a text.

**(C17SEPW/E17SEPW )Paper X INTERNSHIP /PROJECT**

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