

**Shree Manibhai Virani and Smt. Navalben Virani Science College  
(Autonomous), Rajkot  
Affiliated to Saurashtra University, Rajkot**

**Department of Computer Science & Information Technology  
B. Voc. Applied Computer Technology**

**OBJECTIVES OF THE PROGRAMME**

The Curriculum is designed to attain the following learning goals which students shall accomplish by the time of their graduation:

- Demonstrating a substantial understanding of concepts in key areas of computer science and its applications
- Specify, design, develop, test and manage application software systems to meet the operational and business requirements of organizations.
- Work in a team using common tools and environments to achieve project objectives

**SCHEME OF INSTRUCTION AND EXAMINATIONS**  
**For Students Admitted from A.Y. 2017-2018 & Onwards**

<b>Semester – I</b>							
<b>Course Code</b>	<b>Course</b>	<b>Hrs. of Instruction/ week</b>	<b>Exam Duration (Hours)</b>	<b>Maximum Marks</b>			<b>Credits</b>
				<b>CIE</b>	<b>SEE</b>	<b>Total</b>	
<b>Part - I</b>							
17VLCEN01	Functional English	3	3	40	60	100	3
<b>Part - II</b>							
17VACGC01	<b>Core 1 :</b> Building Logic using C	3	3	30	70	100	3
17VACGC02	<b>Core 2 :</b> Computer Fundamental	3	3	30	70	100	3
17VACGC03	<b>Core 3:</b> Web Designing & Internet (HTML ,CSS, JavaScript )	3	3	30	70	100	3
17VACSC01	<b>Core Skill 1:</b> Building Logic using C Practical	6	3	40	60	100	6
17VACSC02	<b>Core Skill 2:</b> PC Software Practical	6	3	40	60	100	6
17VACSC03	<b>Core Skill 3:</b> Web Designing & Internet (HTML, CSS, JavaScript) Practical	6	3	40	60	100	6
		<b>30</b>				<b>700</b>	<b>30</b>
<b>Part - III</b>							
17VAEES01	<b>AECC 1:</b> Environmental Science	1	-	-	-	-	-
17VAEVE01	<b>SEC 1:</b> Value Education –I	1	-	Remarks			1
		<b>32</b>					

Semester – II							
Course Code	Course	Hrs. of Instruction/week	Exam Duration (Hours)	Maximum Marks			Credits
				CIE	SEE	Total	
<b>Part - I</b>							
17VLCEN02	Business Communicative English	3	3	40	60	100	3
<b>Part - II</b>							
17VACGC04	<b>Core 4 :</b> Fundamental of Networking	3	3	30	70	100	3
17VACGC05	<b>Core 5:</b> Object Oriented Programming using C++	3	3	30	70	100	3
17VACGC06	<b>DSE-Allied 1 :</b> Mathematics and Statistics	3	3	30	70	100	3
17VACSC04	<b>Core Skill 4 :</b> Object Oriented Programming using C++ Practical	6	3	40	60	100	6
17VACSC05	<b>Core Skill 5 :</b> Desktop Publishing (Photoshop & Corel Draw) Practical	6	3	40	60	100	6
17VACSC06	<b>Core Skill 6:</b> Skill Training/IDP- Industry/Institute Defined Project	6	3	60	40	100	6
		<b>30</b>				<b>700</b>	<b>30</b>
<b>Part - III</b>							
16VAEES01	<b>AECC 1 :</b> Environmental Science	1	-	Remarks			2
16VAEVE02	<b>SEC 1:</b> Value Education –II	1	-	Remarks			1
		<b>32</b>					

Semester – III							
Course Code	Course	Hrs. of Instruction/ week	Exam Duration (Hours)	Maximum Marks			Credits
				CIE	SEE	Total	
<b>Part - II</b>							
17VACGC07	<b>Core 6 :</b> Core Java	4	3	30	70	100	4
17VACGC08	<b>Core 7 :</b> Web Development using PHP/MYSQL	4	3	30	70	100	4
17VACGC09	<b>Core 8:</b> RDBMS using Oracle	4	3	30	70	100	4
17VACSC07	<b>Core Skill 7 :</b> Core Java Practical	6	3	40	60	100	6
17VACSC08	<b>Core Skill 8:</b> Web Development using PHP/MYSQL Practical	4	3	40	60	100	4
17VACSC09	<b>Core Skill 9:</b> RDBMS using Oracle Practical	4	3	40	60	100	4
17VACSC10	<b>Core Skill 10 :</b> Basic Animation using Flash Practical	4	3	40	60	100	4
	<b>Total</b>	<b>30</b>				<b>700</b>	<b>30</b>

Semester – IV							
Course Code	Course	Hrs. of Instruction/week	Exam Duration (Hours)	Maximum Marks			Credits
				CIE	SEE	Total	
<b>Part - II</b>							
17VACGC10	<b>Core 9 :</b> MVC Design Pattern in PHP	4	3	30	70	100	4
17VACGC11	<b>Core 10 :</b> Advanced Web Designing ( JQuery, CSS framework, AJAX, Responsive Layout)	4	3	30	70	100	4
17VACGC12	<b>Core 11:</b> System Analysis & Design	4	3	30	70	100	4
17VACSC11	<b>Core Skill 11 :</b> MVC Design pattern in PHP Practical	6	3	40	60	100	6
17VACSC12	<b>Core Skill 12 :</b> Advanced Web Designing ( JQuery, CSS framework, AJAX, Responsive Layout) Practical	6	3	40	60	100	6
17VACSC13	<b>Core Skill 13:</b> Skill Training / IDP- Industry/Institute Defined Project	6	3	60	40	100	6
		<b>30</b>				<b>600</b>	<b>30</b>

Semester - V							
Course Code	Course	Hrs. of Instruction/ week	Exam Duration (Hours)	Maximum Marks			Credits
				CIE	SEE	Total	
<b>Part - II</b>							
17VACGC13	<b>Core 12 :</b> Programming with C#.NET	4	3	30	70	100	4
17VACGC14	<b>Core 13 :</b> Administration of SQL Server	4	3	30	70	100	4
17VACGC15	<b>Core 14:</b> Mobile Computing with Android	4	3	30	70	100	4
17VACSC14	<b>Core Skill 14:</b> Programming with C#.NET Practical	4	3	40	60	100	4
17VACSC15	<b>Core Skill 15:</b> Administration of SQL Server Practical	4	2	40	60	100	4
17VACSC16	<b>Core Skill 16:</b> Mobile Computing with Android Practical	4	3	40	60	100	4
17VACSC17	<b>Core Skill 17:</b> Skill Training / IDP (Industry/Institute Defined Project)	6	3	40	60	100	6
	<b>Total</b>	<b>30</b>				<b>700</b>	<b>30</b>

Semester - VI							
Course Code	Course	Hrs. of Instruction/week	Exam Duration (Hours)	Maximum Marks			Credits
				CIE	SEE	Total	
<b>Part II</b>							
17VACGC16	<b>Core 15 :</b> Web Programming with ASP.NET	4	3	30	70	100	4
17VACGC17	<b>Core 16 :</b> Search Engine Optimization	4	3	30	70	100	4
17VACGC18	<b>Core 17:</b> Mobile Computing with IOS	4	3	30	70	100	4
17VACSC18	<b>Core Skill 18 :</b> Web Programming with ASP.NET Practical	4	3	40	60	100	4
17VACSC19	<b>Core Skill 19 :</b> Graphics and Multimedia Practical	4	2	40	60	100	4
17VACSC20	<b>Core Skill 20 :</b> Mobile Computing with IOS Practical	4	2	40	60	100	4
17VACSC21	<b>Core Skill 21 :</b> Skill Training / IDP- Industry/Institute Defined Project	6	3	60	40	100	6
		<b>30</b>				<b>700</b>	<b>30</b>
<b>Total Marks : 4100</b>							

<b>Part - III</b>						
<b>Course Code</b>	<b>Semester</b>	<b>Particulars</b>	<b>Hrs of instruction/week</b>	<b>No. of Courses</b>	<b>Credit/Course</b>	<b>Total Credits</b>
<b><i>Ability Enhancement Compulsory Course (AECC)</i></b>						
As per common list	I & II	<b>AECC-I</b> Environment Science	1	1	2	2
	IV & V	<b>AECC-II</b> Communication Skill/Soft Skills	2	2	1	2
					<b>Sub Total</b>	<b>4</b>
<b><i>Skill Enhancement Course (SEC)</i></b>						
As per common list	I	<b>SEC-I</b> Value Education-I	1	1	1	1
	II	Value Education-II	1	1	1	1
	Any Semester between II - V	<b>SEC-II</b> *Co-Curricular Course	> 40 hours in total	1	1	1
	Any Semester between II - V	<b>SEC-III</b> **Value Added Courses	40 hours in total	1	1	1
					<b>Sub Total</b>	<b>4</b>
					<b>Grand Total</b>	<b>8</b>

**\*Co-Curricular Courses** - Option to students to choose 1 from a list of courses offered by the college, such as Add on Courses, Gandhian Studies Certificate Course, Women Studies Course, etc.

**\*\*Value Added Courses** - Option to student to choose at least 1 from a list of courses offered by UG departments.

• **TOTAL MARKS & CREDIT DISTRIBUTION**

<b>S.NO</b>	<b>PART</b>	<b>Total Marks</b>	<b>Total Credits</b>
1.	PART I: Language Course	200	6
2.	PART II (Core, DSE Allied): a) General Education b) Skill Education	3900	174
3.	PART III: AECC-I & II, SEC-I, II & III	Remarks	08
<b>TOTAL</b>		<b>4100</b>	<b>188</b>



## PART – I : LANGUAGE COURSE

The following are compulsory courses offered in first and Second semesters.

S. No	Semester	Course Code	Course
1.	I	17VLCEN01	Functional English
2.	II	16VLCEN02	Business Communicative English

## • PART – II (General Education, Skill Education) : CORE, ALLIED

### CORE COURSES [Theory]

S. No	Semester	Course code	Course
1.	I	17VACGC01	<b>Core 1</b> : Building Logic using C
2.		17VACGC02	<b>Core 2</b> : Computer Fundamental
3.		17VACGC03	<b>Core 3</b> : Web Designing & Internet (HTML ,CSS, JavaScript )
4.	II	17VACGC04	<b>Core 4</b> : Fundamental of Networking
5.		17VACGC05	<b>Core 5</b> : Object Oriented Programming using C++
6.	III	17VACGC07	<b>Core 6</b> : Core Java
7.		17VACGC08	<b>Core 7</b> : Web Development using PHP/MYSQL
8.		17VACGC09	<b>Core 8</b> : RDBMS using Oracle
9.	IV	17VACGC10	<b>Core 9</b> : Advance PHP (OOP, CMS, Wordpress)
10.		17VACGC11	<b>Core 10</b> : Advance Web Designing ( JQuery, CSS framework, AJAX, Responsive Layout)
11.		17VACGC12	<b>Core 11</b> : System Analysis & Design
12.		17VACGC13	<b>Core 12</b> : Programming with C#.NET
13.	V	17VACGC14	<b>Core 13</b> : Administration of SQL Server
14.		17VACGC15	<b>Core 14</b> : Mobile Computing with Android
15.	VI	17VACGC16	<b>Core 15</b> : Web Programming with ASP.NET
16.		17VACGC17	<b>Core 16</b> : Search Engine Optimization
17.		17VACGC18	<b>Core 17</b> : Mobile Computing with IOS

### CORE SKILL COURSES [Practical]

S. No	Semester	Course code	Course
1.	I	17VACSC01	<b>Core Skill 1</b> : Building Logic using C Practical
2.		17VACSC02	<b>Core Skill 2</b> : PC Software Practical
3.		17VACSC03	<b>Core Skill 3</b> : Web Designing & Internet (HTML ,CSS, JavaScript ) Practical
4.	II	17VACSC04	<b>Core Skill 4</b> : Object Oriented Programming using C++ Practical

5.		17VACSC05	<b>Core Skill 5 :</b> Desk Top Publishing (Photoshop & Corel Draw) Practical
6.	III	17VACSC07	<b>Core Skill 6 :</b> Core Java Practical
7.		17VACSC08	<b>Core Skill 7:</b> Web Development using PHP/MYSQL Practical
8.		17VACSC09	<b>Core Skill 8:</b> RDBMS using Oracle Practical
9.		17VACSC10	<b>Core Skill 9 :</b> Basic Animation using Flash Practical
10.	IV	17VACSC11	<b>Core Skill 10 :</b> Advance PHP (OOP, CMS, Wordpress) Practical
11.		17VACSC12	<b>Core Skill 11 :</b> Advance Web Designing ( JQuery, CSS framework, AJAX, Responsive Layout) Practical
12.	V	17VACSC14	<b>Core Skill 12:</b> Programming with C#.NET Practical
13.		17VACSC15	<b>Core Skill 13:</b> Administration of SQL Server Practical
14.		17VACSC16	<b>Core Skill 14:</b> Mobile Computing with Android Practical
15.	VI	17VACSC17	<b>Core Skill 15 :</b> Web Programming with ASP.NET Practical
16.		17VACSC18	<b>Core Skill 16 :</b> Graphics and Multimedia Practical
17.		17VACSC19	<b>Core Skill 17 :</b> Mobile Computing with IOS Practical

• **OTHER CORE COURSES**

S. No.	Semester	Course Code	Course
1	II	17VACSC06	Skill Training / IDP- Industry/Institute Defined Project
2	IV	17VACSC13	Skill Training / IDP- Industry/Institute Defined Project
3	V	17VACSC17	Skill Training / IDP- Industry/Institute Defined Project
4	VI	17VACSC20	Skill Training / IDP- Industry/Institute Defined Project

• **DSC - ALLIED COURSES [Theory]**

S. No.	Semester	Course code	Course
1.	I	17VACGC06	Mathematics and Statistics

• **PART -III : AECC & SEC**

<b>Part - III</b>						
<b>Course Code</b>	<b>Semester</b>	<b>Particulars</b>	<b>Hrs of instruction/week</b>	<b>No. of Courses</b>	<b>Credit/Course</b>	<b>Total Credits</b>
<b><i>Ability Enhancement Compulsory Course (AECC)</i></b>						
As per common list	I & II	<b>AECC-I</b> Environment Science	1	1	2	2
	IV & V	<b>AECC-II</b> Communication Skill/Soft Skills	2	2	1	2
					<b>Sub Total</b>	<b>4</b>
<b><i>Skill Enhancement Course (SEC)</i></b>						
As per common list	I	<b>SEC-I</b> Value Education-I	1	1	1	1
	II	Value Education-II	1	1	1	1
	Any Semester between II - V	<b>SEC-II</b> *Co-Curricular Course	> 40 hours in total	1	1	1
	Any Semester between II - V	<b>SEC-III</b> **Value Added Courses	40 hours in total	1	1	1
					<b>Sub Total</b>	<b>4</b>
					<b>Grand Total</b>	<b>8</b>

**\*Co-Curricular Courses** - Option to students to choose 1 from a list of courses offered by the college, such as Add on Courses, Gandhian Studies Certificate Course, Women Studies Course, etc.

**\*\*Value Added Courses** - Option to student to choose at least 1 from a list of courses offered by UG departments.

## B.Voc. Applied Computer Technology

### SEMESTER - I

17VACGC01	Core 1 : Building Logic using C	03 hrs/wk	3 Credits
-----------	---------------------------------	-----------	-----------

#### Objectives:

To enable the students to

1. Understand the basic concepts of programming.
2. Design algorithms and flow-charts to solve fundamental programming problems.
3. Understand how to implement, dry-run and debug programs.
4. Understand the memory allocation of numbers, alphabets and other characters using the concept of basic, derived and user defined data types.
5. Understand how to write and use functions and parameter passing options.
6. Understand the concept of control structures including looping and branching statement.

#### Unit -1 Pre-programming techniques & Introduction to C

(08 hrs)

- Importance of pre-programming techniques
- Pre programming tools:
  - Algorithm Flow charts
  - Writing algorithms and development of flowcharts with dry run for the given list of problems
- C Character sets
- Constants, Variables and Keywords in C
- Various Data Types
- Symbolic Constants
- C Preprocessor : #define, #include
- Type Casting
- Various Operators, Hierarchy of Operations

#### Unit -2 Control Structure

(08 hrs)

- Decision: if, if-else, Nested if-else, else-if ladder, Conditional (Ternary) operator, Switch Case
- Loops: for, while, do while, Nesting of loops
- Use of break and continue statements, goto with label

### Unit – 3 Functions

(08 hrs)

- Built in Function & UDF
- Introduction to some popular header files and its library functions:
  - <stdio.h> : printf(), scanf(), fflush(), gets(), puts()
  - <conio.h>: getch(), getche(), getchar(), clrscr(), gotoxy(), textcolor(), textbackground(), cprintf()
  - <math.h>: abs(), exp(), sqrt(), ceil(), floor(), pow(), fmod(), fabs()
  - <ctype.h>: isalpha(), isdigit(), isalnum(), isspace(), isupper(), islower(), toupper(), tolower() ]
- Different type of UDF (call by value & Call by Reference), Functions with no arguments no return value, Functions with no arguments with return value, Functions with arguments no return value, Functions with arguments with return value
- Storage classes & scope of variables

### Unit – 4 Array and Pointer

(08 hrs)

- Concept of Single & Two dimensional arrays
- Initializations & working with array
- Passing array elements to function
- String operations
  - <string.h> : strlen(), strcpy(), strcmp(), strcat(), strev(), stlwr(),strupr()
- Introduction of pointer
- Pointer arithmetic, Array & Pointer, Pointer to Structure
- Memory allocation functions
  - malloc(), calloc(), realloc() and free()

### Unit – 5 Structure & Union

(08 hrs)

- How to define a structure
- Accessing structure elements
- Memory allocation
- Array of structure, Array within structure,
- Union
- Typedef
- Structure as function argument

### Text Books

1. *Balagurusamy, Programming in ANSI C*, Tata McGraw-Hill Publishing Company Limited, New Delhi.

### Reference Books

1. *Yashavant Kanetkar, Let Us C*, Published by BPB Publications, New Delhi.

<b>17VACGC02</b>	<b>Core 2 : Computer Fundamental</b>	<b>03 hrs/wk</b>	<b>03 Credits</b>
------------------	--------------------------------------	------------------	-------------------

### **Objectives:**

To enable the students to

1. Understand the functions of a computer.
2. Identify types and characteristics of various generations of computers.
3. Identify types and characteristics of various peripherals including storage and I/O.

### **Unit - 1 Introduction and Input Devices (08 hrs)**

- Introduction to Computer
- Characteristics of Computer
- Data Processing Cycle (Data Process Information)
- Classification of Computer by Data Processed Analog, Digital and Hybrid Computers,
- History and Generations of Computers: First to Fifth Generation Computers
- Classification of Computer by Processing Capabilities: Micro - Mini - Mainframe and Super Computers

### **Unit - 2 Input Devices (08 hrs)**

- Types of Input Devices: Keyboard, Mouse, Trackball, Glide, Pad, Joystick, Light Pen, Touch Screen, Mic (Sound Input), Camera (Photo and Video Input), Types of Scanners: OMR, MICR, OBR, Flat bed scanner, Handheld scanner

### **Unit - 3 Output (08 hrs)**

- Types of Output Devices: CRT, LCD, LED, Plasma Displays
- Types of Printers: Impact Printers and types (Dot Matrix Printer, Daisy Wheel Printer, Chain Printer, Drum Printer), Non Impact Printers and types (Ink Jet Printer, Laser Printer)

### **Unit - 4 Storage devices (08 hrs)**

- Types of Storage Devices: Internal storage, RAM, SRAM, DRAM, SD, DDR, ROM, PROM, EPROM, EEPROM, External Storage with Storage Mechanism
- Floppy Disk, Hard Disk, Magnetic Tape, USB, CD, DVD, Blu-Ray Disk
- Ports: USB, Serial, Parallel, PS2
- Types of Processors

### **Unit - 5 Languages, Operating Systems (08 hrs)**

- Introduction
- Translator (Assembler / Compiler / Interpreter)
- Types of Languages
  - Machine Level Language
  - Assembly Level Language
  - High Level Language (3GL, 4GL, 5GL, etc.)
- Types of Operating Systems
  - Batch Operating System
  - Multi-Processing Operating System

- Time Sharing Operating System
- Online and Real Time Operating System

**Text Books:**

1. *Pradeep K. Sinha*, 2002, **Foundations of Computing** [Third Edition] BPB Publications, New Delhi. (UNIT 1 to 3)

**Reference Books:**

1. *A. Jaiswal*, 2003, **Fundamentals of Computer and Information Technology**, Dreamtech Press

17VACGC03	<b>Core 3: Web Designing &amp; Internet (HTML ,CSS, JavaScript )</b>	<b>03 hrs/wk</b>	<b>03 Credits</b>
-----------	--	------------------	-------------------

### Objectives:

To enable the students to

1. Understand the principles of designing effective, dynamic and interactive web pages.
2. Become familiar with graphic design principles that relate to web design and learn how to implement these theories into practice.
3. Develop skills in analyzing the usability of a web site.
4. Learn the language of the web: HTML and CSS.
5. Understand and use JavaScript to enhance HTML documents

### **Unit - 1 Introduction (08 hrs)**

- Introduction to Internet
- What is HTML, Block Structure of HTML
- Basic tags : Texts formatting, Line breaks, Link, Color, Image, List creation, Table

### **Unit - 2 Introduction of Frame & Form (08 hrs)**

- Use of Frame Tags
- HTML multimedia: HTML Plug-in, HTML Audio, HTML Video
- HTML FORM: Controls of Forms
- Introduction to HTML 5.

### **Unit - 3 Introduction of CSS (08 hrs)**

- Use of CSS, Types of CSS, Creating class and id.
- CSS Properties: Background, Text, Font, Table, Border, Margin, Padding, Align, Image property.
- Page layouts: Use of DIV and SPAN tag. Introduction to DHTML

### **Unit - 4 Introduction to Javascript (08 hrs)**

- Use of scripting language, difference between client side script and server side script,
- Javascript syntax, variables, Operators
- Control structures: Control statements, Looping statements, Sequential statements, Use of Dialog boxes, User defined functions, Built-in objects and properties: Number, Date, Math, String, Array. Browser Objects: History, Navigator, Window, Location, Built-in functions

### **Unit - 5 Use of Events (08 hrs)**

- Mouse events, Keyboard events, Timer events, other events
- Javascript DOM: Methods and Properties. Cookies
- Error handling: throw and try catch block



### Text Books

1. *Ivan Bayross*, 2009, **Web Enabled Commercial Application Development Using HTML, JavaScript, DHTML and PHP (English)** [Fourth Edition], Published by BPB Publications, New Delhi. (UNIT 1 to 5)

### Reference Books

1. *Kogent Learning Solutions*, 2015, **Web Technologies HTML, Javascript, PHP, Java, JSP, ASP.NET, XML and AJAX Black Book**, Dreamtech Press, New Delhi
2. *Danny Goodman, Michael Morrison, Paul Novitski, Tia Gustaff Rayl*, 2010, **JavaScript Bible**, [Seventh Edition] Wiley Inc. IN

<b>17VACSC01</b>	<b>Core Skill 1: Building Logic using C Practical</b>	<b>06 hrs/wk</b>	<b>06 Credits</b>
------------------	---	------------------	-------------------

- Practical based on C Programming Language.

<b>17VACSC02</b>	<b>Core Skill 2 : PC Software Practical</b>	<b>06 hrs/wk</b>	<b>06 Credits</b>
------------------	---	------------------	-------------------

- Practical of Word Processing, Spreadsheet and Presentation tools.

<b>17VACSC03</b>	<b>Core Skill 3: Web Designing &amp; Internet (HTML ,CSS, JavaScript ) Practical</b>	<b>06 hrs/wk</b>	<b>06 Credits</b>
------------------	--	------------------	-------------------

- Practical based on HTML, CSS & JavaScript

## SEMESTER – II

17VACGC04	Core 4 : Fundamental of Networking	03 hrs/wk	03 Credits
-----------	------------------------------------	-----------	------------

### Objectives:

To enable the students to

1. Understand the basic concepts and principles of networking including types of network.
2. Determine organizational network needs.
3. Understand details and functionalities of layered network architecture.
4. Design network topologies.
5. Configure network devices including router and switches.
6. Install & configure wireless and wired networks.
7. Configure and deploy network services.

### Unit – 1 Introduction (08 hrs)

- Network concepts: What is network, Use of network
- Network model: peer to peer, client server
- Network Types: LAN, MAN, WAN
- Network Services: File service, Print service, Communication Service, Data base service, Security service, Application service

### Unit – 2 Basics of Networking (08 hrs)

- Network Access Methods: CSMA / CD & CSMA / CA, Token passing, Polling
- Network Topologies : Bus, Ring, Star, Mesh, Tree, Hybrid
- Advanced Network Topologies: Ethernet, CDDI, FDDI
- Communication Methods: Unicasting, Multicasting, Broadcasting

### Unit - 3 Network Models (08 hrs)

- OSI reference model with 7 layers
- TCP/IP network model with 4 layers

### Unit - 4 Transmission Media and Switching concepts (08 hrs)

- Guided media
  - Co-axial cable, Twisted pair cable, Fiber optic cable
- Unguided media
  - Infrared, laser, microwave, Bluetooth
- Multiplexing and Demultiplexing
  - FDM,TDM
- Switching technology
  - Circuit switching, Message switching, Packet switching

### Unit - 5 Basic Network devices (08 hrs)

- Layer1 Devices: LAN Card, Modem, DSL & ADSL, Hub (Active, Passive, Smart Hub), Repeater
- Layer2 Devices: Switch (Manageable, Non Manageable), Bridge (Source Route, Transactional)

- Layer 3 Devices: Router, Layer 3 Switch, Brouter, Gateway

### **Text Books**

2. *Glenn Berg* 1998, **MCSE: Networking Essentials**, [Second Edition], MCSE Training Guide: Networking Essentials, New Riders Publishing, Attn: Associate Publisher, Indianapolis IN.

### **Reference Books**

1. *Behrouz A. Forouzan*, 2006, **Data Communications and Networking (SIE)**, McGraw Hill
2. *Andrew S. Tanenbaum*, 2002, **Computer Networks** [Fourth Edition], Pearson Publication

17VACGC05	<b>Core 5: Object Oriented Programming using C++</b>	03 hrs/wk	03 Credits
-----------	--	-----------	------------

### Objectives:

To enable the students to

1. Understand the basic concepts and techniques of the object oriented programming paradigm
2. Learn the C++ programming language: its syntax, idioms, patterns, and styles
3. Understand Inheritance and Polymorphism using C++

### Unit - 1 Principles of object oriented programming (08 hrs)

- Procedure – oriented programming
- Object oriented programming paradigm
- Basic concepts of object oriented Programming
- Benefits of object oriented programming Application of object oriented programming
- What is c++?
- Application of c++
- reference variables
- Operators in C++:
  - Scope resolution operator, member referencing operator, memory management operator, manipulators, type cast operator.
- Functions in C++
  - The main function
  - Function prototype
  - Call by reference Return by reference
  - Inline function
  - Default arguments
  - Const arguments
  - Functions overloading

### Unit - 2 Classes and Objects (08 hrs)

- C structures revisited
- Specifying a class
- Defining member functions
- nesting of Member functions
- private member function
- making outside function inline
- Arrays within a class
- Memory allocation for objects
- Static data member
- Static member functions
- Arrays of objects

- Objects as function arguments
- Friendly functions
- Returning objects
- Const member function
- Pointer to members

**Unit - 3 Constructor and Destructor, Operator overloading and type conversion (08 hrs)**

- Characteristics of constructor
- Parameterized constructor
- Multiple constructor in a class
- Constructor with default argument
- Copy constructor
- Dynamic initialization of objects
- Constructing two dimensional array
- Dynamic constructor
- Destructors
- Concept of operator overloading
- Over loading unary and binary operators
- Overloading of operators using friend Function
- Manipulation of string using operators
- Rules for operator overloading
- Type conversions

**Unit - 4 Inheritance, Pointer, Virtual functions and Polymorphism (08 hrs)**

- Defining derived classes
  - Types of inheritance (Single, Multiple, Multi-level, Hierarchical, Hybrid)
- Virtual base class & Abstract class
- Constructors in derived class
- Nesting of classes.
- Pointer to Object
- Pointer to derived class
- this pointer
- Rules for virtual function
- Virtual function and pure virtual function
- Polish notation and reverse polish notation with example
- Arithmetic and Logic Unit: Block diagram of ALU, Working of ALU
- Interrupts: What is interruption, How it useful and work.

**Unit - 5 Console I/O operations, Working with Files (08 hrs)**

- C++ streams
- C++ stream classes
- Unformatted and formatted I/O operations
- Use of manipulators.

- File stream classes
- Opening and closing a file
- Error handling
- File modes
- File pointers
- Sequential I/O operations
- Updating a file (Random access)
- Command line arguments

### Text Books

1. *Object Oriented Programming in C++*, E.Balaguruswami, BPB

### Reference Books

1. *Mastering C++*, Venugopal
2. *Object Oriented Programming in C++*, Robaret Laphore
3. *Let us C++*, Yashvant Kanitkar, BPB

<b>17VACSC04</b>	<b>Core Skill 4 : Object Oriented Programming using C++ Practical</b>	<b>06 hrs/wk</b>	<b>06 Credits</b>
------------------	---	------------------	-------------------

- Practical of C++ Programming Language.

<b>17VACSC05</b>	<b>Core Skill 5 : Desk Top Publishing (Photoshop &amp; Corel Draw) Practical</b>	<b>06 hrs/wk</b>	<b>06 Credits</b>
------------------	--	------------------	-------------------

Syllabus :