



# SILVER OAK UNIVERSITY

## Engineering and Technology (Diploma)

Department of ME/ Civil/ Chem. / Petro. Chem.

Subject Name: Introduction to IT Systems & Programming

Semester: 1<sup>st</sup> year

**Prerequisite: N.A.**

**Objective:** This course intends to provide knowledge to the students regarding Information Technology that is being developed since years and yet has much more things to develop. This course focuses on covering each and every aspect of Information Technology that affects the personal and professional lives of an Individual. Apart from that it also provides the knowledge regarding basics of Computer Programming.

**Teaching and Examination Scheme:**

Teaching Scheme			Credits	Evaluation Scheme				Total Marks
L	T	P	C	Internal		External		
				Th	Pr	Th	Pr	
3	0	2	4	40	50	60	--	150

**Content:**

Unit No.	Course Contents	Teaching Hours	Weightage %
1	<b>Introduction to Information Technology</b> Introduction, Need of Information Technology, Difference between Data - Information - Knowledge, Benefits and Ethical issues related to IT infrastructure, Components of IT infrastructure.	3	10
2	<b>Basic Anatomy of Computer System</b> Basic types and functionalities of Computer hardwares, Input Devices, Output Devices, Memory	3	10
3	<b>Computer Softwares</b> Types of computer softwares, Overview of system softwares and application softwares, Operating systems, drivers, compilers and interpreters, Basics of Windows OS : Control Panel, screensaver, desktop, driver installation, downloading different softwares.	3	10

4	<b>Introduction to MS Office</b> Working of MS Office Tools: MsWord: Documentation & Formatting Ms Excel: Basic calculations using formulas Ms Powerpoint: Preparing Presentations and Animations	4	10
5	<b>Computer Networking</b> Introduction to computer networks, advantages of computer network, Types of computer network, Topologies, Different types of computer networking devices.	4	10
6	<b>Introduction to computer and programming:</b> Introduction, Basic block diagram and functions of various components of computer, Concepts of Machine level, Assembly level and high level programming, Flowcharts and Algorithms	4	10
7	<b>Fundamentals of C:</b> Features of C language, structure of C Program, comments, header files, data types, constants and variables, operators, expressions, evaluation of expressions, type conversion, precedence and associativity, I/O functions	6	10
8	<b>Control structure in C:</b> Simple statements, Decision making statements, Looping statements, Nesting of control structures, break and continue, goto statement	6	15
9	<b>Array &amp; String:</b> Concepts of array, one dimensional arrays, declaration and initialization of arrays, string, string storage, Built-in string functions	5	15

**Course Outcome:**

Sr. No.	CO statement	Unit No
CO-1	Understanding the basics of Information Technology infrastructure and its application in the real world	1
CO-2	Demonstrate different types of computer hardwares ,softwares and uses of MS Office	2,3,4
CO-3	Analyze the Computer Networks, Topologies and different networking devices	5

<b>CO-4</b>	Formulate algorithm/ flowchart for the given logical problem and convert it to C program using correct syntax	6,7
<b>CO-5</b>	Apply programming fundamentals using control structures and array concepts of C	8,9

### Teaching & Learning Methodology:-

- The course includes a laboratory, where students get the opportunity to practically apply the theoretical knowledge they have acquired in the lectures.
- Lectures with live practical example using Projector and Computer
- Different experiments shall be carried out during the practical sessions in the laboratory.

### List of Experiments/Tutorials:

1. Download the free plagiarism software and check your own created report in it.
2. Disassemble the CPU of the computer system and identify the Motherboard, SMPS, storage devices etc.
3. Install and uninstall the software using the control panel.
4. Set screensaver, window resolution for the windows computer system.
5. To study about basic concepts of computer networks topology and different network devices.
6. Use the google search engine for finding the data related to the given topics in the laboratory using advanced search options.
7. Use google maps to search the location of your institute.
8. Prepare an excel sheet for the students Marks data and perform various Microsoft Excel functions over the same.
9. Create a Document using Microsoft Word on the topic given in the laboratory and perform formatting over the same.
10. Prepare a presentation using Microsoft Powerpoint on the topic given in the laboratory and perform animations over the same.
11. Create the google group of your 5 classmates and send the email in the same.
12. Draw the flow chart and write the algorithm for the following problems
  - a. Area of Circle
  - b. To find whether the number is prime or not
  - c. To print number from 1 to 10
13. Write a C Program to print the name, enrollment number, branch and semester of the student.
14. Write a Program to calculate Addition, Subtraction, Multiplication and Division of given two numbers using arithmetic operators.
15. Write a program to calculate the Simple Interest by accepting the values from the user.  
(formula:  $PRN/100$ )
16. Write a Program of swapping two values.
17. Write a Program to convert time from given seconds to total hours, minutes and seconds.
18. Write a Program to find ascii value of given character.
19. Write a C program to find the factorial of a given number.
20. Write a program to check whether the given number is prime or not.
21. Write a program to print following patterns :
  - a. \*

```
  * *
 * * *
* * * *
* * * * *
```

b.

```
  1
 12
123
12345
```

c.

```
12345
1234
123
12
1
```

d.

```
5 5 5 5 5
4 4 4 4
3 3 3
2 2
1
```

22. Write a Program to store roll numbers of 5 students using an array.

**Major Equipment:**

- Computer System with licensed OS/Open source system software, licensed application software, Latest Anti-Virus software.
- Simulators for Network activity demonstration.
- C Programming Compiler
- Projector

**Books Recommended:-**

1. Information Technology, by Dennis P. Curtin and Kim Foley, Tata McGraw-Hill Publishing Company Limited
2. Introduction to Information Technology, by Turban and Rainer, Wiley Publications
3. Programming in ANSIC, Seventh edition, by Balagurusamy E, Tata McGraw-Hill Publishing Company Limited
4. “Computer programming”, Pearson Education, 2007 by Ashok N. Kamthane.

**List of Open Source Software/learning website:**

1. NPTEL tutorials
2. <http://silveroakuni.ac.in/video-lecture>
3. <http://www.coursera.org/>