COMPUTER SCIENCE

GRADE: XI

Teaching Hours : 150 **Full Marks : 100 (75T + 25P)**

I. Introduction

Information technology has become a part of contemporary society and as a potential tool in the socio-economic development of country. As IT manpower is the backbone for the rapid development of ICT sector in the country, government of Nepal has accordingly identified IT as a priority sector. Keeping in view the importance of computer technology in general and indispensability of its knowledge and skill to the society in general and to the students of higher secondary level in particular, the source seeks to introduce computer science to acquaint the learner with the basic skills of computer literacy.

II. General Objective:

The general objective of this course is to:

1. Help establish a strong foundation for the development of internationally competent human resource in the field of information communication and technology
2. Help decrease the digital divide ; and
3. Fulfill the middle level ICT human resource to the ICT industries.

III. Specific Objective

1. Explain the fundamental principle of computer system mechanism and information and communication technology
2. Identify computer resource for any specific purpose PC based application in the real life situations
3. Solve the office automation related system problems , general skill about network , internet , email and web site design
4. Engage in higher study of computer science and IT courses in the country or abroad;
5. Provide the services as instructors of computer sciences courses in schools or institutions;
6. State programming concept and tolls;
7. Explain the state – of –art information technology and works to change agents for spreading ICT culture in their society; and
8. Encourage the student for visit the hardware and software industries, etc.

IV. Course Contents:

UNIT-1 Introduction and Evolution of Computer

1.1 Concept and characteristics of computer
1.2 Application of computers
1.3 History of computers
1.4 Generations of computers
1.5 Computer speed and Measurement Unit

UNIT-2 Classification of Computer

2.1 On the basis of working principle – Analog, Digital and Hybrid computers
2.2 On the basis of size
2.3 On the basis of brand

UNIT-3 Number System and Their conversion

3.1 Decimal, Binary, Octal, Hexadecimal Number system and conversion
3.2 9’s and 10’s complements decimal subtraction
3.3 Calculation in Binary

UNIT-4 Logic Function and Boolean algebra

1.1 Logic Function and Boolean Algebra
1.2 Introduction of truth table , Boolean Expression
1.3 Logic Gates
1.4 Duality Principle
1.5 Laws of Boolean Algebra
1.6 De Morgan’s Theorem : Statement and logic expression
1.7 Venn diagram and its repetition of logic gates(AND, OR, NOT)

UNIT-5 Computer Systems

5.1 Concept of Computer Architecture
5.2 Concept of Computer Organization
5.3 Components of computer system
5.4 Concept of system buses: Data Bus, Control Bus
5.5 Memory- Primary and Secondary
5.6 Storage devices
5.7 Input devices
5.8 Output devices
5.9 Computer peripherals
5.10 Interfaces- Parallel port, Serial port, USB Ports, IEEE 1394 and slots
5.11 Identification of PC Accessories and Peripherals
5.12 Specification of PC
5.13 Software and Classification
    5.13.1 System software
    5.13.2 Application software including Utilities Software
    5.13.3 Computer virus and antivirus

UNIT-6 Operating System

6.1 Fundamental Concept
    6.1.1 Introduction to operating system
    6.1.2 Role of Operating System
    6.1.3 Function of an Operating system
    6.1.4 Types of operating system
6.2 Disk Operating System (DOS)
    6.2.1 Introduction to CUI and its feature
    6.2.2 Common DOS Commands
    6.2.3 Concept of file and directory
    6.2.4 Wildcards and Pathname
    6.2.5 System files
6.3 Windows Operation System
    6.3.1 Introduction to GUI and its Features
    6.3.2 Working with a Window Environment
    6.3.3 Working with a windows application program
    6.3.4 Working with files and folders
    6.3.5 Customizing the taskbar and desktop
    6.3.6 Customizing Windows
    6.3.7 Use of Accessories

6.4 Concept of open source operating system

UNIT-7 Programming Concepts and Logics

7.1 Programming languages
7.2 Compiler, Interpreter and assembler
7.3 List of High Level Programming Language
7.4 Difference between Program and software
7.5 Concept of programming students
7.6 Syntax and Semantics errors
7.7 Program Control Structures
7.8 Program Design Tools
7.9 Introduction to data type
7.10 Codes: Absolute binary, BCD, ASCII, UNICODE etc.

UNIT-8 Application Package

8.1 Word Processor

- 8.1.1 Concept of word processing
- 8.1.2 Types of word processing
- 8.1.3 Basic terms of word processing
- 8.1.4 Working and editing text
- 8.1.5 Formatting Characters and Paragraphs
- 8.1.6 Formatting Pages
- 8.1.7 Working with tables
- 8.1.8 Working with templates and styles
- 8.1.9 Drawing and working graphics
- 8.1.10 Performing a mail merge
- 8.1.11 Document collaboration
- 8.1.12 Working with outlines and Long Documents
- 8.1.13 Project Work on Word Processor

8.2 Spread Sheet

- 8.2.1 Concept and use of spread sheet
- 8.2.2 Types of spread sheet
- 8.2.3 Basic fundamentals of spread sheet
- 8.2.4 Formatting a worksheet
- 8.2.5 Creating and working with charts
- 8.2.6 Managing Workbooks
- 8.2.7 General Functions and Formulas
- 8.2.8 Data Filter and sorting
- 8.2.9 Working with other objects
- 8.2.10 Data analysis and Pivot tablets

8.3 Presentation

- 8.3.1 Concept of presentation
- 8.3.2 Types and use of presentation program,
- 8.3.3 Basic function of presentation
- 8.3.4 Editing a presentation
- 8.3.5 Design and formatting presentation
- 8.3.6 Transition of presentation
- 8.3.7 Animation and custom animation
- 8.3.8 Working with tablets , graphics and word art
- 8.3.9 Working with charts and multimedia

UNIT-9 Internet and E-mail

9.1 Internet

9.1.1 Introduction of Internet

9.1.2 Uses of internet

9.1.3 Concept of Protocols

9.1.4 Web browser, web page, web site, web server, URL, DNS

9.1.5 Search engine, messenger services

9.1.6 Setting Browser properties

9.2 Email

9.2.1 Concept of email

9.2.2 Uses of e-mail

9.2.3 Different types of E-mails Account

9.2.4 Web based e-mail and POP e-mail

UNIT- 10 Web Page Designing

10.1 Introduction to HTML

10.2 Types of tags

10.3 Basic Structure of HTML

10.4 Character Formatting

10.5 Create an Ordered and Unordered list

10.6 Insert images and objects

10.6 Create Hyper links

10.7 Create table

10.8 Designs frames and form

10.9 Webpage Design and script language

10.11 Project work on Web Page

Marks and Teaching Hours Distribution

Units	**Mark Distribution**		**Number of Hours**	
	Theory	**Practical**	**Theory**	**Practical**
1	2		3	
2	3		5	
3	5		5	
4	5		10	
5	10		15	2
6	10	3	10	20
7	10		10	
8	15	15	10	22
9	10	5	10	16
10	5	2	5	7
11				
Total	**75**	**25**	**83**	**67**

Evaluation Schemes:

a) Practical Evaluation

S. No.	Unit	Topics	No of exercise	Mini Projects Evaluation	Remarks
1	5	PC Component Identification	2	-	Practical Marks Evaluated by: External examiner:10 Internal examiner: 15 Based on project and lab exercise
2	6.3	Operating system	4	-	
3	8.1	Word Processor	6	5	
4	8.2	Spreadsheet	5	5	
5	8.3	Presentation	4	5	
6	9	Internet , Email	4	2	
7	10	Web page designing	6	5	
8	11	Final Project			

Theory Evaluation

- **Short question**
- **Long Question**
- **Short Question**

Theory Questions are guided by marks distribution and model question