

# Udai Pratap Autonomous College, Varanasi



Syllabi of Diploma, Hand-on-Training and Certificate Courses

## Syllabi of Diploma, Hand-on-Training and Certificate Courses

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# Policy for Skill Acquisition Programme



**UDAI PRATAP COLLEGE, VARANASI-221002**

(An Autonomous Institution Affiliated to Mahatma Gandhi Kashi Vidyapith, Varanasi)

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# UDAI PRATAP COLLEGE, VARANASI

(An Autonomous Institution Affiliated to Mahatma Gandhi Kashi Vidyapith, Varanasi)

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## 1. Introduction

Self-employment is immensely needed in present socio-economic scenario of the nation. Skill development plays a vital role in generation of employability and self-employment. Udai Pratap College is intended to provide the students with the necessary additional skills to make them market ready and globally competent.

The eastern part of Uttar Pradesh is lacking industrial development. Udai Pratap College is continuously imparting holistic education to generations for the last seventy three years. The college is focused on the comprehensive development of students with employment generation. In order to achieve the goal, college has devised several skill development certificate courses for students to upgrade their employability. This policy document is to establish a framework to conduct career enhancement short term courses at Udai Pratap College, Varanasi.

## 2. Scope

This policy applies to Principal, Deans, HODs, IQAC Coordinator, Certificate Programme coordinator, Department Certificate Course Coordinators and students of the Udai Pratap College, Varanasi.

## 3. Objectives:

- To offer certificate courses in addition to regular degree programs
- To provide guidance according to interests, aptitudes and potential of students
- To impart necessary skills for employability
- To develop skills with better job prospects
- To enhance economic independence

#### 4. Policy Document

- 4.1. Udai Pratap College is committed to provide additional courses to students to enhance their career and job prospects. College acknowledges that students may require additional knowledge and expertise to achieve their career goals. Feedback from employers and alumni indicate many jobs require additional skills. Certificate courses are designed in accordance with the industry needs.
- 4.2. College encourages its students to enrol in to certificate courses. This policy provides students an opportunity to develop their skills and achieve their career.
- 4.3. Care will be taken to make the courses affordable to students. College understands that each certificate course is unique, syllabus and duration of the course may vary. All certificate courses offered by Udai Pratap College should be of minimum 30 hours duration.
- 4.4. For some certificate courses, external faculties/firms are to be hired to conduct the certificate courses. In such cases Principal, Deans/HODs/Certificate Programme coordinator/Department Certificate Course Coordinators & IQAC coordinator should discuss with external faculty/firm and may arrive at a Memorandum of Understanding (MoU) safeguarding the interests of the College.
- 4.5. The trained students should go through an evaluation process and then after the successful students are given completion certificates.

#### 5. Feedback

Feedback from all the stakeholders will be collected; analysed and corrective actions will be taken periodically.

Principal



PRINCIPAL  
UDAI PRATAP COLLEGE  
VARANASI

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# Syllabus of UG Diploma and PG Diploma Courses

## Udai Pratap College, Varanasi (An Autonomous Institution)



**Syllabus of Subject: Post Graduate Diploma In Computer Application**

**For One year of Diploma Course**

**Session: 2022-2023**

**Department of Computer Science**

**Udai Pratap College, Varanasi, 221002**

**(An Autonomous Institution)**

## POST GRADUATE DIPLOMA IN COMPUTER APPLICATION

### CM-001(FUNDAMENTAL OF DIGITAL COMPUTERS)

100 Marks

#### UNIT-1

Introduction of computer and history, Generation of computer, Classification of computer, Characteristics of computer , Computer Software and Hardware.

#### UNIT-2

Functional units of Digital computer, Working of a computer using block diagram, Component of computer System: ALU(Airthmetic Logic Unit) , CU(Control Unit) , Memory . Properties of simple I/O devices: VDU(Visual Display Unit), Keyboard, Mouse, Printer, Scanner , Digital Camera.

#### UNIT-3

Types of Translators : Assembler , Compiler and Interpreter , Computer languages : Machine Languages, Assembly Languages and High/Low Languages , Memory : Primary Memory, Secondary Memory. Auxiliary storage devices: Magnetic core, Magnetic disk, Magnetic tape , Floppy disk, Hard disk, CD-Rom,Worm, Concept of Virtual Memory.

#### UNIT-4

Number System : Binary , Decimal, Octal , Hexadecimal number System, Integers and Real number, Conversion from one number System to another , Signed and Unsigned numbers.

#### UNIT-5

Functions of OS(Operating System), Types of OS , Introduction to DOS , DOS Commands internal: DATE, TIME,CLS, DIR, COPY CON, COPY , TYPE ,REN , DEL , MD, CD, RD and EDIT. Introduction to Windows OS : Windows Structures , Windows accessories : Calculator , Notepad and WordPad .



**POST GRADUATE DIPLOMA IN COMPUTER APPLICATION**

**CM-002(PROGRAMMING IN C)**

**100 Marks**

**UNIT-1**

Introduction to C , Principles of programming : Flow charts , Algorithms , Structure of C language , character set of C language , Constants : numeric , character and string , Variables.

**UNIT-2**

Data types in C , simple I/O functions (scanf , gets , getchar , printf , puts , putchar) , Operators : Airthmetic , Relational , Conditional , Logical , Bitwise , Assignment , Increment & Decrement operator Expression.

**UNIT-3**

Control Structure : goto statement , if-else and switch statement , Loops: while , do- while , for , nested loop , Functions : system define , user define .

**UNIT-4**

Introduction to Array , Types of array in C , array limits in C , Concept of pointers , pointer types variable declaration , pointer to a pointer , pointer to character , integer and float variable types , pointer operations .

**UNIT-5**

Concept of files, files opening in various modes and closing a file. Programs in C language.

A handwritten signature in black ink, appearing to be 'S. C. S.', written in a cursive style with a horizontal line underneath.

**POST GRADUATE DIPLOMA IN COMPUTER APPLICATION**

**CM-003(PROGRAMMING IN C++)**

**100 Marks**

**UNIT-1**

Introduction to C++ , Principles of programming : Flow charts , Algorithms , principle of C++ language , Identifiers , Constants : numeric , character and string , Variables , tokens ,key words.

**UNIT-2**

Data types in C++ , simple I/O functions (cout ,cin ,etc.) , Operators : Airthmetic , Relational , Conditional Logical , Bitwise , Assignment , Increment & Decrement operator .

**UNIT-3**

Control Structure : goto statement , if-else and switch statement , Loops: while , do- while , for , nested loop , Functions : system define , user define . Introduction to Array , Types of array in C++.

**UNIT-4**

Concept of C++ , Type declaration , Expression , Friend function, Concept of inheritance : Single inheritance, Multiple inheritance, hierarchal inheritance, Multilevel inheritance, Program structure.

**UNIT-5**

Classes and Object, Constructor : Default Constructor , Parameterized Constructor , Copy Constructor, Destructor , Overloading , Virtual Base Classes, Streams and Templates , C++ Programs.



## POST GRADUATE DIPLOMA IN COMPUTER APPLICATION

### CM-004(PC SOFTWARE APPLICATION)

100 Marks

#### UNIT-1

Introduction of Word , Opening documents: Save and Save as, Page setup , Print preview , Printing of document, Editing text , Text selection , Cut , Copy and Paste , Font and size selection , Alignment of text.

#### UNIT-2

Finding and Replacing , Formatting text : Paragraph indenting , Bullets and Numbering , Changing case Inserting and Creating tables , Mail merge, Word art.

#### UNIT-3

Introduction to Ms-excel , Element of electronic Spread sheet : Opening of spread sheet , addressing of cell , Printing of Spread sheet , Saving Workbook , Formula bar , Menu bar, Tool bar and Status bar.

#### UNIT-4

Page setup , Fonts , Alignment numbers , Functions and getting worksheet printed , Introduction of Charts , Types of charts : Bar chart , Line chart , Pie chart , XY chart and Stack chart.

#### UNIT-5

Introduction to Power point , Using power point , Opening and Saving power point presentation , Creation of presentation , Preparation of slides , Presentation of slides and slide show.



# POST GRADUATE DIPLOMA IN COMPUTER APPLICATION

## CM-005(Java Application Programming)

100 Marks

### UNIT-1

Introduction to java: An overview of JAVA, JAVA Applets and applications. Difference between Java script and application, Object-oriented programming features, Data Types and Variables : Java token and Keyword , Integers Types , Floating point types. The JAVA classes libraries , Declaring a variables , Dynamic initialization.

### UNIT-2

The Scope and lifetime of variables , Type conversion and casting.

Arrays : One dimensional Array , Multidimensional arrays .

Operators : Airthmetic operators , Relational operators , Boolean logical operators , Bitwise operators, The assignment operator , The ? operator , Operator precedence.

### UNIT-3

Control Statements: Selection Statement, Iteration Statements, Jump Statements.

Introduction classes and objects : Class fundamentals , Declaring objects , The 'this' Keywords , Garbage

collection , A stack class , Constructors , Overloading constructors , using object as parameters, Arguments passing , Returning objects.

### UNIT-4

Inheritance : Inheritance basis , Type of inheritance , Member access and inheritance , Using Super class,

Creating a multilevel hierarchy , Method overriding , Method overloading, Using abstract classes ,Using

final with inheritance, The object class.

### UNIT-5

Multithreaded Programming : introduction , Creating thread , Stopping and blocking a Thread, Life Cycle of a thread , Exceptions , Syntax of exception handling , Multiple catch statements . Java programming.



## POST GRADUATE DIPLOMA IN COMPUTER APPLICATION

### CM-006(SQL AND INTERNET)

100 Marks

#### UNIT-1

Introduction : An overview of database management system, Database system concepts and architecture , data models schema and instances, data independence and data base language and interfaces, Data definition language. DML.

#### UNIT-2

Data Modelling using the Entity Relationship Model: ER model concepts, notation for ER diagram, mapping constraints , Keys , Concept of Super Key , candidate Key , primary Key ,Generalization , aggregation.

#### UNIT-3

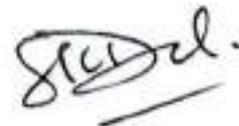
Introduction to SQL:Characteristics of SQL, Advantage of SQL , SQL data types and literals , Types of SQL commands , SQL operators and their procedure, Table , view and indexes, Queries and sub queries, Aggregate functions , Insert , update and delete operations , Joins , Unions, Intersection, Minus , Cursors in SQL, PL/SQL , Triggers and clusters.

#### UNIT-4

Concept of Network , Working of Network , Domain Name System . Classification of Network , Lan topology , Access method , LAN , WAN , MAN, etc. , Hardware and software in networks.

#### UNIT-5

Governance of Internet , Tools of Internet , Email , FTP , Telnet , EDI , Bitnet , ISDN , NICNET , Web.



**POST GRADUATE DIPLOMA IN COMPUTER APPLICATION**  
**(Practicals and Assignments)**

**400 Marks**

Practicals related to Paper II, Paper III, Paper IV, Paper V and Paper VI.

Project Work : 100 Marks

Problem Solving : 200 Marks

Viva-Voci : 100 Marks

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**Udai Pratap Autonomous College**  
**Post Graduate Diploma in Environmental Science**  
**Syllabus**

<b>S.No.</b>	<b>Component</b>	<b>Weightage/Max. Marks</b>
1.	Environment and its segments.	50
<del>2.</del>	Environmental Pollution.	50
3.	Environmental Management	50
4.	Extension Work (Oral Exam)	50
5.	Practical	100

# Environmental Science

## Paper (I)

### Environment and its Segments: -

Concept of Environment: Meaning and Scope, Environmental Segments - Atmosphere, Hydrosphere, Lithosphere and Biosphere. Composition of the atmosphere, atmospheric structure, particles, ions and radicals in the atmosphere, chemical process for formation of inorganic and organic particulate matter, Chemical and photochemical reactions in the atmosphere, Oxygen and ozone in the atmosphere, sulphur dioxide, Nitrogen oxide, Chlorofluoromethanes, organic compounds. Green house effect. The Hydrosphere and Water cycle, Water: the universal solvent, water molecule, Anomalous properties of water, water quality parameters and standard, monitoring techniques and methodology. Eutrophication, Microorganisms and aquatic chemical reactions - microbially mediated redox reactions, nitrogen transformation by bacteria, iron and manganese bacteria. Composition of lithosphere, the soil & soil profile, supply and availability of plant nutrients, soil ecology and environmental quality, macro faunae, macro faunae macro florae, macro florae, bacteria, fungi, actinomycetes, algae, viruses, pesticides, microorganisms and the environment.

## Environmental Science

### Paper (II)

#### Environmental Pollution :

Fundamental concept: Environmental Pollution, definition, causes, pollutants definition & characteristics; Types of pollution Air pollution ; definition, sources of air pollution combustion, vaporization, frictional force. Gases and particulates - Air pollution in technological Society, Oxides of Sulphur ; Pollution sources, environmental fate, toxicology and health risk ecological effects, Acid rain; definition and causes, problem areas, acid rain aquatic medium, consequences of acid rain, episode, Hydrogen sulphide, oxide of carbon - CO, CO<sub>2</sub>, Oxides of nitrogen ; ozone, pollution sources environmental fate, toxicology and health risks, ecological effects, environmental levels, episode; Hydrocarbons; classification, pollution sources; aliphatic hydrocarbons formaldehyde, environmental fate - toxicology and health risks; PAN and PBN- health risks- ecological effects; Aromatic hydrocarbons - PAHs - pollution sources, toxicology and health risks, Particulates - mist- smoke- fumes- dust, health risks ecological effects, environmental levels; Asbestos - uses and pollution sources, toxicology and health risks; Fluoride pollution sources toxicology and health risks, ecological effects and environmental levels. Water pollution and Environmental health ; Movement of pollutants in hydrosphere; classification of water pollutants, municipal and domestic wastes, industrial wastes; agricultural chemicals; important characteristics of waste water from some major industries, heat and radioactive wastes; biodegradable and non biodegradable pollutants, oil pollution, Ground water pollution; biological contamination of water, Heavy metal contamination of water. Lithosphere (Soil) pollution; Soil Degradation, soil erosion and conservation, soil pollution, biocides, solid waste pollution, solid waste and their disposal, waste collection reclamation and recycling processes; wastes and pollutants in soil, Soil reaction - acidity and alkalinity and sulphate soils; chemical pollution of soil - chemical pesticides and their behavior in soil; contamination with toxic in organic compounds, behavior of inorganic wastes, soils; on organic wastes disposal sites, radio nuclides in soils. Environmental fate pollutants - transformation processes, hydrolysis, photolysis - pollutant transfer between media, mass transfer and

interfacial transfer - fate of degradable and persistent - pollutants - bioconcentration - biomagnifications. - Fate of air, water and soil Pollutants. toxic effects of pollutants - Toxicity, acute toxicity - subacute / sub chronic toxicity, chronic toxicity - carcinogenicity - mutagenicity - teratogenicity- extrapolation to human scale. Metals and metallic compounds - Aluminium - arsenic - Beryllium - Cadmium - chromium- cobalt - copper - iron- Lead; inorganic and tetra ethyl lead - Manganese - Mercury: Inorganic mercury and alkyl mercurial - Molybdenum - Nickel - Selenium - Silver. Tin: inorganic and alkyl tins - zinc. Biochemical effects of As, cd, Pb, Hg, Co, Nox, SO<sub>2</sub>, O<sub>3</sub>, PAN, cyanides, pesticides, carcinogens. Miscellaneous pollutants; polychloro/bromodiphenylcyanidesphthalatespetroleum - synthetic detergents. Metabolic fate of pollutants Absorption, skin, gastrointestinal Distribution - Metabolism, biotransformation - Excretion: Urinary and biliary excretion - Metabolism in other animals and plants, Noise pollution: sources of noise-properties, effects of noise pollution.

## Environmental Science Paper (III)

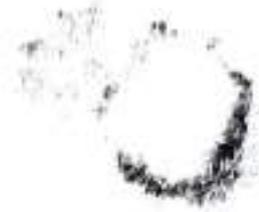
### Environmental Management :

✓ Environmental Quality: Introduction and definition - objectives - water quality: pH, alkalinity, temperature, hardness, turbidity, solids and salinity, Dissolved oxygen fecal coliforms - phenols - water quality indices - water for human consumption. Drinking water for live stock - water for plants - Air quality criteria and non criteria pollutants - Air quality indices, food quality - soil / land quality. Environmental Monitoring: Definition - objectives - benefits - classification: Occupational and general environment monitoring - personal monitoring - Biological monitoring - source monitoring - Media monitoring - Ambient monitoring - Trend monitoring - primonitoring - ecological effects of monitoring. Biological Indications: definition, concepts, advantages and disadvantages - Biological indicators of pollution; saprobic system - biotic indices - chemical monitor species; vertebrates, invertebrates, plants - Advantages of chemical monitor species - chemical method of monitoring. Exposure to pollutants and Risk Assessment: Exposure to pollutants - Risk - Risk assessment - Hazard / Toxicity assessment - Exposure assessment - Risk characterization - Assessing non- carcinogenic risk - Assessing carcinogenic risks. Pollution control :Principles of pollution control - Controlling gaseous pollutants - controlling metals and metallic compound - controlling pesticidal pollutants - controlling miscellaneous pollutants - waste water treatment - pollution control programmes in India. Management of polluted soils : Reclamation of acid and salt & alkali polluted soils, Acid sulphate soil and its reclamation. Environmental legislation. Control of noise pollution. Pollution control through law- The Environment protection acts.

# Environmental Science

## Paper (IV)

Extension Work (oral examination)  
Group discussion seminar, viva- voce  
Project report, Survey of polluted Zones  
- rural and urban area.



### **Important Topic:**

1. Environmental education and information: Goals objectives and guiding principles of environmental education, environmental education Problems, Environmental education in India.
2. Environmental organizations and agencies: International bodies, Man and the biosphere programme (MAB), National organizations Department of the Environment, Forests and wild life (Govt. of India) < Important abbreviations.
3. Phytogeography: Major plant communities of world, Phytogeographic regions of world (Vegetational belts), Soil climate, flora and vegetation of India - Floristic Regions of India - Vegetation of India - Interpretive approach to phytogeography.
4. Zoogeography: Barriers to dispersal, - means of dispersal zoogeographic regions of world - Bathymetric distribution - Geologic Distribution.
5. Wildlife Management: Wild life in India, Ecological sub regions of India, Endangered Flora and fauna of India, Wildlife Management in India, Indian Board for wildlife (IBWL), Protected Area's Network, National parks and sanctuaries, Special Project for Endangered species: Project tiger, Gir lion project, crocodile breeding project, Rhinos conservation, Snow leopard project, Biosphere reserves, Nilgiri biosphere Reserve (NBR), National and state symbols.
6. Forest Resources: (Deforestation, Afforestation), Conservation of Natural resources, Forest cover, deforestation, desertification, demand and supply of wood, Afforestation - Strategy to demands, conservation, protection forestry production / commercial. Exploitative forestry, Social forestry, Agroforestry, Forest conservation through law, World conservation Strategy (WCS) and National conservation strategy (NCS), Dharma of Ecology, Wet lands in India, Mangroves in India.

**Udai Pratap College, Varanasi**  
**(An Autonomous Institution)**



**Syllabus of Subject: Diploma in Computer Application**

**For One year of Diploma Course**

**Session: 2022-2023**

**Department of Computer Science**  
**UdaiPratap College, Varanasi, 221002**  
**(An Autonomous Institution)**

**Paper: First**

**DCA-1(COMPUTER FUNDAMENTALS)**

**100 Marks**

**UNIT-1**

Introduction of computer and history, Generation of computer, Classification of computer, Characteristics of computer, Computer Software and Hardware

**UNIT-2**

Component of computer System: ALU (Airthmetic Logic Unit), CU(Control Unit) Memory. Properties of simple I/O devices: VDU(Visual Display Unit), Keyboard, Mouse, Printer, Scanner, Digital Camera.

**UNIT-3**

Memory: Primary Memory, Secondary Memory. Auxiliary storage devices: Magnetic core, Magnetic disk, Magnetic tape, Floppy disk, Hard disk, CD-Rom, Worm, Concept of Virtual Memory.

**UNIT-4**

Introduction to DO, DOS Commands internal: DATE, TIME, CLS, DIR, COPY CON, COPY, TYPE, REN, DEL, MD, CD, RD and EDIT. Introduction to Windows OS: Windows Structures.

**UNIT-5**

Number System: Binary, Decimal, Octal, Hexadecimal number System, Integers and Real number, Conversion from one number System to another.

*Signature*

**Paper: Second**

**DCA-2(PROGRAMMING IN C)**

**Max. Marks: 100**

**UNIT-1**

Introduction to C, Principles of programming: Flow charts, Algorithms , Structure of C language , character set of C language , Constants : numeric , character and string , Variables.

**UNIT-2**

Data types in C, simple I/O functions (scanf, printf), Operators: Arithmetic,Relational,Conditional,Logical,Bitwise,Assignment, Increment & Decrement operator Expression.

**UNIT-3**

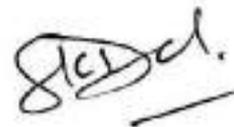
Control Structure : goto statement, if-else and switch statement , Loops: while , do- while , for , nested loop , Functions : system define , user define .

**UNIT-4**

Introduction to Array, Types of array in C, array limits in C declaration

**UNIT-5**

Programs in C language: Addition of two numbers, even and odd numbers, greatest number in any two numbers, reverses the given digits, Fibonacci series, etc.



**Paper: Third**  
**DCA-3(MS-WORD)**

**Max. Marks: 100**

**UNIT-1**

My Documents, My computer, Windows Explorer, Windows accessories:  
Calculator, Notepad and WordPad.

**UNIT-2**

Introduction of Word, Opening documents: Save and Save as, Page setup, Print  
preview, printing of Document, Editing text, Text selection, Cut, Copy and Paste

**UNIT-3**

Finding and Replacing, Formatting text: Paragraph indenting, Bullets and  
Numbering, Changing case, Inserting.

**UNIT-4**

Creating tables, table manipulation, changing cell width and height, Mail merge,  
Word art

**UNIT-5**

Font and size selection, Alignment of text in cell, delete / insert of row and column  
border and shading

*Handwritten signature*

**Paper: Fourth**

**DCA-4(MS-Excel)**

**Max. Marks: 100**

**UNIT-1**

Introduction to Ms-excel, Element of electronic Spread sheet: Opening of spread sheet, addressing of cell, Printing of Spread sheet, Saving Workbook.

**UNIT-2**

Formula bar, Menu bar, Tool bar and Status bar, Fonts, Page setup, Alignment numbers, Functions and getting worksheet printed

**UNIT-3**

Working with tables, cell anatomy , moving around cell , selecting cells , cut ,copy , paste , dragging and moving contents.

**UNIT-4**

Find and replace, formatting cells, inserting formula in cells, inserting graph, and sorting, inserting row and columns

**UNIT-5**

Introduction of Charts, Types of charts: Bar chart, Line chart, Pie chart, XY chart and Stack chart.

*Signature*

**Practicals**

**DCA-5(Practical's and Assignments)**

**Max. Marks: 100**

Practicals related to Paper II, Paper III and Paper IV

Assignment: 15 Marks

Practicals: 60 Marks

Viva : 25 Marks

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**Udai Pratap College, Varanasi**  
**(An Autonomous Institution)**



**Syllabus of Subject: Diploma in Information and Computer Technology**

**For One year of Diploma Course**

**Session: 2022-2023**

**Department of Computer Science**  
**Udai Pratap College, Varanasi, 221002**  
**(An Autonomous Institution)**

# Diploma in Information and Computer Technology

## Paper 1: Fundamentals of Information Technology

Marks: 100

### UNIT-1

Definition of an Electronic Digital Computer Characteristics Capabilities and Limitations of computers. Generations of Computers, Types and classification of Computers on size. Computer hardware component and their functions. Characteristics and applications of Computers

### UNIT-2

Introduction to OS, components of OS. Multiprogramming multitasking & Time sharing, Files and directories & their use in different OS, Window and Unix OS Dos Commands. Types of Dos commands.

### Unit-3

Need of Software.Types of software-System, Software and Application Software, utilities programs, Introduction to programming language- Assembly languages, Machine Languages High Level Languages.

### Unit-4

Number System. Binary Number. Decimal Number, Octal Number, Hexa Decimal Number, Conversion of Binary to Decimal, Decimal to Binary, Binary to Hexadecimal, First Compliment's, Second Compliment's Code, gray Code and Ascii code.

### Unit-5

Types of Networks LAN,MAN, WAN Internet , Intranet, Topologies of LAN- Ring, Bus, Star, Mesh and Tree. Website, Web Browser, Web Pages, E-mail, uploading, downloading, chatting, usenet, bulletin board FTP, TELNET, domain name IP address

# Diploma in Information and Computer Technology

## Paper-II: PC Software

Marks : 100

### Unit -1

Definition of PC and its Components. Concepts of Software, Hardware and Firmware Type of Software.

### Unit -2

Basic of Window O.S., GUI, Folders, Concept of Login, logout, log off, Desktop, My Computer, My Document, Recycle Bin, My Network, Start Button, Task Bar, Date and Time Setting, Control Panel, Calculator, Word Pad, Note Pad, System Tools.

### Unit -3

MS-WORD. Opening, Creating, Saving a Document, Editing, Finding & Replacing Texts, Using the interface (Toolbars and Menus) Table, Mail Merge, Letter Formatting and Print Setup.

### Unit -4

MS EXCEL : Concept of Work Book , Opening, Creating, Saving a workbook, Concept of worksheets, cell and their formatting. Functions and formula.

### Unit- 5

MS POWER POINT: Business presentation and their advantages Opening, creating, saving a presentation Slide setting and show.

# Diploma in Information and Computer Technology

## Paper III: Programming in C++

Marks : 100

### Unit-I

Algorithm, Flow Chart- Symbols Rules for making flow charts, Types of flow Chart, Advantage and disadvantage, Pseudo Codes, Programming techniques- Top Down and Bottom Up, Functional & Object Oriented.

### Unit- II

Object-Oriented Programming Paradigm, Basic Concepts of Object-Oriented Programming Benefits of OOPS, C++ Statements, class, Structure of C++ Program, Creating the source file, compiling and linking.

### Unit- III

Tokens, Expression and Control Structures, Introduction, Tokens, Keyword, Identifiers. Basic Data types, User Defined Data Types, Symbolic Constants Reference Variables

### Unit- IV

Operators in C++ , Scope Resolution Operators, Member Differencing Operators, Control Structures, Structures, Functions, arrays Specifying a class, Defining Member Functions, Memory allocation for objects, Static Data Member, Static Member Functions, Array of Objects, Object as Function arguments.

### Unit- V

Introduction, constructors, parameterized Constructors, Multiple constructors with Default Arguments, Dynamic Initialization of Objects. Copy Constructors, Dynamic Constructors, and Destructor.

# Diploma in Information and Computer Technology

## Paper IV : Database Management System & HTML

### Unit-1

Marks : 100

**Introduction:** An overview of database management system. Database system concepts and architecture, data models schema and instances, data independence and data base language and interfaces, Data definitions language DDL.

### Unit-2

**Data Modelling using the Entity Relationship Model :** ER model concepts, notation for ER diagram, mapping constraints, keys, Concepts of Super Key, Candidate Key, Primary Key, Generalization, aggregation.

### Unit-3

**Introduction to SQL :** Characteristics of SQL. Advantages of SQL, SQL data types and literals, Types of SQL ,commands, SQL operators and their procedure, Tables, views and indexes, Queries and sub queries, Aggregate functions, Insert, update and delete operations, Joins, Unions, Intersection, Minus, Cursors in SQL, PL/SQL, Triggers and clusters.

### Unit-4

**HTML:** HTML, Design Tools, HTML editors, Image editors, Issues in web site creation & maintenance, FTP S/W for upload web site, Concepts of Hypertext, versions of HTML, Elements of HTML Syntax, Head & Body Sections.

### Unit-5

**Building HTML Documents,** Inserting texts, Images, Hyperlinks, Backgrounds and Color Controls, Different HTML Tags, Table Layout and Presentation, use of Font size & attributes, List types and its tags, use of Frames and forms in web pages.

**DICT-5(Practical's and Assignments)**

**Max. Marks: 100**

Practicals related to Paper II, Paper III and Paper IV

Assignment: 15 Marks

Practicals: 60 Marks

Viva : 25 Marks

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**Syllabus for Undergraduate Diploma in Biotechnology**  
**Session 2022-23**



**DEPARTMENT OF ZOOLOGY**  
**UDAI PRATAP COLLEGE (AUTONOMOUS),**  
**VARANASI-221002**

(Affiliated to M. G. K. Vidyapith, Varanasi)

**Course mentor: Dr. Tumul Singh, Professor**

**Course co-mentor: Dr. Sanjay Kumar Srivastava, Senior Assistant Professor**

**Course coordinator: Mr. Satish Pratap Singh, Assistant Professor**

**Course co-coordinator: Ms. Preeti Yadav, Assistant Professor**

**Passed by Board of Studies Held on-**

Biotechnology syllabus  
DIPLOMA IN BIOTECHNOLOGY

**Paper-I: Essentials of Biotechnology**

**Unit-1:**

Cell biology in biotechnology

- 1.1 Basic structure of bacterial cell
- 1.2 Basic structure of animal cell
- 1.3 Basic structure of plant cell

**Unit-2**

Basics of molecular biology

- 2.1 Basic structure of DNA
- 2.2 Difference between circular and linear DNA
- 2.3 Basic concept of gene
- 2.4 Basic concepts of gene expression

**Unit-3:**

Advanced molecular biology -I

- 3.1 Genetic code and its variation
- 3.2 Base composition variation in genome
- 3.3 Relation between genetic code variation and codon degeneracy
- 3.4 Codon optimisation and its logic

**Unit-4:**

Advanced molecular biology-II

- 4.1 SNPs and ESTs as molecular markers
- 4.2 Reverse transcription and its use in cDNA synthesis

**Paper-II: Genetic engineering-1****Unit -1:**

## Restriction enzymes

- 1.1 Restriction enzymes and their nomenclature
- 1.2 Types of restriction enzymes and their basic features
- 1.3 Use of restriction enzymes in genetic engineering

**Unit-2:**

## Plasmids and vectors -I

- 2.1 Plasmids and their basic features
- 2.2 Vectors and their features
- 2.3 Vector digestion and ligation
- 2.4 Types of selection markers in vectors

**Unit-3:**

## Biotechniques -I

- 3.1 Agarose gel electrophoresis in plasmid analysis
- 3.2 PCR in gene cloning
- 3.3 Analysis of molecular markers (RAPD, AFLP) using PCR

**Unit -4:**

## Biotechniques -II

- 4.1 DNA sequencing by Sanger method
- 4.2 DNA fingerprinting and its uses.
- 4.3 DNA barcoding and its uses.



**Paper-III Genetic engineering-2****Unit-1:**

*E. coli* as host for vectors

- 1.1 Transformation
- 1.2 Different host strains and their uses (DH5 $\alpha$  and BL21)
- 1.3 Inducible protein expression
- 1.4 Issues in expression of eukaryotic proteins in bacterial host

**Unit-2:**

Advanced vectors for bacterial system

- 2.1 pETM11
- 2.2 pETM30
- 2.3 pETM41
- 2.4 pETM82

**Unit-3:**

Biotechniques -III

- 3.1 Bacterial cell lysis methods (Sonication and Lysozyme method)
- 3.2 Polyacrylamide gel electrophoresis (Native and SDS)
- 3.3 Affinity chromatography in recombinant protein isolation
- 3.4 Protein sequencing (Edman degradation)

**Unit-4**

Biotechniques -IV

- 4.1 Probes in molecular biology
- 4.2 Southern blotting
- 4.3 Northern blotting
- 4.4 Western blotting



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Paper-IV: Applications of biotechnology

Unit-1:

Microbial technology

- 1.1 Production of therapeutic molecules (insulin and antibiotics)
- 1.2 Production of biofuels
- 1.3 Production of single cell proteins and single cell oils

Unit-2:

Animal biotechnology

- 2.1 Production of transgenic animals
- 2.2 Production of knock out animals and their use in research
- 2.3 In vitro fertilisation methods

Unit-3:

Plant biotechnology

- 3.1 Production of transgenic plants using *A. tumefaciens*
- 3.2 Somatic hybridisation methods and its uses
- 3.3 Haploid culture and its uses

Unit 4:

Environmental biotechnology

- 4.1 Biotechnology in cleaning oil spills (Super bug and oil zapper)
- 4.2 Enzymes used in recycling (Keratinase, Cellulase, Xylanase, Urease)



**Laboratory Exercise - 75+25 (Project Work)**

- 1-Good Laboratory Practices.
- 2-Handling of Instruments (Spectrophotometer, Autoclave, Laminar flow, pH meter, centrifuge etc).
- 3-Preparation of Standard solutions (Molar, Normal, Percentage and Buffers)
- 4-Isolation of plasmid DNA from bacteria.
- 6-Restriction digestion of plasmid DNA and its analysis using agarose gel electrophoresis.
- 7-Preparation of nutrient media for bacterial culture.
- 8-Transformation of bacteria using heat shock method.
- 9- Calculation of transformation efficiency.
- 10- Expression of heterologous protein in bacteria using IPTG induction.
- 11- Isolation of heterologous protein from bacteria and its separation on SDS-PAGE.
- 12- Purification of heterologous protein using affinity chromatography.
- 13- Protein concentration measurement and standard curve preparation using Bradford's reagent.
- 14- Internal assessment
- 15- Viva voce and class records

**Suggested reading:**

1. A Textbook of Biotechnology (2005, NCERT)
2. Karp: Cell and Molecular Biology (2007, Wiley)
3. Lodish et al: Molecular Cell Biology (2007, Freeman)
4. Watson et al: Recombinant DNA (3<sup>rd</sup> edition, 2007, Freeman)
5. T.A. Brown: Gene cloning and DNA analysis (8<sup>th</sup> edition, 2020, Wiley)
6. Primrose and Twyman: Principles of Gene manipulation and Genomics (7<sup>th</sup> edition, 2014, Blackwell)
7. Wilson and Walker: Principles and Techniques of Biochemistry & Molecular Biology (8<sup>th</sup> edition, 2008, Cambridge)

# **SYLLABUS**

## **Course on Computer Concepts (CCC)**

**NIELIT  
ELECTRONICS NIKETAN  
6, C.G.O. COMPLEX,  
NEW DELHI – 110 003  
TEL. : 91-11-24363330-3332, 2436 6577, 2436 6579, 2436 6580,  
FAX: 91-11-24363335  
WEB SITE: <http://www.nielit.in>**

## Duration of the Course

**Theory:** 25 hrs + **Practical:** 50 hrs. + **Tutorial:** 5 hrs. This course can also be offered as 10 days full time intensive course.

## Syllabus Outline

	<b>Theory</b>	<b>Tutorials</b>	<b>Practical</b>
1. Introduction to computer	2	1	4
2. Introduction to GUI Based Operating System	3	-	8
3. Elements of Word Processing	4	2	10
4. Spreadsheets	4	2	10
5. Computer communication and Internet	4	-	5
6. WWW and web browsers	2	-	3
7. Communication and Collaboration	2	-	2
8. Making small presentations	4	-	8
<b>Grand Total</b>	<b>25</b>	<b>5</b>	<b>50</b>

## **DETAILED SYLLABUS**

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### **1. INTRODUCTION TO COMPUTER**

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- 1.0 Introduction
- 1.1 Objectives
- 1.2 What is Computer?
  - 1.2.1 History of Computers
  - 1.2.2 Characteristics Of Computer System
  - 1.2.3 Basic Applications of Computer
- 1.3 Components of Computer System
  - 1.3.1 Central Processing Unit
  - 1.3.2 Keyboard, mouse and VDU
  - 1.3.3 Other Input devices
  - 1.3.4 Other Output devices
  - 1.3.5 Computer Memory
- 1.4 Concept of Hardware and Software
  - 1.4.1 Hardware
  - 1.4.2 Software
    - 1.4.2.1 Application Software
    - 1.4.2.2 Systems software
  - 1.4.3 Programming Languages
- 1.5 Representation of Data/Information
- 1.6 Concept of Data processing
- 1.7 Applications of IECT
  - 1.7.1 e-governance
  - 1.7.2 Multimedia and Entertainment
- 1.8 Summary
- 1.9 Model Questions and Answers

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### **2. INTRODUCTION TO GUI BASED OPERATING SYSTEM**

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- 2.0 Introduction
- 2.1 Objectives
- 2.2 Basics of Operating System
  - 2.2.1 Operating system
  - 2.2.2 Basics of popular operating system (LINUX, WINDOWS)
- 2.3 The User Interface
  - 2.3.1 Task Bar
  - 2.3.2 Icons
  - 2.3.3 Start Menu
  - 2.3.4 Running an Application
- 2.4 Operating System Simple Setting
  - 2.4.1 Changing System Date And Time
  - 2.4.2 Changing Display Properties
  - 2.4.3 To Add Or Remove A Windows Component
  - 2.4.4 Changing Mouse Properties
  - 2.4.5 Adding and removing Printers
- 2.5 File and Directory Management
- 2.6 Types of files
- 2.7 Summary
- 2.8 Model Questions and Answers

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### **3. ELEMENTS OF WORD PROCESSING**

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- 3.0 Introduction
- 3.1 Objectives
- 3.2 Word Processing Basics
  - 3.2.1 Opening Word Processing Package
  - 3.2.2 Menu Bar
  - 3.2.3 Using The Help
  - 3.2.4 Using The Icons Below Menu Bar
- 3.3 Opening and closing Documents
  - 3.3.1 Opening Documents
  - 3.3.2 Save and Save as
  - 3.3.3 Page Setup
  - 3.3.4 Print Preview
  - 3.3.5 Printing of Documents
- 3.4 Text Creation and manipulation
  - 3.4.1 Document Creation
  - 3.4.2 Editing Text
  - 3.4.3 Text Selection
  - 3.4.4 Cut, Copy and Paste
  - 3.4.5 Font and Size selection
  - 3.4.6 Alignment of Text
- 3.5 Formatting the Text
  - 3.5.1 Paragraph Indenting
  - 3.5.2 Bullets and Numbering
  - 3.5.3 Changing case
- 3.6 Table Manipulation
  - 3.6.1 Draw Table
  - 3.6.2 Changing cell width and height
  - 3.6.3 Alignment of Text in cell
  - 3.6.4 Delete / Insertion of row and column
  - 3.6.5 Border and shading
- 3.7 Summary
- 3.8 Model Questions and Answers

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### **4. SPREAD SHEET**

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- 4.0 Introduction
- 4.1 Objectives
- 4.2 Elements of Electronic Spread Sheet
  - 4.2.1 Opening of Spread Sheet
  - 4.2.2 Addressing of Cells
  - 4.2.3 Printing of Spread Sheet
  - 4.2.4 Saving Workbooks
- 4.3 Manipulation of Cells
  - 4.3.1 Entering Text, Numbers and Dates
  - 4.3.2 Creating Text, Number and Date Series
  - 4.3.3 Editing Worksheet Data
  - 4.3.4 Inserting and Deleting Rows, Column
  - 4.3.5 Changing Cell Height and Width

- 4.4 Function and Charts
  - 4.4.1 Using Formulas
  - 4.4.2 Function
  - 4.4.3 Charts
- 4.5 Summary
- 4.6 Model Questions and Answers

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## **5. COMPUTER COMMUNICATION AND INTERNET**

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- 5.0 Introduction
- 5.1 Objectives
- 5.2 Basics of Computer Networks
  - 5.2.1 Local Area Network (LAN)
  - 5.2.2 Wide Area Network (WAN)
- 5.3 Internet
  - 5.3.1 Concept of Internet
  - 5.3.2 Basics of Internet Architecture
- 5.4 Services on Internet
  - 5.4.1 World Wide Web and Websites
  - 5.4.2 Communication on Internet
  - 5.4.3 Internet Services
- 5.5 Preparing Computer for Internet Access
  - 5.5.1 ISPs and examples (Broadband/Dialup/WiFi)
  - 5.5.2 Internet Access Techniques
- 5.6 Summary
- 5.7 Model Questions and Answers

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## **6. WWW AND WEB BROWSER**

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- 6.0 Introduction
- 6.1 Objectives
- 6.2 Web Browsing Software
  - 6.2.1 Popular Web Browsing Software
- 6.3 Configuring Web Browser
- 6.4 Search Engines
  - 6.4.1 Popular Search Engines / Search for content
  - 6.4.2 Accessing Web Browser
  - 6.4.3 Using Favorites Folder
  - 6.4.4 Downloading Web Pages
  - 6.4.5 Printing Web Pages
- 6.5 Summary
- 6.6 Model Questions and Answers

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## **7. COMMUNICATION AND COLLABORATION**

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- 7.0 Introduction
- 7.1 Objectives
- 7.2 Basics of E-mail
  - 7.2.1 What is an Electronic Mail
  - 7.2.2 Email Addressing
  - 7.2.3 Configuring Email Client
- 7.3 Using E-mails

- 7.3.1 Opening Email Client
- 7.3.2 Mailbox: Inbox and Outbox
- 7.3.3 Creating and Sending a new E-mail
- 7.3.4 Replying to an E-mail message
- 7.3.5 Forwarding an E-mail message
- 7.3.6 Sorting and Searching emails
- 7.4 Advance email features
  - 7.4.1 Sending document by E-mail
  - 7.4.2 Activating Spell checking
  - 7.4.3 Using Address book
  - 7.4.4 Sending Softcopy as attachment
  - 7.4.5 Handling SPAM
- 7.5 Instant Messaging and Collaboration
  - 7.5.1 Using Smiley
  - 7.5.2 Internet etiquettes
- 7.6 Summary
- 7.7 Model Questions and Answers

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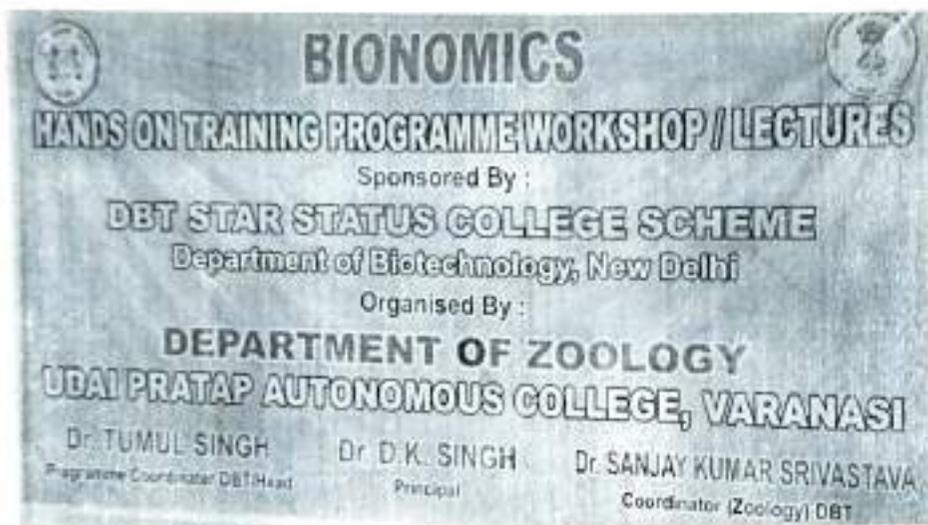
## **8. MAKING SMALL PRESENTATIONS**

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- 8.0 Introduction
- 8.1 Objectives
- 8.2 Basics
  - 8.2.1 Using PowerPoint
  - 8.2.2 Opening A PowerPoint Presentation
  - 8.2.3 Saving A Presentation
- 8.3 Creation of Presentation
  - 8.3.1 Creating a Presentation Using a Template
  - 8.3.2 Creating a Blank Presentation
  - 8.3.3 Entering and Editing Text
  - 8.3.4 Inserting And Deleting Slides in a Presentation
- 8.4 Preparation of Slides
  - 8.4.1 Inserting Word Table or An Excel Worksheet
  - 8.4.2 Adding Clip Art Pictures
  - 8.4.3 Inserting Other Objects
  - 8.4.4 Resizing and Scaling an Object
- 8.5 Providing Aesthetics
  - 8.5.1 Enhancing Text Presentation
  - 8.5.2 Working with Color and Line Style
  - 8.5.3 Adding Movie and Sound
  - 8.5.4 Adding Headers and Footers
- 8.6 Presentation of Slides
  - 8.6.1 Viewing A Presentation
  - 8.6.2 Choosing a Set Up for Presentation
  - 8.6.3 Printing Slides And Handouts
- 8.7 Slide Show
  - 8.7.1 Running a Slide Show
  - 8.7.2 Transition and Slide Timings
  - 8.7.3 Automating a Slide Show
- 8.8 Summary
- 8.9 Model Questions and Answers

# Syllabus of Training Courses

## Syllabus of Hands on Training Program DEPARTMENT OF ZOOLOGY 2021-2022



**BIONOMICS**

**12/02/2022 TO 24/02/2022**

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**Objective of Course :** To acquaint the students about the basics of commonly used techniques in laboratory.

<b>HANDS ON TRAINING PROGRAM/CERTIFICATE COURSE</b>		
Course Title :		<b>BIONOMICS</b>
Course Outcome :		
<b>After completion of this course students will be able :</b>		
<ul style="list-style-type: none"> <li>❖ To under the practice of laboratory and handling of apparatus.</li> <li>❖ To under the basic principles and requirements of instruments in laboratory.</li> <li>❖ To appreciate the economic growth, opportunities in laboratory practices</li> <li>❖ This training help the students to learn well defined laboratory practices.</li> </ul>		
Total Number of Lectures : Laboratory Practical's (in hours)		L - P                      30
<b>Unit</b>		<b>Topics : BIONOMICS</b>
I	Role of Carbon dioxide during respiration through Virtual Lab	3
II	Adulteration in Arhar Dal (Pulses) through Virtual Lab	3
III	Enzyme Assay	3
IV	TLC and DLC	3
V	<del>Chromatography</del>	<del>3</del>
VI	Colorimetric	3
VII	Determination of Acid Value of Different Edible oils	3
VIII	Determination of pH vale of Edible oils	3
IX	Effect of Salivary Amylase on Starch through Virtual Lab	3
X	Study of suspended particles in air through Virtual Lab	3



### Practical help the students :

- ❖ Safety measures while in Lab.
- ❖ Handling of chemical substances.
- ❖ Use of burettes, pipettes, measuring cylinders, flasks, separatory funnel, condensers, micropipettes and vaccupets.
- ❖ Washing, drying and sterilization of glassware.
- ❖ Drying of solvents/ chemicals.
- ❖ Weighing and preparation of solutions of different strengths and their dilution.
- ❖ Handling techniques of solutions.
- ❖ Preparation of different agro-chemical doses in field and pot applications;
- ❖ Preparation of solutions of acids.
- ❖ Neutralisation of acid and bases.
- ❖ Preparation of buffers of different strengths and pH values.
- ❖ Use and handling of microscope, laminar flow, vacuum pumps, viscometer, thermometer, magnetic stirrer, micro-ovens, incubators, sandbath, waterbath, oilbath.
- ❖ Electric wiring and earthing.
- ❖ Preparation of media and methods of sterilization.

### Suggested Readings :

1. Furr AK. 2000. *CRC Hand Book of Laboratory Safety*. CRC Press. xv Common Academic Regulations for PG and Ph.D. Programmes Restructured and Revised Syllabi of Post-graduate Programmes xvi
2. Gabb MH and Latchem WE. 1968. *A Handbook of Laboratory Solutions*. Chemical Publ. Co.
3. Practical Book of P. S. Verma
4. R. L. Kotpal
5. Laboratory Manual.

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**Syllabus of**  
**Hands on Training Program**  
**DEPARTMENT OF ZOOLOGY**  
**2018-2019**



**HEMATOLOGY**

**18/12/2018 TO 27/12/2018**

**Objective of Course :** To acquaint the students about the basics of commonly used techniques in laboratory.

<b>HANDS ON TRAINING PROGRAM/CERTIFICATE COURSE</b>		
Course Title :		<b>HEMATOLOGY</b>
<b>Course Outcome :</b>		
<b>After completion of this course students will be able :</b>		
<ul style="list-style-type: none"> <li>❖ To under the practice of laboratory and handling of apparatus.</li> <li>❖ To under the basic principles and requirements of instruments in laboratory.</li> <li>❖ To appreciate the economic growth, opportunities in laboratory practices</li> <li>❖ This training help the students to learn well defined laboratory practices.</li> </ul>		
Total Number of Lectures : Laboratory Practical's (in hours)		L - P                      30
Unit		<b>Topics : HEMATOLOGY</b>
I	Blood group determination	3
II	Smear technique to observe sex-chromatin in the buccal epithelial cells of human	3
III	RBC Count of mammalian blood	3
IV	WBC Count of mammalian blood	3
V	Neutrophil phagocytosis	3
VI	Estimation of dissolved O <sub>2</sub> in sample water	3
VII	Macrophage isolation and slide preparation	3
VIII	Cell viability assay	3
IX	Micrometry	3
X	Mitosis and Metaphase Chromosome preparation in rat	3





### **Practical help the students :**

- ❖ Safety measures while in Lab.
- ❖ Handling of chemical substances.
- ❖ Use of burettes, pipettes, measuring cylinders, flasks, separatory funnel, condensers, micropipettes and vaccupets.
- ❖ Washing, drying and sterilization of glassware.
- ❖ Drying of solvents/ chemicals.
- ❖ Weighing and preparation of solutions of different strengths and their dilution.
- ❖ Handling techniques of solutions.
- ❖ Preparation of different agro-chemical doses in field and pot applications;
- ❖ Preparation of solutions of acids.
- ❖ Neutralisation of acid and bases.
- ❖ Preparation of buffers of different strengths and pH values.
- ❖ Use and handling of microscope, laminar flow, vacuum pumps, viscometer, thermometer, magnetic stirrer, micro-ovens, incubators, sandbath, waterbath, oilbath.
- ❖ Electric wiring and earthing.
- ❖ Preparation of media and methods of sterilization.

### **Suggested Readings :**

1. Furr AK. 2000. *CRC Hand Book of Laboratory Safety*. CRC Press. xv Common Academic Regulations for PG and Ph.D. Programmes Restructured and Revised Syllabi of Post-graduate Programmes **xvi**
2. Gabb MH and Latchem WE. 1968. *A Handbook of Laboratory Solutions*. Chemical Publ. Co.
3. Practical Book of P. S. Verma
4. R. L. Kotpal
5. Laboratory Manual.



**Programme : Certificate Course/Hands on Training Programme**

**Subject: CHEMISTRY**

**Title of the course: Synthesis, Extraction and Spectrophotometric Techniques**

**Programme Outcome:**

1. Reinforce ideas of synthesis of various organic and inorganic compounds and understanding of mechanism involved in these reaction, relative atomic mass, molar mass and percentage yield with step by step calculations for the compounds involved in the reaction.
2. Organic reaction mechanisms: Pupils develop their understanding of organic chemistry mechanisms (e.g. the meaning of a curly arrow) by completing the mechanism for aspirin synthesis. It provides an excellent opportunity to develop understanding of reaction mechanisms and apply this knowledge within a less familiar context.
3. Certain practical skills get developed viz.
  - (A) Using a balance to weigh out solids and liquids.
  - (B) Heating under reflux.
  - (C) Precipitation and drying of product.
4. Understanding and handling of certain instruments (viz. colorimeter, uv-visible spectrophotometer etc.) and their principles developed.
5. Able to extract a mixture of compounds (viz. plant pigments, amino acids, mixture of metal ions etc.) via using chromatographic principles involved in them.

**Total No. of Lectures: (Theory – Practical) :**

**30 Hours**

**Topics**

**No. of Lectures**

**Theory**

**15**

1. Synthesis and mode of action of drugs.
2. Introduction of polymer, mechanism of polymerisation and its applications.
3. Co-ordination compounds of Fe and Ni and its magnetic and spectral properties.
4. Introductory idea about UV-VIS Spectroscopy.
5. Principles of separation and extraction techniques.

*Andi* *A* *SHW* *Deh* *Pema* *mbugh*  
*Sh*

6. Basics of IR, NMR Spectroscopic techniques.	
<b>Practical's</b>	<b>15</b>
<ol style="list-style-type: none"> <li>1. Preparation of Aspirin</li> <li>2. Preparation of phenol-formaldehyde resin i.e. Bakelite.</li> <li>3. Preparation of complexes of Fe and Ni</li> <li>4. Verification of Lambert – Beer's Law</li> <li>5. Chromatographic separation of plant pigments.</li> </ol>	
<p><b>Suggesting readings:</b></p> <ol style="list-style-type: none"> <li>1. Mendham J. , Vogel's Quantitative Chemical Analysis, pearson, 2009.</li> <li>2. Haris, D. C. Quantitative Chemical Analysis.6<sup>th</sup> Ed., Freeman(2007)</li> <li>3. Harris, D.c.Exploring chemical Analysis, Ed. New York, W. H. Freeman, 2016.</li> <li>4. Khopkar, S.M. Basic Concepts of Analytical Chemistry. New Age International Publisher, 2009.</li> <li>5. Skoog, D.A. Holler F.J. and Nieman, T.A. Principles of Instrumental Analysis, Cengage Learning</li> </ol>	

**Programme:** Certificate Course/ Hands on Training Programme  
**Title:** Instrumentation

**Course Outcomes**

After this course students will

- Learn about Laser-its properties, Coherence properties, Laser diffraction.
- Learn about introduction , Block Diagram & Applications of CRO:
- Learn about modulation and demodulation, Transistor amplifier.
- Learn about interference & michelson interferometer, Lattice dynamics.
- Learn about logic gates, Universal logic gates, Combinational logic

Unit	Topic	Hours
UNIT-1 <b>Laser and its applications</b>	Laser and its properties, Types of laser, Basic laser components, Pumping, Population inversion, Characteristics of laser radiation, Coherence properties of Laser Light, Temporal Coherence, Spatial Coherence, Laser diffraction.	<b>3</b>
UNIT-2 <b>CRO and its applications</b>	Introduction to CRO: Block Diagram of CRO. Applications of CRO: to find frequency and amplitude of AC signal. Basic principles of modulation and demodulation, Amplitude modulation, Linear and Square law modulation, Production of AM wave, Transistor amplifier.	<b>3</b>
UNIT-3 <b>Interference and Michelson Interferometer</b>	Monochromatic source of light, Production of coherent light sources, Measurement of wavelength and difference of wavelength of sodium D <sub>1</sub> & D <sub>2</sub> lines using Michelson interferometer, Lattice dynamics.	<b>3</b>
UNIT-4 <b>Logic Gates</b>	Logic gates, Positive and negative logic, Verification of truth table of basic logic gates, Symbolic representation and properties of OR, AND, NOT, NOR, NAND, EX-OR & EX-NOR gates using different IC's, Universal logic gates, Combinational logic.	<b>3</b>
<b>Experiments</b>	1. To determine the wavelength of He-Ne laser by using Ruler/Single slit. 2. Measurement of amplitude, Frequency of A.C signals by C.R.O. 3. Study of transistor as an Amplifier & Frequency response curve. 4. Lattice dynamics experiment (study of dispersion relation of mono and diatomic lattice). 5. To determine the wavelength of Na light by Michelson experiment. 6. Verification of truth table of various logic gates using different IC's.	<b>18</b>

**References Books:**

1. Laser theory and Applications: A. Ghatak and K. Thyagrajan
2. Digital Electronics : R.P.Jain
3. Hand Book od Electronics: Gupta Kumar.
4. Integrated Electronics: Millman & Halkias.
5. Optics: N. Subrahmanyam, Brijlal

**Programme:** Certificate Course/ Hands on Training Programme  
**Title:** Basic Instrumentation

**Course Outcomes**

After this course students will

- Learn about Laser, Types of laser, Basic laser components,
- Learn about basic principles of optical fibers,
- Learn about introduction , Block Diagram & Applications of CRO:
- Learn about modulation and demodulation,
- Learn about Vibrational Analysis of Amino acid glycine (DFT methods )

Unit	Topic	Hours
UNIT-1 Laser	Laser- its properties, Types of laser, Basic laser components, Laser action and Laser diffraction.	3
UNIT-2 Optical Fiber	Basic principles of optical fibers, Optical wave guide, Absorption losses in fibers, wave propagation in optical fiber media, optical fiber source and detector,	3
UNIT-3 CRO and its applications	Introduction to CRO: Block Diagram of CRO. Applications of CRO: Basic principles and process of modulation and demodulation,	3
UNIT-4 Amino acid glycine	Vibrational Analysis Amino acid glycine (DFT methods)	3
Experiments	1. To determine the wavelength of He-Ne laser by using Ruler. 2. To determine the diameter of the wire and position of first order minima with observed diffraction pattern 3. Optical fiber communication and hence determine the numerical aperture and losses in fiber. 4. Functions of C.R.O. and demonstration. 5. Modulation and Demodulation process. 6. Computational vibrational analysis of Amino acid glycine.	18

**References Books:**

1. Laser theory and Applications: A. Ghatak and K. Thyagrajan
2. Digital Electronics : R.P.Jain
3. Hand Book od Electronics: Gupta Kumar.
4. Optical Fibre Communication: G.Keiser

*Handwritten signatures:*  
 Singh  
 Kumar  
 T.K.

<b>Programme: Short-Term Certificate Course</b>	
<b>Subject: BOTANY</b>	
<b>Title of the Course:</b> Experimental and Applied Botany	
<b>Objective of the Course :</b>	
<ul style="list-style-type: none"> <li>Learning objectives set the goal to create future researchers, Scientist and expertise in the field of Botany that are excellently trained and excited to work on various problems of plant sciences. This curriculum is designed to equip students with subject domain knowledge and technical skills pertaining to plants in a holistic manner. It aims to train the students in all the areas of plant sciences with a unique combination of experiments. Students have exposure to cutting-edge technologies that are currently used in the subject. They are made aware about the different instruments and techniques used in modern plant science research. Students are also capable to design research and industrial projects to solve the problems of various plant science &amp; environmental related issues.</li> </ul>	
<b>Programme Specific Outcomes:</b>	
Upon successful completion of the course, students will be able:	
<ul style="list-style-type: none"> <li>To understand, define and explain the principle, instrumentation and working of techniques used in Botanical research.</li> <li>Analyse the research problem and formulate the methodology for carrying out research/experiment.</li> <li>To build a hypothetical methodology for analysis of biological samples.</li> <li>To compare and contrast the techniques used in Research fields.</li> </ul>	
Total No. of Lectures-Tutorials-Practical (in hours) : L-T-P: hr.	30
Topics	No. of Lectures
<b>Section: A(Theory)</b>	
<ul style="list-style-type: none"> <li>Pure culture of microbes.</li> <li>Electrophoresis, Principle and Application.</li> <li>Spectrophotometry and its uses.</li> <li>Mushroom Cultivation technique.</li> <li>Isolation of DNA and use of PCR</li> <li>Synthetic seed.</li> <li>Karyotyping</li> <li>Carbon estimation from soil.</li> </ul>	15
<b>Section: B(Practical)</b>	
<ul style="list-style-type: none"> <li>1. Isolation and maintenance of pure culture of microbes.</li> <li>2. Separation of plant Genomic DNA by agrose gel electrophoresis.</li> <li>3. Spectrophotometry and its uses in determining nitrate reductase activity.</li> <li>4. Cultivation of Oyster mushroom.</li> <li>5. DNA isolation and PCR amplification.</li> <li>6. Electrophoresis, Principle and Application, Protein separation using SDS PAGE.</li> <li>7. Synthetic seed production.</li> <li>8 Karyotype analyses of plants.</li> </ul>	15

- 9. Carbon estimation of different soil sample by Walkley Blacks method

**Suggested Readings:**

- Martinko, MT, J.M., Parker, and J. Brock. Biology of Microorganisms. Prentice-Hall, 2017.
- Wilson, K and Walker, J. Principle and Techniques of biochemistry and Molecular Biology. Champman & Hall, London, 1998.
- Cambridge University Press, 2010.
- Harborne, JB. Phytochemical Methods-A Guide to Modern Technique of Plant Analysis
- Lynch, T. Mushroom Cultivation: An Illustrated Guide to Growing Your Own Mushrooms at Home. Quarry Books, 2018.
- Press, B. Mushroom Cultivation: A Practical Guide to Growing Mushrooms at Home. Kindle Edition, 2021.
- Schulze ED *et al.* Plant Ecology. Springer, 2019
- Singh, JS, Singh, SP and Gupta, S. Ecology, Environment and Resource Conservation. S. Chand & Co. New Delbi, 2014.

**Suggested equivalent online courses:**

- [https://onlinecourses.nptel.ac.in/noc21\\_b07/preview](https://onlinecourses.nptel.ac.in/noc21_b07/preview)
- <https://www.sciencedirect.com/science/article/pii/S1874391912001479>
- <https://bmcbioinformatics.biomedcentral.com/articles/10.1186/1471-2105-13-58>
- <https://iitr.res.in/online-training-mushroom-spawn-production-and-mushroom-cultivation-%E2%80%98-duration-6-days>
- <https://www.classcentral.com/course/swayam-vocational-mushroom-production-23137>
- <https://communities.plantae.org/tags/moocuturelearn.com/courses/teaching-biology-inspiring-students-with-plants-in-science>

## Department of Botany

### Title of the Practice:-

"Experimental and Applied Botany"

### Objective of the Practice:

Learning objectives set the goal to create future researchers, Scientist and expertise in the field of Botany that are excellently trained and excited to work on various problems of plant sciences. This curriculum is designed to equip students with subject domain knowledge and technical skills pertaining to plants in a holistic manner. It aims to train the students in all the areas of plant sciences with a unique combination of experiments. Students have exposure to cutting-edge technologies that are currently used in the subject. They are made aware about the different instruments and techniques used in modern plant science research. Students are also capable to design research and industrial projects to solve the problems of various plant science & environmental related issues.

### The context (Programme Specific Outcomes)

Upon successful completion of the course, students will be able:

- 1: To understand, define and explain the principle, instrumentation and working of techniques used in Botanical research.
- 2: Analyse the research problem and formulate the methodology for carrying out research/experiment.
- 3: To build a hypothetical methodology for analysis of biological samples.
- 4: To compare and contrast the techniques used in Research fields.

### The Practice (Hands on trainings):

1. Isolation and maintenance of pure culture of microbes.
2. Separation of plant Genomic DNA by agrose gel electrophoresis.
3. Spectrophotometry and its uses in determining nitrate reductase activity.
4. Cultivation of Oyster mushroom.
5. DNA isolation and PCR amplification.
6. Electrophoresis, Principle and Application, Protein separation using SDS PAGE.
7. Synthetic seed production.
- 8 Karyotype analysis of plants.
9. Carbon estimation of different soil sample by Walkley Blacks method.

### Problems encountered and resource required

The main problems encountered in experimental botany could include faulty measurement with equipment, inadequate sensitivity of instruments, or calibration errors due to which the result of an experiment becomes 'biased'. The second of these are random errors, which are caused by unknown and unpredictable changes in a measurement. The other problems include delay in release of grants due to which there is time constraints.

Course Code: PHYC	<b>Short Term Certificate Course</b>	
Course Title: Certificate Course in Electric Circuits & Networks		
<b>Course Outcomes</b>		
<ol style="list-style-type: none"> <li>1. Students will understand all the fundamental concepts involving electrical Circuits</li> <li>2. Students will able to handle basic electrical equipments.</li> <li>3. Students will able to design and trouble shoots the electrical circuits.</li> <li>4. Students will able to do staircase wiring.</li> <li>5. Students will able to understand domestic wiring procedures.</li> </ol>		
Total No. of Lectures & Practicals: 30 Hrs		
Unit	Topics	No. of Lectures
I	<p style="text-align: center;"><b>Basic Electricity Principles</b></p> Voltage, Current, Resistance and Power and Energy, Ohm's law, Series circuit, Parallel circuit and combination of series-parallel circuits. AC electricity and DC electricity, Multimeter, Voltmeter and Ammeter, Power rating, Household consumption of electrical energy.	4
II	<p style="text-align: center;"><b>Understanding Electrical Circuits</b></p> Main electric circuit elements and their combination, Current and voltage drop across the circuit elements, Single-phase and three-phase alternating current sources, Power factor, Transformer.	4
III	<p style="text-align: center;"><b>Electrical Wiring components and Accessories</b></p> Different type of Wiring materials, Wiring Accessories, Basics of Wiring-Star and delta connection, Miniature Circuit Breaker (MCB), Home electrical panels, Color code of wires, Distribution Board, Fixing Wiring Accessories on Board, Voltage drop and losses across cables and conductors, Instruments to measure current, voltage.	6
IV	<p style="text-align: center;"><b>Electrical Protection Devices and Control</b></p> Relays, Fuses and disconnect switches, Circuit breakers, Overload devices, Ground-fault protection, Grounding and isolating, Phase reversal, Surge protection, Interfacing DC or AC sources to control elements (relay protection device).	4
	<p style="text-align: center;"><b>Laboratory Exercises</b></p> <ol style="list-style-type: none"> <li>1. To measure voltage, current, resistance etc using Multimeter, Voltmeter and Ammeter.</li> <li>2. To observe current and voltage drop across the DC circuit elements.</li> <li>3. To study Series and Parallel connections.</li> <li>4. To prepare an extension board and check it's working.</li> <li>5. To wire for a stair case arrangement using a two-way switch.</li> </ol>	12
<b>Reference Books:</b> <ul style="list-style-type: none"> <li>• A text book in Electrical Technology – B.L Theraja( S Chand &amp; Co.)</li> <li>• A text book of Electrical Technology – A KTheraja( S Chand &amp; Co.)</li> <li>• Performance and design of AC machines – M G Say (ELBS Edn.)</li> </ul>		

Dean  
 Faculty of Science  
 Udai Pratap Autonomous College  
 Varanasi

HZ ———— *Shaykh*  
 B. Singh  
 J.C. D. V. 1.  
 05/04/2023.  
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 05/04/2023  
 B. B. 2

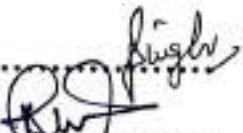
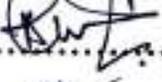
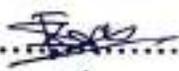
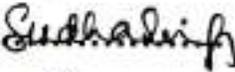
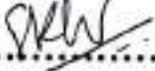
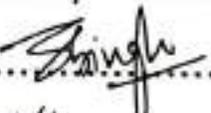
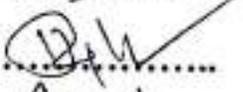
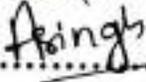




**Scheme of evaluation:**

S. No.	Title of Paper	Type of evaluation
1	Theory	Test & Assignment
2	Laboratory Course	Test

**NAME and SIGNATURE:**

	Departmental members	
	Chairperson/H.O.D 	1. .... 
Dean (Faculty of Science) 	2. .... 	10. .... 
Dean Faculty of Science Udaipur Pratap Autonomous College Varnasi	3. .... 	11. .... 
	4. .... 	12. .... 
	5. .... 	13. .... 
	6. .... 	14. .... 
	7. .... 	15. .... 
	8. .... 	

**Programme: Short-Term Certificate Course**

**Subject: BOTANY**

Course Code: B-STCC

Course Title: **Mushroom Cultivation Technique**

**Course outcomes:**

After the completion of the course the students will be able:

- To develop general understanding regarding distribution, types and basics of Mushroom cultivation.
- To develop skill about mushroom cultivation and can be benefited monetarily.

Credits: 2

Core Certificate Course

Max. Marks: 100

Min. Passing Marks: ---

Total No. of Lectures-Tutorials-Practical (in hours): L-T-P: 30

Unit	Topics	No. of Lectures
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**Section: A(Theory)**

I.	• Elementary idea of Mushroom types and their occurrence.	4
II.	• Important aspects of Mushroom cultivation techniques.	5
III.	• Requirements regarding mushroom technique.	6

**Section: B(Practical)**

IV.	• Demonstration of mushroom culture and cultivation.	15
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**Suggested Readings:**

- Lynch, T. Mushroom Cultivation: An Illustrated Guide to Growing Your Own Mushrooms at Home. Quarry Books. 2018.
- Press, B. Mushroom Cultivation: A Practical Guide to Growing Mushrooms at Home. Kindle Edition. 2021.
- Rana, RS and Slathia, I. Mushroom Cultivation and its Diseases. Sankalp Publication. 2020.
- Russell, S. The Essential Guide to Cultivating Mushrooms. Storey Publishing LLC 2014.

This course can be done by the students of Biological Science.

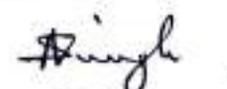
**Course prerequisites:** To study this course, a student must have had the Biology in 12<sup>th</sup> standard.

**Suggested equivalent online courses:**

- <https://ihr.res.in/online-training-mushroom-spawn-production-and-mushroom-cultivation-%E2%80%98-duration-6-days>
- <https://www.classcentral.com/course/swayam-vocational-mushroom-production-23137>
- <https://alison.com/courses/introduction-to-mushroom-farming/content>
- <https://gbpuatdigital.in/course/mushroom-cultivation>

**Further Suggestions:** Students should have elementary idea of useful Fungi particularly Mushrooms.

  
22/3/23

     
Ding, Singh, Singh, Singh



  
22/3/23

Dean  
Faculty of Science  
Maulana Abul Kalam Azad University  
Gurgaon

**Programme: Short-Term Certificate Course****Subject: BOTANY**

Course Code: B-STCC

Course Title: **Mushroom Cultivation Technique****Course outcomes:**

After the completion of the course the students will be able:

- To develop general understanding regarding distribution, types and basics of Mushroom cultivation.
- To develop skill about mushroom cultivation and can be benefited monetarily.

Credits: 2

Core Certificate Course

Max. Marks: 100

Min. Passing Marks: ---

Total No. of Lectures-Tutorials-Practical (in hours): L-T-P: 30

Unit	Topics	No. of Lectures
------	--------	-----------------

**Section: A(Theory)**

I.	• Elementary idea of Mushroom types and their occurrence.	4
II.	• Important aspects of Mushroom cultivation techniques.	5
III.	• Requirements regarding mushroom technique.	6

**Section: B(Practical)**

IV.	• Demonstration of mushroom culture and cultivation.	15
-----	--	----

**Suggested Readings:**

- Lynch, T. Mushroom Cultivation: An Illustrated Guide to Growing Your Own Mushrooms at Home. Quarry Books. 2018.
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- Rana, RS and Slathia, I. Mushroom Cultivation and its Diseases. Sankalp Publication. 2020.
- Russell, S. The Essential Guide to Cultivating Mushrooms. Storey Publishing LLC 2014.

This course can be done by the students of Biological Science.

**Course prerequisites:** To study this course, a student must have had the Biology in 12<sup>th</sup> standard.**Suggested equivalent online courses:**

<https://ihr.res.in/online-training-mushroom-spawn-production-and-mushroom-cultivation-%E2%80%98-duration-6-days>

<https://www.classcentral.com/course/swayam-vocational-mushroom-production-23137>

<https://alison.com/courses/introduction-to-mushroom-farming/content>

<https://gbpuatdigital.in/course/mushroom-cultivation>

**Further Suggestions:** Students should have elementary idea of useful Fungi particularly Mushrooms.

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Dr. Singh

~~Dr. Singh~~ 22/3/23

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**Programme: Short-Term Certificate Course**

**Subject: Zoology**

Course Code: ZCC01

Course Title: Sericulture

**Course outcomes:**

After the completion of this course students will be able to:

- understand the practice of sericulture.
- understand the basic requirements for sericulture.
- appreciate the economic growth opportunities in sericulture.
- identify the places where appropriate training can be availed for enhanced skills in sericulture.

Total number of Lectures-Tutorials-Practical (in hours): L-T-P 30

Unit	Topics	No. of lectures
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**Section: A (Theory)**

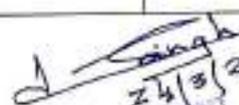
I.	<ul style="list-style-type: none"> <li>• Brief introduction and scope of sericulture.</li> <li>• Biology of Mulberry.</li> <li>• Biology of Silkworm: Morphology and Life cycle.</li> </ul>	5
II.	<ul style="list-style-type: none"> <li>• Rearing of Mulberry silkworm                             <ul style="list-style-type: none"> <li>○ Emergence of Moth and Fertilization.</li> <li>○ Egg laying and hatching.</li> </ul> </li> <li>• Processing of cocoon and silk.                             <ul style="list-style-type: none"> <li>○ Characteristics of Cocoon</li> <li>○ Post Cocoon processing – Stifling and reeling.</li> </ul> </li> </ul>	5
III.	<ul style="list-style-type: none"> <li>• Sericulture industries in India</li> <li>• Sericulture: Training and Extension</li> </ul>	5

**Section: B (Practical)**

IV.	<ul style="list-style-type: none"> <li>• Study of mulberry silkworm life cycle.</li> <li>• Study of different equipment/appliances used in silk worm rearing.</li> <li>• Visit to silkworm food plant field.</li> <li>• Visit to silk rearing/processing/weaving units.</li> <li>• Visit to Central Silk Board centres.</li> </ul>	15
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**Suggested reading:**

- Feltwell, Dr. John. The story of Silk.
- Techniques of silkworm rearing in the tropics.
- Ganga, G. An introduction to sericulture.
- Biology of silk (bound volume) Chapter 2.
- Acharya, J. Sericulture and Development.

  
 24/3/23  
 Dean  
 Faculty of Science  
 Udaipur Pratap Autonomous College  
 Udaipur

This course can be done by students of biological sciences.

**Course prerequisites:** To study this course, the student must have had studied Biology in 12<sup>th</sup> standard.

**Suggested equivalent online course:**

- <https://www.classcentral.com/course/swayam-sericulture-technology-17784>
- [https://www.firstonlineuniversity.org/course/detail/certificate-in-sericulture-\(cis\)-11366](https://www.firstonlineuniversity.org/course/detail/certificate-in-sericulture-(cis)-11366)
- <https://ignouadmission.samarth.edu.in/index.php/site/programme-detail>
- <https://gbpuatdigital.in/course/sericulture>
- <https://www.rftsc.edu.in/2021/09/08/online-free-e-certificate-course-in-sericulture/>

**Further suggestions:** This course can be used as a starting point for development of entrepreneurial skills for sericulture industry.



Department of Mathematics, Udai Pratap College, Varanasi

Short Term Certificate Course

Course Code: STCMT

Course Title: Certificate Course in Basic number theory and Vedic Mathematics

Course Outcomes

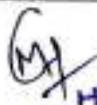
1. Students will understand all the fundamental concepts of elementary number theory.
2. Students will understand divisibility process in set of integers.
3. Students will understand to learn various numerical system used in digital world.
4. Students will able learn linear congruences.
5. Students will able to grasp some arithmetical calculations using vedic mathematics.

Total No. of Lectures :30 Hrs

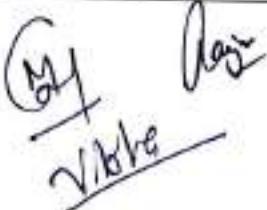
Unit	Topics	No. of Lectures
I	<b>Number System(From Natural numbers to Integers)</b> Peano axioms, properties of addition, multiplication and order in the set of natural numbers, Law of Trichotomy of natural numbers, Law of cancellation, Relation, equivalence relation, equivalence class, well ordering Principal, Integers as equivalence classes, Addition and multiplication of integers and their properties. First and second principal of mathematical induction.	8
II	<b>Divisibility theory in the set of Integers</b> Division algorithm. Division in $\mathbb{Z}$ , properties of division, Greatest common divisor, relatively coprime , Euclidean algorithm( statement only) and its usages, Lowest common multiple, Basic properties of LCM and GCD., Prime numbers, Fundamental theorem of arithmetic. Base of scale, Decimal system, Binary system, octal system, Hexa decimal system and their inter conversions.	8
III	<b>Congruences and its Basic Properties</b> The integral and fractional part of $n$ , properties of it, the powers of a prime $p$ with which it enters into $n!$ . Congruences and its elementary properties, Residue systems, Fermat's Little Theorem, Euler's Theorem, and Wilson theorem and their applications. Solution of linear congruence equations.	8
IV	<b>Vedic Mathematics</b> Some arithmetical computations using Nikhilam Sutra. Multiplication by Urdhva – TirYak Sutra, Division by Nikhilam method and Paravartya Method.	6

Reference Books:

- A first book in Number theory – K.C. Chaudhary( Asian Book Private Limited.)
- Elementary Number Theory -David Burton( Mc Graw Hill)
- Vedic Mathematics- Swami Bharti Krishna Teerth Ji

  
 HEAD  
 Department of Mathematics  
 Udai Pratap College  
 VARANASI

  
 Dean  
 Faculty of Science  
 Udai Pratap Autonomous College  
 Varanasi



  
 Vibe Agni Jyoti

(6)

SYLLABUS

**A SHORT TERM CERTIFICATE COURSE IN STATISTICS**

STATISTICAL METHODS (Course code: )

**Basic Statistics** : Primary and secondary data, frequency table, graphical representation of data: histogram, frequency polygon, frequency curve and ogive, Univariate and Bivariate data, Discrete and continuous data, measures of central tendency (arithmetic mean, median, mode) and dispersion (range, variance, standard deviation), moments, measures of skewness and kurtosis.

**Basic distributions** : Concept of probability mass function and probability density functions; standard distributions – Binomial, Poisson and normal distributions.

**Bivariate data** : Bivariate frequency table, Karl Pearson's correlation/Spearman's rank correlation and its coefficients, linear regression and regression lines.

*Note : Practical problems will be based on all above topics.*

Books for reference:

- Goon, A.M., Gupta, M.K. and Dasgupta, B.: Fundamentals of Statistics, Vol. I.
- Gupta, S. C. and Kapoor, V. K. : Fundamentals of Statistics, Sultan Chand and Sons.
- Descriptive Statistics (Univariate & Bivariate) by Krishna Prakashan Media Pvt. Limited.

Remark:

The said course will be of 30 hours duration in all (Theory & Practical).

La Pg.  
27.3.23

Beema  
27.3.23

Ramesh Kh  
27/03/23

Ramfule  
20/03/2023

Ankita Mishra  
27/2/23

BSL

S. Gupta  
28/3/23

**Department of Agricultural Economics**  
**Udai Pratap Autonomous College, Varanasi**

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**Short-Term certificate Course**  
**On**  
**New Dimensions in Agricultural Marketing**

**Theory:**

**Unit: 1 Introduction to Agricultural Marketing:**

Concept and definition of market, Marketing, Agricultural Marketing, Classification and characteristics of Agricultural marketing, Producer Surplus – Meaning and its types, Market functions and functionaries, Marketing cost, Margin and Price spread.

**Unit: 2 Emerging Areas of Agricultural Marketing:**

Different forms of marketing: Co-operative marketing, Farmer producer companies, Contract Farming, Introduction to future trading, Agril export and import.

**Unit: 3 Use of Information Technology:**

Role of information technology in marketing – Electronic auction (e-bay), e-Chaupals, Agmarknet, e-NAM and e-marketing. Use of artificial intelligence (AI), Internet of things (IOT), Block chain technology.

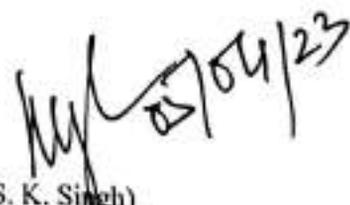
**Practical:**

**Exercise:** computation of marketing cost and estimation of marketing margins and price spread. Estimation of marketable and marketed surplus of importance commodities. Identification of marketing channels for selected commodities. Collection of data regarding marketing cost, margin and price spread.

**Visit:** Karkhiyaon Agro Park, Amul Dairy Pack house (Cold chain), Parley Biscuit, NAFED, FPO, Silo. Co-operative marketing society, cold storage and regulated market. Preparation of marketing report of an important Agricultural Commodities



Prof. (Anand Kumar Singh)  
Dean,  
Faculty of Agriculture  
Udai Pratap College, Varanasi



Prof. (S. K. Singh)  
Head,  
Department of Agricultural Economics,  
Udai Pratap College, Varanasi



DEPARTMENT OF AGRICULTURAL CHEMISTRY & SOIL SCIENCE  
UDAI PRATAP COLLEGE (AN AUTONOMOUS INSTITUTION)  
VARANASI - 221002 (UP), INDIA



Syllabus for Short Term Certificate Course

Course Title: Stewardship of Technology for Soil Testing      Credit (10+20)

Importance of soil testing  
Sampling techniques for Soil

Analysis of soil

A. Physical properties of soil

Bulk and particle density,  
Soil texture,  
Soil colour,  
Water holding capacity.

B. Chemical Properties of soil

pH, EC,  
Cation exchange capacity,  
Organic matter,  
Plant available N, P, K, S, Ca, Mg and Fe

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Amit Kumar

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S. K. Singh

*[Handwritten signature]*  
B. Singh

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HEAD  
Deptt. of Ag. Chemistry & Soil Science  
Udaipur Pratap (Autonomous) College  
Varanasi-221 002 (U.P.) INDIA

DEPARTMENT OF AGRONOMY  
Faculty of Agricultural Sciences,  
UDAI PRATAP COLLEGE,  
(An Autonomous Institution)  
VARANASI - 221002



सस्य विज्ञान विभाग, कृषि संकाय,  
उदय प्रताप कॉलेज,  
(एक स्वायत्तशासी संस्था)  
वाराणसी - 221002

## SYLLABUS OF SHORT-TERM CERTIFICATE COURSE ON

### Organic Farming of Agronomical Crops

#### Theory

**Unit 1:** Definition, principle, objectives, components and importance of Organic farming.

**Unit 2:** Steps involved in initiating organic farming, conversion period and farm designing.

**Unit 3:** Production of inputs for organic farming and their use. Compost, vermicompost, biogas slurry, green manure, bio-pesticides

**Unit 4:** Organic certification and package of practices for important agronomical crops.

#### Practical

- Identification of crops, seeds, and weeds;
- Preparation of enrich compost, vermicompost, bio-fertilizers/bio-inoculants and their quality analysis;
- Visit of organic farms to study the various components and their utilization;
- Indigenous technology knowledge (ITK) for nutrient, insect, pest disease and weed management;
- Hands-on training on crop production technology of various agronomical crops.

#### Suggested Readings:

- Principles of Organic Farming by P L Maliwa
- Principles of Organic Farming, by S R Reddy, Kalyani Publications, New Delhi
- Basics of Organic Farming by Bansal M
- Jaivik Kheti (Organic Farming) by Chandra Prakash Shukl, Pointer Publishers

Suggested Readings

Head  
Department of Agronomy  
Uday Pratap Autonomous College  
Varanasi

Dean  
Faculty of Agriculture  
Uday Pratap College (Autonomous)  
Varanasi-221002

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## Proposed Syllabus for Short Term Certificate Course

in

### Department of Agricultural Botany

#### Course Title: Introductory Genetics

##### Theory:

- History of Genetics
- Genetics definition, concept and application of genetics in medicines and Agriculture
- Mendelian Genetics and the laws of inheritance
- Gene interactions and multiple alleles.
- Chromosome structure and function
- Cell division- mitosis and meiosis
- DNA structure and function
- Extra-chromosomal inheritance
- Linkage and Crossing over

##### Practical:

Study of microscope. Study of cell structure. Mitosis and Meiosis cell division. Experiments on gamete formation monohybrid, dihybrid, trihybrid, test cross and back cross, Study of models on DNA and RNA structures

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9/4/23

Singh  
9/4/23

BSR

**Department of Plant Pathology**  
**Udai Pratap College (Autonomous), Varanasi**

**Short Term Certificate Course**

**Course Title:** Identification and Management of Plant Diseases

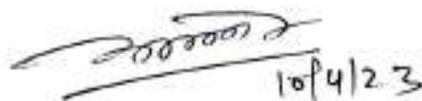
**Theory**

1. Concept of plant disease and their definition
2. Classification of plant diseases
3. General symptoms of plant diseases
4. Common disease symptoms of plants and their management:
  - a. **Wheat:** Rust, loose smut, Karnal bunt
  - b. **Rice:** Blast, bacterial leaf blight, false smut
  - c. **Potato:** Late blight and early blight
  - d. **Bajra:** Green ear disease, ergot
  - e. **Citrus:** Citrus canker
  - f. **Brinjal:** Little leaf
  - g. **Arhar:** Wilt, sterility mosaic
  - h. **Mustard:** White rust
  - i. **Mango:** Malformation
  - j. **Okra:** Yellow vein mosaic
  - k. **Papaya:** Papaya leaf curl
  - l. **Groundnut:** Early and late leaf spot

**Practical:**

1. Field visit and diagnosis of plant diseases
2. Collection of disease sample



  
10/4/23

Head  
Deptt of Plant Pathology  
Faculty of Agriculture

# Certificate course

## on

### Commercial Beekeeping

- Section-I:** Handling of honey bees- Hive and frame inspection.
- Section-II:** Apiary management practices, General Colony management during different seasons. Recognition of bee pasturage.
- Section-III:** Identification and management of bee pests and diseases. Artificial rearing of queen bees.
- Section IV:** Honey extraction and processing.
- Section-V:** Other hive products- bees wax, pollen, bee venom, propolis and royal jelly.
- Section-VI:** Role of bees in cross pollination, their exploitation, case studies with selected crops.

#### Practical

1. Honey bee species, and castes of bees.
2. Beekeeping appliances and seasonal management,
3. Bee enemies and disease.
4. Bee pasturage.
5. Bee foraging and communication.

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*001041023*

# UDAI PRATAP COLLEGE, VARANASI

## Department of Animal Husbandry and Dairying

### Short – Term Certificate Course

On

### Introductory Dairy Farming and Dairy Products Technology

In this course students will learn how to add value to the raw milk processing techniques, in order to produce marketable dairy products that have an extended shelf life.

This course includes **30** lectures spanning over **6 units** -----

**Unit 1:** Elementary knowledge about animal genetic resources of India.

**Unit 2:** Management of calves, growing heifers, milch animals and Bull. Housing principles, space requirement for different species of livestock.

**Unit 3:** Introduction of livestock diseases. Prevention and control of important diseases of livestock.

**Unit 4:** Elementary knowledge about indigenous and modern dairy products.

**Unit 5:** Manufacturing of dairy products such as Paneer, Chhena, Khoa and Ghee.

**Unit 6:** Manufacturing of dairy products such as Curd, Srikhand and Softy Ice cream.

DEAN



H.O.D.

**Department of Horticulture**  
**Udai Pratap College, Varanasi-221002**

**Short Term Certificate Course**

**Horticulture Gardening: How to Grow Healthy, Fresh Food and Flower at Home**

Fundamentals aspect, Kitchen gardening, Terrace/ rooftop gardening, learn how to design your garden and grow fruits, vegetables and ornamentals. plant selection and installation Soil preparation and use of fertilizer, pest and disease control, harvest and storage.

This course includes 30 lectures spanning over 20 hours theory and 10 hours practical.

**1. Food from the garden**

- What can you produce in your garden?

**Deciding what to grow**

**Successful growing**

- Light
- Temperature
- Soil
- Nutrition
- Water
- Wind
- Where to get helpful information

**Fruits**

- Introduction - fruit trees for all climates
- How to develop a canopy
- Good backyard fruit trees for a range of climates
- Winter chilling requirements
- Pests and diseases

**Vegetables**

- Why grow vegetables?
- The site
- Choosing what to grow
- Feeding and watering
- Planning the cropping program
- Pests and diseases of vegetables

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*11/04/23*

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*11/4/2023*

### Ornamentals

- Introduction - Ornamental Crops for all climates
- Choosing what to grow
- Annuals, Biennials and Perennials Crops
- Pests and diseases

### Special growing techniques

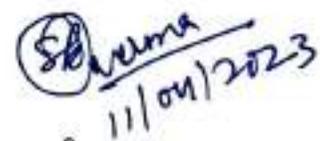
- Growing produce in containers
- Hydroponics
- Kitchen gardening/Roof gardening
- More special growing techniques

### Practical

1. Identification of garden tools and implements.
2. Identification of horticultural crops.
3. Preparation of seed bed / nursery bed.
4. Practice of sexual and asexual methods of propagation.
5. Preparation of potting mixture and filling the pot (potting & repotting).
6. Fertilizer application in different horticultural crops.
7. Growing season of different horticultural crops.
8. Training and pruning of horticultural crops.
9. Protected structures- care and maintenance.
10. Some special type of gardening.

  
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# AGRICULTURAL ENGINEERING SHORT-TERM CERTIFICATE COURSE

(Course Duration: 30 Hours)

Course Title:- "Farm Machinery used in Indian Agriculture in Present Scenario"

## COURSE DESCRIPTION

This course will provide an overview of the primary and secondary tillage implements used in agriculture of India and its unique features, sowing and planting equipment, plant protection equipment, and harvesting & threshing equipment.

## COURSE OUTLINE

### 1. Introduction to Agricultural Engineering (2 hours)

1. Definition of Agricultural Engineering
2. Importance of Agricultural Engineering
3. Historical Development of Agricultural Engineering

### 2. Primary and Secondary Tillage Implements (10 hours)

1. Indigenous, Mouldboard, Disc Ploughs
2. Harrows, Cultivators, and Levellers
3. Working Principles of Tillage Implements
4. Selection of Tillage Implements

### 3. Sowing and Planting Equipment (6 hours)

1. Seed-Drill and Seed-Cum-Fertilizer Drill
2. Sugarcane and Potato Planter
3. Working Principles of Sowing and Planting Equipment
4. Selection of Sowing and Planting Equipment

*DR*

*[Signature]*  
 Director  
 Faculty of Agriculture  
 U.P. Veterinary, Animal & Fisheries Sciences University  
 Matang, Meerut-201 202

*[Signature]*  
 08/04/23

*[Signature]*  
 कृषि अभियंत्रण विभाग  
 उत्तर प्रदेश पशु चिकित्सा विश्वविद्यालय  
 08/04/2023  
 (स्वायत्तसिद्धि संस्था)

#### 4. Plant Protection Equipment (6 hours)

1. Sprayer and Duster
2. Types of Plant Protection Equipment
3. Working Principles of Plant Protection Equipment
4. Selection of Plant Protection Equipment

#### 5. Harvesting and Threshing Equipment (6 hours)

1. Mower and Reaper
2. Types of Harvesting and Threshing Equipment
3. Working Principles of Harvesting and Threshing Equipment
4. Selection of Harvesting and Threshing Equipment

#### 6. Assessment:

1. Class participation: 20%
2. Assignments: 30%
3. Final Exam: 50%

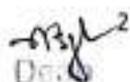
#### 7. Resources:

1. Textbook:
  - i. Agricultural Engineering by T.P. Ojha and P.K. Mishra
  - ii. Elements of Agricultural Engineering by Jagdishwar Sahay
2. Hand-Outs and Lecture Notes
3. Case Studies
4. Online Resources

**NOTE:** The course outline is subject to change depending on the progress of the class.

\*\*\*\*\*



Dr. 

Faculty of Agriculture  
Sri Sree College (Autonomous)  
Kuvempur, 577 102

  
08/11/23

अध्यक्ष  
कृषि अभियंत्रण विभाग  
08/11/2023  
(स्वायत्तशासित संस्था)  
74  
बाराणसी

Short Term Certificate Course  
Department of Agricultural Extension

**Course Title: Fundamental of Agricultural Extension**

**Unit:1-** Definition,Principles ,function and objective of Extension.

**Unit:2-** Definition of learning ,Effecting of learning situtaion steps in extension teaching.

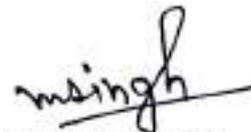
**Unit:3-** Define Communication ,Different methods of communciation .

**Unit:4-** Audio visual aids and its classification.

**Unit:5-** Adoption and diffusion process.

**Practical:** Use of audio visual equipments.

**Practical:** Preparations of <sup>ent.</sup> literature, folder, leaflets, pumplets.



**Dr.(Mayank Singh)**  
**Head**  
**Agricultural Extension**  
**U.P.College,Varanasi**

**SYLLABUS**

**SHORT TERM CERTIFICATE COURSE**

**DEPARTMENT OF COMMERCE, UDAI PRATAP AUTONOMOUS COLLEGE,  
VARANASI**

**COURSE TITLE:-** MARKETING IN THE DIGITAL ERA

**OBJECTIVE OF COURSE:-** The course is aimed at meeting the growing demand from various companies & industries for people trained in DIGITAL MARKETING. In this course students will be introduced to digital marketing from the very beginning. Keeping in mind the diverse background of students, courses equip students right from the basics of digital marketing.

**UNIT 1:-**

**Introduction to Digital Marketing :-**

- What is digital marketing?
- Importance of digital marketing.
- Difference between traditional and digital marketing.
- Discuss the recent trends and current scenario of the industry .
- How digital marketing has been a tool of success for companies?
- How to use digital marketing to increase sales

**8 LECTURES**

**UNIT 2:-**

**Website Planning and Creation :-**

- Understand the visual elements of website.
- Create better landing pages to bring in more conversions.
- Internet Micro and Macro Environment
- Internet users in India.
- Digital Marketing Tools
- Social Media Marketing Trends

**8 LECTURES**

**UNIT 3:-**

**Search Engine Optimisation (SEO) :-**

- Definition of Search Engine Optimization (SEO)
- Advantages and Disadvantages of SEO
- Paid Search Engine Marketing.
- Pay per click advertising (PPC).
- Generate SEO-optimised content

**8 LECTURES**

**UNIT 4:-**

**Mobile Marketing**

- Mobile Advertising: Concept
- Mobile Marketing platforms
- Advantages of Mobile Advertising
- Effective Mobile Marketing Strategy
- Mobile Penetration and Usage

**6 LECTURES**

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**Certificate Course**  
**Introduction to Teaching**  
**Syllabus**

Unit	Topic	No. of Lectures
Unit-1	<ul style="list-style-type: none"> <li>• Meaning, Nature and Aims of Education</li> <li>• Socialization of Child</li> <li>• Philosophical Basis of Curriculum</li> <li>• Educational Policies: NEP (1968 &amp; 1986) &amp; NEP- 2020</li> </ul>	08
Unit-2	<ul style="list-style-type: none"> <li>• Stages of Child Development</li> <li>• Learning: Concepts and Basic Types</li> <li>• Adjustment &amp; Motivation</li> </ul>	06
Unit-3	<ul style="list-style-type: none"> <li>• Concept of Teaching</li> <li>• Basic Teaching Model</li> <li>• Methods of Teaching: Traditional and Modern (Post Covid-19)</li> <li>• Lesson Planning: Concept and Preparation of Lesson Plan</li> </ul>	08
Unit-4	<ul style="list-style-type: none"> <li>• Evaluation: Concept and Types</li> <li>• Concept of Achievement Test</li> <li>• Steps of Achievement Test Construction</li> <li>• Preparation of Achievement Test</li> </ul>	08
<b>Test, Feedback &amp; Certificate Distribution</b>		

  
  
  
  
 11.4.2023  
 Dr. Garima Singh  
 Head  
 Faculty of Education  
 Udaipur Pratap Autonomous College  
 Varanasi



R. Singh  
 11.04.2023  
 Dean  
 Faculty of Education  
 Udaipur Pratap Autonomous College  
 Varanasi

**हिन्दी विभाग**  
**उदय प्रताप कॉलेज, वाराणसी**  
**पाठ्यक्रम**  
**शार्ट टर्म सर्टिफिकेट कोर्स**  
**पाठ्यक्रम शीर्षक : हिन्दी में सम्प्रेषण कला**

कुल घंटे : 30

1. सैद्धांतिक : 20 घंटे

2. प्रायोगिक : 10 घंटे

**पाठ्यक्रम की उपयोगिता**— इस पाठ्यक्रम को पढ़ने से छात्र एवं छात्राओं को सम्प्रेषण के स्वरूप तथा उसके विभिन्न आयामों से परिचय प्राप्त होगा। साथ ही छात्र एवं छात्राओं में अपने विचारों और भावों को प्रभावी ढंग से व्यक्त करने की क्षमता का विकास होगा, जो उन्हें रोजगार प्राप्ति सहित जीवन के विभिन्न क्षेत्रों में प्रभावी सम्प्रेषण में समर्थ बनाएगा।

**UNIT-1 - सम्प्रेषण : अर्थ, आवश्यकता एवं महत्व**

- (i) सम्प्रेषण का अर्थ
- (ii) सम्प्रेषण की आवश्यकता
- (iii) सम्प्रेषण का महत्व

**UNIT-2 - सम्प्रेषण के विविध रूप**

- (i) मौखिक सम्प्रेषण
- (ii) आंगिक सम्प्रेषण
- (iii) लिखित सम्प्रेषण
- (iv) संचार माध्यमों के द्वारा सम्प्रेषण

**UNIT-3 - सम्प्रेषण की प्रक्रिया**

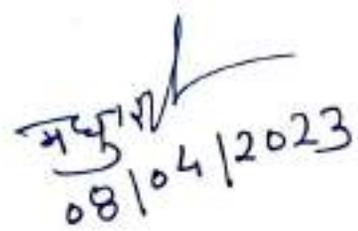
- (i) स्रोत
- (ii) वक्तृत्व क्षमता
- (iii) संदेश
- (iv) माध्यम
- (v) प्राप्तकर्ता
- (vi) संदेश प्राप्ति
- (vii) प्रतिक्रिया
- (viii) सन्दर्भ
- (ix) जीवन मूल्य एवं दृष्टिकोण

**UNIT-4 - प्रभावी सम्प्रेषण**

- (i) प्रभावी सम्प्रेषण के आवश्यक गुण
- (ii) प्रभावी सम्प्रेषण के अवरोधक तत्व

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 08/04/2023



# SYLLABUS

## SHORT TERM CERTIFICATE COURSE

DEPARTMENT OF ENGLISH  
UDAI PRATAP AUTONOMOUS COLLEGE  
VARANASI

COURSE TITLE: "SOFT SKILL COMMUNICATIVE ENGLISH" (S.S.C.E.)

### Course Objective:

The objective of the course is to inculcate potential skills in the learners to prepare them to deal with the external world in a collaborative manner, communicate effectively, take initiative, solve problems, and demonstrate a positive work ethic so as to hold a good impression and positive impact.

Duration of the Course - 30 Hours

- |  |           |
|--|-----------|
| Unit-1: English Grammar  | (6 Hours) |
| <ul style="list-style-type: none"><li>• Parts of Speech</li><li>• Tenses</li></ul>   |           |
| Unit-2: Letter Writing   | (6 Hours) |
| <ul style="list-style-type: none"><li>• Leave Application</li><li>• Personal Letter Writing</li><li>• Official Letter writing</li></ul>          |           |
| Unit-3: Effective Communication  | (6 Hours) |
| <ul style="list-style-type: none"><li>• Language</li><li>• Definition and Significance</li><li>• Components of effective Communication</li></ul> |           |

**Unit-4: Effective Writing Skill**

**(6 Hours)**

- Elements of Effective Writing
- The Sentence & Types Of Sentences

**Unit-5: Oral Communication**

**(6 Hours)**

- Dialogues ( Formal & Informal)
- Monologues (Formal & Informal)- self introduction (name, class, schooling , family, Information in detail, aims & objectives, hobbies, likes- dislikes.



**Department Of English**  
**Udai Pratap Autonomous College**  
**Varanasi**

  
28/03/23  
अभिषेखा  
कला संकाय  
उदय प्रताप कॉलेज  
वाराणसी

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पाठ्यक्रम  
विषय—संस्कृत  
शार्ट टर्म सर्टिफिकेट कोर्स

संस्कृत साहित्य का सामान्य परिचय

यूनिट	घण्टा
यूनिट-I : संस्कृत व्याकरण का संक्षिप्त परिचय	07
यूनिट-II : वैदिक साहित्य का संक्षिप्त परिचय	06
यूनिट-III : संस्कृत संभाषण	06
यूनिट-IV : रामायण, महाभारत, गीता का संक्षिप्त परिचय एवं महत्व	07

03.04.23

अधिष्ठाता  
कला संकाय  
उदय प्रताप कालेज  
वाराणसी

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Suman Singh  
Kanjay

Singh

# Udai Pratap College, Varanasi

(An Autonomous Institution)

Department of Economics

Session: 2022-23

## Short Term Certificate Course in Banking

Course Code: STCCB 001

Total Hrs.: 15+15(Theory & Practical)

### OBJECTIVES:

The objective of this Certificate course is to impart in-depth knowledge to students so that they perform their work at high, up-to-date standards as a result of their general economic education and through banking knowledge. The focus is to help lay the foundation for successful careers, as well as prepare students for longer duration career programs in banking.

- A qualified banking consultant has the following skills and competences:
- Analyses the operation of financial markets and institutes.
- Analyses financial services and products.
- Analyses the main components of bank operation by applying the appropriate technical tools.
- Implements risk measurement and risk management techniques.

In our fast changing world, private persons also meet financial processes on a daily level. Our Course helps them in navigating in this labyrinth.

### SCOPE OF THE STUDY:

The certificate course seeks to enable the students:

- To perform the role of risk manager as well that of the Compliance officer
- To acquaint the students with the tools of managing risks.
- To understand compliance function with special reference to the areas of risk.

### Syllabus

**Unit 1:** Introduction to Banking Business: Origin of Bank, Meaning & Definitions, Banker Customer Relationships, Banking Intermediation. 6Hrs

**Unit 2:** Introduction to Financial Systems - Types of Financial systems. Reserve Bank of India, Nationalised Banks, Private Banks, Foreign Banks. 8Hrs

**Unit 3:** Major functions of Banks: 1) Primary Functions- Fixed deposits, Current Account deposits, Savings Bank account and other deposits.

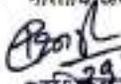
2) Secondary Functions- Agency Services, & General Utility services 8Hrs

**Unit 4:** Electronic Banking. Meaning of E-banking, Automated Teller Machine, Internet Banking, Electronic Funds Transfer(EFT), Electronic Clearing Services(ECS), M-Banking, Credit Cards, Smart Cards, Risks in E-Banking. 8Hrs

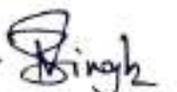
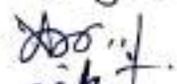
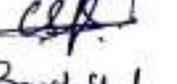
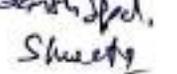
**NOTE:** Learners will prepare a report on banking services based upon routine offline banking process/online banking in Maximum 1000 words.

### Suggested Readings:

- *Banking Law & practices*- S.N. Maheshwari.
- *Banking & Insurance*- Dr. R.K. Gupta & Shashi K. Gupta.
- *Money and Banking*- M.L. Jhingan.
- भारतीय अर्थव्यवस्था- सर्वेक्षण एवं विश्लेषण, एस्एनएल लास।

  
29/03/23  
अधिष्ठाता  
कला संकाय  
उदय प्रताप कालेज  
वाराणसी



Dr. Ruby Singh —   
Dr. Anurag Kr. Singh —   
Chandra Sekhar Singh —   
Bansh Gopal Yashwa —   
Shweta Sonkar — 

**Programme: Short-Term Certificate Course**

**Subject: Geography**

Course Code: G-STCC

Course Title: **Cartography**

**Course Learning Outcomes:**

On completion of this course, learners will be able to:

- To understand the Basic idea of Cartography i.e Map, Scale Toposheet, Relief feature and Geological Map.
- To understand the nature of various data through Graphical and diagrammatic formats and Projection.

Credits: -

Core Certificate Course

Min. Passing Marks:

Max. Marks: -

30

**Total No. of Lectures-Tutorials-Practical (in hours): L- T- P**

**No. of Lectures**

**Unit**

**Topics**

**Section: A (Theory)**

I	Meaning, definition and Importance of Cartography, Scale and its types, Toposheets, Relief Features.	8
II	Geological Maps, Representation of Statistical Data, Map projection.	7

**Section: B (Practical)**

III	Methods of Representation of Scale, Interpretation of Toposheet, Graphical representation of Relief features.	7
IV	Construction Map Projection, Geological Cross Section, Graphical Representation of Statistical Data.	8

**Suggested Readings:**

- Mishra, R.P. and Ramesh, A. Fundamental of Cartography, McMillan Co. New Delhi, 1986.
- Sharma, J.P. : Prayogik Bhoogol, Sahitya Bhawan, Agra-2007.
- Singh, R.L., and Dutt, P.K. : Elements of Practical Geography, Kalyani Publisher, New Delhi, 1979.
- Singh, R.L. : Prayogatmak Bhoogol Ke Mool Tatva.
- Tiwari, R.C.: Prayogik Bhoogol, Prayag Pustak Bhawan, Allahabad.
- Monkhouse, F.J (1985) Methuen, London

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*RA*  
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अधिष्ठाता  
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उदय प्रताप कॉलेज  
वाराणसी

# SYLLABUS

## SHORT TERM CERTIFICATE COURSE

### DEPARTMENT OF HISTORY

**COURSE TITLE:** THE AWAKENING OF INDIA AND DAWN OF NATIONALISM

**COURSE OUTCOME:** By studying the course the student will get the opportunity to learn about the challenges imposed by western culture on Indian culture and how successfully the Indians responded to it. The students will also get the opportunity to learn about the contributions made by the prominent freedom fighters in achieving the freedom.

Unit-1:

Impact of western culture - Religious and social reforms - Raja Ram Mohan Roy, Swami Dayanand Saraswati and Swami Vivekanand 8 Hours

Unit-2:

The revolt of 1857- Causes, causes of failure, and significance.  
Various factors contributing towards the growth of the nationalist movement in India 8 Hours

Unit-3:

The moderate and extremist phases of Indian National Congress.  
Dada Bhai Nauroji and Bal Gangadhar Tilak 8 Hours

Unit-4:

Contributions of prominent leaders in Indian National movement - Mahatma Gandhi, Jawaharlal Nehru, and Subhas Chandra Bose. 6 Hours

#### SUGGESTED READINGS:

1. Purushotam Nagar: Aadhunik Bhartiya Samajik Evam Rajnitik Chintan
2. R. N. Chaurasiya: Modern Indian History
3. L. P. Sharma: Aadhunik Bharat ka Itihaas
4. B. L. Grover and Yashpal: Aadhunik Bharat ka Itihaas
5. V. D. Mahajan: Modern Indian History
6. Vidyadhar Mahajan: Aadhunik Bharat ka Itihaas

*AK*  
05-07-2023  
Dr. Amarendra Pratap Singh  
Head, Dept. of History  
Udai Pratap College, Varanasi

*BS*

*AK*  
05/04/23  
अधिष्ठाता  
कला संकाय  
उदय प्रताप कालेज  
वाराणसी

विभागाध्यक्ष  
इतिहास विभाग  
उदय प्रताप कालेज, वाराणसी

# SYLLABUS

## SHORT TERM CERTIFICATE COURSE

DEPARTMENT OF ANCIENT HISTORY ARCH & CULTURE

COURSE TITLE: "ELEMENTS OF INDIAN ARCHAEOLOGY"

**Specific Outcome:** Through this paper, student will get acquainted with archaeology, Epigraphy and numismatics and understand its importance in the reconstruction of Ancient Indian History. The objective of this paper is to make students not only familiar with regional culture but students will also be benefited in the field of Tourism as Tour Guide.

**Unit-1:**

- Exploration : Aims & Methods
- Excavation : Techniques of Excavation, Horizontal & Vertical
- Stratigraphy : Principles of stratification, Identification & recording of Strata. 8
- Dating Method : Relative & Absolute dating

**Unit-2:**

- Antiquity of writing in India
- Theories regarding the origin of Brahmi & Kharosthi 8
- Decipherment of Ashokan Brahmi & script
- Types of Epigraphs

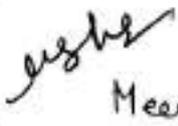
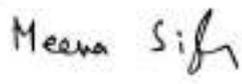
**Unit-3:**

- Antiquity of Coins in India
- Importance of Coins for reconstruction of History
- Punch marked Coins 8

**Unit-4:**

- Mauryan Art : Town planning & Architecture, Pillar Art. 06
- Stupa architecture of Sanchi
- Chaitya & Vihars of western India




**Note:** Visit of Cultural & Archaeological sites or Museum of their region and base of that visit write a tour report.

### Recommended readings:

1. Srivastava K.M. : New Era of Indian Archaeology.
2. Pandey R.P. : Bhartiya Puratattva (Hindi version)
3. Pandey Rajbali : Indian Palaeography
4. Pandey Rajbali : Bhartiya Puralipi (Hindi version)
5. Gupta P.L. : Coins
6. Gupta P.L. : Prachin Bhartiya Mudrayen
7. Agrawal V.S. : Indian Art
8. Agrawal V.S. : Bhartiya Kala

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प्राचीन इतिहास, पुरातत्व एवं संस्कृति विभाग  
उदय प्रताप स्नायत्तवासी महाविद्यालय  
वाराणसी

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27/03/2023

अधिष्ठाता  
कला संकाय  
उदय प्रताप कालेज  
वाराणसी

# NATIONAL EDUCATION POLICY – 2020

## Syllabus for Udai Pratap Autonomous College, Varanasi

### Course Category : Certificate Course

### Under graduate Level, II Semester

### Course Title : Community Health in India

**Course objectives :** The course aims at explaining the concept of Health and disease in social and cultural Framework. Further, it examines the role of social sciences in maintaining, promoting and preserving health beyond the framework of medical sciences. It also look at the growth and development of medicine in relation to the evolution of society and culture. Community health progress have potential for creating variety of jobs of both less skilled and highly skilled types.

#### Total Number of lectures – 30

Unit	Topic	No. of lectures
<b>1.</b>	<b>Concepts of community Health</b>	<b>15</b>
1.1	Popular and changing concept of Health	3
1.2	Community Health/Public Health	3
1.3	Community Diagnosis, community organization and community participation	3
1.4	Determinants of Health	3
1.5	Indicators of Health	3
<b>2.</b>	<b>Community Health in India</b>	<b>15</b>
2.1	Role of culture and family in Health Disease	3
2.2	Sources of Health Information	3
2.3	Health Situation and Health Problem in India	3
2.4	Health programmes in India	3
2.5	Skill Development for Health care services in India	3

#### Suggested Readings :

1. Mahajan, B.K. and M.C. Gupta, 2013: Textbook of preventive and social medicine, New Delhi.
2. Park K. & Park, 2013: Park's Textbook of preventive and social medicine, Jabalpur.
3. Benerji, D., 1966: A Note on community participation in the Basic Health Services, NIAHAE.
4. Paul, D., 1957: Health, culture and community, New York.

*[Signature]*  
Head

Department of Sociology,  
Udai Pratap Autonomous College,  
Varanasi - 221002

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वाराणसी



# DEPARTMENT OF PSYCHOLOGY UDAI PRATAP COLLEGE, VARANASI

**Course Title:** Certificate Course in Stress Management (CCSM)

**Course Duration:** 30 hours

**Course Overview:**

This certificate course is designed to provide learners with an understanding of stress, its effects on the body, and effective techniques for managing stress. The course will cover topics such as mindfulness, meditation, breathing exercises, physical activity, time management, and positive self-talk. Through a combination of lectures, interactive activities, and case studies, learners will gain practical skills for managing stress in their personal and professional lives.

**Course Objectives:**

Upon completion of this course, learners will be able to:

- Define stress and its effects on the body and mind
- Identify common sources of stress in daily life
- Explain the benefits of stress management techniques
- Apply mindfulness techniques to reduce stress and increase focus
- Use breathing exercises to manage anxiety and improve relaxation
- Develop a personal physical activity plan to reduce stress
- Implement effective time management strategies to reduce stress
- Use positive self-talk to manage negative emotions

**Course Outline:**

Module 1: Introduction to Stress Management (2 hours)

- What is stress?
- The effects of stress on the body and mind
- Common sources of stress

Module 2: Mindfulness and Meditation (6 hours)

- Introduction to mindfulness
- Introduction to meditation
- Exercises and techniques

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*[Signature]*  
20/3/23  
Dr. Anurag Upadhyay

*[Signature]*  
27.3.23  
(Prof. Saijendra Singh)

Module 3: Breathing Techniques (4 hours)

- Introduction to breathing techniques
- Techniques for managing anxiety and stress
- Exercises for improving relaxation

Module 4: Physical Activity (6 hours)

- Introduction to physical activity as a stress management tool
- Developing a personal physical activity plan
- Tips for staying active and motivated

Module 5: Time Management (6 hours)

- Introduction to time management as a stress management tool
- Time management techniques for reducing stress
- Strategies for managing time more effectively

Module 6: Positive Self-Talk (6 hours)

- Understanding Self-Talk
- Changing Negative Self-Talk
- Developing Positive Self-Talk

Anurag Upadhyay  
27/3/23  
Prof. Anurag Upadhyay

Prof  
27.03.23  
अभिषेका  
व.जा संकाय  
उदय प्रताप कॉलेज  
बाराणसी

Prof  
27/3/23  
(Prof. Rajendra K. Singh.)

Singh

मनोविज्ञान विभाग  
उदय प्रताप कॉलेज  
बाराणसी

Short Term Certificate Course

Department of Political Science

Course Title: Constitutional Awareness in India

Unit:I –

08 H

1.Preamble

2.Fundamental Rights

3.Fundamental Duties

4.Directive Principles of state Policy

Unit:II –

08 H

1.President

2.Vice President

3.Prime Minister

4.Council of Minister

Unit:III –

08 H

1.Governor

2.Chief Minister

3.Council of Minister

4.Indian Judicial System

\*Supreme Court

\*High Court

*D. Singh*

*A. Gupta*  
*11/4/23*

*A. M. S. M.*  
*11/4/23*

1.Panchayati Raj Institutions

2.Rural and Urban and their working

Suggested Reading:

- Basu, DD(2008) ,The Constitution of India Vadhawa and Company ,New Delhi.
- Sayed, S.M.(2015) "Bhartiya Rajnitik vyavastha "Bharat Book Centre,Lucknow.
- Pylee, M.V(2016), "India's Constitution" S.Chand & Company Pvt.Ltd, New Delhi.
- Laxmikanth, M(2014) "Indian Polity" Mac Graw Hill Education pvt. Ltd, New Delhi.
- Agarwal, R.C.(2015) " Constitutional Development and National Movement of India" S.Chand & Company Pvt. Ltd, New Delhi.

  
Pansar

  
Dr.(ALKA RANI GUPTA)  
HEAD

Political Science Department

  
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उदय प्रताप कॉलेज  
वाराणसी

**Udai Pratap College, Varanasi**  
(Autonomous)  
Department of Physical Education  
Session: 2022-2023

**Short Term Certificate Course in Yoga Sciences**

**Course Code: STCCYS** **Total Hrs 15+15 (Theory and Practical)**

**Course Objectives and Learning Outcomes:**

- Promoting positive health and holistic wellness.
- To enable students to become competent and committed professionals willing to perform as Yoga Trainer.
- To make student use competencies and skills needed for becoming effective Yoga trainer.
- To enable student to understand the type of Yoga.
- To acquaint student with the Practical knowledge of Yogasana and Pranayama.
- Conduct Yoga Protocol at work places. Conduct yoga classes in parks and societies.

**Syllabus**

**Foundation of Yoga**

**Unit -1** 7 Hrs  
**Yoga :** Etymology, definitions, aim, objectives.

**Unit-2** 8 Hrs  
**Ashtanga Yoga:** Yama, Niyam, Asana, Pranayama, Pratyahara, Dharna, Dhyana, Samadhi.

**Practical-1**

**Unit-3** 8 Hrs  
**1. Yogic Warm-Up**  
Sukshma Vyayama, Sthula Vyayama  
**2. Yogasana**  
**Standing Asana:** Tadasana, Trikonasana, Vrikshasana, Ardha Chakrasana, Padhastanasana,  
**Sitting Asana:** Padmasana, Paschimottanasana, Vajrasana, Ushtrasana,  
**Prone Lying Asana:** Bhujangasana, Shalabhasana, Dhanurasana, Makarasana  
**Supine Lying Asana:** Pawanmuktasana and its variation, setubandhasana, sarvangasana, Ardha Halasana, Uttanpadasana, Halasana, Naukasana, Cakrasana, Shavasana.

**Practical -II**

**Unit-4** 7 Hrs  
**Pranayama**  
Breath Awareness, Yogic Breathing, Anulom- Vilome Pranayama, Suryabhedhi, Ujjayi, Shitali, Sitkari, Bhramari

Prof:- Subodh Singh Mishra  
Mr. Vinay Kumar Yadav

Mishra  
Head / Sports Secretary  
Department of Physical Education  
Udai Pratap College (Autonomous)  
Varanasi-221002

**Programme: Short- Term Certificate Course**

<b>विषय(Subject)- रक्षा एवं स्त्रातजिक अध्ययन (Defence &amp; Strategic Studies)</b>		
<b>पाठ्यक्रम कोड(Course Code)- D-STCC, पाठ्यक्रम शीर्षक(Course Title)- आपदा प्रबंधन(Disaster Management)</b>		
<b>पाठ्यक्रम परिणाम(Course Outcome)</b>		
इस पाठ्यक्रम के अध्ययन से छात्र/छात्राओं को प्राकृतिक या मानव निमित्त आपदाओं से जीवन और संपत्ति की सुरक्षा और सुरक्षा के लिए किए गए उपायों का ज्ञान देकर उन्हें तैयार करना है। इसके अध्ययन से जिला, राज्य, राष्ट्रीय आपदा राहत कोष, गैर सरकारी संगठनों, जलवायु परिवर्तन संस्थान आदि में शामिल होकर कार्य कर सकते हैं।		
<b>Credits:</b>	<b>Core Certificate Course:</b>	
<b>Max Marks:</b>	<b>Min Marks:</b>	
<b>Total No. of Lectures: Tutorial- Practical (in hours) : L.T.P.</b>		<b>30</b>
<b>Units</b>	<b>Topic</b>	<b>No. of Lectures</b>
<b>I</b>	<b>भूकंप (Earthquake)-</b> 1. भूकंप की परिभाषा एवं प्रकार(Definition and types of earthquake) 2. भूकंप के कारण, प्रभाव(Causes and effects of earthquake) 3. भूकंप से बचने के उपाय(Earthquake prevention measures)	<b>08</b>
<b>II</b>	<b>बाढ़ (Flood)-</b> 1. बाढ़ क्या है (What is flood) 2. बाढ़ के कारण(Reasons of flood) 3. बाढ़ से बचाव (Protection from flood) 4. बाढ़ रोकने के उपाय(Measures of flood prevention)	<b>06</b>
<b>III</b>	<b>भूस्खलन (Landslides)-</b> 1. भूस्खलन का अर्थ एवं प्रकार(Meanings and types of Landslides) 2. भूस्खलन के कारण(Causes of Landslides) 3. भूस्खलन रोकथाम के उपाय(Landslides prevention measures)	<b>07</b>
<b>IV</b>	<b>आग से सुरक्षा (Fire safety)-</b> 1. आग के प्रकार (Types of fire) 2. आग लगने के कारण(Due to fire) 3. आग से बचाव(Fire prevention) 4. आग बुझाने के उपाय(Fire extinguishers) 5. अग्निशामक यंत्र एवं प्रकार(Fire extinguishers and types) 6. जंगल में आग लगने के कारण और इससे बचने के उपाय(Causes of forest fire and ways to prevent it)	<b>09</b>

**Suggested Readings :**

1. मिश्र, शिव गोपाल, आपदा प्रबंधन, प्रभात प्रकाशन, नई दिल्ली
2. सिंह, डॉ. निशांत, आपदा प्रबंधन, राधा प्रकाशन, दिल्ली-110002
3. शुक्ल, चंद्र प्रकाश, आपदा प्रबंधन, अविष्कार पब्लिशर्स, जयपुर, राजस्थान
4. आर्य, प्रो. (डॉ.) ओम हरि, मधेसिया, डॉ. अजीत कुमार, पर्यावरण, आपदा प्रबंधन एवं जलवायु परिवर्तन, ठाकुर पब्लिकेशन प्राइवेट लिमिटेड, लखनऊ
5. कुमार, अशोक, अनेकांत, विपुल, भारत की आंतरिक सुरक्षा मुख्य चुनौतियां, Mc Graw Hill Education, चेन्नई

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उदय प्रताप कालेज  
वाराणसी

*R. Singh*

*Prakash Chandra*

## Certificate Course in PC Assembly & Maintenance

### Learning Outcomes:

The student will assemble / setup and upgrade personal computer systems; diagnose and isolate faulty components; optimize system performance and install / connect peripherals.

### UNIT I

No. of Hours 5

1. Basic of computer, I/O devices, Monitors (CRT/ LCD/LED), Memory, Introduction of Hardware : Hard Disk (SATA, USB,) different types of Mother Board, Key Board, Mouse Printers

### UNIT II

No. of Hours 5

PC debugging , troubleshooting and Maintenance, Software installation and Configuration, Networking Basic and Configuration

### Laboratory Exercises:

No. of Hours 20

1. Use of Clipping Tools .
2. Monitors (CRT/ LCD/LED),
3. Hard Disk (SATA, USB,)
4. different types of Mother Board
5. PC debugging , troubleshooting and Maintenance,
6. Software installation and Configuration,
7. Networking

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