Lesson Plan (Semester I, Nov 2022 to Feb 2023)

Name of Teacher	Dr. Meera Sharma	Department	Computer Science
Course	All Courses(except BA Prog.)	Semester	First
Paper	Generic 1b: Programming with Python	Academic Year	2022-23

Learning Objectives

- The course is designed to introduce programming concepts using Python to students.

- The course aims to develop structured as well as object-oriented programming skills using Python.

- The course also aims to achieve competence amongst its students to develop correct and efficient Python programs to solve problems in their respective domains.

Learning Outcomes

- Write simple programs using built-in data structures in Python.

- Implement arrays and user defined functions in Python.

- Solve problems in the respective domain using suitable programming constructs in Python.

- Solve problems in the respective domain using the concepts of object oriented programming Python.

Lesson Plan

Week No.	Theme/ Curriculum	Any Additional Information
1-2	Unit 1: Introduction to Programming: Problem solving strategies; Structure of a Python program; Syntax and semantics; Executing simple programs in Python.	
3-7	Creating Python Programs: Identifiers and keywords; Literals, numbers, and strings; Operators; Expressions; Input/output statements; Defining functions; Control structures (conditional statements, loop control statements, break, continue and pass, exit function), default arguments.	
8-12	Built-in data structures: Mutable and immutable objects; Strings, built-in functions for string, string traversal, string operators and operations; Lists creation, traversal, slicing and splitting operations, passing list to	

	a function; Tuples, sets, dictionaries and their operations.
13-15	File and exception handling: File handling through libraries; Errors and exception handling.

Books:

1. Taneja, S., Kumar, N., Python Programming- A modular Approach, Pearson Education India, 2018.
2. Balaguruswamy E., Introduction to Computing and Problem Solving using Python, 2nd edition, McGraw Hill Education, 2018.

Online Resources (If Any)	None
Assignment and Class Test Schedule for Semester	Assignment: Practical questions allocated to students on different topics due on 10th Feb 2023. Class Test: 07 Feb 2023 at 12:30 pm in computer lab New Campus.

Swami Shraddhanand College
(University of Delhi)
Alipur, Delhi- 1100036
www.ss.du.ac.in

Lesson Plan (Semester I, Nov 2022 to Feb 2023)

Name of Teacher	Dr. Meera Sharma	Department	Computer Science
Course	All Courses	Semester	First
Paper	SEC: Basic IT Tools	Academic Year	2022-23

Learning Objectives

- To enable students develop IT skills that are a pre-requisite in today's work environment.

- To equip them with basic computing skills that will enhance their employability in general.

- To enable the student to analyse and present information in a meaningful manner.

Learning Outcomes

- By studying this course, students will be able to use word-processor to generate documents with appropriate formatting, layout, review and referencing.

- By studying this course, students will be able to manage data in worksheets and workbooks and analyze it using spreadsheet functions and inbuilt formulas.

- By studying this course, students will be able to draw analysis on data using spreadsheets to make decisions.

- By studying this course, students will be able to make meaningful representations of data in the form of charts and pivot tables.

- By studying this course, students will be able to manage data in database tables and use the same for generating queries, forms and reports.

Lesson Plan

Week No.	Theme/ Curriculum	Any Additional Information
1-4	Unit 1:Introduction to Spreadsheets Spreadsheets: Concept of worksheets and workbooks, creating, opening, closing and saving workbooks, moving, copying, inserting, deleting and renaming worksheets, working with multiple worksheets and multiple workbooks, controlling worksheet views, naming cells using name box, name create and name define; Exchanging data using clipboard, object linking and	

	embedding; Printing and Protecting worksheets: Adjusting margins, creating headers and footers, setting page breaks, changing orientation, creating portable documents and printing data and formulae; Implementing file level security and protecting data within the worksheet; Understanding absolute, relative and mixed referencing in formulas, referencing cells in other worksheets and workbooks, correcting common formula errors, working with inbuilt function categories like mathematical, statistical, text, lookup, information, logical, database, date and time and basic financial functions.	
5-8	Unit 2: Data Analysis in Spreadsheets Consolidating worksheets and workbooks using formulae and data consolidate command; Choosing a chart type, understanding data points and data series, editing and formatting chart elements, and creating sparkline graphics, Analysing data using pivot tables: Creating, formatting and modifying a pivot table, sorting, filtering and grouping items, creating calculated field and calculated item, creating pivot table charts, producing a report with pivot tables. Introduction to recording and execution of macros.	
9-11	Unit 3: Word Processing Introduction: Creating and saving your document, displaying different views, working with styles and character formatting, working with paragraph formatting techniques using indents, tabs, alignment, spacing, bullets and numbering and creating borders; Page setup and sections: Setting page margins, orientation, headers and footers, end notes and foot notes, creating section breaks and page borders; Working with tables: Creating tables, modifying table layout and design, sorting, inserting graphics in a table, table math, converting text to table and vice versa; Create newspaper columns, indexes and table of contents, Spell check your document using inbuilt and custom dictionaries, checking grammar and style, using thesaurus and finding and replacing text; Create bookmarks, captions and cross referencing, adding hyperlinks, adding sources and compiling and bibliography; Mail merge: Creating and	

	editing your main document and data source, sorting and filtering merged documents and using merge instructions like ask, fill-in and if-then-else; Linking and embedding to keep things together.	
12-15	Unit 4: Databases Introduction to Database Development: Database Terminology, Objects, Creating Tables, working with fields, understanding Data types, Changing table design, Assigning Field Properties, Setting Primary Keys, using field validation and record validation rules, Indexing, working with multiple tables, Relationships & Integrity Rules, Join Properties, Record manipulation, Sorting & Filtering; Select data with queries: Creating Query by design & by wizard (Select, Make Table, Append, Delete, Cross Tab, Update, Parameterized Query, Find Duplicate and Find Unmatched), Creating multi table queries, creating & working with table joins. Using operators & expressions: Creating simple & advance criteria; Working with forms: Creating Basic forms, working with bound, unbound and calculated controls, understanding property sheet, Working with Data on Forms: Changing Layout, creating Sub Forms, creating list box, combo box and option groups; Working with Reports: Creating Basic Reports, Creating Header & Footer, Placing Controls on reports, sorting & grouping, Creating Sub reports.	

Books:
Essential/recommended readings
1. Swinford, E., Dodge, M., Couch, A., Melton, B. A. (2013). Microsoft Office Professional 2013. United States: O'Reilly Media.
2. Wang, W. (2018). Office 2019 For Dummies. United States: Wiley. Microsoft.
3. Lambert, J. (2019). Microsoft Word 2019 Step by Step. United States: Pearson Education.

Suggestive readings
4. Jelen, B. (2013). Excel 2013 Charts and Graphs. United Kingdom: Que.
5. Alexander, M., Jelen, B. (2013). Excel 2013 Pivot Table Data Crunching. United Kingdom: Pearson Education.
6. Alexander, M., Kusleika, R. (2018). Access 2019 Bible. United Kingdom: Wiley.

Online Resources (If Any)	None
Assignment and Class Test Schedule for Semester	Assignment: Pivot table, Vlookup and Hlookup questions due on 10th Feb 2023. Class Test : 06 Feb 2023 at 12:30 pm in Room-225.

Swami Shraddhanand College
(University of Delhi)
Alipur, Delhi- 1100036
www.ss.du.ac.in

Lesson Plan(Semester I, Nov 2022 to Feb 2023)

Name of Teacher	Dr. Shveta Kundra Bhatia	Department	Computer Science
Course	B.A.(Prog)	Semester	First
Paper	Introduction to Programming using C++	Academic Year	2022-23

Learning Objectives

- Providing a broad understanding of Object Oriented Programming concepts.
- Students shall have understanding of variables and functions.
- Students will be able to write programs involving mathematical calculations.

Learning Outcomes

- The basic programming and OOPs concepts
- Creating C++ programs
- Tokens, expressions and control structures in C++
- Arranging same data systematically with arrays
- Classes and objects in C++
- Constructors and destructors in C++

Lesson Plan		
Week No.	Theme/ Curriculum	*Any Additional Information*
1	Introduction to C++ Basic concepts of programming Object Oriented Programming concepts	
2- 4	Data Types and expressions Operators and Operands	
5-8	Control Constructs in C++ Conditional If statement For loop, while loop, do while loop	
9-10	Arrays, Pointers and User Defined functions	
11-15	Classes and Objects	Class Test and Assignment

Books:

1. E. Balaguruswamy, Object Oriented Programming with C++, 7th edition, McGraw – Hill Education, 2017.

2. Robert Lafore, Object Oriented Programming in C++, 4th edition, SAMS Publishing, 2016.

Online Resources (If Any)	https://www.tutorialspoint.com/python/index.htm https://www.w3schools.in/python https://www.geeksforgeeks.org/python/

Lesson Plan(Semester I, Nov 2022 to Feb 2023)

Name of Teacher	Dr. Shveta Kundra Bhatia	Department	Computer Science
Course	B.A.(Prog)	Semester	First
Paper	Programming Fundamentals using Python	Academic Year	2022-23

Learning Objectives

- To understand why Python is a useful scripting language for developers.

- To learn how to design and program Python applications.

- To learn how to use lists, The tuples, and dictionaries in Python programs.

- To learn how to identify Python object types.

- To learn how to use indexing and slicing to access data in Python programs.

- To define the structure and components of a Python program.

- To learn how to write loops and decision statements in Python.

- To learn how to write functions and pass arguments in Python.

Learning Outcomes

- The student shall be able to build basic programs using fundamental programming constructs like variables, conditional logic, looping, and functions

- Work with user input to create fun and interactive programs

Lesson Plan		
Week No.	Theme/ Curriculum	*Any Additional Information*
1-2	Introduction to Python Basic concepts of programming	
3-6	Data Types and expressions Operators and Operands Control Constructs in Python Conditional If statement	
7-8	User Defined Functions Passing by value and reference Returning by value and reference	
9- 15	Built in Data structures: Lists Tuples Sets Dictionaries	Class Test and Assignment

Books:

1. Kamthane, A. N. & Kamthane, A. A., "Programming and Problem Solving with Python", 2nd edition, McGraw Hill Education, 2020.

2. Balaguruswamy E., "Introduction to Computing and Problem Solving using Python", 2nd edition, McGraw Hill Education, 2018.

3. Taneja, S. & Kumar, N., "Python Programming- A modular Approach", Pearson Education India, 2018.

Online Resources (If Any)	https://www.tutorialspoint.com/cpp/index.htm https://www.w3schools.in/cpp https://www.geeksforgeeks.org/cpp/

Swami Shraddhanand College
(University of Delhi)
Alipur, Delhi 1100036
www.ss.du.ac.in
Lesson Plan Dec 2022 - Feb 2023

Name of Teacher	Ms. Akanksha Gupta	Department	Computer Science
Course	B.A.(H)/B.Sc(H)/B.Com(H) Skill Enhancement Course	Semester	First
Paper	Programming with Python	Academic Year	2022

Learning Objectives

- To provide exposure to basic problem-solving techniques with computers
- To develop logical thinking abilities and to propose novel solutions for real world
- problems through programming language constructs.
- To deepen the empirical knowledge on applying programming on business domains.

Learning outcomes

After studying this course, students will be able to:
- interpret the basic representation of the data structures and sequential programming.
- gain knowledge of, and ability to use control framework terminologies.
- work out using the core data, structures as lists, dictionaries, tuples, and sets.
- choose appropriate programming paradigms, interrupt and handle data using files to propose solutions through reusable modules.
- propose possible error-handling constructs for unanticipated states/inputs.
- implement exemplary applications on real-world problems.

Lesson Plan

Week No.	Theme/ Curriculum	Any Additional Information
1-2	Unit-1: Introduction Relationship between computers and programs, Basic principles of computers, File systems, Using the Python interpreter, Introduction to binary computation, Input / Output.	

3-4	Unit-2: Data types and control structures Operators (unary, arithmetic, etc.), Data types, variables, expressions, and Statements.	
5-6	Assignment statements, Strings and string operations, Control Structures: loops and decision.	
7-8	Unit-3: Modularization and Classes Standard modules, Packages, Defining Classes, Defining functions, Functions and arguments(signature).	
9-10	Unit-4: Data structures and Object-oriented design Data Structures (array, List, Dictionary), Error processing, Exception Raising and Handling Programming types.	
11	Object Oriented Programming, Object Oriented Design, Inheritance and Polymorphism,	
12	Revision of syllabus	CLASS TEST AND ASSIGNMENT DISCUSSION

Books:

1. Taneja, S., Kumar, N., Python Programming- A modular Approach, Pearson Education India, 2018.
2. Balaguruswamy E., Introduction to Computing and Problem Solving using Python, 2nd edition, McGraw Hill Education, 2018.

Online Resources (If Any)	None
Assignment and Class Test Schedule for Semester	Assignment: Practical questions from guidelines. Class Test : On 6th Feb, 2023.

Swami Shraddhanand College
(University of Delhi)
Alipur, Delhi 1100036
www.ss.du.ac.in
Lesson Plan Dec 2022 - Feb 2023

Name of Teacher	Ms. Akanksha Gupta	Department	Computer Science
Course	B.A.(H)/B.Sc(H)/B.Com(H) Value Addition Course	Semester	First
Paper	Digital Empowerment	Academic Year	2022

Learning Objectives

- Understanding digital world and need for digital empowerment.
- Awareness about digital India.
- Explore, communicate, collaborate in cyberspace.
- Awareness about cyber safety and security.

Lesson Plan

Week No.	Theme/ Curriculum	Any Additional Information
1	Digital inclusion and digital empowerment: Needs and challenges, Vision of Digital India	
2	Digi locker, E- hospitals, BHIM, E-Pathshala, E-Health, RTI, ITR, Education platforms.	
3-4	Communication and Collaboration in the Cyber Space - E-Mail, Blogs, Social media, Digital platforms.	
5-6	Online learning platforms, File sharing, messaging, Video conferencing.	
7-8	Cyber security, Threats in digital world, Cyber attacks, Blockchain.	
9-10	Security initiatives taken by the Government of India.	
11	Ethical issues in Digital world - ethics in cyberspace.	

12	Revision, discussion of syllabus.	CLASS TEST AND ASSIGNMENT DISCUSSION
Online Resources (If Any)	https://www.digitalindia.gov.in/ https://www.digilocker.gov.in/ https://nha.gov.in/ https://diksha.gov.in/ https://swayam.gov.in/ https://digitalindia.gov.in/content/ekranti https://rtionline.gov.in/index.php https://en.wikipedia.org/wiki/Digital_collaboration https://www.prodigygame.com/in-en/blog/virtual-learning-tools/ https://dexteredward.com/secure-collaboration/ https://safety.google/security-privacy/ https://safety.google/ https://www.niti.gov.in/sites/default/files/2019-07/CyberSecurityConclaveAtVigyanBhavanDelhi_1.pdf https://www.csoonline.com/article/3541148/the-biggest-data-breaches-in-india.html https://www.kaspersky.com/resource-center/preemptive-safety/what-is-netiquette https://iccopr.com/wp-content/uploads/2017/10/Ethics-in-Digital-Communications-Guidelines.pdf https://www.csk.gov.in/
Assignment and Class Test Schedule for Semester	Assignment: Exploring Govt. websites and downloading their mobile apps. Class Test : On 10th Feb, 2023.

Swami Shraddhanand College
(University of Delhi)
Alipur, Delhi 1100036
www.ss.du.ac.in
Lesson Plan Dec 2022 - Feb 2023

Name of Teacher	Ms. Akanksha Gupta	Department	Computer Science
Course	B.A.(H)/B.Sc(H)/B.Com(H) Generic Elective I	Semester	First
Paper	Programming using C++	Academic Year	2022

Learning Objectives

- Write simple programs using built-in data types of C++.
- Implement arrays and user defined functions in C++.
- Solve problems in the respective domain using suitable programming constructs in C++.
- Solve problems in the respective domain using the concepts of object oriented programming in C++.

Lesson Plan

Week No.	Theme/ Curriculum	Any Additional Information
1-2	Overview of Procedural and Object-Oriented Programming, Using main() function, Header Files, Compiling and Executing simple C++ programs. Data types, Variables, Keywords, Operators, Expressions.	
3-4	Decision making constructs - if and switch Looping - while, do-while, for Iteration	
5-6	Arrays Type casting Functions	
7-8	Classes and objects, abstraction, encapsulation Constructors and Destructors	

9-10	Implementation of inheritance and polymorphism	
11	Template functions and Classes	
12	Revision of syllabus	CLASS TEST AND ASSIGNMENT DISCUSSION

Books:

1. Stephen Prata, C++ Primer Plus, 6th Edition, Pearson India, 2015.
2. E Balaguruswamy, Object Oriented Programming with C++, 8 th edition, McGraw-Hill Education, 2020.
3. D.S. Malik, C++ Programming : From Problem Analysis to Program Design, 6th edition, Cengage Learning, 2013.

Online Resources (If Any)	https://www.w3schools.com/cpp/default.asp https://www.tutorialspoint.com/cplusplus/index.htm
Assignment and Class Test Schedule for Semester	Assignment: Back questions from book. Class Test : On 7th Feb, 2023.

Swami Shraddhanand College
(University of Delhi)
Alipur, Delhi 1100036
www.ss.du.ac.in
Lesson Plan Dec 2022 - Feb 2023

Name of Teacher	Ms. Akanksha Gupta	Department	Computer Science
Course	B.A.(H)/B.Sc(H)/B.Com(H) Skill Enhancement Course	Semester	First
Paper	Advanced Spreadsheets Tools	Academic Year	2022

Learning Objectives

- To enable the students to use Excel for advanced data analysis.
- To equip the students to with automation skills on excel.
- To enable the students to use excel for informed decision making.

Learning outcomes

After studying this course, students will be able to:
- make meaningful representation in the form of charts and pivot tables.
- draw analysis on data using spreadsheets, and use interpretation to make decisions.
- generate word documents with appropriate formatting, layout, proofing.
- manage data for generating queries, forms and reports in a database.

Lesson Plan

Week No.	Theme/ Curriculum	Any Additional Information
1-2	Unit 1: Excel Advanced Techniques Templates, Efficiency, and Risk (Standard Deviation, Variance, and Coefficient of Variation), Data Validation, Functions and Power functions, Array Formulae (Frequency Distribution),Tables, Advanced Range Names,	
3-4	What-if-analysis: Goal-seek, Data tables, and Scenario Manager, Data analysis Tool Pack: Descriptive Statistics, Moving averages, Histogram, Covariance, correlation,	

	and Regression analysis. Problem Solving using Solver, Integrating excel with other tools: MS word, outlook, PowerPoint, Access, Power BI.	
5-6	Unit 2: Excel Interactivity and Automation Index and Match, Offset, Dynamic Charting, Database functions, Text functions, and Error functions: IfError, IsError, Aggregate, Circular Reference, Formula Auditing, Floating-Point Errors, Form Controls (Button, Combo, Check box, Spinner, List, Option), Visual Basic (only basic).	
7-8	Recording Macros, Absolute and relative macros, editing macros, Use of spinner buttons and command buttons; Sub Procedure, Function Procedure (creating New Functions) Working with Loops: Do_while loop, For_Next loop; Creating User Forms: Message Box, Input Box; If_Then_Else.	
9-10	Unit 3: Introduction to VBA Conditional Formatting, Charts, Slicers, Sparklines, Graphics Tricks and Techniques, Worksheet Automation using Macros: Absolute and relative macros, editing macros, Creating new functions using macros, Use of spinner buttons and command buttons.	
11	Unit 4: Data Analysis and Decision-Making Working with External Data, Advanced Uses of PivotTables, PowerPivot, Reporting with PowerPivot, Power query, Dashboard, Creating a spreadsheet in the area of: Loan and Lease statement; Ratio Analysis; Payroll Accounting; Capital Budgeting (NPV & IRR), Portfolio Management, Breakeven analysis, and Sensitivity analysis.	
12	Operations Management: Constraint, Forecasting & Trend Analysis optimization, Assignment Problems; Depreciation Accounting (Single Method); Graphical representation of data; Frequency distribution and its statistical parameters; Correlation and Regression Analysis.	CLASS TEST AND ASSIGNMENT DISCUSSION

Books:

1. Excel 2016 Power Programming with VBA, Michael Alexander, Dick Kusleika, Wiley.
2. Financial Analysis and Modelling Using Excel and VBA, Chandan Sengupta,

	Second Edition, Wiley Student Edition. 3. MS Excel 2016, Data Analysis & Business Modelling, Wayne Winston, PHIL.
Online Resources (If Any)	None
Assignment and Class Test Schedule for Semester	Assignment: Practical questions from guidelines. Class Test : On 6th Feb, 2023.