

Name of the college: Government College of Arts, Science & Commerce, Sanquelim Goa

Name of Faculty: Mr. Amar R. Naik

Subject: Computer Science

Paper code: CSC-221 Introduction to Python Programming

Program/Course: SY B.Sc.

Division: -

Academic year: 2024 - 2025

Semester: IV

Total Lectures: 45

Course Objectives:

1. To introduce programming concepts using Python.
2. To understand and apply fundamental concepts of Python programming to solve basic computational problems.
3. To demonstrate proficiency in utilizing advanced Python features such as object-oriented programming, file handling, exception handling, and integrating Python libraries for real-world applications.

Course Outcomes:

On completion of the course, students will be able to:

1. Recall and apply fundamental Python constructs in programming tasks.
2. Understand the foundational concepts of scientific computing, including the use of libraries for mathematical operations and data analysis.
3. Apply Python programming skills to solve scientific problems, utilizing libraries for specific scientific computations and analysis.
4. Critically analyze scientific problems, applying Higher-Order Thinking (HOT) questions and real-world applications to develop effective problem-solving skills.

Month	Lectures From: To:		No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
December	09-12-2024	14-12-2024	3	<ul style="list-style-type: none"> - Syllabus Overview, Python Interpreter, Python Shell, Strings - Relational operators, logical operators, Bitwise operators - Precedence of operators, Variables and assignment statements 		Laptop, LCD Projector, PPT, Google Classroom	Taneja Sheetal, Kumar Naveen , “Python Programming - A modular approach” w3schools.com

December	16-12-2024	21-12-2024	3	<ul style="list-style-type: none"> - Script mode, functions - Modules, command line arguments - Control structures- if conditional statements, Iteration for and while statements 		Laptop, LCD Projector, PPT, Google Classroom	Taneja Sheetal, Kumar Naveen , “Python Programming - Amodular approach”
January	02-01-2025	04-01-2025	1	<ul style="list-style-type: none"> - break, continue and pass statements with examples <p>Data types: Boolean, numbers</p>		Laptop, LCD Projector, PPT, Google Classroom	Taneja Sheetal, Kumar Naveen , “Python Programming - Amodular approach”
January	06-01-2025	11-01-2025	3	<ul style="list-style-type: none"> - Coercing integers to floats and vice versa, numerical operations - Lists, creating a list, slicing a list, adding and removing items from a list, searching for values in a list - Tuples, immutability property, converting tuples into a list 		Laptop, LCD Projector, PPT, Google Classroom	Taneja Sheetal, Kumar Naveen , “Python Programming - Amodular approach”
January	13-01-2025	18-01-2025	3	<ul style="list-style-type: none"> - Sets, set operations - Dictionaries - Strings, Unicode, formatting strings 		Laptop, LCD Projector, PPT, Google Classroom	Taneja Sheetal, Kumar Naveen , “Python Programming - Amodular approach”
January	20-01-2025	25-01-2025	3	<ul style="list-style-type: none"> - docString, module - Packages, scope - Recursion 	- Assignment on Collection types	Laptop, LCD Projector, PPT, Google Classroom	Taneja Sheetal, Kumar Naveen , “Python Programming - Amodular approach” w3schools.com

January - February	27-01-2025	01-02-2025	3	<ul style="list-style-type: none"> - Unit I, II revision - Introduction to OOP, Object Oriented Concepts Classes, Objects - Encapsulation with examples 		Laptop, LCD Projector, PPT, Google Classroom	Taneja Sheetal, Kumar Naveen , “Python Programming - A modular approach”
February	03-02-2025	08-02-2025	3	<ul style="list-style-type: none"> - Abstract Data types - Polymorphism: static - Dynamic polymorphism 	Demonstration on Classes, Objects	Laptop, LCD Projector, PPT, Google Classroom	Taneja Sheetal, Kumar Naveen , “Python Programming - A modular approach”
February	10-02-2025	15-02-2025	3	<ul style="list-style-type: none"> - Modifier, accessor methods - Static method - Adding methods dynamically 		Laptop, LCD Projector, PPT, PPTs	Taneja Sheetal, Kumar Naveen , “Python Programming - A modular approach”
February	17-02-2025	22-02-2025	3	<ul style="list-style-type: none"> - Composition - Inheritance and examples - Types of Inheritance 	Demonstration on Inheritance	Laptop, LCD Projector, PPTs	Taneja Sheetal, Kumar Naveen , “Python Programming - A modular approach”
February-March	24-02-2025	01-03-2025	3	<ul style="list-style-type: none"> - built-in functions for classes - Files, Read files, examples - Write files, append, examples 		Laptop, LCD Projector, PPTs	Taneja Sheetal, Kumar Naveen , “Python Programming - A modular approach”, Gutttag John V., “Introduction to Computation and Programming using Python”, w3schools.com
March	03-03-2025	08-03-2025	3	<ul style="list-style-type: none"> - Create files, delete files, Revision file handling - Exception Handling, try block 		Laptop, LCD Projector, PPTs	Taneja Sheetal, Kumar Naveen , “Python Programming - A modular approach”, Gutttag John V., “Introduction to Computation and Programming using Python”,

March	10-03-2025	15-03-2025	3	<ul style="list-style-type: none"> - Except, else and finally blocks - Exception Handling examples - Applications of Python - use of Python libraries such as Matplotlib 		Laptop,LCD Projector,Google Classroom, PPTs	Taneja Sheetal, Kumar Naveen , “Python Programming - A modular approach”, Guttag John V., “Introduction to Computation and Programming using Python”,
March	17-03-2025	22-03-2025	3	<ul style="list-style-type: none"> - Use of Matplotlib - Pandas Overview - Application of Pandas 	Demonstration on use of libraries	Laptop,LCD Projector, Google Classroom, PPTs	Taneja Sheetal, Kumar Naveen , “Python Programming - A modular approach”, Guttag John V., “Introduction to Computation and Programming using Python”, w3schools.com
March	24-03-2025	29-03-2025	3	<ul style="list-style-type: none"> - Using databases with python Python MYSQL connection - Database operations using Python - Collecting information from Twitter 		Laptop,LCD Projector, Google Classroom, PPTs	w3schools.com https://datascienceparichay.com/article/get-data-from-twitter-api-in-python-step-by-step-guide/
March - April	31-03-2025	05-04-2025	3	<ul style="list-style-type: none"> - Collecting information from Twitter - Revision - QA 		Laptop, LCD Projector, PPTs	
April	07-04-2025	11-04-2025	3	<ul style="list-style-type: none"> - Revision, Solving past Question papers 			

*Assessment Rubrics		Best 2 ISAs
Component	Max Marks	
ISA 1	7.5	
ISA 2	7.5	
ISA 3	7.5	
Practical	25	
Project	-	
Semester End Examination	60	