

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

COURSE MODULE OF SUBJECTS CARRIED OUT FOR ODD SEMESTER 2026-27

COURSE SYLLABI WITH COURSE OUTCOMES

Department: Electronics and Communication Engineering							
Academic Year: 2026 – 27 (ODD Semester)							
Course Code	Course Title	Core/ Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
1BEC305	Python Programming	Core	Fundamental Programming Concepts	3	-	-	42

Topics Covered as per Syllabus

Module-1:

Python Basics, Python language features, History, Entering Expressions into the Interactive Shell, The Integer, Floating-Point, and String Data Types, String Concatenation and Replication, Storing Values in Variables, Your First Program, Dissecting Your Program, Flow control, Boolean Values, Comparison Operators, Boolean Operators, Mixing Boolean and Comparison Operators, Elements of Flow Control, Program Execution, Flow Control Statements, Importing Modules, Ending a Program Early with sys.exit(), Functions, def Statements with Parameters, Return Values and return Statements, The None Value, Keyword Arguments and print(), Local and Global Scope, The global Statement, Exception Handling, A Short Program: Guess the Number. Text book 1: Chapters 1–3

Module-2:

Data Structures: Lists: The List Data Type, Working with Lists Strings: Manipulating Strings, Working with Strings, Useful String Methods Tuples and Dictionaries, basics Using Data Structures to Model RealWorld Things, Manipulating Strings. Text book 1: Chapters 4–6

Module-3:

Pattern Matching with Regular Expressions, Finding Patterns of Text Without Regular Expressions, Finding Patterns of Text with Regular Expressions, More Pattern Matching with Regular Expressions,, The findall() Method, Character Classes, Making Your Own Character Classes, The Caret and Dollar Sign Characters, The Wildcard Character, Review of Regex Symbols. Reading and Writing Files, Files and File Paths, The os.path Module, The File Reading/Writing Process, Saving Variables with the shelve Module, Saving Variables with the pprint. pformat() Function Text book 1: Chapters 7, 8

Module-4:

Classes and objects: Programmer-defined types, Attributes, Rectangles, Instances as return values, Objects are mutable, Copying, Classes and functions: Time, Pure functions, Modifiers, Prototyping versus planning, Classes and methods: Object-oriented features, Printing objects, Another example, The init method, The __str__ method, Operator overloading, Type-based dispatch, Polymorphism. Text book 2: Chapters 15– 18

Module-5:

HTTP, The World's simplest Web Browser, Retrieving an image over HTTP, Retrieving web pages with urllib, XML, Parsing XML, Looping through nodes, JSON, What is database?, Database Concepts, Database Browser, Creating a database table, SQL, Spidering Twitter, Basic data modeling, Programming with multiple tables, Three kinds of Keys, JOIN Text book 3: Chapters 12, 13 (Upto 13.5), 15

List of Text Books

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Text books:

1. Al Sweigart, "Automate the Boring Stuff with Python", 1st Edition, No Starch Press, 2015. (Available under CC-BY-NC-SA license at <https://automatetheboringstuff.com/>)
2. Allen B Downey, "Think Python: How to Think Like a Computer Scientist", 2nd Edition, Green Tea Press, 2015. (Available under CC-BY-NC license at <http://greenteapress.com/thinkpython2/thinkpython2.pdf>) (Chapters 15 - 18) (Download pdf/html files from the above links)
3. Charles R. Severance, "Python for Everybody: Exploring Data Using Python 3", 1st, Create Space Independent Publishing Platform, 2016

List of URLs, Text Books, Notes, Multimedia Content, etc

- https://www.youtube.com/watch?v=_xQNeOTRyig
- <https://www.youtube.com/watch?v=kqtD5dpn9C8>

Course Outcomes	After studying this course, students will be able to:
	1. Describe programming skills in Python
	2. Demonstrate data structure representation using Python
	3. Develop the skill of pattern matching and files in Python
	4. Demonstrate Object Oriented Skills in Python
	5. Develop the ability to write database applications in Python

Internal Assessment Marks: 50M (3 Session Tests are conducted during the semester and marks allotted based on Ave. of Best 2IAs (25M) and Assessment-I (Assign/GD/Quiz/ Semin) (15M)+ Assessment-II (10M) MOOC/NPTEL / SWAYAM etc) [5 (Reg)+ 3(Exam+Ass)+2 (Certif)]=10M].

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Subject Code:	1BEC305		Title: Python Programming									
List of Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	Total
CO-1	3	3	-	-	3	-	-	2	-	-	2	13
CO-2	3	3	-	-	3	-	-	2	2	2	2	17
CO-3	3	3	-	3	3	-	-	2	2	2	2	20
CO-4	3	3	3	-	3	-	-	2	2	2	2	20
CO-5	3	3	3	3	3	-	-	2	2	2	2	23
Total	15	15	6	6	15	-	-	10	8	8	10	93

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution 0 = No Contribution

The Correlation of Course Outcomes (CO's) and Program Specific Outcomes (PSO's)

Subject Code:	BEC405A		Title: MICROCONTROLLERS		
List of Course Outcomes	Program Specific Outcomes				
	PSO-1		PSO-2	Total	
CO-1	-		3	3	
CO-2	-		3	3	
CO-3	-		3	3	
CO-4	-		3	3	
CO-5	-		3	3	
Total	-		15		

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution 0 = No Contribution