



Kot Bhalwal, Jammu



Model Institute of Engineering
& Technology (Autonomous)
Course Handout

COURSE HANDOUT

INTRODUCTION TO PROGRAMMING WITH PYTHON (ESC-202)

ECE-2ND SEMESTER

ACADEMIC YEAR (2023-24)

Dr Surbhi Sharma

Assistant Professor

Department of Electronics & Communication Engineering



Department of Electronics & Communication Engineering

Model Institute of Engineering & Technology (Autonomous)

KotBhalwal, Jammu - 181122

www.mietjmu.in



Dr. Arun K. Gupta Teaching-Learning Centre

Version 1.1



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Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Total
ESC-202	Introduction to Programming with Python	Core	4	3	1	0	50	100	150

COURSE OUTCOMES

At the end of the course the student will be able to:	
CO1	Understand the programming basics of the operations, control structures, and data types
CO2	Analyze the various data structures available in Python programming language and apply them to solve computational problems.
CO3	Apply the knowledge in writing the script using python
CO4	Comprehend class inheritance and polymorphism
CO5	Identify real-world software development challenges, and create practical and contemporary applications

Unit-I

Conceptual Introduction to Python programming, Python Interpreter, Invoking the Interpreter, The Interpreter and Its Environment, Python as a Calculator, Numbers, Strings, Lists, First Steps Towards Programming, if Statements, for Statements, The range() Function, break and continue Statements, and else Clauses on Loops, pass Statements, Defining Functions, More on Defining Functions, Intermezzo: Coding Style

(12 Hours)

Unit-II

Data Structures: More on Lists, The del statement, Tuples and Sequences, Sets, Dictionaries, Looping Techniques, More on Conditions, Comparing Sequences and Other Types, Modules, More on Modules, Standard Modules, The dir() Function, Packages

(8 Hours)

Unit-III

Input and Output: Fancier Output Formatting, Reading and Writing Files, Errors and exceptions: Syntax Errors, Exceptions, Handling Exceptions, Raising Exceptions, Exception Chaining, User-defined Exceptions, Defining Clean-up Actions, Predefined Clean-up Actions

(8 Hours)

Unit-IV

Classes: A Word About Names and Objects, Python Scopes and Namespaces, A First Look at Classes, Random Remarks, Inheritance, Private Variables, Odds and Ends, Iterators, Generators, Generator Expressions.

(10 Hours)

Unit-V

Brief Tour of the Standard Library, Simple Graphics and Image Processing: turtle module; simple 2d drawing - colors, shapes; digital images, image file formats.

(8 Hours)

Textbooks

S.No	Name of the Books	Name of the Author	Publisher Name	Edition (Pub.Yr.)
1	The Fundamentals of Python: First Programs.	Kenneth A. Lambert	Cengage Learning	1 st (2011)
2.	Introduction to Computation and Programming Using Python	John V Guttag	Pearson, Prentice Hall	2 nd (2016)
3.	Python 3 for Absolute Beginners	Tim Hall and J-P Stacey	Appess	3 rd (2009)





Reference Books

S.No	Name of the Books	Name of the Author	Publisher Name	Edition (Pub.Yr.)
1	Data Structures and Algorithms in Python.	Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser	Wiley	1 st (2013)
2	Core Python Programming	Wesley J. Chun	Prentice Hall	2 nd (2006)

COURSE PLAN

Unit-I Introduction

S.No	Topics	Recommended Books
1	Conceptual Introduction to Python programming	Book 1, Ch.1 https://www.youtube.com/watch?v=WvhQhj4n6b8
2	Python Interpreter, Invoking the Interpreter & the Interpreter and Its Environment	Book 1, Ch.1 https://www.youtube.com/watch?v=WvhQhj4n6b8 (watch for duration 3 to 8min) https://www.w3resource.com/python-exercises/python-basic-exercises.php https://www.youtube.com/watch?v=BkHdmAhapws
3	Python as a Calculator, Numbers	Book 1, Ch. 2 https://www.youtube.com/watch?v=rNBrbt90bRk
4	Strings and Lists	Book 1, Ch.2 https://www.youtube.com/watch?v=ajrtAuDg3yw
5	First Steps Towards Programming if Statements	Book 1, Ch.3 https://www.youtube.com/watch?v=Zp5MuPOtsSY
6	For Statements, The range() Function	Book 1, Ch. 3 https://www.youtube.com/watch?v=zFvoXxeoosI https://www.youtube.com/watch?v=yCZBnjF4_tU
7	Break and continue Statements, and else Clauses on Loops, pass Statements,	Book 1, Ch. 3
8	Defining Functions	Book 1, Ch. 6 https://www.w3schools.com/python/default.asp
9	Intermezzo: Coding Style	Book 1, Ch. 1
Unit-II Data Structures		
10	Lists and More on Lists	Book 1, Ch. 5 Book 2, Ch.1
11	The del statement Comparing Sequences and Other Types, Modules	https://www.youtube.com/watch?v=EnsNV8K_j9Y https://www.w3schools.com/python/default.asp



12	Tuples, Sets, Dictionaries	Book 2, Ch. 3 Book 1, Ch. 5
13	Looping Techniques, More on Conditions	Book 2, Ch. 3
14	More on Modules, Standard Modules	Book 1, Ch. 6 Book 2, Ch. 3
15	The dir() Function	Book 1, Ch. 4
Unit-III Input Output		
16	Fancier Output Formatting, Reading and Writing Files,	Book 1, Ch. 1
17	Errors and exceptions	Book 3, Ch. 4 https://docs.python.org/3/tutorial/errors.html
18	Syntax Errors, Exceptions, Handling Exceptions	Book 3, Ch. 4 https://docs.python.org/3/tutorial/errors.html
19	Raising Exceptions	Book 3, Ch. 4
20	Exception Chaining, User-defined Exceptions	Book 3, Ch. 4 https://docs.python.org/3/tutorial/errors.html
21	Defining Clean-up Actions, Predefined Clean-up Actions	https://www.youtube.com/watch?v=vPaXbA_xQFQ
Unit-IV Classes		
22	A Word About Names and Objects, Python Scopes and Namespaces	Book 1, Ch. 1
24	Classes, Random Remarks	Book 1, Ch. 1
25	Inheritance	Book 1, Ch. 1
26	Private Variables, Odds and Ends	https://www.youtube.com/watch?v=ewUewPoQ2vM
27	Iterators, Generators, Generator Expressions.	https://www.youtube.com/watch?v=bD05uGo_sVI Book 1, Ch. 1
28	Classification of given problem using SVM	https://www.analyticsvidhya.com/blog/2017/09/understaing-support_vector_machine-example-code/
Unit-V Standard Libraries		
29	Brief Tour of the Standard Library (TKinter and matplotlib)	https://www.youtube.com/watch?v=4fUSmmpPf7w
30	Simple Graphics “turtle” module	Book 1, Ch. 1 https://www.youtube.com/watch?v=pxKu2pO7ILo&t=1820s https://www.w3schools.com/python/default.asp
31	Simple 2d drawing - colors, shapes	https://www.w3schools.com/python/default.asp https://www.youtube.com/watch?v=_Iz4i9uLk6so
32	Digital images, image file formats	Book 1, Ch. 1

ADDITIONAL WEB RESOURCES

1.	NPTEL MOOC: Dr. S. Malliga, Dr. R. Thangarajan, Dr. S. V. Kogilavani from Kongu Engineering
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	College, "Problem solving Aspects and Python Programming", https://onlinecourses.swayam2.ac.in/cec22_cs07/preview
2.	NPTEL MOOC: Prof. Sudarshan Iyengar, Prof. Yayati Gupta from IIT Ropar, "The Joy of Computing with Python", https://onlinecourses.nptel.ac.in/noc20_cs83/preview
3.	https://www.edureka.co/blog/python-programming-language
4.	https://pythonprogramming.net/
5.	https://www.programiz.com

GRADING AND ASSESSMENT

- **Sessional Test:** 20 marks
- **Assignment:** 20 marks
- **Attendance:** 10 marks
- **Final Examination:** 100 marks

COURSE POLICIES

- **Attendance:** Minimum 75% attendance is mandatory to appear in the final examination of the course.
- **Academic Integrity:** MIET's academic integrity policies apply. Plagiarism will not be tolerated.
- **Late Submissions:** Assignments and projects must be submitted by the specified timelines.

FACULTY INFORMATION

- **Office Hours**
Wednesday (12:05 PM - 12:55 PM)
Friday (2:35 PM – 3:25 PM)
- **Contact Information**
surbhi.ece@mietjammu.in