

Shri Swami Vivekanand Shikshan Sanstha
VIVEKANAND COLLEGE, KOLHAPUR
(AUTONOMOUS)

Department of Computer Science

“CRASH COURSE ON PYTHON”

The "Crash Course on Python" is a 50 Hours Hands-on Value-Added Course offered by Department of Computer Science, Vivekanand College, Kolhapur (Empowered Autonomous). This course is designed to provide students with a strong foundation in the fundamentals and basics of computer science. The course includes hands-on lab sessions to ensure practical application of theoretical concepts. It is worth noting that the course is granted by the University Grants Commission (UGC) and this course is affiliated with Shivaji University, Kolhapur.

Objectives:

- **Introduction to Python Programming:**
Provide participants with a comprehensive understanding of the Python programming language. Cover the basic syntax, data types, and control structures in Python.
- **Hands-On Coding Experience:**
Offer extensive hands-on coding sessions to ensure participants gain practical experience in writing Python code.
- **Problem-Solving Skills:**
Foster problem-solving skills by presenting real-world scenarios and guiding participants to implement Python solutions.
- **Application Development:**
Enable participants to develop small-scale applications using Python, fostering creativity and practical application of learned concepts.
- **Web Development Basics:**
Introduce the basics of web development with Python, covering frameworks like Flask or Django.
- **Data Handling and Analysis:**
Explore Python's capabilities in data manipulation, analysis, and visualization using libraries such as NumPy, Pandas, and Matplotlib.
- **Database Connectivity:**
Provide insights into connecting Python applications with databases, focusing on common database systems like SQLite or MySQL.
- **Introduction to Machine Learning:**
Offer a brief introduction to machine learning concepts using Python, demonstrating the potential of Python in data science and artificial intelligence.



- **Version Control and Collaboration:**
Introduce version control systems like Git and platforms like GitHub for collaborative coding and project management.
- **Best Practices and Coding Standards:**
Emphasize the importance of writing clean, readable, and efficient code by introducing best practices and coding standards in Python.
- **Debugging and Error Handling:**
Equip participants with debugging skills and teach effective error handling techniques to enhance code reliability.
- **Project Work:**
Assign a small project to participants, encouraging them to apply their acquired knowledge and skills to solve a real-world problem.
- **Preparation for Future Learning:**
Prepare participants for further exploration of Python and related technologies, encouraging a lifelong learning approach.
- **Assessment and Certification:**
Conduct regular assessments and provide a certification upon successful completion, validating the participants' understanding of Python programming.
- **Career Guidance:**
Offer insights into the various career paths and opportunities available for individuals with Python programming skills.






Shri Swami Vivekanand Shikshan Sanstha's
Vivekanand College, Kolhapur (Autonomous)
**Department of Computer Science &
Department of Mathematics**

CRASH COURSE ON PYTHON

 Beginner Course

 50 hours

 Blended learning with **noodle**

 Highly Qualified and Skilled Staff

 python

 NumPy

 pandas




KEY HIGHLIGHTS


 THIS COURSE IS DESIGNED TO INTRODUCE THE BASIC CONCEPTS OF PYTHON USING THE MOST COMMON STRUCTURES.

 NO PREVIOUS EXPOSURE TO PROGRAMMING IS NEEDED.

 BY THE END OF THIS COURSE STUDENT WILL BE ABLE TO WRITE SIMPLE PROGRAMS USING PYTHON.

 FIGURE OUT HOW THE BUILDING BLOCKS OF PROGRAMMING FIT TOGETHER AND COMBINE ALL OF THIS KNOWLEDGE TO SOLVE A COMPLEX PROGRAMMING PROBLEM.

 WE'LL START OFF BY DIVING INTO THE BASICS OF WRITING A COMPUTER PROGRAM.

 ALONG THE WAY, STUDENT WILL GET HANDS-ON EXPERIENCE WITH PROGRAMMING CONCEPTS THROUGH INTERACTIVE EXERCISES AND REAL-WORLD EXAMPLES.

FOR MORE INFORMATION CONTACT

Prof. S. P. Patankar (Co-ordinator)

Dr. V. B. Waghmare (Co-ordinator) +91-9860625005

Dr. B. Y. Patil +91-9823122121

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Department of Computer Science & Mathematics
Vivekanand College, Kolhapur (Autonomous)
E-Ward, Tarabai Park, Kolhapur - 416003 (MS)



VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

DEPARTMENT OF COMPUTER SCIENCE

CRASH COURSE ON PYTHON

50 hours beginner course

Syllabus to be implemented from AY 2021-22

Unit	Syllabus	No of Lectures
UNIT-I	<p>Introduction to Programming Languages: Programming languages- their classification and characteristics, language translators and language translation activities.</p> <p>Planning the Computer Program: What is program and programming paradigms Concept of problem Solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation.</p> <p>Techniques of Problem Solving: Algorithms, Flowcharting, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming</p>	5L
UNIT-II	<p>Building Blocks of Program: Data, Data Types, Data Binding, Variables, Constants, Declaration, Operations on Data such as assignment, arithmetic, relational, logical or boolean, ternary, bitwise, increment or decrement operators.</p> <p>Introduction to Python Programming: Features, Structure of a Python Program(Python Shell Indentations, Comments), Python Interpreter, Writing and executing simple program, Basic Data Types: numbers(int, long, float, complex), strings, Declaring variables, Performing assignments, arithmetic operations, Sequence Control – Precedence of operators, Type conversion, Simple input-output (print(), raw_input(), input())</p>	5L
UNIT-III	<p>Conditional Statements: if, if-else, nested if –else</p> <p>Looping: for, while, nested loops, else clause with while and for loop</p> <p>Control statements: Terminating loops, skipping specific conditions (break, continue, pass)</p> <p>Numeric Functions: abs(), ceil(), floor(), max(), min(), pow(), sqrt()</p> <p>String Manipulation: Declaring strings, String immutability, unicode string (u'String'), escape sequences (\), Operations on String (Concatenation (+), Repetition (*), Slicing ([index]), Range Slicing([start:end] or [:end] or [start:]), Member ship operator (in, not in)), String Functions : capitalize(), len(), lower(), swapcase(), upper()</p>	10L



UNIT-IV	<p>Lists: Creating a list, Displaying list(print()), Basic Operation(Length (len()), Concatenation(+), Repetition(*), Membership (in, not in), Iteration (for var in list), Slicing, Updating(=) and deleting(del) element of a list. Compare (cmp()), Maximum(max()) and minimum (min()), List Methods (Append (list.append()), Count (list.count()), Insert object (list.insert()), Remove (list.remove(), list.pop()), Reverse (list.reverse()))</p> <p>Tuples (sequence of immutable objects) : Creating tuples(using () brackets) and Deleting tuple(del), empty tuple, Displaying(print()), Basic Operation(Length (len()), Concatenation(+), Repetition(*), Membership (in, not in), Iteration (for var in list), Slicing, Updating(=) and deleting(del) element of a list, Compare (cmp()), Maximum(max()) and minimum (min()))</p>	10L
UNIT-V	<p>Dictionaries – Concept of dictionary, Creating Dictionary ({Key:Value,...}), Values are mutable objects but keys are immutable object, Properties of Dictionary keys, Basic Operation(Length (len()), Compare (cmp()) , Dictionary Methods(Clear (dict.clear()), Existance of Key (dict.has_key()), List of dictionaries tuple pairs (dict.items()), List of keys (dict.keys()), Add dictionary (dict.update()), Dictionary Values (dict.values())</p> <p>Functions: Defining Functions (def, name, arguments, : , function suite, return statement), calling a function, Pass arguments by value or by reference(using list), Advantages of functions, types of functions, function parameters(required, keyword, default), anonymous functions or ternary operator(lambda), Scope of a variable(global and local)</p> <p>Modules: Importing module, Creating & exploring modules, Math module, Random module, Time module, rules of locating module, namespace and scope (local and global), Functions for Modules (List of elements (dir()), List of Local elements (locals()), List of Global elements (globals()), Re importing module (reload())</p>	10L
UNIT-VI	<p>Introduction to NumPy basics – Creating NumPy arrays, structure and content of arrays, subset, slice , index and iterate through arrays, multidimensional arrays, python lists vs numpy arrays, introduction to numpy operations on numpy arrays, operations on array basic, linear algebra operations</p>	5L
UNIT-VII	<p>Introduction to pandas – Introduction, panda basics, Pandas Series, Pandas Data Frames, Reading csv files, Reading JSON, Pandas analyzing Data, Cleaning Data : Cleaning empty cell, Cleaning wrong format, Cleaning wrong data, Removing Duplicates, Pandas Correlation, Pandas Plotting : Scatter plot, Histogram</p>	5L
<p>Text books: 1) Charles Dierbach, Introduction to Computer Science using Python, Wiley, 2013 2) James Payne, Beginning Python: Using Python 2.6 and Python 3, Wiley India, 2010 P 3) Paul Gries, Jennifer Campbell, Jason Montojo, Practical Programming: An Introduction to Computer Science Using Python 3, Pragmatic Bookshelf, 2/E 2014</p> <p>Additional References: 1. Paul Gries , Jennifer Campbell, Jason Montojo, Practical Programming: An Introduction to computer Science Using Python 3, Pragmatic Bookshelf, 2/E 2014 2. Adesh Pandey, Programming Languages – Principles and Paradigms, Narosa, 2008 3. A. Lukaszewski, MySQL for Python: Database Access Made Easy, Pact Publisher, 2010</p>		



Practicals

Python Programming

Using the Operating system (logging, creating – deleting folders, creating-deleting files, using editors etc.)

- (1) Installing python and setting up environment. Simple statements like printing the names, numbers, mathematical calculations, etc.
- (2) Simple programs containing variable declaration and arithmetic operations
- (3) Programs based on conditional constructs
- (4) Programs based on loops
- (5) Programs related to string manipulation
- (6) Programs related to Lists, Tuples
- (7) Programs related to dictionaries
- (8) Programs to read & write file.
- (9) Programs to do searching and sorting



“Dissemination of Education for Knowledge, Science and Culture”

-Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)


Department of Computer Science

Python Crash Course

Course Outcomes

- CO1:** Learn and Understand Basics of Programming Languages and Python Programming.
- CO2:** Recognize, identify and understand the different concepts available in Python programming.
- CO3:** Design small and Complex problems using Python Programming Language.
- CO4:** Solve and Analyze complex problems with different problem-solving techniques.
- CO5:** Explain and Justify problem solving techniques and concepts.




HEAD
DEPARTMENT OF COMPUTER SCIENCE
VIVEKANAND COLLEGE, KOLHAPUR
(AUTONOMOUS)

Screenshots of Online Test Question Paper Conducted on MOODLE

Moodle Home Dashboard My courses Site administration

🔔 AU Edit mode

Page 1

1 ⚙️ 1. In the context of programming, what does ...

Always latest

1 ✎

Page 2

2 ⚙️ 2. What is the purpose of a flowchart in ...

Always latest

1 ✎

Page 3

3 ⚙️ 3. What is the primary purpose of the ternary ...

Always latest

1 ✎

Page 4

4 ⚙️ 4. In Python, what is the correct way to perform ...

Always latest

1 ✎

Page 5

5 ⚙️ 5. What is the correct way to perform a sequence ...

Always latest

1 ✎

Page 6

6 ⚙️ 6. How does the BREAK statement affect a loop in ...

Always latest

1 ✎

Page 7

7 ⚙️ 7. Which function is used to round a ...

Always latest

1 ✎

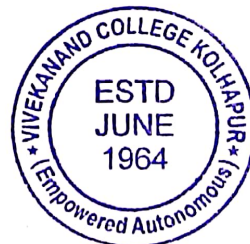
Page 8

8 ⚙️ 8. What does the len() function in Python return ...

Always latest

1 ✎

?





9 ⚙️ 9. What is the purpose of the DEL keyword when ... Always latest 1 ✎

Page 10

10 ⚙️ 10. In a Python dictionary, what is the role of keys? Always latest 1 ✎

Page 11

11 ⚙️ 11. How are function parameters that have default ... Always latest 1 ✎

Page 12

12 ⚙️ 12. What is the advantage of using functions in ... Always latest 1 ✎

Page 13

13 ⚙️ 13. What is the purpose of the math module in Python? Always latest 1 ✎

Page 14

14 ⚙️ 14. Which mode is used to open a file for reading ... Always latest 1 ✎

Page 15

15 ⚙️ 15. What is the purpose of the 'A' mode when ... Always latest 1 ✎

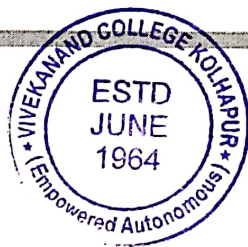
Page 16

16 ⚙️ 16. What does the list.pop() method do in Python? Always latest 1 ✎

Page 17



- 14 ⚙️ 14. Which mode is used to open a file for reading ... Always latest 🔍 1 ✎
- Page 15
- 15 ⚙️ 15. What is the purpose of the 'A' mode when ... Always latest 🔍 1 ✎
- Page 16
- 16 ⚙️ 16. What does the list.pop() method do in Python? Always latest 🔍 1 ✎
- Page 17
- 17 ⚙️ 17. How is string concatenation performed in Python? Always latest 🔍 1 ✎
- Page 18
- 18 ⚙️ 18. In a loop, what does the continue statement do? Always latest 🔍 1 ✎
- Page 19
- 19 ⚙️ 19. What is the primary purpose of a nested loop? Always latest 🔍 1 ✎
- Page 20
- 20 ⚙️ 20. What is the purpose of the "else" clause in an ... Always latest 🔍 1 ✎

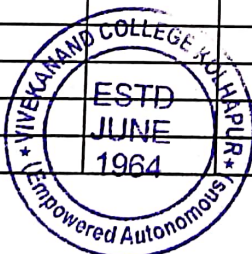


Shri Swami Vivekanand Shikshan Sanstha, Kolhapur
Vivekanand College, Kolhapur (Empowered Autonomous)

Python Crash Course-Year 2023-24

Attendance

Sr. No.	Student Name	10-10-23	11-10-23	16-10-23	17-10-23	18-10-23	25-10-23	1-11-23	5-11-23	7-11-23	8-11-23	13-11-23	14-11-23	15-11-23
1	Aditya Talawaneekar	ATalaw	ATalaw	ATalaw	AB	ATalaw	ATalaw	AB	ATalaw	ATalaw	ATalaw	ATalaw	ATalaw	ATalaw
2	Palak Redkar	AB	PRedkar	PRedkar	PRedkar	PRedkar	AB	PRedkar	PRedkar	PRedkar	PRedkar	PRedkar	PRedkar	PRedkar
3	Shivani Patil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	AB	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil
4	Rhutuja Patil	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	RPatil	AB	RPatil	RPatil	RPatil	AB
5	Shrushti Mangalekar	SMangalekar	SMangalekar	AB	SMangalekar	SMangalekar	SMangalekar	SMangalekar	SMangalekar	SMangalekar	SMangalekar	SMangalekar	SMangalekar	AB
6	Sayali Asabe	SAsabe	SAsabe	SAsabe	SAsabe	SAsabe	SAsabe	AB	SAsabe	SAsabe	AB	SAsabe	SAsabe	AB
7	Sejal Desai	SDesai	SDesai	SDesai	SDesai	SDesai	SDesai	AB	SDesai	SDesai	AB	SDesai	SDesai	AB
8	Akshata Terani	ATerani	ATerani	ATerani	ATerani	AB	ATerani	ATerani	AB	ATerani	ATerani	ATerani	AB	ATerani
9	Dipti Patil	DPatil	DPatil	DPatil	AB	DPatil	AB	DPatil	AB	DPatil	DPatil	DPatil	DPatil	DPatil
10	Adanan Shaikh	AShaikh	AShaikh	AShaikh	AShaikh	AB	AShaikh	AShaikh	AShaikh	AShaikh	AShaikh	AShaikh	AShaikh	AB
11	Trupti Kumbhar	TKumbhar	AB	TKumbhar	TKumbhar	TKumbhar	AB	TKumbhar	TKumbhar	TKumbhar	TKumbhar	TKumbhar	AB	TKumbhar
12	Snehal Chavan	SChavan	AB	SChavan	SChavan	SChavan	SChavan	AB	SChavan	SChavan	AB	SChavan	SChavan	AB
13	Harshada Panchal	HPanchal	HPanchal	HPanchal	HPanchal	HPanchal	AB	HPanchal	HPanchal	HPanchal	HPanchal	HPanchal	HPanchal	AB
14	Varad Buva	VBuva	VBuva	VBuva	VBuva	VBuva	AB	VBuva	VBuva	VBuva	VBuva	VBuva	VBuva	AB
15	Rushi Kadam	RKadam	RKadam	RKadam	AB	RKadam	RKadam	RKadam	RKadam	RKadam	AB	AB	RKadam	RKadam
16	Saurabh Patil	SPatil	SPatil	SPatil	SPatil	SPatil	AB	SPatil	AB	SPatil	AB	SPatil	SPatil	AB
17	Kunal Patil	KPatil	KPatil	KPatil	AB	KPatil	KPatil	KPatil	KPatil	KPatil	KPatil	KPatil	AB	KPatil
18	Gita Kate	GKate	GKate	GKate	GKate	GKate	GKate	AB	GKate	GKate	GKate	GKate	GKate	GKate
19	Prathmesh Bhosale	PBhosale	PBhosale	PBhosale	PBhosale	PBhosale	AB	PBhosale	AB	PBhosale	AB	PBhosale	PBhosale	PBhosale
20	Alitibin Sami	ASami	ASami	ASami	ASami	AB	ASami	ASami	ASami	ASami	AB	ASami	ASami	ASami

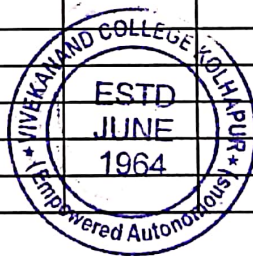


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Vivekanand College, Kolhapur (Empowered Autonomous)

Python Crash Course-Year 2023-24

Attendance

Sr. No.	Student Name	25-12-23	26-12-23	27-12-23	8-1-24	9-1-24	16-1-24	17-1-24	22-1-24	29-1-24	30-1-24	5-2-24	6-2-24	7-2-24
1	Aditya Talawanekar	ATalu	ATalu	AB	ATalu	ATalu	ATalu	ATalu	ATalu	ATalu	AB	ATalu	ATalu	ATalu
2	Palak Redkar	PRedkar	PRedkar	PRedkar	PRedkar	AB	PRedkar	PRedkar	PRedkar	AB	PRedkar	PRedkar	PRedkar	PRedkar
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15	Rushi Kadam	RKadam	RKadam	RKadam	RKadam	AB	RKadam	RKadam	RKadam	RKadam	AB	RKadam	RKadam	RKadam
16	Saurabh Patil	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil	AB	SPatil	SPatil	SPatil	SPatil	SPatil	SPatil
17	Kunal Patil	KPatil	KPatil	KPatil	AB	KPatil	AB	KPatil	KPatil	KPatil	KPatil	AB	KPatil	KPatil
18	Gita Kate	GKate	GKate	AB	GKate	GKate	GKate	AB	GKate	GKate	GKate	GKate	GKate	GKate
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Vivekanand College, Kolhapur (Empowered Autonomous)

Department of Computer Science
Python Crash Course-Year 2023-24

Sr. No.	Student Name	Marks Obtained out of 20	Remark
1	Aditya Talawanekar	16	Completed
2	Palak Redkar	18	Completed
3	Shivani Patil	13	Completed
4	Rhutuja Patil	19	Completed
5	Shrushti Mangalekar	18	Completed
6	Sayali Asabe	13	Completed
7	Sejal Desai	18	Completed
8	Akshata Terani	19	Completed
9	Dipti Patil	20	Completed
10	Adanan Shaikh	17	Completed
11	Trupti Kumbhar	13	Completed
12	Snehal Chavan	16	Completed
13	Harshada Panchal	17	Completed
14	Varad Buva	19	Completed
15	Rushi Kadam	15	Completed
16	Saurabh Patil	16	Completed
17	Kunal Patil	18	Completed
18	Gita Kate	16	Completed
19	Prathmesh Bhosale	17	Completed




Dr. V. B. Waghmare

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Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science and Mathematics organized



CRASH COURSE ON PYTHON

Certificate

This is to Certify that Mr./Miss/Ms. _____
of _____ has successfully completed
50 hours Crash Course on Python organized by Department of Computer Science and Department
of Mathematics during 25 April-13 July 2022.

Dr. V. B. Waghmare
Co-ordinator

Mr. S. P. Patankar
Co-ordinator

Dr. R. R. Kumbhar
Principal

