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.

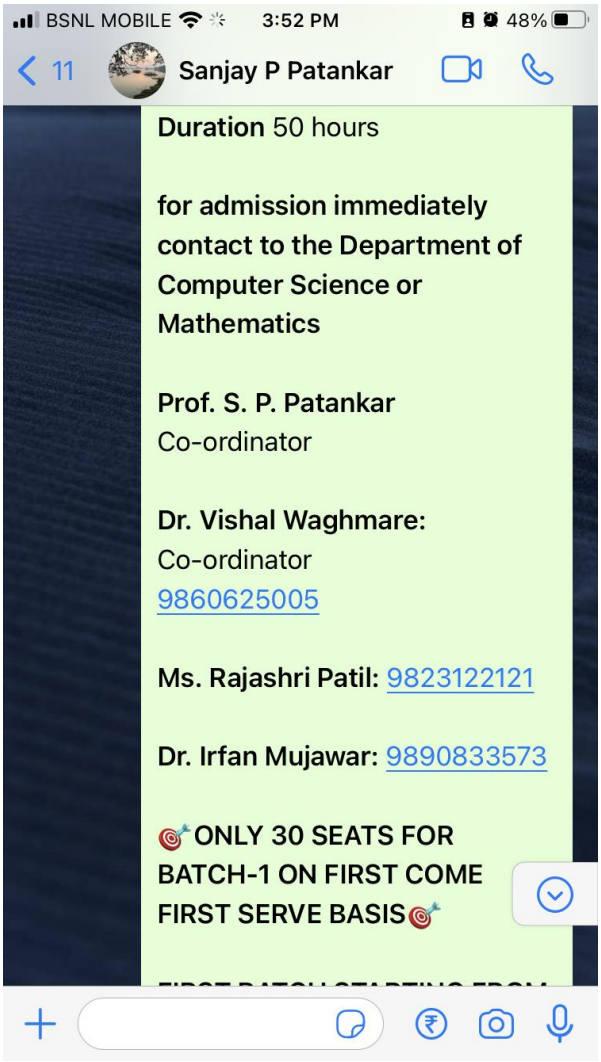
- **Project Work:**
  Assign a small project to participants, encouraging them to apply their acquired knowledge and skills to solve a real-world problem.

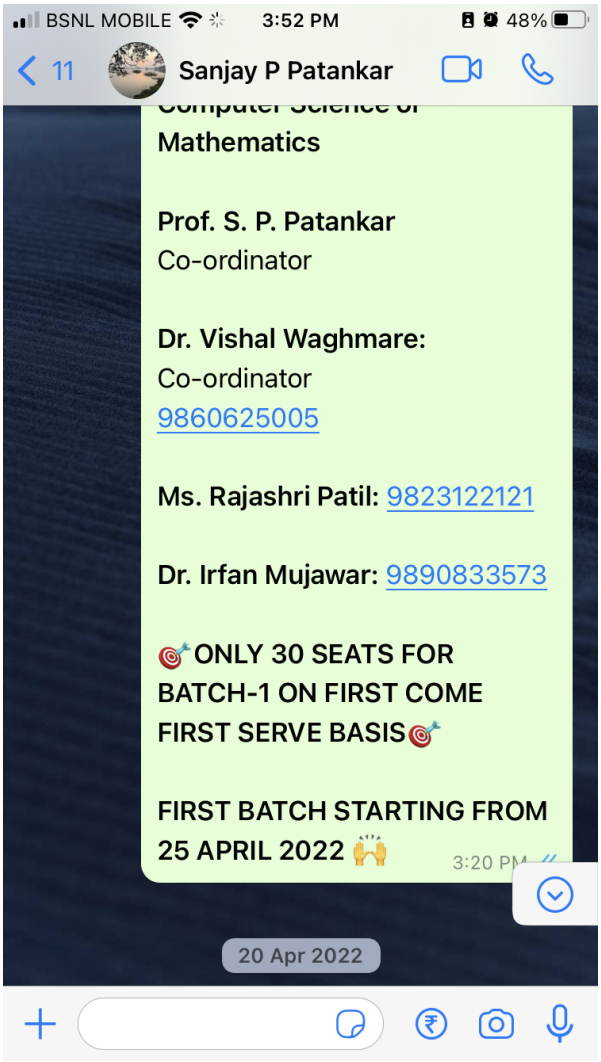
- **Preparation for Future Learning:**
  Prepare participants for further exploration of Python and related technologies, encouraging a lifelong learning approach.

- **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.

SCREENSHOT OF NOTICE dated 08-04-2022





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 moodle
- 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. R. Y. Patil +91-9823122121

Dr. I. K. Mujawar +91-9890833573

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

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* PYTHON *

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The future will either be green.

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A4 College Book

Date

Date : / /
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Roll NO	Students Name	28/4/22	30/4/22	5/5/22	6/5/22	7/5/22	12/05	6859 13-5-22	14-5-22	19-5-22	20-5-22	21-5-22	26/5/22	2-6-22	6/6/22	7/6/22
7889	Sumit Dipak Pasit															
7887	Rahim Nurmahamad Nagarji															
7881	Abhinandan Laxman kolekar															
7896	Ajay . Ravasaheb Rajput															
7890	Miss Kalyani. P. Patil															
7893	Shreya Shahaji Patil															
7886	Saniya Niyaj Mujawar															
7892	Rohini Vilas Patil															
7878	Vaibhav Maruti Kadvekar															
7900	Vaibhav Mahendra Thorat															
7880	Khankar Akash Baburao															
7448	Sanjana Sanjay Patil															
6859	Riya Inas Fernandes															
6917	Sanskruti Sanjay Shingare															
7874	Vasundhara Atul Bendale															
7879	Mrunali Rameshkamble															
7882	Shweta Jitendra Koshti															
7898	Srushti Ravindra Tandale															
7883	Koti Nikita prakash															
7888	Sangeeta Ramawatar Pareek															
7875	Samiksha Subhash Bhosale															
7873	Ashwini Rajaram Bankar															
7899	Peonjali Anandkumar Teedale															
7891	Pranita Rajendra Patil															
9238	Kaushal Pramod Kulkarni															
9236	Aditya Shriram Kulkarni															
-	Om Amit Gaikwad															
	Prathamesh J. sutar															
7872	Shwani P. Bagadi															
7878	Vaibhav M. Kadvekar															
7884	Samruddhi G. Magdum															

Roll No	Name.	28/4/2022	30/4/2022	5/5/2022	6/5/2022	7/5/2022	12-5-2022	13-5-22	14-5-22	19-5-22	20-5-22	21-5-22	8/6/2022	9/6/22
7895	Vaishali Shivanand Patil	Patil	Patil	Ab	Patil	Patil	Ab	Patil	Ab	Patil	Ab	Patil	Ab	Ab
7877	Pratiksha Jitendra Desai	Pdesai	Pdesai	Ab	Pdesai	Pdesai	Pdesai	Ab	Ab	Pdesai	Ab	Pdesai	Ab	Ab
7901	Sejal vijay Tonpe	STonpe	STonpe	STonpe	STonpe	STonpe	STonpe	STonpe	STonpe	STonpe	Ab	STonpe	STonpe	STonpe
7897	Rutuja Arvind Randive	Randive	Randive	Randive	Randive	Randive	Randive	Randive	Randive	Randive	Ab	Randive	Randive	Randive
	Prathamesh Jitendra sutar	Psutar	Psutar	Ab	Psutar	Ab	Ab	Ab	Ab	Ab	Ab	Ab	Ab	Ab
7885	Madhumati Tanaji More	Mdeokule	Mdeokule	Mdeokule	Ab	Ab	Mdeokule	Mdeokule	Ab	Mdeokule	Ab	Mdeokule	Ab	Ab
~~7875~~	~~Samiksha Subhash Bhosale~~	~~Sbhosale~~	~~Sbhosale~~	~~Sbhosale~~	~~Sbhosale~~	~~Sbhosale~~	~~Sbhosale~~	~~Sbhosale~~						

Date : / /
Page No.:

Roll NO	Student Name	30-06-22	01-07-22	02/07/22	04/07/22	05-07-22	06/07/22	07/07/22	8/07/22	08/07/22	11/07/22	12/07/22	13/07/22
7880	Khamkar Akash Baburao	Akhamkar	Akhamkar	Akhamkar	Akhamkar	Akhamkar	Akhamkar	Akhamkar	Akhamkar	Akhamkar	Akhamkar	Akhamkar	Akhamkar
7889	Sumit Dipak Patil	सुमित	सुमित	सुमित	सुमित	सुमित	सुमित	सुमित	सुमित	सुमित	सुमित	सुमित	सुमित
7878	KADVEKAR Vaibhav M.	Vaibhav	Vaibhav	Vaibhav	Vaibhav	Vaibhav	Vaibhav	Vaibhav	Vaibhav	Vaibhav	Vaibhav	Vaibhav	Vaibhav
7887	Nagarji Rahim N.	Sd	Sd	Sd	Sd	Sd	Sd	Sd	Sd	Sd	Sd	Sd	—
7443	Sanjana Sanjay Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	Patil	—	—	—	—
6859	Riya Inas Fernandes	R	R	R	R	R	R	R	R	R	R	R	R
7875	Samiksha Subhash Bhosale	Samiksha	Samiksha	—	—	—	—	—	—	—	—	—	—
7891	Pranita Rajendra Patil.	Patil	Patil	—	—	—	—	—	—	—	—	—	—
7892	Rohini Vilas Patil	Patil	Patil	—	—	—	—	—	—	—	—	—	—
7893	Shreya Shahaji Patil	Patil	Patil	—	—	—	—	—	—	—	—	—	—
7888	Sangeeta Ramawatar Pareek	Sangeeta	Sangeeta	—	—	—	—	—	—	—	—	—	—
9238	Kaustbhal Pramod Kulkarni	Kulkarni	Kulkarni	—	—	—	—	—	—	—	—	—	—
9236	Aditya Shriram Kulkarni	Shri	Shri	—	—	—	—	—	—	—	—	—	—
7881	Kolekar Abhinandan Laxman	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB
7882	Shweta Jitendra Koshti	Koshti	Koshti	Koshti	AB	Koshti	Koshti	Koshti	Koshti	AB	Koshti	Koshti	Koshti

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Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science and Mathematics organized

python

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

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	**Introduction to Programming Languages:** Programming languages- their classification and characteristics, language translators and language translation activities. **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. **Techniques of Problem Solving:** Algorithms, Flowcharting, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming	5L
UNIT-II	**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. **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())	5L
UNIT-III	**Conditional Statements:** if, if-else, nested if –else **Looping:** for, while, nested loops, else clause with while and for loop **Control statements:** Terminating loops, skipping specific conditions (break, continue, pass) **Numeric Functions:** abs(), ceil(), floor(), max(), min(), pow(), sqrt() **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()	10L

UNIT-IV	**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())) **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()))	10L
UNIT-V	**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())) **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) **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()))	10L
UNIT-VI	**Introduction to NumPy basics** – Creating NumPy arrays, structure and content of arrays, subset, slice , index and iterate through arrays, multidimensional arrays, python lists vs numy arrays, introduction to numpy operations on numpy arrays, operations on array basic, linear algebra operations	5L
UNIT-VII	**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	5L

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

Additional References:

1. Paul Gries , Jennifer Campbell, Jason Montojo, Practical Programming: An Introduction to omputer 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

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

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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.

VIVEKANAND COLLEGE ESTD. JUNE 1964 KOLHAPUR

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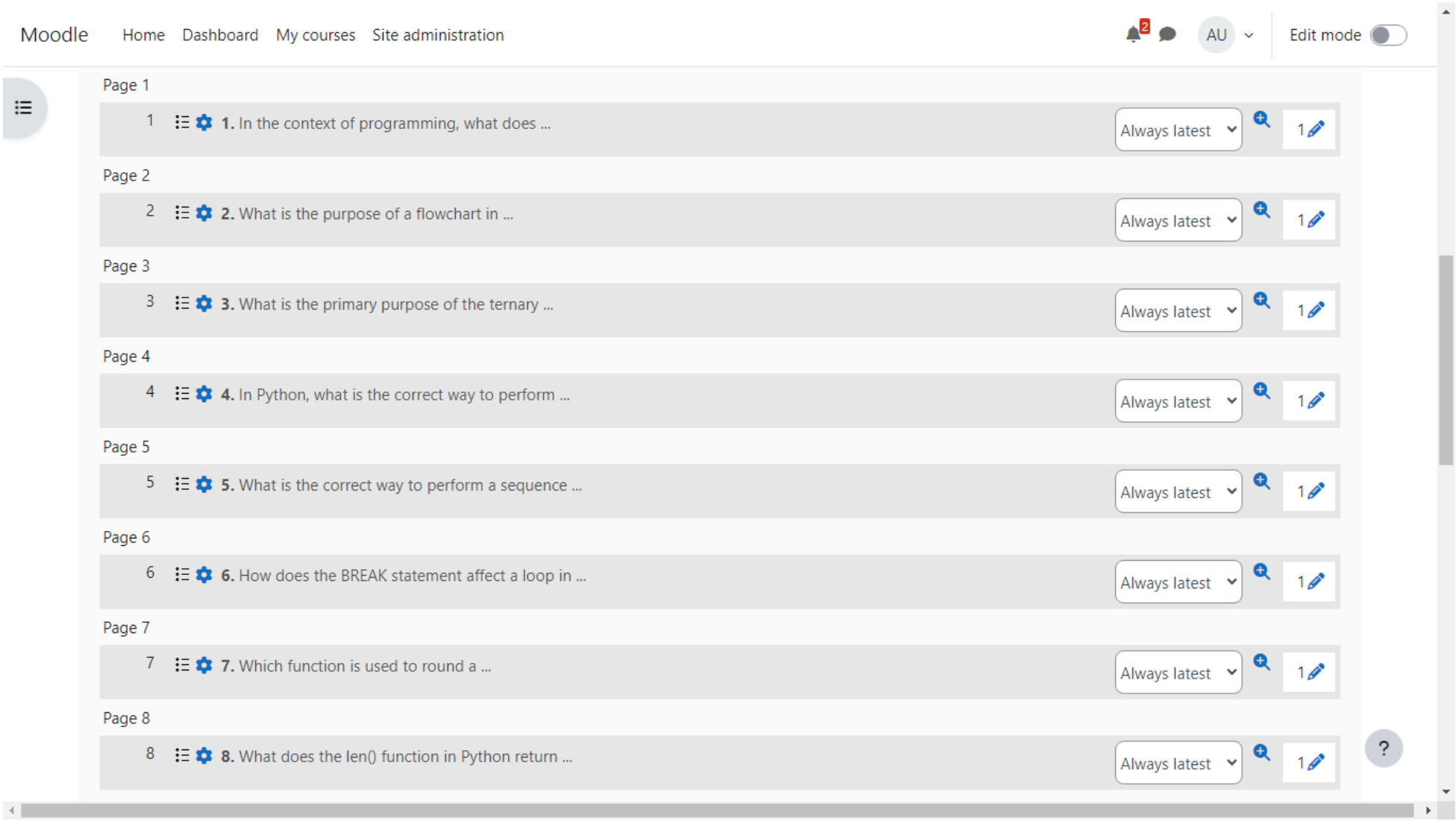
Screenshots of Online Test Question Paper Conducted on MOODLE



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

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Department of Computer Science & Department of Mathematics

CRASH COURSE ON PYTHON

Examination Result

Sr. No	Name	Obtained Marks out of 20	Remark
1	KOLEKAR ABHINANDAN LAXMAN	16	Completed
2	PARIT SUMIT DIPAK	17	Completed
3	KHADVEKAR VAIBHAV MARUTI	19	Completed
4	KOSHTI SHWETA JITENDRA	14	Completed
5	KHAMKAR AKASH BABURAO	16	Completed
6	TONAPE SEJAL VIJAY	17	Completed
7	RANDIVE RUTUJA ARVIND	15	Completed
8	KULKARNI ADITYA SHRIRAM	17	Completed
9	KULKARNI KAUSHAL PRAMOD	18	Completed
10	PATIL SANJANA SANJAY	17	Completed
11	PATIL KALYANI PANDURANG	19	Completed
12	MUJAWAR SANIYA NIYAJ	16	Completed
13	PATIL ROHINI VILAS	18	Completed
14	PATIL SHREYA SHAHAJI	19	Completed
15	FERNANDES RIYA INAS	20	Completed
16	GAIKWAD OM AMIT	19	Completed
17	PATIL VAISHALI SHIVANAND	19	Completed
18	KOTI NIKITA PRAKASH	18	Completed
19	TERDALE PRANJALI ANANDKUMAR	17	Completed
20	PATIL PRANITA RAJENDRA	19	Completed
21	BANKAR ASHWINI RAJARAM	17	Completed
22	PAREEK SANGEETA RAMAWATAR	17	Completed

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Dr. V. B. Waghmare

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