



**MINISTRY OF EDUCATION
PANDIT MADAN MOHAN MALAVIYA
NATIONAL MISSION ON TEACHER AND TEACHING**

TEACHING LEARNING CENTRE

Ramanujan College

**University of Delhi
(Accredited with Grade 'A' by NAAC)**

**IS ORGANISING
A SHORT-TERM COURSE ON
“FUNDAMENTALS OF PYTHON
BOOTCAMP”**

(26th January 2022-12th March 2022)

**PROGRAM BROCHURE
&
CALL FOR REGISTRATION-PARTICIPATION**



ABOUT RAMANUJAN COLLEGE

Ramanujan College is a premier institution of University of Delhi, located in the well-known area of Kalkaji, near Nehru Place in South Delhi. Ramanujan College has highly qualified, dedicated and committed faculty members. The college runs 16 graduation courses in different streams of Arts, Humanities, Commerce, Management, and Mathematical Sciences apart from two B.Voc. Courses. It is also the study centre for the students of the School of Open Learning, University of Delhi, the Non-Collegiate Women's Education Board, University of Delhi and the Indira Gandhi National Open University. Ramanujan College has been awarded the prestigious Teaching Learning Centre and National Resource Centre by Ministry of Education, Government of India, and the DDU KAUSHAL Kendra by UGC. Ramanujan College has been accredited grade "A" by the National Assessment and Accreditation Council (NAAC). The college has also been ranked 61st in the National Institute Ranking Framework (NIRF 2020 rankings – Colleges category). We at Ramanujan College have pioneered online education by training over 1,00,000 faculty members, research scholars, & students of higher education through successful conduct of more than 50 programs since April, 2020.

TEACHING LEARNING CENTER RAMANUJAN COLLEGE

Teaching Learning Centre (TLC) is mandated by the Ministry of Human Resource Development (MHRD) to organize Faculty Development Programs (FDPs), Faculty Orientation and Induction Programs (FIPs), discipline specific and interdisciplinary Refresher Courses, conferences, workshops, through offline and online modes. TEACHING LEARNING CENTRE, RAMANUJAN COLLEGE Refresher Course has been set up with the aim of "Reaching the Unreached" teachers in terms of regional diversity and geographically remote areas of the country. It has successfully conducted more than 100 learner-centric programs since October 2017 and trained over 1 lakh teachers across the country in various discipline specific and interdisciplinary programs. In the TLC Programs distinguished & internationally acclaimed resource persons deliver lectures and conduct sessions on wide ranging disciplines/topics of relevance to benefit the teaching fraternity, corporate and researchers. Ramanujan College is a pioneer in offering offline/online courses for faculty members of higher education institutions and research scholars through the customized Learning Management System (LMS), designed by the College's Research Development and Services Cell. It is predominantly participant-friendly and incorporates evaluation methods and comprehensive feedback systems to judge learning outcomes.

PROGRAM OVERVIEW

This program will introduce you to the wonderful world of Python programming! You'll learn about the essential elements of programming and how to construct basic Python programs. Expressions, variables, functions, logic, and conditionals, which are foundational concepts in computer programming are going to be covered in this. These concepts and skills will help you to begin to think like a computer programmer and to understand how to go about writing Python programs. By the end of the course, you will be able to write short Python programs that are able to accomplish real, practical tasks.

We at Ramanujan College, always strive to fulfil the aspirations of learners of higher education, and meet the contemporary skill requirements of IT Industry. This Program on “Python” is towards the fulfilment of this pursuit. This course includes an overview of the various tools available for writing and running Python, and gets students coding quickly.

PROGRAM HIGHLIGHTS

- ✦ Self-paced course
- ✦ Recorded and live sessions
- ✦ Hands on practice through quizzes and assignment
- ✦ Ramanujan College’s well acclaimed expertise & high participant satisfaction in conduct of online programs (Over 1 lakh beneficiaries).
- ✦ Complete learning resources including Study Material, access to recordings of Live sessions, Datasets, Software Program Codes.
- ✦ Participants will be able to interact & resolve their queries during the live sessions through chat, audio-video conversation, & screen sharing.

ELIGIBILITY & REGISTRATION DETAILS

- ✚ The Short-Term course is open to Faculty members, Research Scholars, School and College students.
- ✚ All those interested are required to register and pay a **Non-Refundable fee of INR 1500/-** by visiting <https://stc.rcmoocs.in/>

After successful registration & payment, the participants will receive a confirmation via email. Please keep checking the spam folder of the email as the bulk email sent may end up in the spam folder. An official group has been made for communication with the participants on "Telegram." You are therefore requested to install the Telegram App either from the Play Store or App Store. The link to join the official group will be provided in the confirmation mail.

BASIC PYTHON COURSE

CHAPTER 1: INTRODUCTION TO PYTHON

- Unique features of Python
- Python-2 and Python-3 differences
- Install Python and Environment Setup
- Python Identifiers, Keywords and Indentation
- Comments and document interlude in Python
- Command line arguments
- Getting User Input
- What are variables?
- Python Core objects and Functions
- Number and Maths

- Week 1 Assignments

CHAPTER 2: CONTROL STATEMENTS

- while loop
- for loop
- if-else
- if-elif-else
- switch
- break
- continue
- assert
- pass
- return

CHAPTER 3: LIST, RANGES & TUPLES IN PYTHON

- Lists in Python
- More about Lists
- Understanding Iterators
- Introduction
- Generators and Yield
- Next and Ranges
- Live Session 1 (08/01/2022)
- More About Ranges
- Ordered Sets with tuples
- Week 2 Assignment

CHAPTER 4: PYTHON DICTIONARIES AND SETS

- Python Dictionaries
- More on Dictionaries
- Python Sets
- Python Sets Examples

CHAPTER 5: INPUT AND OUTPUT IN PYTHON

- Reading text files
- Writing Text Files

- Appending to Files
- Challenge
- Writing Binary Files Manually
- Using Pickle to Write Binary Files

CHAPTER 6: PYTHON BUILT IN FUNCTION

- Python user defined functions
- Python packages functions
- Defining and calling Function
- The anonymous Functions
- Loops and statement in Python
- Python Modules & Packages
- Week 3 Assignments

CHAPTER 7: PYTHON OBJECT ORIENTED

- The self-variable
- Constructor
- Types Of Variables
- Namespaces
- Creating Classes and Objects
- Destroying Objects
- Abstract classes and Interfaces
- Instance Methods
- Static Methods
- Class Methods
- Abstract Methods and Abstract class
- Inheritance
- Attributes
- Accessing attributes
- Built-In Class Attributes
- Interface in Python
- Week 4 Assignments

CHAPTER 8: EXCEPTIONS

- Compile-Time Errors
- Runtime Errors
- Logical Errors
- Handling an exception
- try....except...else
- try-finally clause
- Argument of an Exception
- Python Standard Exceptions
- Raising an exceptions
- User-Defined Exceptions

CHAPTER 9: PYTHON REGULAR EXPRESSIONS

- The match Function
- The search Function
- Matching vs searching
- Live Session 2 (26/01/2022)
- Search and Replace
- Extended Regular Expressions
- Wildcard

CHAPTER 10: PYTHON MULTITHREADED PROGRAMMING

- Difference between a Process and Thread
- Concurrent Programming and GIL
- Uses of Thread
- Starting a New Thread
- Thread Synchronization
- Locks
- Semaphore
- Deadlock of Threads
- Avoiding Deadlocks

- Daemon Threads
- Week 5 Assignments

CHAPTER 11: USING DATABASES IN PYTHON

- Install the MySQLdb and other Packages
- Create Database Connection
- CREATE, INSERT, READ Operation
- DML and DDL Operations with Databases

CHAPTER 12: INTRO TO NUMPY

- Setting up Numpy
- Creating vectors
- Properties of Numpy Arrays
- Vector conversions
- Operations on Arrays
- Methods and conversations
- Week 6 Assignments

PROJECT: EDA ON IRIS DATASET (14 days)

ASSESSMENT & CERTIFICATION

A Minimum of 60% Attendance in all Live Sessions/Classes is a mandatory condition for the completion of the program. Apart from this, there will be periodic assessments in form of Quiz, Assignment, or other objective/subjective evaluations followed by a Final Assessment at the end of the course.

- 1. 50% Assignment submission should be there.**
- 2. 50% marks to be scored in the quizzes.**
- 3. 50% marks in Final Assessment is mandatory for receiving Certificates.**

→ **All the participants must fulfil the above criteria to be eligible for receiving the E-Certificates.**

IMPORTANT INFORMATION

1. Registration is mandatory for participation.
2. Attempting and submitting all the quizzes and assignments is mandatory, and each participant should score at least 50% aggregate to be eligible for the completion certificate.
3. Graded certificates on the basis of performance will be awarded to the participants.
4. As part of the Ministry of Education's requirement under the PMMMNMTT scheme, all participants need to submit online feedback for each session.
5. **No Objection Certificate (NOC) or Leave is NOT REQUIRED to participate in the Programme.**
6. Failing to meet any of the above conditions will result in the denial of completion certificate.

FOR FURTHER INFORMATION, CONTACT:

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