



Program Description Document Template

Course Name	Certified Professional In Programming	
Course Name as on Certificate	Certified Professional In Programming	
Certificate Type	Certificate of Completion by IIT-MADRAS	
Certificate Issued by	IIT MADRAS	
Course Objectives	<ol style="list-style-type: none"> 1) To make the learner understand basics of programming and bring algorithmic thinking 2) Make them learn Python programming Syntax and apply that using logic for problem statements 3) Learn Python programming till the advanced level of File handling, Read Excel Data using Python 4) Learn Database such as MongoDB and perform data operations on it using Python programming 5) Learn Various Data Structure and Algorithms, will apply it in real time problem statements 6) Build a real time project using Python, MongoDB applying relevant Data Structure 	
Eligibility	<ul style="list-style-type: none"> • For Indian Participants – Students / Graduates or Diploma Holders (10+2+3) from a recognized university (UGC/AICTE/DEC/AIU/State Government) in any discipline. • For International Participants - Students / Graduation or equivalent degree from any recognized University or Institution in their respective country. 	
Pre Requisites	Should know how to use Computer and Internet	
Target Segment	<ul style="list-style-type: none"> – Students / Graduates or Diploma Holders from a recognized university (UGC/AICTE/DEC/AIU/State Government) in any discipline. – Working Professionals who want to learn programming and get a job in IT. 	
Course Content	See Enclosed Programme details – as Annexure 1	
Pedagogy	42Hrs of Online Teaching and Mentoring Support along with Online course content	
Assessment	Online, at the mid of the session and at the end.	
Programme Faculty	Industry Professionals who has vast expertise in Programming	
Duration	Weeks: 7 Hours : 42	
Class Schedule	Saturday and Sunday / 3 hrs per day	
Programme Highlights/USPs	<ul style="list-style-type: none"> • Starts from Basics and covers till Advanced level • No Programming experience required • Online Course content is also available in English/ Tamil/ Hindi 	
Total Fees		Total Fees (Rs.)
	Total Programme Fee	Rs. 26,904/- (Inclusive of GST)



ANNEXURE 1

Proposed Course outline / programme / plan - Week wise or module wise syllabus details.

Learn Python like a Professional! Start from the basics and go all the way to creating your own applications

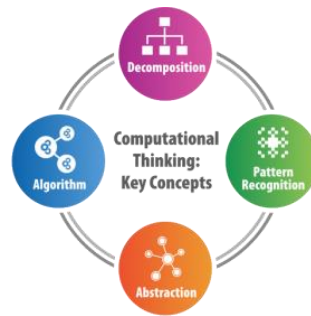
‘Python Programming’ – Basics - course content:

Week 1 – 2 Hrs Theory & 4 Hrs Lab

- History of Python
- Why to use python ?
- Python IDE
- PyScripter IDE
- Hello World Program in Python
- Numbers and Math functions
- Common Errors in Python
- Assignment 1
- Final Quiz

Week 2 – 2 Hrs Theory & 4 Hrs Lab

- Variables & Names
- String basics
- More about Strings
- Assignment 2
- Conditional statements
- Functions
- For and While (loop)
- Assignment 3
- Final Quiz



'Computational Thinking' – Basic - course content:

Week 3 Module: - 2 Hrs Theory & 4 Hrs Lab

- Programming - Where to start
- What is Algorithmic Thinking
- Sample exercise problems & Deriving Solutions
- Bitwise & Boolean Algebra
- Memory Management/Technologies
- Stack and Heap
- Quiz Assessment 1
- Compiler vs Interpreter
- Best Practices – Keeping it simple, DRY code, naming Conventions, Comments and docs.
- Quiz Assessment 2

Week 4 Module: - 2 Hrs Theory & 4 Hrs Lab

- Operators, Variables & Datatypes
- Loops and Conditions
- Nested Loop
- Strings
- Quiz Assessment 3
- Euclid's Algorithm
- What is Algorithm efficiency
- Arrays, Recursion
- What is Time Complexity in Programs
- Final Quiz
- Quiz Assessment 4



MongoDB – Course content:

Week 5 Module: - 2 Hrs Theory & 4 Hrs Lab

- **Setting Environment Variables**
- **Start the Mongo Shell**
- **Creating Collections**
- **Final Quiz**
- **Introduction to MongoDB**

Week 6 Module: - 2 Hrs Theory & 4 Hrs Lab

- **Creating and Dropping Documents**
- **Query Document**
- **Query Document AND OR C**
- **MongoDB Update Document**
- **Final Quiz**

Week 7 Module: - 2 Hrs Theory & 4 Hrs Lab

Final Project, with Industry experts' mentorship (All lab programs happen in www.guvi.in)

- **Students will do 1-2 projects (Each project should be done in 2 weeks sprint)**