

Program Description Document

Course Name	Career Back 2 Women (CB2Women)
Course Name as on Certificate	Certified Professional in Advanced course in Software Engineering, Programming and DatabaseTools (Python, MongoDB and Data Structures & Algorithm)
Certificate Type	Certificate of Completion by IIT-MADRAS
Certificate Issued by	IIT MADRAS
Course Objectives	Course is targeted at learners who are interested in learning and understanding Computational Thinking, Algorithms & Python with Mongo/DB like a Professional! Start from the basics and go all the way to creating your own applications, GUVI platform for hands-on coding & feedback is key differentiator.
Eligibility	<ul style="list-style-type: none"> For Indian Participants - Graduates or Diploma Holders (10+2+3) from a recognized university (UGC/AICTE/DEC/AIU/State Government) in any discipline. For International Participants - Graduation or equivalent degree from any recognized University or Institution in their respective country.
Pre Requisites	Basic understanding of technology, networks and security, while not mandatory, will be an added advantage.
Target Segment	This programme is aimed at the women professionals who had a job in IT industry, but had to leave the same for some reason including pregnancy or taking care of aged parents / in-laws / sick people etc. to return to IT career with a bang. FISST has database with over 4 lac women, in various domain and expressed willingness to get trained into new areas to return to work & earn.
Course Content	See Enclosed Programme details – as Annexure 1
Pedagogy	The primary method of instruction will be through LIVE lectures that will be delivered online via internet to participant desktops/laptops or classrooms. The lectures will be delivered by eminent academicians and practicing industry experts. The programme will be primarily taught through a combination of lectures, discussions, exercises and labs. All enrolled students will be provided access to our FISST Whizard Cloud Campus through which students may access other learning aids, reference materials, assessments and assignments as appropriate. Throughout the duration of the course, students will have the flexibility to reach out to the Professors, real time during the class or offline via the FISST Whizard Cloud Campus to raise questions and clear their doubts.
Assessment	There are periodic evaluation components built in as a part of the program. These maybe in the form of a quiz, assignment or other objective/subjective assessments as relevant and applicable to the program. A minimum of 70% attendance to the LIVE lectures, is a prerequisite for the successful completion of this program. Participants who satisfy the attendance criteria and successfully clear the evaluation components will be awarded a certificate of completion.
Programme Faculty	<p>Programme Director CB2Women: Mr. Mohan Ram C from FISST</p> <p>Mohan has nearly 33 years of professional experience after an M.Tech from IIT-Roorkee, as IT leader specializing in Cyber Security and related physical surveillance for critical infrastructure including refinery, nuclear power plants and mission critical IT infrastructure etc. Mohan is currently pioneering Cyber Education space in India to create awareness and fill the gap in skills to tackle potential damages due to cybercrimes in partnership with leading academic institutions across India.</p> <p>Lead Academic Faculty Members: Professor Ravindran of IIT-M</p> <p>And other industry experts from a pool of consultants / experts with GUVI.</p>

Duration	Live delivery (Virtual) by instructors with Assignments Advanced course – 90 hours (10 weeks x 3 hrs per day on Sat) + 6 hrs per week hands-on Lab Total = 90 hours		
Class Schedule	Once a week on on Sundays for 10 weeks – 3 hours theory + 6 hrs hands-on / Lab (3 months for Advanced course)		
Programme Highlights/USPs	<p>Course Benefits to Participants</p> <p>On successful completion of the programme, you will be able to</p> <ul style="list-style-type: none"> The course will provide an overview of how to use structure software programming and design using database structures & algorithm <p>Other benefits to participants include</p> <ul style="list-style-type: none"> Opportunity to earn a Certificate from IIT Madras. Lectures imparted by eminent academicians and practicing industry experts. Get complete exposure to contemporary and most sought after skills related to Data Science & Big Data Analytics Fully Online Course with LIVE online interactive lectures that provides a “real” classroom experience in a “virtual” environment. No isolated learning experience. Seamless technology that can transmit lecture videos effectively at home broadband connection of 512 kbps. User friendly and easy to use technology interface. No expensive and time consuming software/hardware installations required at your end. Virtual classrooms that allow for active interactions with other fellow students and faculty. Convenient weekend schedules In the event that students miss attending the LIVE lecture on the Virtual Classroom for some reason, students will be granted access to the recorded sessions for a specified number of days/times. FISST Whizard Cloud Campus – Students on our virtual social learning platform are provided access to course presentations, projects, case studies, assignments and other reference materials as applicable for specified courses. Students can raise questions and doubts either real time during the live class or offline through the Cloud Campus. Learn from Anywhere – No need to travel to an institute or training center. Learning continues even if you are traveling or not available at any specific location. You may also learn from the comfort of your home. 		
Total Fees		Total Fees (Rs.)	
	Total Programme Fee	Rs. 29,700/- + GST	

ANNEXURE 1

ADVANCED : 90 hours

Advanced Programming Package - Python, MongoDB and Data Structures & Algorithm course package - Certification

Week1 Module - 3 Hrs Theory & 6 Hrs Lab

- ① Functions as arguments
- ① List, Tuple and Dictionaries
- ① List Comprehension
- ① Assignment 4
- ① File handling
- ① Debugging elements breakpoints watch and step-in
- ① Debugging step in step out
- ① Assignment 5
- ① Debugging watch variables
- ① Class and Objects
- ① Final Quiz
- ① Assignment 6

Week 2 Module -- 3 Hrs Theory & 6 Hrs Lab

- ① Lambda, Filter and Map
- ① Python pip
- ① Read Excel Data in Python
- ① Python MySQL
- ① Assignment 7
- ① Iterators
- ① Pickling
- ① Python - JSON
- ① Python Mini Project

Data Structures & Algorithm - course content:

Week 3 Module – 3 Hrs Theory & 6 Hrs Lab

- ① Operating Systems Internals
- ① Networking Layers
- ① SQL
- ① JSON
- ① Quiz Assessment 5
- ① API
- ① Searching & Sorting
- ① Quiz Assessment 6

Week 4 Module – 3 Hrs Theory & 6 Hrs Lab

- ① Data Structures and Algorithms
- ① Abstract Data Type
- ① Data Structures - Stack, Queues
- ① Array, Linked List, DLL
- ① Hashing
- ① Clean Code
- ① Quiz Assessment 7

- 🕒 Trees, Graphs
- 🕒 Final Quiz Assessment

Week 5 Module - 3 Hrs Theory & 6 Hrs Lab

- 🕒 Bit Manipulation
- 🕒 Recursion
- 🕒 Big O for Python Data Structures
- 🕒 Big-O Functions - Constant, Linear, Quadratic
- 🕒 Worst Case vs Best Case
- 🕒 Stacks - Code Examples
- 🕒 Queue & Deque - Code examples
- 🕒 Linked Lists - Singly Linked List & Doubly Linked List

Week 6 Module - 3 Hrs Theory & 6 Hrs Lab

- 🕒 Trees:
 - Tree Visual & Operations
 - Binary Search Trees
 - Tree Level Order Print
 - Graphs
- Searching and Sorting
 - Hash Tables Hashing Functions- Separate Chaining & Linear Probing
 - Implementation of a Hash Table
 - Implementation of Sequential Search
 - Implementation of Binary Search
 - Implementation of Bubble Sort
 - Implementation of Insertion Sort
 - Implementation of Merge Sort
 - Implementation of Quick Sort
 - Binary Heap Implementation

Mongo DB – Course content:

Week 7 Module - 2 Hrs Theory & 4 Hrs Lab

- 🕒 Delete Document
- 🕒 MongoDB Projection
- 🕒 Sort, Skip and Limit
- 🕒 Final Quiz

Week 8 Module - 2 Hrs Theory & 4 Hrs Lab

- 🕒 Indexing
- 🕒 MongoDB Aggregation
- 🕒 MongoDB Backup and Restore data
- 🕒 Final Quiz

Week 9 & 10 Module: - 6 Hrs Theory & 12 Hrs Lab

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

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