Course 8 - Program Description Document

Course Name	**Career Back 2 Women (CB2Women)**
Course Name as on Certificate	**Certified Professional in Basics of Software Engineering and Programming Tools (Phython and Mongo DB & Computational Thinking)**
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	• 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 Progamme 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 though 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	**Programme Director CB2Women:** Mr. Mohan Ram C from FISST 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. **Lead Academic Faculty Members:** Professor Ravindran of IIT-M And other industry experts from a pool of consultants / experts with GUVI.

Duration	Live delivery (Virtual) by instructors with Assignments Basic course – 42 hours (7 weeks x 2 hrs per day on Sun) + 4 hrs of practicals per week TOTAL = 42 Hours		
Class Schedule	Once a week on on Sundays + 4 hrs of Lab/Hands-on - for 7 weeks (2 months – Basic)		
Programme Highlights/USPs	**Course Benefits to Participants** On successful completion of the programme, you will be able to • The course will provide an overview of how to code using latest software tools and techniques including management of database Other benefits to participants include • 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 S/w engineering and latest tools for programming • 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. 22,800/- + GST	

ANNEXURE 1

Proposed Course outline / programme / plan

‘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)