IIT Madras

Great Learning
POWER AHEAD

ADVANCED CERTIFICATION IN

SOFTWARE ENGINEERING FOR CLOUD, BLOCKCHAIN & IOT

10 Months | Online

ABOUT **IIT MADRAS**

The Indian Institute of Technology Madras (IIT M) is a public technical and research university located in Chennai, Tamil Nadu. As one of the Indian Institutes of Technology (IITs), it is recognised as an Institute of National Importance. Founded in 1959 with technical and financial assistance from the former government of West Germany, it was the third IIT that was established by the Government of India. IIT Madras has been ranked as the top engineering institute in India for five years in a row (2016-2020) by the National Institutional Ranking Framework of the Ministry of Human Resource Development.

- The institute has nearly **600** faculty, **10,000** students and **1,250** administrative and supporting staff.

- About **360** faculty belonging to science and engineering departments and centres of the institute are engaged in teaching, research and industrial consultancy.

- The institute has **16** academic departments and advanced research centres across disciplines of engineering and pure sciences, with nearly **100** laboratories.

1st among engineering colleges by the National Institutional Ranking Framework in 2020

1st Atal Rankings of Institutions on Innovation Achievements (ARIIA), Govt. of India in the year 2019.

17 QS World University Rankings 2019 for BRICS nations

50 QS World University Rankings 2020 for Asia

63 among Emerging Economies by Times Higher Education World University Rankings of 2020

125 in Asia by Times Higher Education World University Rankings of 2020

271 QS World University Rankings 2020

601-800 Times Higher Education World University Rankings of 2020

PROGRAM **INTRODUCTION**

Cutting edge technologies such as Blockchain, Cloud Computing and IoT are leading the digital revolution. We can understand the scale of their impact better when we look at the facts.

30% Reduction in infrastructure costs for banks with blockchain.

$12 Billion in yearly savings with blockchain.

$20 Billion in revenue generated by blockchain by 2024[1].

94% of workloads to be processed by cloud data centres in 2021[2].

$623.3 Billion global market size for cloud computing by 2023[3].

31 Billion IoT devices in 2020.

$1.29 Trillion global IoT spend[4].

Source: [1] TechJury, [2] Cisco, [3] Report Linker, [4] Security Today

The rise of these technologies is redefining business opportunities. This has led to a growing need to learn these skills to remain relevant in a competitive job market. An added testament to this is LinkedIn, Forbes, Deloitte and others declaring them as part of the Top 10 in-demand technology skills. Put together, these are a potent combination of technologies that will dictate how our future is written, which is a strong indicator of rewarding job opportunities in those domains. In order to empower professionals to leverage this demand, Indian Institute of Technology Madras (IIT Madras) in association with Great Learning has introduced the Advanced Certification in Software Engineering for Cloud, Blockchain & IoT.

The program follows a rigorous curriculum which blends the academic excellence of IIT Madras and industry-relevant applications. As a part of this program, learners will be exposed to a breadth of skills which will help them become multi-faceted software engineers with a deeper understanding of these modern technologies, their applications, and interdependence. Through this online program, technology professionals have a unique opportunity to learn from one of the world's leading technology institutions (IIT Madras) without having to quit their jobs. We are excited to see the kind of possibilities that program learners create, and what they achieve with it.

"As the world increasingly adopts frontier technologies such as Cloud Computing, Blockchain and IoT, it is important for our software engineers and tech professionals to master these technologies. In order to retain India's edge in a software-dominated world, we at IIT Madras, India's pioneering institution are happy to offer this Advanced Certification in Software Engineering for Cloud, Blockchain & IoT in collaboration with Great Learning."

DR. JANAKIRAM
Professor, Department of Computer Science and Engineering, IIT Madras.

PROGRAM **HIGHLIGHTS**

10	**300+**	**80+**	**8+**	**1**
Months	Hours of Learning	Hours of Mentorship	Projects & Assignments	Capstone Project

PROGRAM FEATURES

- Learn without quitting your job in a convenient online format
- Get guidance on your learning journey with weekly personalised mentorship from industry experts
- Build practical skills with projects and assignments
- Step ahead in your career with Great Learning's Career Assistance Services

WHO IS THIS PROGRAM FOR?

- Technology professionals looking to upgrade their skills in cutting-edge technologies
- Mid-career professionals and functional managers handling technology implementation of projects in Cloud Computing, Blockchain and Internet of Things (IoT)
- Recent Computer Science graduates who want to continue learning in the field of technology and prepare themselves for their aspirational roles in technology companies

WHAT CAN THIS PROGRAM HELP YOU ACHIEVE?

- Learn cutting edge technologies from the best academicians and industry experts in the country, in a program offered by India's #1 ranked technology university and Great Learning.
- Lead and contribute to digital transformation projects in the areas of Cloud Computing, Blockchain and IoT at your workplace.
- Acquire in-demand skills and build your candidature for high growth roles and leading technology companies.
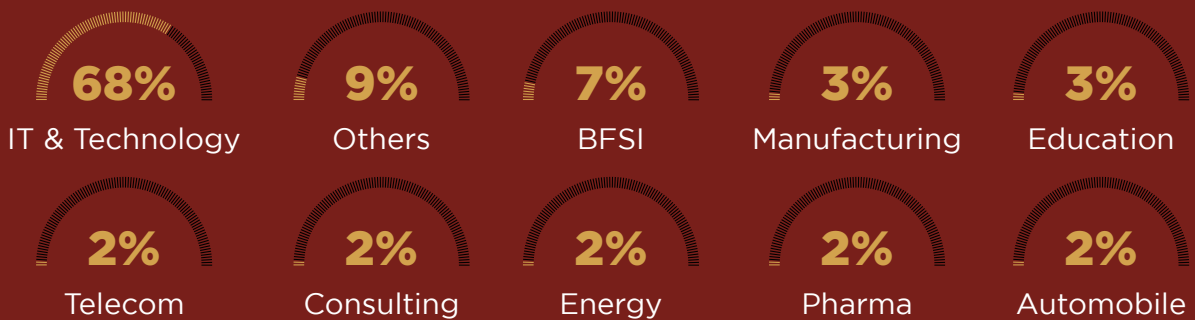
LEARNER **PROFILES**

The program attracts learners majorly from the IT/ITeS Industries and technical / software engineering professionals from other Industries such as BFSI, Manufacturing, Telecom etc. maintaining a good mix of mid to senior working professionals and young graduates & professionals, as shown below.
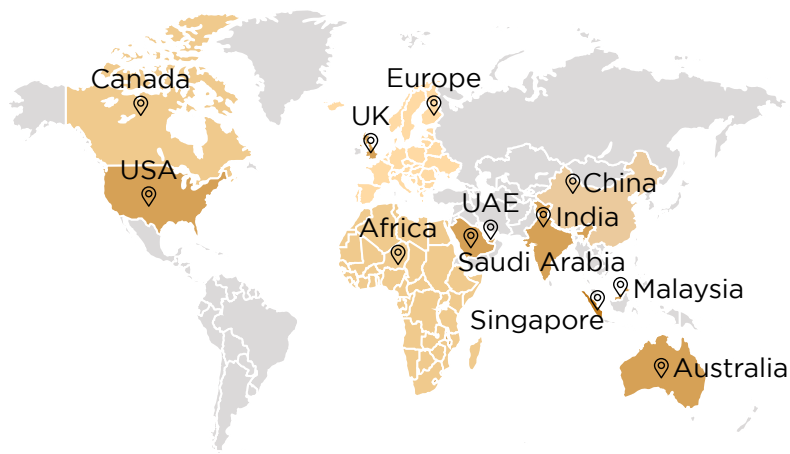
EXPERIENCE DISTRIBUTION

13%	25%	19%	17%	26%
0-3 Years	3-8 Years	8-12 Years	12-15 Years	>15 Years

INDUSTRY DIVERSITY

68%	9%	7%	3%	3%
IT & Technology	Others	BFSI	Manufacturing	Education

2%	2%	2%	2%	2%
Telecom	Consulting	Energy	Pharma	Automobile

The program has learners across the globe from countries such as below

Canada
Europe
UK
USA
China
UAE
India
Africa
Saudi Arabia
Malaysia
Singapore
Australia

ROLES & COMPANIES

Our learners work in technical/functional roles such as Technical Architects & Directors, Senior Technical Consultants, Technical Leads, Project & Engineering Managers, AVPs, Sr. Software Engineers, etc. in major companies as listed below.

accenture | amazon | amdocs | Adobe

BARCLAYS | BOSCH | Capgemini | citi

CYIENT | Deloitte. | DXC.technology | DELL

ERICSSON | Infosys | Fidelity INVESTMENTS | GE Healthcare

HCL | HARMAN A SAMSUNG COMPANY | Honeywell | JPMorganChase

mastercard | Hewlett Packard Enterprise | ORACLE | Mercedes-Benz

ORACLE | Mindtree A Larsen & Toubro Group Company | Microsoft | Red Hat

Paytm | Jio | SAP | SAMSUNG

tcs TATA CONSULTANCY SERVICES | WELLS FARGO | Standard Chartered | UBS

wipro | **AND MORE**

CERTIFICATE

Upon successful completion of this program, you will receive a course completion certificate from IIT Madras and Great Learning.

Centre for Continuing Education
Indian Institute of Technology Madras

G Great Learning

This is to certify that

Ajit Singh

SAMPLE

has participated in and successfully completed the online Continuing Education program

Advanced Certification in Software Engineering
for Cloud, Blockchain & IoT

conducted from October 2020 to June 2021.
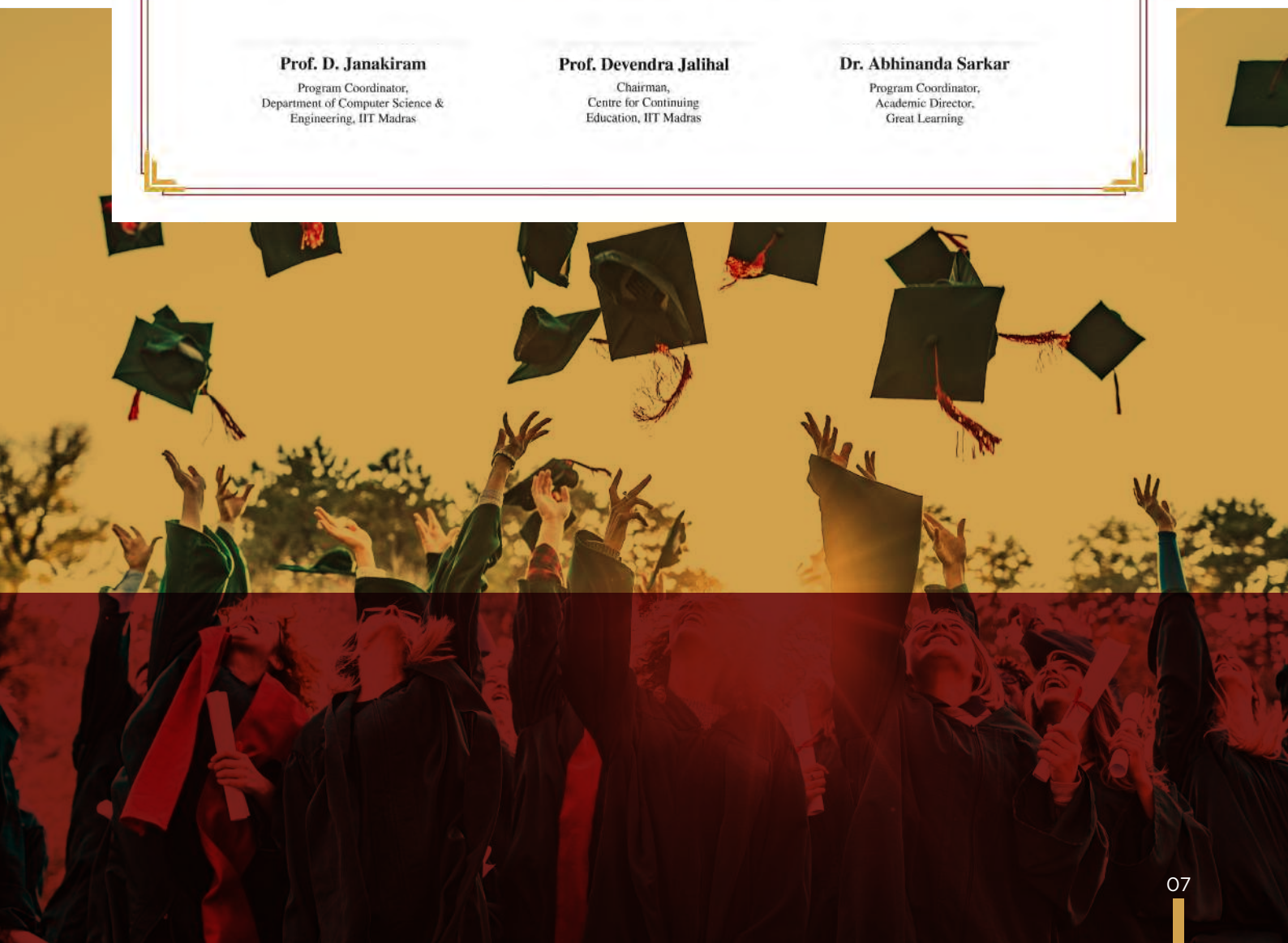
Prof. D. Janakiram
Program Coordinator,
Department of Computer Science &
Engineering, IIT Madras

Prof. Devendra Jalihal
Chairman,
Centre for Continuing
Education, IIT Madras

Dr. Abhinanda Sarkar
Program Coordinator,
Academic Director,
Great Learning

PROGRAM **CURRICULUM**

PRE-WORK
- Python Foundations
- SQL Foundations
- Cloud Computing Foundations
- Data Structures & Algorithms

COURSE 1 **SOFTWARE & DATABASE DESIGN** **4 Quizzes, 1 Project**

- Program Design
- Software Design
- Relational Databases
- NoSQL Databases

COURSE 2 **DESIGN & ARCHITECTURE PATTERNS** **Self-study**

- Design Patterns: Creational, Structural, Behavioral
- Design v/s Performance
- Distributed System Architecture

COURSE 3 **DISTRIBUTED SYSTEMS** **4 Quizzes, 1 Project**

- Distributed System Architecture
- Concurrency Control
- Distributed Commit Protocols
- Distributed Timestamping Protocols
- Leader Election
- Consensus Algorithms

COURSE 4 **IoT DEVICES & NETWORKING** **4 Quizzes, 1 Project**

- IoT Introduction and Architectures
- IoT Things
- IoT Networking Protocols & Applications
- IoT Edge Computing

COURSE 5 **IoT CLOUD PROCESSING & ANALYTICS** **4 Quizzes, 1 Project**

- AWS IoT
- IoT Stream Processing
- Batch Processing
- IoT Analytics
- Connecting the Dots

COURSE 6 **CLOUD MANAGED SERVICES AND DOCKER CONTAINERS** **5 Quizzes, 1 Project**

- Cloud Essentials
- AWS Managed Services
- AWS Monitoring Services
- Serverless Computing
- Docker and Containers
- AWS Elastic Container Services (ECS)

COURSE 7 **CLOUD DEVOPS - INFRASTRUCTURE AS CODE** **3 Quizzes, 1 Project**

- DevOps on AWS
- Automated CI/CD Pipeline, AWS Tools
- Infrastructure as Code (IaC)
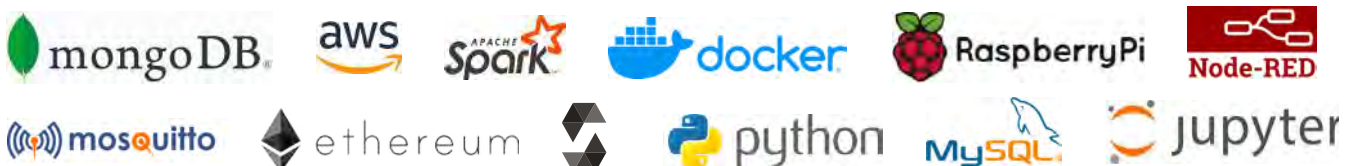- AWS Cloud Formation, Terraform

COURSE 8 **BLOCKCHAIN FUNDAMENTALS & BITCOIN** **4 Quizzes, 1 Project**

- Introduction to Blockchain
- Transactions and Blocks
- Mining and Consensus
- Connecting the Dots
- Smart Contracts

COURSE 9 **BLOCKCHAIN DEVELOPMENT - ETHEREUM** **4 Quizzes, 1 Project**

- Blockchain Development on Ethereum
- Creating a Block
- Adding the Hash Function to the Block
- Creating Smart Contracts

LANGUAGES & TOOLS COVERED

and many more..

CAPSTONE **PROJECTS**

This is an indicative list of project themes our learners will work on as part of the Capstone Project.

SMART CITIES

Smart Home Solutions

Build smart home solutions with an ability to control home devices using your smartphone.

SMART CITIES

Smart City Traffic Management Solutions

Build a connected car ecosystem to effectively manage and streamline your city traffic.

FINANCE & TRANSPORTATION

Sharing Economy Solutions - Bounce

Build a sharing economy solution similar to Bounce where users can share/rent others vehicles seamlessly.

SUPPLY CHAIN

Agritech - Supply Chain Automation

Build a farm-to-fork supply chain automation solution increasing transparency, reducing leakages, etc.

SMART CITIES

Smart Building Management

Sensor based community lighting, water management, connected power and water meters, and access control. Common dashboard, alert notifications, and rule-based management.

TRANSPORTATION

Location Dashboard - Cab Aggregator

Large scale location updates ingestion in cloud using serverless computing. High-level dashboard and map based live display.

FACULTY AND MENTORS

PROGRAM DIRECTOR & COORDINATOR

DR. JANAKIRAM D
Professor - CSE department
IIT Madras

DR. ABHINANDA SARKAR
Academic Director
Great Learning

Program Director

Dr. Janakiram (Ph.D - IIT Delhi) is currently a professor in the Department of Computer Science and Engineering, IIT Madras where he heads and coordinates the research activities of the Distributed and Object Systems Lab. His current research focus is on Large Scale Distributed Systems, Cloud and Grid Computing, Big Data Systems. He is currently the SIG Chair of Distributed Computing of Computer Society of India and also the founder of the Forum for Promotion of Object Technology in India. He is also the founding Chair of ACM Chennai Chapter.

Program Coordinator

Dr. Abhinanda Sarkar has a degree in B.Stat. and M.Stat. from the Indian Statistical Institute (ISI) and a Ph.D. in Statistics from Stanford University. He has been currently adjunct or visiting faculty at Stanford, ISI Delhi, the IIM-B and IISc. After working in the research teams at MIT and IBM, he spent a decade at General Electric in Bangalore. At Great Learning, Dr. Sarkar is the Academic Director wherein he ensures academic rigour and quality for all programs offered through Great Learning

FACULTY AND MENTOR PROFILES

This is an indicative list of faculty and mentors you would interact with during the course of the program.

NIRMALLYA MUKHERJEE
Academic Director
Great Learning

PRASHANT JOSHI
Founder & CEO
Leap & Scale

DR. AYON CHAKRABORTHY
Professor - CSE department
IIT Madras

GOVINDKRISHNA
Founder Director
DeepSell

ABHILASH GOPALAKRISHNAN
Ex- Principal Engineer
ABB

RAVEENDRAN TV
Chief Software Architect

VARUN
Software Development Manager
Amazon

KARTHIKEYAN SUBRAMANIAN
Principal Software Engineer
Fidelity Investments

SACHIN
Chief Technology Officer
Siesta Hospitality Services

DIVYANK SHUKLA
Senior Principal Engineer
Digital Guardian

LEARNER **TESTIMONIALS**

" I would say it's an architect's delight. I'm learning so much out of it. I come from an application support background to an architect's role.. so not so strong in the basics of architecture this course is helping me a lot. Perfect course for me!! "

- Nagaraj Ulgaraj, Solutions Architect, ITC Infotech

" The course has been informative so far especially the material shared as part of the course and subsequent exchange of information between the cohorts and mentors. The assessments are fair and provide value towards the learning achieved. Eagerly waiting for courses on IoT and blockchain to learn more. "

- Ramanathan Narayanan, Director, Vancity

" This is the future of the technology stack. Its really been a wonderful experience to get the mentored sessions by IIT Madras faculty. They emphasise on the practical use cases and real life implementations of the latest technology concepts. I am very happy I enrolled for this course and found the course structure and the teaching methodology very good. "

- Hardik Jani, Technical Architect, Performix

" The program is well thought of and organised. The content quality, delivery methodology and practical orientation is highly appreciated with industry examples and case studies. The projects provide a platform to test and implement our learnings. Overall an excellent and recommended program. "

- Hardik Jani, Technical Architect, Performix

" So far the course is very interesting with a lot of topics to learn. Also, the practical session during weekend is quite useful, the mentors are having real world experience in using the technology they talk about, it's a good learning experience to get an insight from those experts. The course is demanding but also challenging. "

- Sridharan, CEO/Technical Director, Ramarson

" The course is robustly designed to keep me competitive. I find myself excel professionally amongst my colleagues. The terminologies of the trade and understanding on the architecture bigger picture enabled me to ask relevant questions in my official meetings. I have started already recommending this course to all my friends and colleagues. "

- Vivek Sagar, Test Lead, Tech Mahindra

GET THE
GREAT LEARNING
ADVANTAGE

Great Learning
POWER AHEAD

Great Learning, a part of the BYJU'S group, is India's leading professional and higher education platform. When you choose this program, you also get access to Great Learning's extensive pool of industry experts and dedicated career assistance.

- **4 MILLION+ LEARNERS**
- **4400+ INDUSTRY EXPERT MENTORS**
- **160+ COUNTRIES**
- **6200+ COMPANIES HIRE FROM US***

*including jobs on Superset, a part of Great Learning.

- **BEST E-LEARNING COMPANY OF THE YEAR***

*EdTech Review Awards 2020

- **BEST ONLINE SKILLS PROVIDER***

*Education Innovation Awards 2022

E-PORTFOLIO

An e-portfolio is a snapshot of all the projects done and skills acquired during the program that is shareable across social media channels. This will help you showcase your expertise to potential recruiters.

RESUME BUILDING AND INTERVIEW PREPARATION

We help you build your resume to highlight your skills and your previous professional experience. You'll also learn to crack interviews with our interview preparation sessions.

CAREER GUIDANCE

Get access to career mentoring from industry experts who've transitioned to roles in the industry. Benefit from their guidance on how to build a rewarding career.

HIRING **PARTNERS**

Microsoft · amazon · Google · Cognizant

yahoo! · Flipkart · hp · DELL

Adobe · Infosys · accenture · ORACLE

intel · Standard Chartered · Deloitte. · McKinsey & Company

BARCLAYS · citi · IBM · Capgemini

MAERSK · AMERICAN EXPRESS · J.P.Morgan · zomato

fractal · CISCO · SAMSUNG · yatra

RBS · Shell · + 500 MORE

ADMISSION PROCESS

ELIGIBILITY

○ Applicants should have 50% or above in Xth, XIIth and Bachelor's degree.

○ This program is suitable for both fresh graduates and professionals with knowledge/exposure to any programming languages.

APPLICATION PROCESS

STEP 1
Register your interest by filling in the online application form for the program.

STEP 2
Shortlisted candidates will be required to go through an admissions test and a screening call with the Admission Director's office.
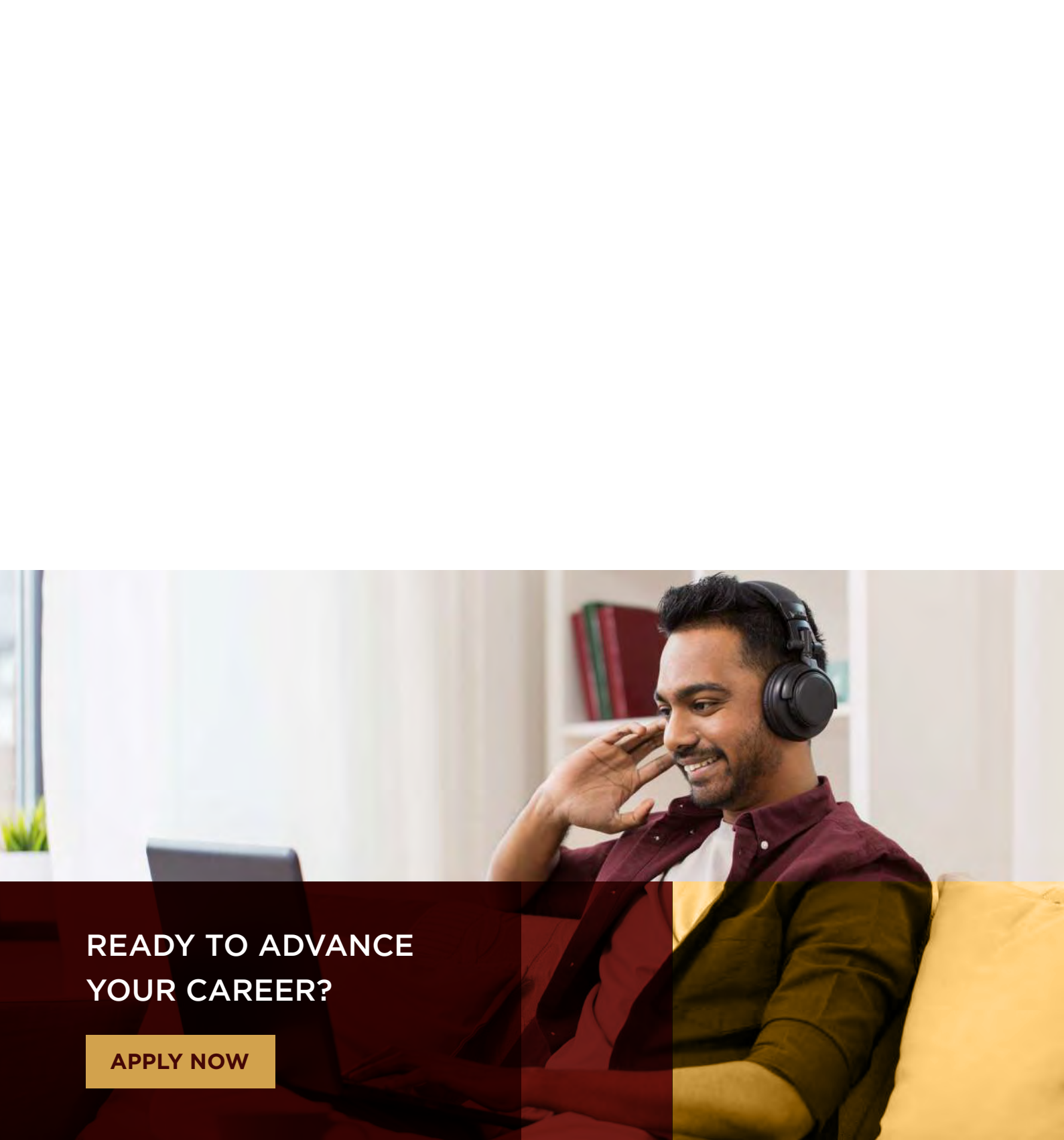
STEP 3
Selected candidates will be provided with an offer of admission to the program. Candidates are required to confirm their participation in the program by paying the admission fee.

PROGRAM FEE

USD 3500

READY TO ADVANCE YOUR CAREER?

APPLY NOW

CONTACT US

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