# iCM Handbook

## iCET Certified Master Program

iCET CERTIFIED MASTER

iCET

Connecting Intelligence

Version 2.0

# Connecting Intelligence!

## “Unleashing the Power of Knowledge Networks”

### Greetings from the Institute of Computer Engineering Technology (iCET)!

As one of the leading providers of software education and training in Sri Lanka, iCET is dedicated to empowering students with the knowledge and skills required to excel in the dynamic field of software engineering. Our institution, founded with a strong vision and commitment to excellence, strives to equip students with the right mindset, attitudes, and skill set to embark on their dream careers.

At iCET, we take immense pride in our ability to nurture talent and prepare students for success in the software industry. With a team of experienced educators and trainers, we are dedicated to delivering the highest quality education and training to our students. Through cutting-edge techniques, advanced methodologies, and state-of-the-art resources, we ensure that our students receive a comprehensive and immersive learning experience.

Our student handbook serves as a valuable resource, providing you with essential information, guidance, and support throughout your educational journey at iCET. It is designed to assist you in navigating the program and making the most of your time with us.

We are excited to have you join our vibrant community of learners at iCET. With our commitment to excellence and your determination, we are confident that together we can pave the way for a successful career in software engineering.

We look forward to embarking on this transformative journey with you and helping you realize your full potential.

iCET
Connecting Intelligence

# FOUNDER's MESSAGE

**Dr. Niroth Samarawickrama**
Founder
Institute of Computer Engineering Technology

Dear iCM Participants,

It is with immense pride and enthusiasm that I extend my warmest welcome to you as participants in the iCET Certified Master (iCM) program. As the founder of iCET, I am thrilled to embark on this educational journey with you.

iCET was born from a vision to bridge the gap between academic knowledge and practical skills, particularly in the dynamic field of software engineering. Today, the world revolves around software, and understanding its principles is not just an advantage; it is a necessity.

With iCM, we have crafted a program that empowers you to delve into the very core of software engineering. Our aim is simple yet profound: to provide you with a strong foundation that will serve as a springboard for your future endeavors.

In the world of software engineering, creativity meets logic, and innovation knows no bounds. With iCM, you will grasp the fundamentals of software development, learning everything from object-oriented programming to web development and database management. More importantly, you will gain a deep appreciation for how these concepts are applied in the real world. As the founder, I encourage you to embrace this opportunity fully.

Each lesson, every assignment, and all the practical projects are stepping stones to your growth. Use them to develop your problem-solving abilities, analytical thinking, and your capacity to adapt to an ever-changing technological landscape.

Remember, iCM is not just about coursework; it's about cultivating a mindset of curiosity and a passion for excellence. The skills you acquire here will not only help you excel in your academic pursuits but will also prepare you for success in the broader software engineering ecosystem.

Your journey with iCM is a beginning, not an end. I have no doubt that you will carry the knowledge gained here into your future endeavors, whether it be further studies, personal projects, or professional pursuits. iCM is your launchpad to a world of endless possibilities.

Once again, welcome to iCM. Embrace this journey, learn voraciously, and dare to dream big. I look forward to witnessing your growth, and I am proud to have you as part of the iCET family.

Best Regards,
**Dr. Niroth Samarawickrama**
**Founder, Institute of Computer Engineering Technology (iCET)**

# CEO's MESSAGE

**Samila Senanayaka**
CEO
Institute of Computer Engineering Technology

Dear iCM Participants,

I am delighted to welcome you to the iCET family and to the iCM program. It's an honor to introduce you to this transformative journey into the world of software engineering.

iCM is more than just a program; it's an opportunity to explore the very heart of the digital age. In today's world, software engineering drives innovation, powers businesses, and shapes the future. Understanding the core concepts of software engineering is not just an advantage; it's essential.

Our iCM program has been thoughtfully designed to provide you with a solid foundation in software engineering. Whether you're aiming to pursue higher education, work on personal projects, or even embark on a career in the IT industry, iCM equips you with the knowledge and skills you need to succeed.

Throughout your iCM journey, you'll dive into the fundamentals of software development, from object-oriented programming to web development and database management. But iCM offers more than just knowledge; it offers a pathway to endless possibilities. With the skills you acquire, you'll be ready to tackle academic challenges, explore personal interests, and even consider professional opportunities in the world of software engineering.

Our goal is to empower you to understand the technology that shapes our world. We believe that knowledge is the key to unlocking your potential and seizing opportunities in a rapidly evolving digital landscape.

I encourage you to make the most of your time in the iCM program. Embrace learning, ask questions, and explore the diverse aspects of software engineering. The skills you develop here will not only serve you well in your academic pursuits but will also open doors to exciting career prospects.

I am excited to see how you'll harness the knowledge gained in iCM to excel in your educational and professional journeys. Remember, you are not just learning; you are preparing for a future where technology plays an ever-increasing role.

Once again, welcome to iCM, and welcome to a world of endless possibilities.

Sincerely,
**Samila Senanayaka**
**CEO, Institute of Computer Engineering Technology (iCET)**

iCET CERTIFIED MASTER

# WHAT IS iCM?

iCM: Your Gateway to Software Engineering

Are you curious about the world of software engineering? Do you want to grasp the core concepts that power the digital age? Look no further than iCM - iCET Certified Master program.

iCM is your passport to the world of software development. In this comprehensive program, you'll delve deep into the fundamentals that drive the technology behind our modern world. You don't need prior experience; all you need is a passion for learning and a desire to understand how software works.

Throughout the iCM program, you'll explore key software engineering concepts that are the building blocks of every digital application:

Object-Oriented Programming: You will learn how to design software using objects and classes, a fundamental concept in modern programming.

Algorithms and Data Structures: You will understand the algorithms that power computer applications and the data structures that make data organization efficient.

Web Development: You will dive into the web's core technologies, from HTML and CSS to JavaScript.

Database Management: You can explore the world of databases and learn how to manage and query data effectively.

Software Development Lifecycle: You can get a taste of the methodologies and practices that guide software development in the real world.

iCM isn't just about theory; it's about practical knowledge that will benefit you throughout your academic journey. By mastering these core concepts, you'll have a solid foundation to tackle your university courses, especially if you plan to study computer science or related fields.

But iCM goes beyond academics. Armed with this knowledge, you'll have the skills to tackle personal projects and embark on online freelance projects. The opportunities are limitless, and it all begins with iCM.

Be ready to start your journey in the world of software engineering. With iCM, your curiosity transforms into expertise. It's time to unlock the secrets behind the technology you see every day.

# LEVEL 01
# Mastering Programming & Web Designing Concepts

## Objectives

- To provide students with a comprehensive understanding of programming fundamentals.
- To familiarize students with the Java development environment and basic syntax.
- To equip students with skills to develop dynamic web pages using web technologies.

## Outcomes

- Solid foundation in programming concepts and writing programs.
- Understanding and use data types, variables, operators and control statements.
- Students will be able to create and manipulate arrays in java.
- Ability to create dynamic web pages using web technologies.

**MODULE 1**

### Programming Techniques and Computer Programming

**TOPICS :**

1.1 Introduction to the Compiler, Interpreter and Programming language
1.2 Data Representation in Computer Memory
1.3 Data types, Conversion and Casting
1.4 Operators and Operator Precedence
1.5 Working with Variables
1.6 Java Flow Controls (Loops, Conditional Statements & Recursive Methods)
1.7 Methods
1.8 Algorithms using Arrays & Multi Dimensional Arrays
1.9 Course Work

MODULE 2

## Introduction to Web Technologies

TOPICS :

2.1 Introduction to the Internet & web application architectures
2.2 HTML5 and CSS3
2.3 Styling web pages with CSS Frameworks (Bootstrap, Tailwind CSS)
2.4 Web App programming with JavaScript
2.5 jQuery and fetch API for Web Development
2.6 Responsive Web Designing with CSS Media Queries
2.7 Working with Restful APIs
2.8 Final Course Work

# LEVEL 02
# Mastering Object Orientation, DB Management & Design Concepts

## Objectives

- To provide students with an understanding of object-oriented programming concepts.
- To equip students with skills to write programs using classes and objects.
- To familiarize students with inheritance, polymorphism, encapsulation and abstraction.
- To empower students with knowledge on Database Management System.

## Outcomes

- Students will have a solid foundation design patterns in computer programming.
- Ability to work with classes and objects in Java.
- Adapting inheritance, polymorphism, encapsulation and abstraction concepts in programming.
- Students will be able manipulate data in a Database Management System.

MODULE 3

## Object Oriented Programming and Concepts

**TOPICS :**

3.1 Encapsulation
3.2 Abstraction
3.3 Polymorphism
3.4 Inheritance
3.5 Cohesion and Coupling
3.6 Design patterns in programming
3.7 Data Structures and Algorithms
3.8 Course Work

MODULE 4

## Database Management System & System Design

**TOPICS :**

4.1 Manipulating data with SQL Queries.
4.2 Relational Database System (MySQL)
4.3 Entity Relation Diagram (ER)
4.4 UML Diagrams

# LEVEL 03
# Advanced Programming & Project Development

## Objectives

- To provide students with understanding of database integration
- To familiarize students with JDBC (Java Database Connectivity) and connecting Java applications to databases
- To equip students with knowledge on Software Development Methodologies
- To implement programming architectures and design patterns

## Outcomes

- Comprehensive understanding and practical know-how of database integration.
- Ability to connect Java applications to database using JDBC.
- Solid understanding of error handling and debugging techniques.
- Ability to visualize and implement Programming Architectures and Design Patterns.

**MODULE 5**

### Java Database Programming , APIs and Frameworks

**TOPICS :**

5.1 Java Database connectivity and Transactions
5.2 Object Relation Mapping - ORM
5.3 Multi Threading Programming in Java
5.4 String API and Java Collection Frameworks
5.5 Java Remote Method Invocation - RMI
5.6 Modern UI Designing with JavaFX
5.7 Final Course Work

**MODULE 6**

### Programming Architectures and Design Patterns

**TOPICS :**

6.1 Introduction to Programming Architectures
6.2 Model-View-Controller (MVC) Architecture
6.3 Layered Architecture
6.4 Client-Server Architecture
6.5 Final Course Work

# LEVEL 04

# Enterprise Application Development

## Objectives

- Proficiency in API Development and Document-Oriented Database Management
- To familiarize students in creating dynamic and interactive web pages.

## Outcomes

- Students will be able to practically develop apps using client-server architecture.
- Students will be able to work with Document-Oriented Databases.
- Students will be equipped with the knowledge of Project Documentation and Communication.

MODULE 7

### API Development & Advanced Web App Development

TOPICS :

8.1 Rest API Development with NodeJS & Express
8.2 Front-End Development using ReactJS
8.3 Final Project

# SUCCESS STORY

I am presently employed as a Software Engineer at Blue Lotus 360, where I enjoy a competitive salary. Concurrently, I am pursuing my undergraduate studies at the Faculty of Science, University of Kelaniya. Remarkably, I've managed to achieve a level of professional success that typically takes others 5 to 6 years to attain.

I owe this accomplishment to the invaluable skills I cultivated during my time at iCET, which have seamlessly aligned with the demands of the Software Engineering industry.

Even in my university academic pursuits, I've consistently excelled, thanks to the robust foundation provided by the iCM Program at iCET. It has equipped me with a profound understanding of key concepts that significantly contributed to my outstanding performance.

Throughout my university years, I observed that even some of my high-achieving peers from the Advanced Level (A/L) exams encountered challenges in their university studies. Many experienced a notable decline in their academic performance also probably due to the stress with financial constraints.

Drawing from my personal experiences, I wholeheartedly recommend the iCM Program to anyone embarking on their university journey. It has the potential to be a transformative turning point in your life and represents a sound investment in your future. I can confidently assure you that enrolling in the iCM Program at iCET following your A/Ls will enable you to navigate university life with ease and excel in your academic endeavors.

Best Regards,

**Binath Perera**
*Software Engineer, Blue Lotus 360*
*2020 A/L*

# Payment Details

We understand that financial considerations are an important aspect of your decision to enroll in the iCM - iCET Certified Master Program. To provide flexibility and accommodate different payment preferences, we offer two payment options for your convenience:

## ONE-TIME PAYMENT

| | |
|---|---|
| Total Course Fee | **Rs. 100,000.00** |
| Special Offer (for one time payment) | **30% Discount** |
| **Amount Payable** | **Rs. 70,000.00** |

## INSTALLMENT PLAN

| | |
|---|---|
| Initial Payment (Before Course Commencement) | **Rs. 55,000.00** |
| Remaining Payment (Within 60 days after Course Commencement) | **Rs. 45,000.00** |

## REFUND POLICY

At iCET, we maintain a firm non-refundable policy that applies to all our education programs, including the "iCM Program," "iCD Program," and "iCP Program." Please be aware that in the event a student opts to withdraw from enrollment, refunds will not be granted. We thank you for your understanding regarding this policy.

Choose the option that suits you best and secure your enrollment in the iCM program. Please note that timely payment is essential to ensure uninterrupted access to the program's resources and benefits.

- We accept Bank Transfers to the Account details provided below.

Bank : Bank of Ceylon
Branch : Panadura
Account Name : Institute of Computer Engineering Technology (Pvt) Ltd.
Account Number : 90257659

For payment confirmation, we kindly request you to send us a photo of the deposit slip or a screenshot of the payment confirmation screen along with your name to our Coordinator/ Hotline number +(94) 705 805 805 on WhatsApp.

**For further inquiries or assistance, please call or email us.**

**info@icet.lk** **+(94) 705 805 805**

**PHONE :**
**WEB SITE :** www.icet.lk
**Address :** 223 A 1/2 Galle Rd, Panadura.

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