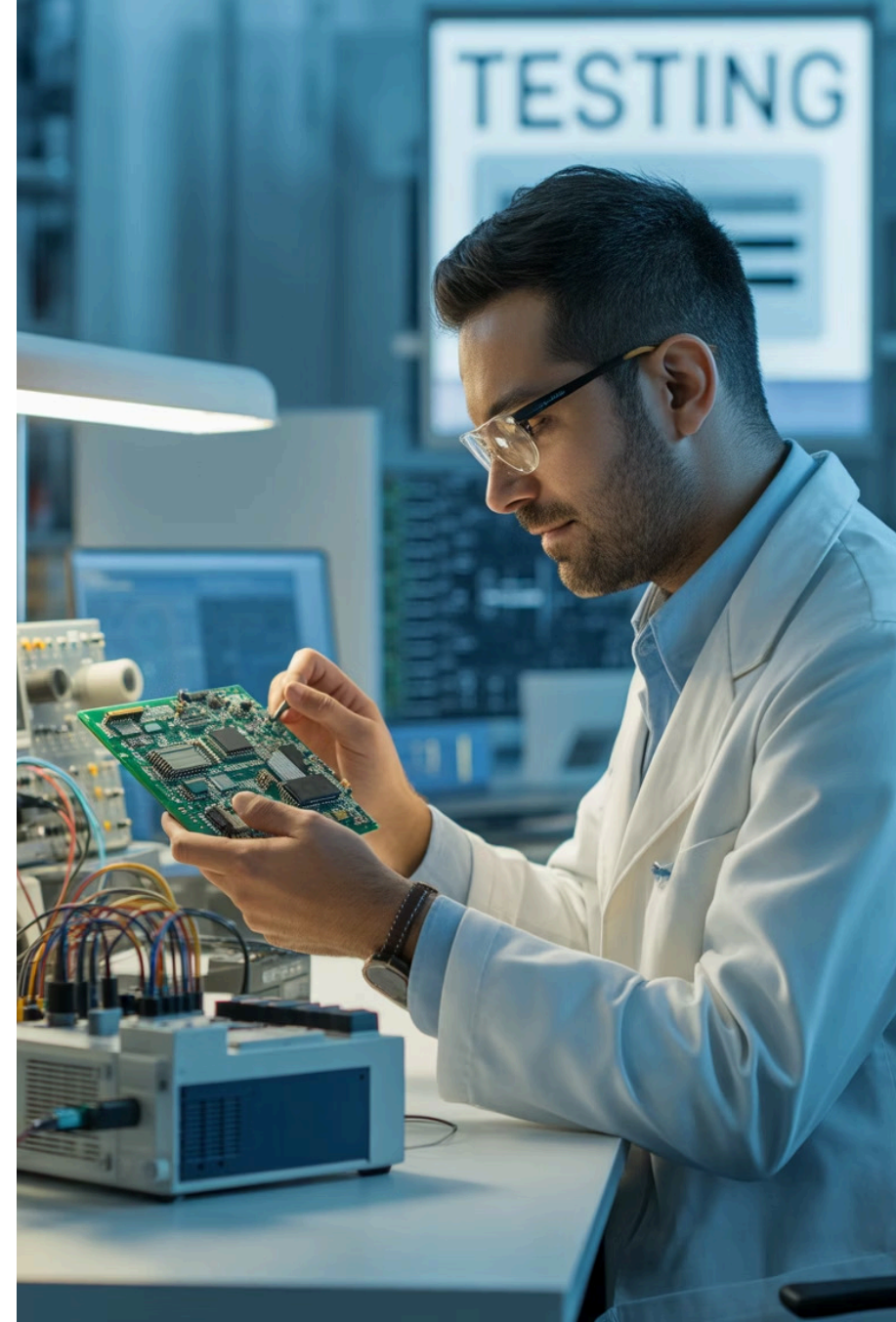


# Test Engineering Certification Program





Welcome to our comprehensive Test Engineering Certification Program. This 180-hour curriculum is designed to equip you with the essential skills and knowledge required to excel as a Test Engineer or Specialist in today's technology-driven industries.

Our program covers four key certification areas: MATLAB Fundamentals, Simulation Fundamentals, Control System Design with Simulink, and Power Electronics. Each certification is provided by MathWorks, a globally recognized leader in technical computing software.

By the end of this program, you'll be prepared to design and execute tests that ensure quality, performance, and functionality across software, hardware, and complex systems.



# Program Overview

-  — **MATLAB Fundamentals**  
Core programming and mathematical modeling skills
-  — **Simulation Fundamentals**  
Building and analyzing simulation models
-  — **Control System Design**  
Dynamic systems modeling and controller implementation
-  — **Power Electronics**  
Power conversion and control applications

Our program is structured to build your expertise progressively through these four essential certifications. Each module builds upon the previous one, creating a comprehensive skill set that prepares you for various roles in test engineering across multiple industries.



# MATLAB Fundamentals



## Core Curriculum

From basic MATLAB introduction to working with matrices, arrays, and programming fundamentals. Includes data management, visualization, and mathematical modeling.



## Certification Value

Lifetime validity from MathWorks, though staying updated with latest releases and toolboxes is recommended for industry relevance.



## Career Opportunities

Opens doors to roles like Simulation Engineer, Data Analyst, Control Systems Engineer, and Research Assistant across aerospace, automotive, and biotech sectors.

MATLAB serves as a core tool for scientific computing, algorithm development, and data visualization. The certification is globally recognized in engineering, R&D, government labs like ISRO and DRDO, and aligns with many AICTE and NSDC-approved STEM programs.



# MATLAB Curriculum Details

## Foundation Building

Begin with an introduction to MATLAB, learning to work with matrices and arrays, and developing programming and script writing skills. These fundamentals establish your technical foundation.

The curriculum follows a logical progression from basic concepts to advanced applications, ensuring you develop both theoretical knowledge and practical skills. Each module builds upon previous learning, culminating in capstone projects that showcase your ability to apply MATLAB to real-world engineering challenges.

## Data Management & Visualization

Progress to data import, export, and management techniques, followed by data visualization methods that allow you to effectively communicate findings and insights.

## Advanced Applications

Explore mathematical modeling and various toolboxes that extend MATLAB's capabilities. Complete the certification with capstone projects that demonstrate your comprehensive skills.

# Simulation Fundamentals

## Curriculum Highlights

- Mathematical modeling basics
- Numerical methods for simulation
- Building and simulating models
- Result analysis and interpretation

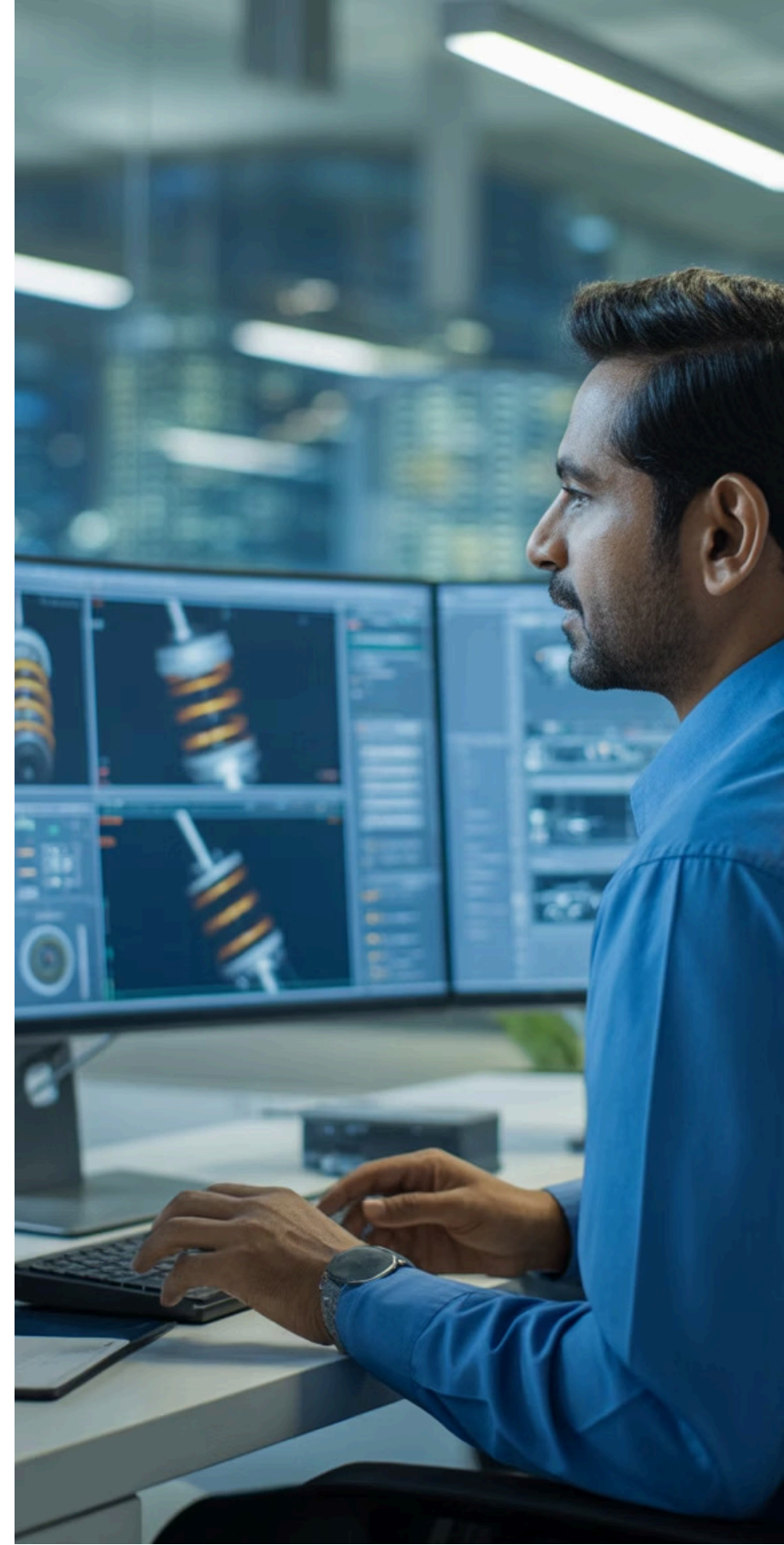
## Industry Relevance

- System modeling and simulation
- Design verification and validation
- Optimization using simulation
- Algorithm development

## Career Pathways

- Simulation Engineer
- Systems Engineer
- Aerospace/Automotive Engineer
- R&D Engineer

The Simulation Fundamentals certification from MathWorks offers lifetime validity and is globally recognized across automotive, aerospace, energy, and research sectors. It's widely adopted in engineering firms, PSUs, MNCs, and academic institutions, and forms part of many AICTE/NSDC approved training programs.



# Simulation Curriculum Journey

**Mathematical Foundations**  
Introduction to simulation and mathematical modeling basics

**Validation & Application**  
Model calibration, validation, and capstone project



**Software Implementation**  
Using simulation software and building models

**Analysis & Interpretation**  
Analyzing simulation results and drawing conclusions

The curriculum follows a cyclical learning approach where each concept builds upon and reinforces previous knowledge. Starting with theoretical foundations, you'll progress through practical implementation, analysis techniques, and finally apply your skills in real-world validation scenarios.

This comprehensive approach ensures you develop both the theoretical understanding and practical skills needed to excel in simulation-based engineering roles across multiple industries.

# Control System Design with Simulink



## Fundamentals

Introduction to control systems and Simulink



## Analysis

Time and frequency domain analysis



## Design

Controller design and implementation

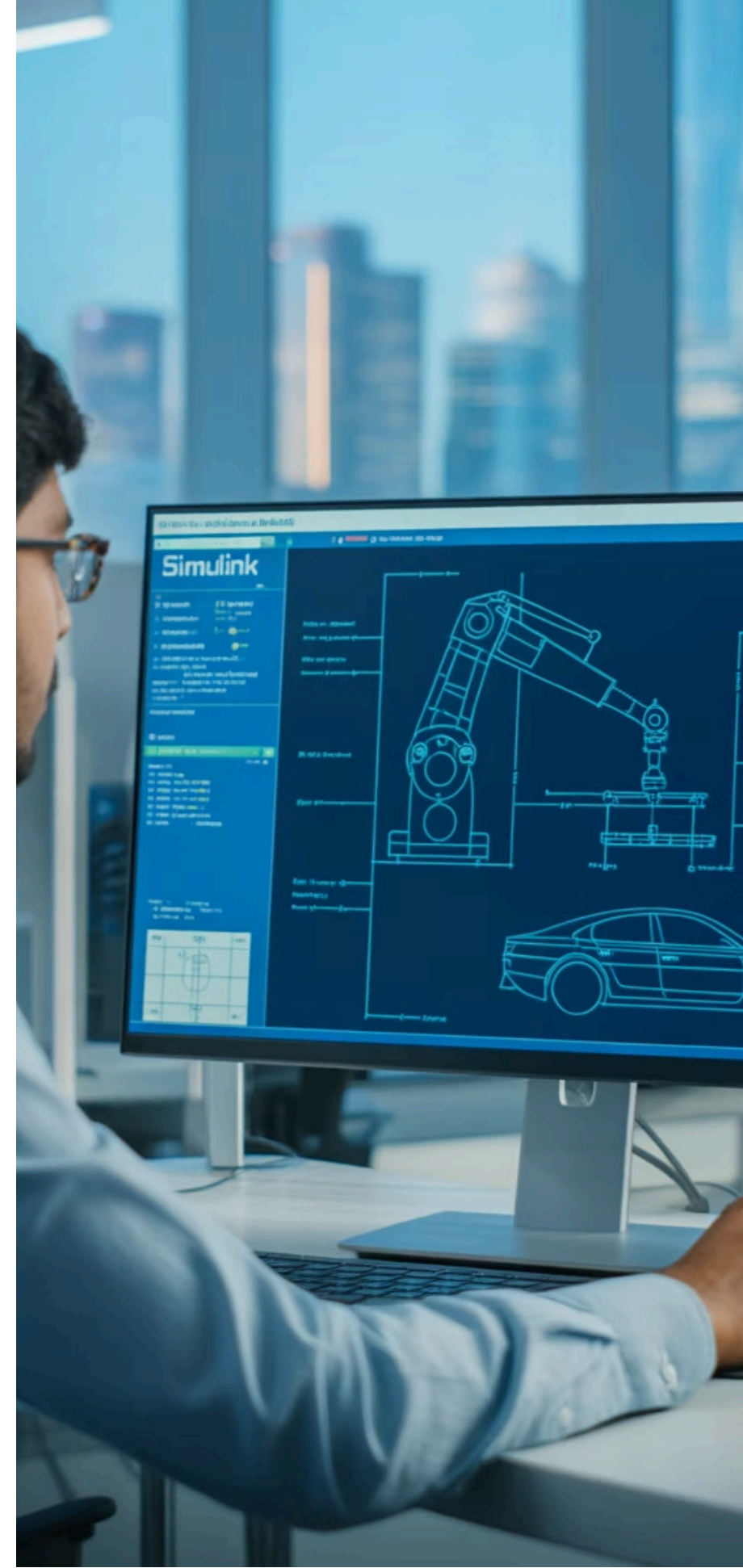


## Application

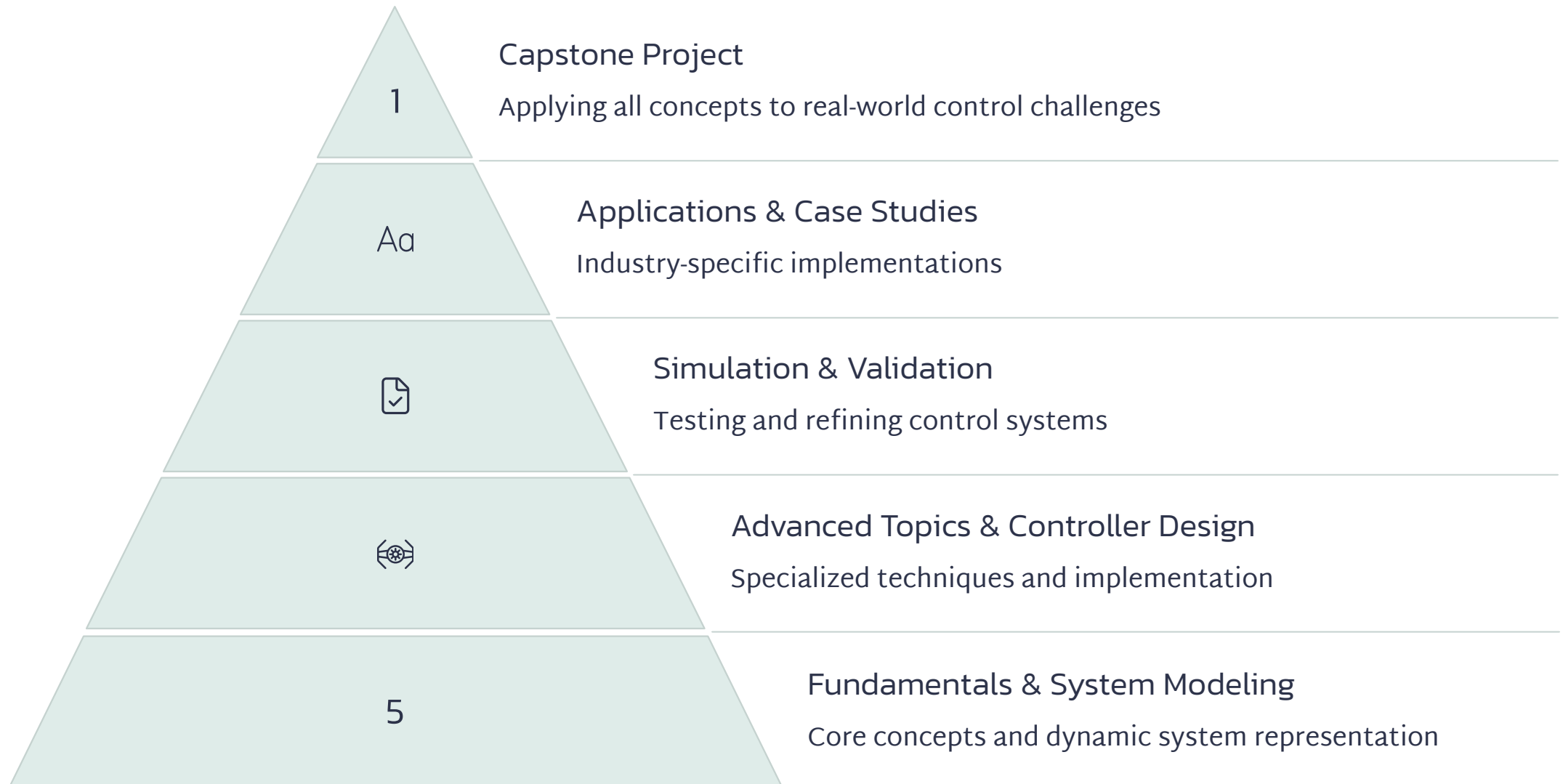
Simulation, validation, and case studies

This MathWorks certification offers lifetime validity and opens doors to careers as Control Systems Engineer, Automation Engineer, Mechatronics Engineer, and more. It's widely used in automotive, aerospace, robotics, manufacturing, and process control industries for designing automated systems and embedded control systems.

The certification is recognized by global MNCs, PSUs, and engineering firms, and is essential for industries focused on system automation, robotics, and mechatronics. It's also included in NSDC and AICTE approved curricula.



# Control System Design Curriculum



The curriculum builds progressively from fundamental concepts to advanced applications. You'll start with basic control theory and Simulink introduction before advancing to dynamic system modeling and analysis techniques. The program culminates with practical applications through case studies and a comprehensive capstone project.

# Power Electronics



**Power Semiconductor or Devices**  
Understanding the fundamental components that enable power conversion and control



**Power Conversion**  
Mastering AC-DC, DC-DC, DC-AC, and AC-AC conversion techniques



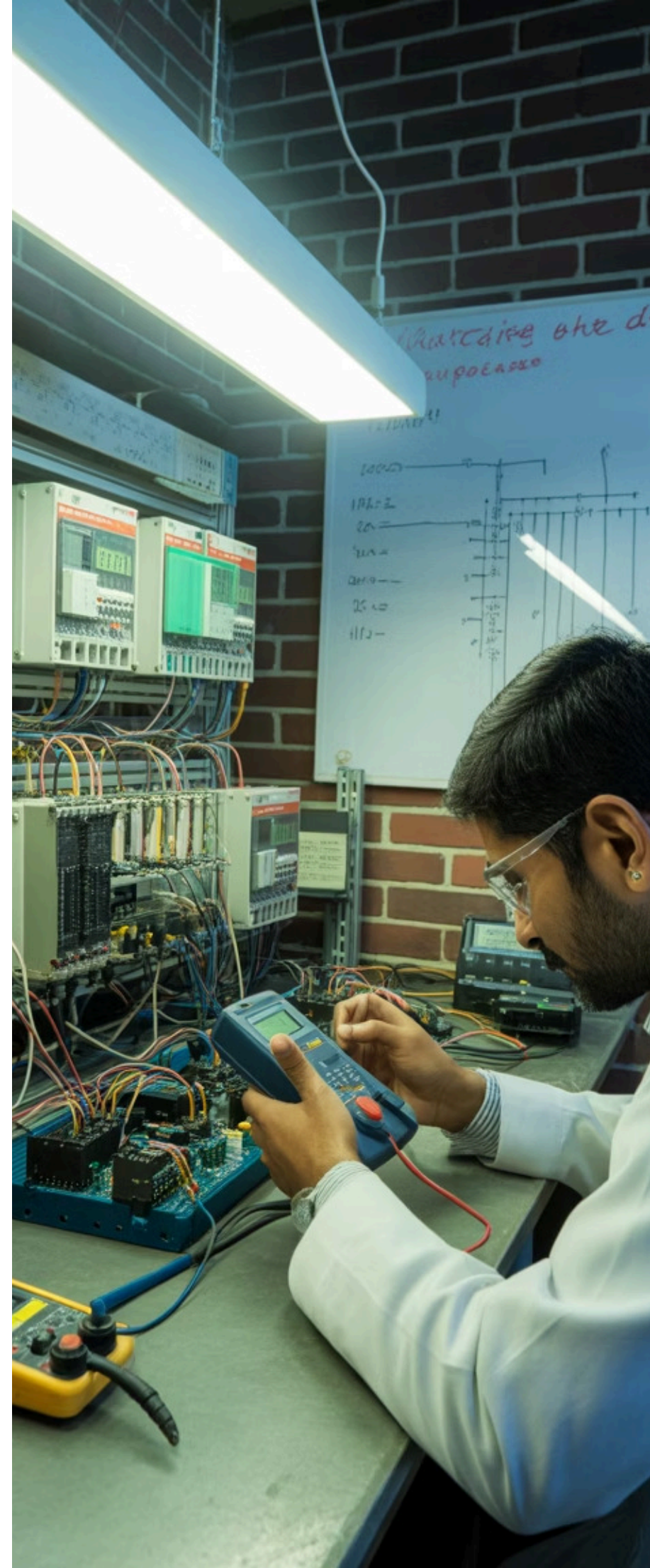
**Control & Protection**  
Implementing systems to ensure safe and efficient power electronics operation



**Industrial Applications**  
Applying power electronics principles to real-world industrial challenges

The Power Electronics certification from MathWorks has lifetime validity and prepares you for roles such as Power Electronics Engineer, Electrical Engineer, and Renewable Energy Engineer. It's particularly relevant in renewable energy, electric vehicles, power systems, and automation industries.

This certification is widely recognized in sectors focusing on sustainable energy, automotive innovation, and industrial automation, and is integrated into AICTE/NSDC programs focused on power engineering.



# Power Electronics Curriculum

1

Introduction to Power Electronics  
Fundamental concepts and principles

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2

Power Semiconductor Devices  
Component characteristics and applications

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Power Conversion Techniques  
AC-DC, DC-DC, DC-AC, and AC-AC conversion

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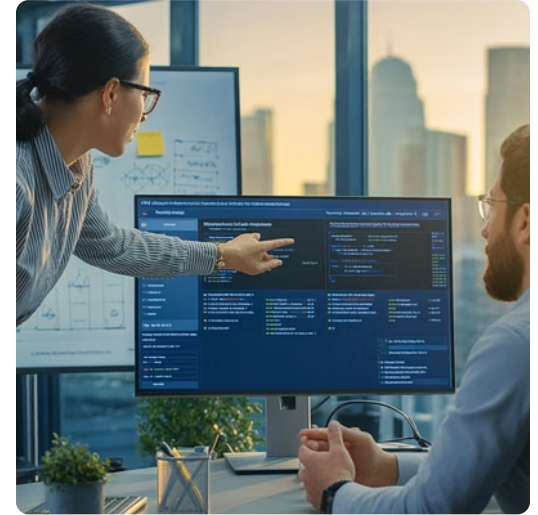
4

Advanced Applications  
Control, protection, and industry implementation

The curriculum follows a progressive approach, starting with fundamental concepts before diving into specific power semiconductor devices and their characteristics. You'll then explore various power conversion techniques, including rectifiers, choppers, inverters, and AC-AC converters.

The program concludes with advanced topics in control and protection systems, followed by practical applications in industries such as renewable energy, electric vehicles, and industrial automation.

# Exit Profile: Test Engineer/Specialist



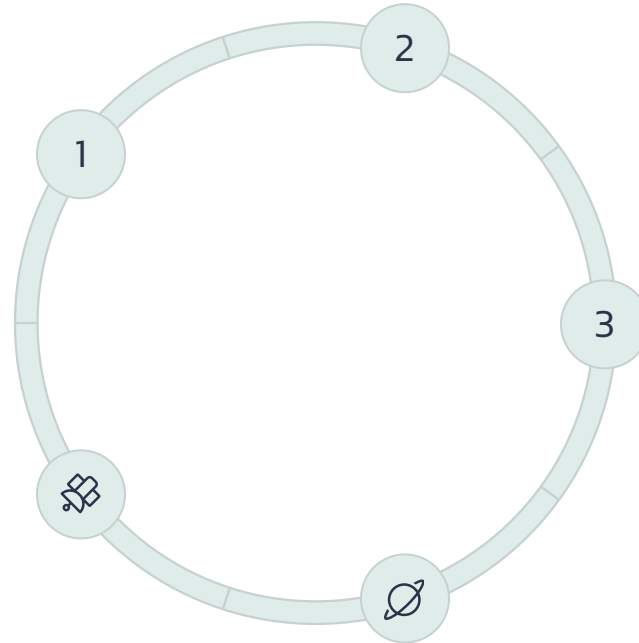
As a Test Engineer/Specialist, you'll be responsible for designing and executing tests to ensure the quality, performance, and functionality of software, hardware, or systems. Your work will involve creating comprehensive test plans, developing both automated and manual tests, identifying issues, and collaborating with developers and other teams to resolve defects.

You'll play a crucial role in ensuring products meet required standards and specifications before release, serving as a quality gatekeeper in the development process. This position requires analytical thinking, attention to detail, and strong communication skills.

# Industry Alignment

**Software Development**  
Ensuring product quality throughout the development lifecycle

**Telecommunications**  
Validating device and communication system performance



**Hardware Design**  
Verifying component and system functionality

**Automotive**  
Testing critical systems for safety and reliability

**Aerospace**  
Ensuring mission-critical systems meet stringent standards

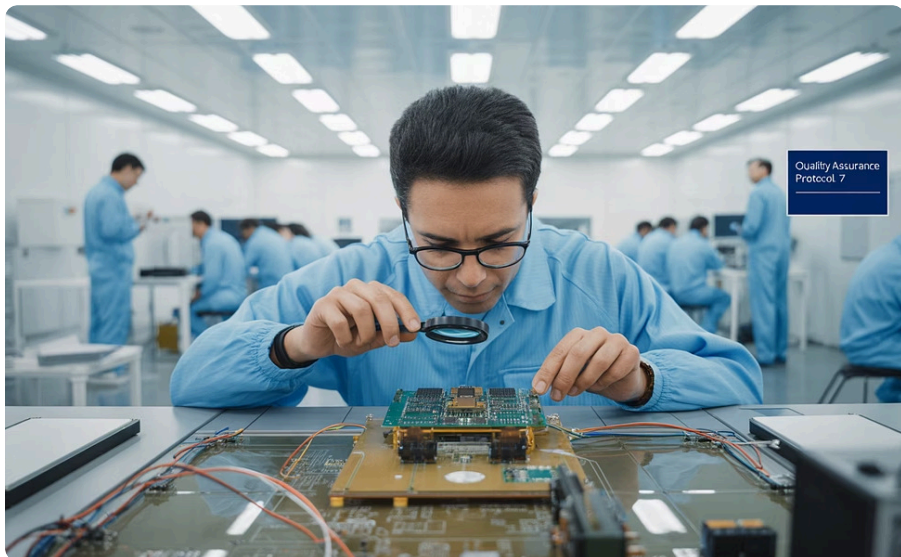
Test Engineers are integral across multiple industries, from software companies ensuring product quality to manufacturing firms conducting hardware testing. They play critical roles in automotive and aerospace industries for system reliability testing, telecommunications for device functionality verification, and startups developing innovative technologies.

# Career Opportunities



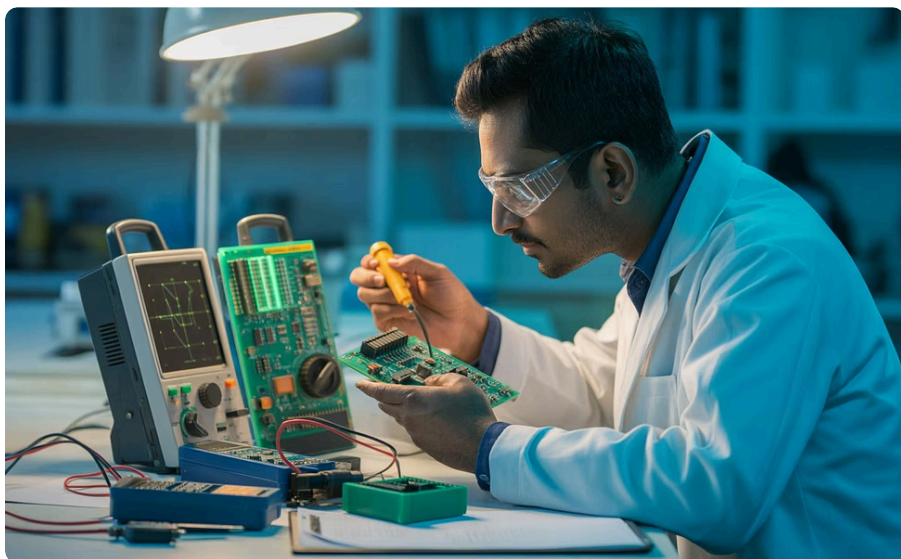
## Automotive Test Engineer

Develop and execute test plans for vehicle systems, components, and software. Ensure compliance with safety standards and performance specifications using simulation tools and physical testing equipment.



## Aerospace Test Specialist

Design and implement testing protocols for aircraft or spacecraft components. Utilize MATLAB and Simulink to model system behavior and verify performance under various conditions.



## Electronics Test Engineer

Develop test procedures for electronic systems and components. Apply power electronics knowledge to verify proper functioning of power conversion systems and control circuits.

These certifications prepare you for diverse roles across multiple industries, with opportunities to specialize based on your interests and strengths. The technical foundation provided by this program is applicable to both established industries and emerging technology sectors.



# Program Benefits

180

Training Hours

Comprehensive curriculum covering all essential aspects

4

MathWorks Certifications

Globally recognized credentials with lifetime validity

100%

Industry Alignment

Curriculum designed to meet current industry demands

7+

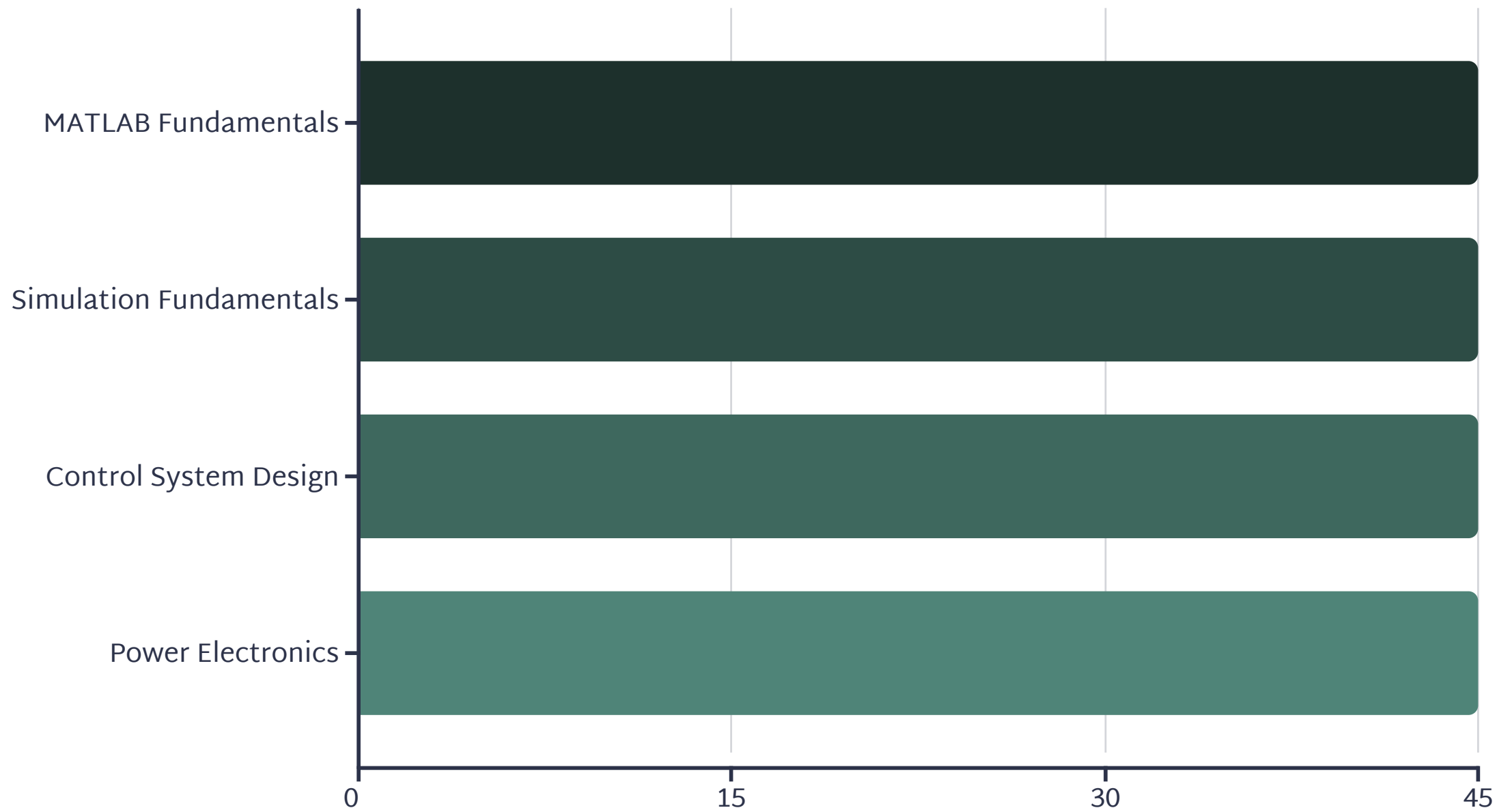
Career Pathways

Multiple specialized career options after completion

Our program offers exceptional value through its comprehensive curriculum, industry-recognized certifications, and direct alignment with employer needs. The skills you'll develop are in high demand across multiple sectors, providing excellent return on your educational investment.

The lifetime validity of these MathWorks certifications ensures long-term career benefits, while the practical, hands-on approach ensures you'll be job-ready upon completion.

# Next Steps



Ready to advance your career in test engineering? Our program offers flexible enrollment options with new cohorts starting quarterly. The 180-hour curriculum is typically completed over 4-6 months, with both full-time and part-time schedules available.

Contact our admissions team to discuss prerequisites, financing options, and to reserve your place in our next cohort. Join the ranks of successful test engineers who have launched rewarding careers through our comprehensive certification program.