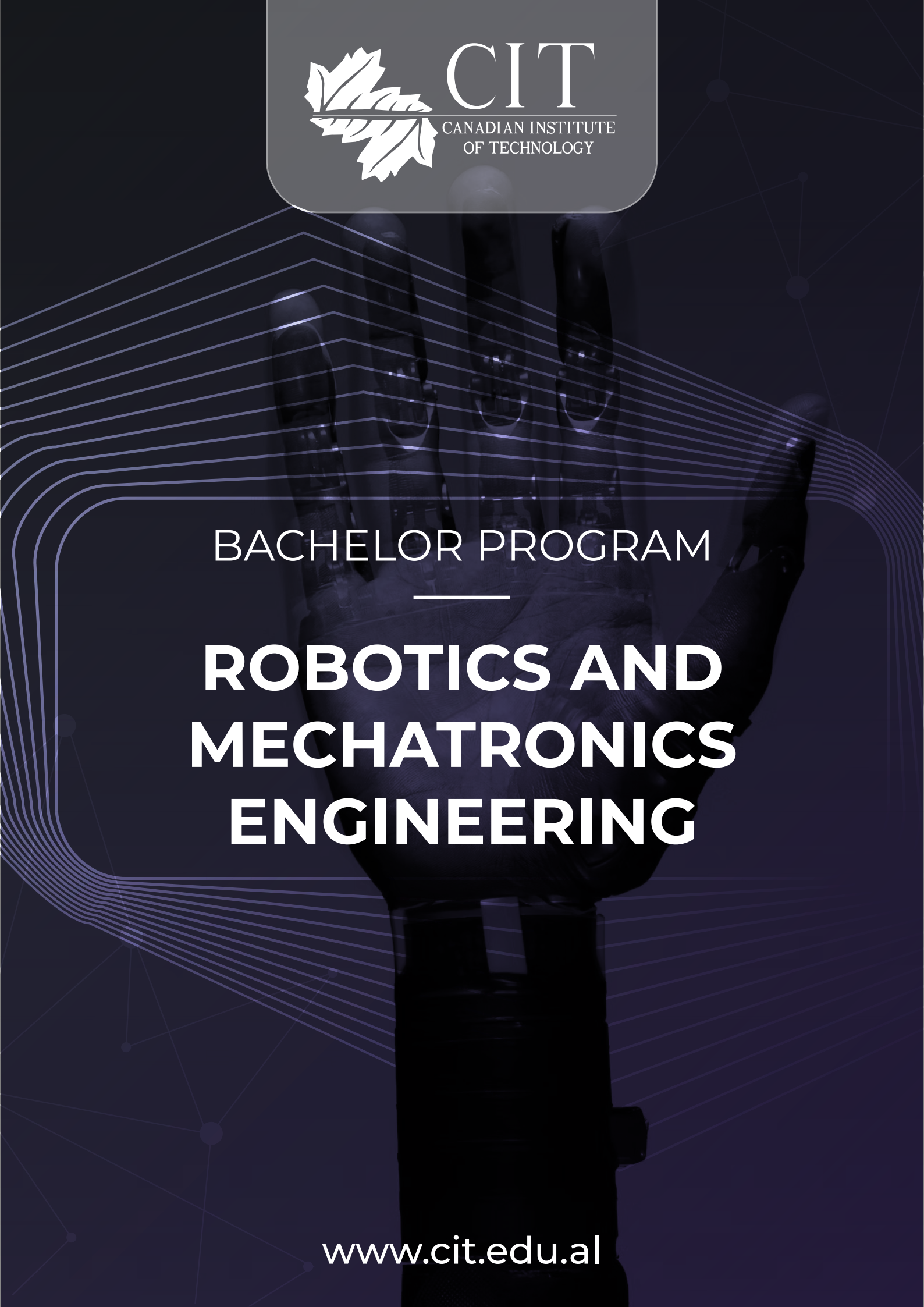
CIT
CANADIAN INSTITUTE OF TECHNOLOGY



BACHELOR PROGRAM

ROBOTICS AND MECHATRONICS ENGINEERING

www.cit.edu.al

OUR **BACHELOR** PROGRAMS

Canadian Institute of Technology offers high quality educational programs ranging from Bachelor in Business Administration, Business Administration and IT, Finance & Accounting, Software Engineering, Telecommunication Engineering, Computer Engineering & IT, Robotics & Mechatronics Engineering and Electronics Engineering. Designed for students interested in pursuing a career in these fields, you will get a start in the job market, and may gain exemptions from professional qualifications.

You will develop a professional understanding of these programs, applicable to real world jobs.

Canadian Institute of Technology commits on delivering quality education through its highly qualified domestic academic staff with teaching experience abroad as well as international academic staff.

Study with McGraw Hill, one of the biggest educational publishers in the world.

Improve your English skills and increase employment opportunities by gaining access to an international career.

A connected and supportive network

Teaching process is based on the best international educational practices, empowering graduates with creative, innovative, entrepreneurial skills, and a passion for knowledge.

WHY BACHELOR IN **ROBOTICS AND MECHATRONICS ENGINEERING**

The Bachelor in Robotics and Mechatronics Engineering is an undergraduate program that provides students with a strong foundation in robotics, control systems, and mechanical engineering. The program is designed to prepare students for careers in robotics and automation, as well as for graduate study in related fields. Students in the program typically take courses in areas such as robotics, control systems, mechanical engineering, programming, and electronics. The curriculum also includes advanced topics in mathematics, physics, and engineering design. Throughout the program, students have the opportunity to engage in hands-on learning experiences in robotics and mechatronics. They work on projects that address real-world problems and challenges, and gain experience in applying the latest technologies and techniques to solve complex problems.

Some of the key topics covered in the Bachelor in Robotics and Mechatronics Engineering program include:

- Robotics: Understanding the principles of robotics, including robot kinematics, dynamics, and control.
- Control Systems: Understanding the principles of control systems, and how they can be applied to robotics and mechatronic systems.
- Mechanical Engineering: Understanding the principles of mechanical engineering, including mechanics, materials, and design.
- Programming: Understanding the principles of programming, and how they can be applied to robotics and mechatronic systems.
- Electronics: Understanding the principles of electronics, including circuit design, micro controllers, and sensors.
- Design: Understanding the principles of engineering design, including CAD/CAM, rapid prototyping, and design for manufacturing.

The purpose of this study program is to ensure the preparation of specialists in the field of robotics and mechatronics engineering based on the most advanced programs of the time. The degree program has a unique course of study that gives students basic engineering concepts and knowledge of crafting intelligent robots to designing innovative mechatronic system.

Graduates of the program are well-prepared to work in a range of industries, including robotics, automation, manufacturing, healthcare, and transportation. They have the skills and knowledge necessary to design and implement robotic and mechatronic systems, and to solve complex problems using innovative solutions.

TARGET SKILLS

- Use CADD software to create blueprints and schematics for robotic systems.
- Develop software and processes that dictate robotic systems functionality.
- Design the machines and manufacturing systems that will build the robots.
- Build and test the robotic system's individual parts or the system as a whole.
- Build the prototype and analyze its functions while looking for and fixing flaws.
- Build Perform continued research and development (R&D) for improvements in the next generation.
- Have exceptional soft skills in areas like creative problem-solving, teamwork and communication.
- Use cutting-edge concepts like artificial intelligence (AI) and machine learning (ML) to boost performance of robotic systems.

TYPICAL CAREER OPPORTUNITIES

Graduates of the Bachelor in Robotics and Mechatronics Engineering program have a wide range of career opportunities available to them. Some of the most common career paths for Electronics Engineering graduates include:

- Robotics Engineer
- Automation Engineer
- Mechatronics Designer
- AI & Machine Learning Engineer
- Research Scientist
- Software Engineer
- Control System Design/ Troubleshooting Engineer
- Instrumentation Engineer
- Data Scientist/Big Data Analyst
- Control Engineer
- Mechatronics Engineer

BACHELOR IN
ROBOTICS AND MECHATRONICS ENGINEERING

First Year

FIRST SEMESTER COURSES

- Academic Reading and Writing
- Introduction to Economics
- Calculus I
- Computer Applications
- Elective Subject

Choose one of:

- Internet Technologies
- Engineering Chemistry
- E-commerce and Innovation
- Digital Society

SECOND SEMESTER COURSES

- Computer Science Fundamentals
- Introduction to Statistics
- Linear Algebra
- Computer Communications and Networks, I
- Physics I

Second Year

THIRD SEMESTER COURSES

- Fundamentals of Programming I
- Physics II
- Electronic Circuits
- Introduction to Robotics: Mechanics and Control
- Calculus I

FOURTH SEMESTER COURSES

- Fundamentals of Programming II
- Digital Logic and Microcontrollers
- Probability and Random Processes
- Fundamentals of AI and Machine Learning Applications
- Mechanics of Machines Modeling and Simulation of Mechatronics Systems

Third Year

FIFTH SEMESTER COURSES

- Computer Aided Design in Mechatronics
- Automatic Control Systems
- Applied Mechanics and Machine Design
- Networking Technologies for Connected Vehicles
- Research Methods

SIXTH SEMESTER COURSES

- VHDL and FPGA Systems
- Signals and Systems

Elective One of:
- Algorithms and Web-based Systems
- Microprocessor Systems
- Project Management

• **Internship**
The Internship Course takes place in the third year of bachelor studies, spanning 4 weeks (120 hours) and earning 6 ECTS credits. It offers practical experience in real-world scenarios, enhancing critical thinking, innovation, and design skills. Through collaboration with professionals, students learn to address challenges, meet objectives, and explore novel ideas in commercial devices, systems, or software. The internship should align closely with their field of study.

Objectives of the Internship Course:

a. Bridge the gap between theory and practical implementation.

b. Cultivate skills within a professional work environment.

c. Provide valuable job market experience.

d. Contribute to market-related opportunities.

• **Thesis**
The undergraduate diploma thesis is an integral part of the final semester of the program. It is valued at 6 credits in the first cycle academic and professional higher education study program in Robotics and Mechatronics Engineering.

The diploma thesis can be prepared at the same time as other study requirements are completed in the third year, and the submission and defence of the diploma thesis is the final component of first cycle studies.

Theses is the ultimate obligation of the student to get a diploma at the end of the study program. It is an individual research work, which the student performs during the last year of the studies. The thesis can guide their master's studies and career as well.

HOW TO APPLY

Bachelor's Programs (National Students)

The first step to become a student at CIT is to complete the application form, which is available at **www.cit.edu.al**. An Admissions Officer will then contact you to provide further details about the pre-registration process and the required documents for this stage.

NOTE: Completing the A1/A1Z form on e-Albania portal and the online form in U-Albania portal are fundamental steps for your enrollment.

Admission Criteria

To be admitted to the bachelor's study programs, the candidate must have:

- Successfully completed high school;
- A high school GPA of 6.5 and above;
- Demonstrated English language proficiency at the B1 level or higher.

All high school students must include University College "Canadian Institute of Technology" as one of their 10 choices in the U-Albania System to register at our university.

SCAN ME

Bachelor's Programs (International Students)

The first step to become a student at CIT is to complete the application form, which is available at **www.cit.edu.al**. An Admissions Officer will then contact you to provide further details about the pre-registration process and the required documents for this stage.

Admission Criteria

To be admitted to the bachelor's study programs, international candidates must meet the following requirements:

- Hold a high school diploma recognized by the Albanian Education Service Center;
- A high school GPA of 6.5 and above;
- Demonstrated English language proficiency at the B1 level or higher.

International students are required to apply to the Albanian Education Service Center (QSHA) for the recognition of their high school diplomas.

SCAN ME

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OF TECHNOLOGY

OPEN YOUR **DOOR** TO THE **WORLD**

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