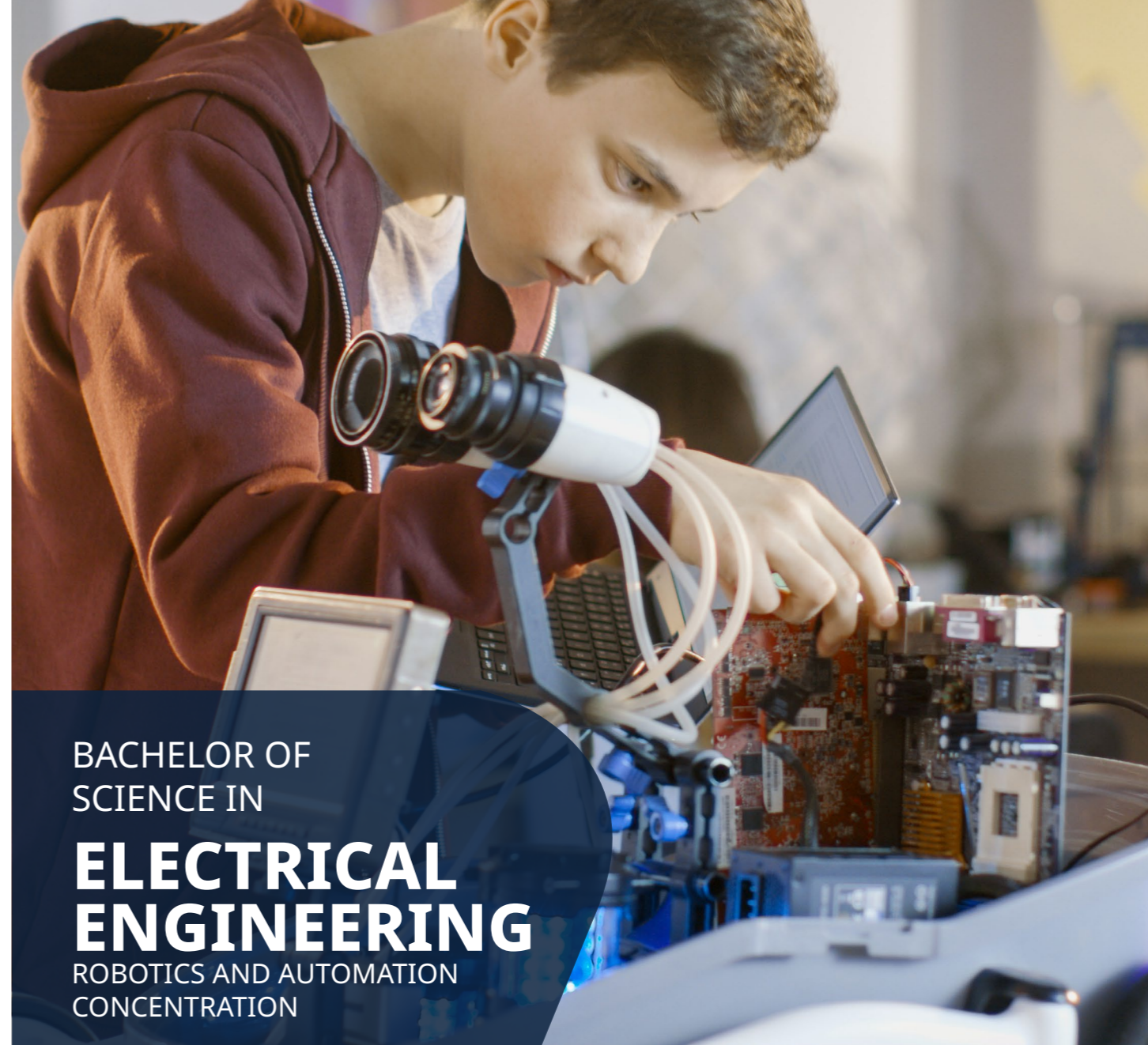


# Curriculum

| COURSE CODE  | COURSE TITLE                                  | COURSE CODE | COURSE TITLE                                    | COURSE CODE | COURSE TITLE                                |
|--|---|-------------|---|-------------|---|
| <b>General Education Requirements: 21 Credit Hours</b> |   |             |   |             |   |
| ARL 100  | Communication Skills in Arabic I              | ENG 200     | English II                                      | FWS 205     | UAE and GCC Society                         |
| FWS 305  | Technical Communications for Work Place       | FWS 310     | Fundamentals of Innovation and Entrepreneurship | ISL 100     | Islamic Culture                             |
| MTT 102  | Calculus I                                    | STT 100     | General Statistics                              |             |   |
| <b>Degree Requirements: 42 Credit Hours</b>            |   |             |   |             |   |
| ECS 200  | Introduction to Engineering and Computing     | MTT 200     | Calculus II                                     | MTT 201     | Calculus III                                |
| MTT 204  | Introduction to Linear Algebra                | MTT 205     | Differential Equations                          | PHY 102     | Physics and Engineering Applications I      |
| PHY 102L   | Physics and Engineering Applications I Lab    | PHY 201     | Physics and Engineering Applications II         | PHY 201L    | Physics and Engineering Applications II Lab |
| CSC 201  | Computer Programming I                        | CHE 205     | General Chemistry I                             | CHE 201L    | Chemistry lab                               |
| COE101   | Introductory Artificial Intelligence          | COE 202     | Engineering Ethics, Economy, and Law            |             |   |
| <b>Major Requirements: 69 Credit Hours</b>             |   |             |   |             |   |
| CEN 333  | Cross-platform Mobile Application Development | EEN210      | Digital Circuits                                | EEN210L     | Digital Circuits Lab                        |
| CSC305   | Data Communications and Networks              | CEN330      | Probability and Stochastic Processes            | CEN201      | Electric Circuits I                         |
| EEN220   | Electric Circuits II                          | CEN304      | Electronic Devices and Circuits                 | CEN324      | Digital and Analog Electronics              |
| CEN325   | Internet of Things: Foundations and Design    | CEN425      | Internet of Things: Application and Networking  | CEN401L     | Embedded and IoT Lab                        |
| EEN337   | Analog and Digital Communications             | EEN339      | Communication Systems                           | EEN399i     | Internship in Electrical Engineering I      |
| EEN399ii   | Internship in Electrical Engineering II       | CEN320      | Signals and Systems                             | CEN464      | Digital Signal Processing                   |
| CEN464L  | Signal Processing Lab                         | EEN338      | Electromagnetic Fields and Waves                | EEN448      | Electrical Installation and Design          |
| EEN451   | Electrical Engineering Design Project I       | EEN452      | Electrical Engineering Design Project II        | EEN340      | Energy Conversion                           |
| EEN345   | Power Systems                                 | EEN449      | Renewable Energy                                |             |   |
| <b>Major and Open Electives: 15 Credit Hours</b>       |   |             |   |             |   |
| ME1  | Major Elective I                              | ME2         | Major Elective II                               | ME3         | Major Elective III                          |
| OE1  | Open Elective I                               | OE2         | Open Elective II                                |             |   |
| <b>Concentration Courses: 15 Credit Hours</b>          |   |             |   |             |   |
| EEN413   | Sensors and Transducers                       | EEN310      | Instrumentation and Measurement                 | EEN366      | Introduction to Robotics                    |
| CEN454   | Computer Vision and Image Processing          | EEN365      | Control Systems                                 |             |   |



## BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING ROBOTICS AND AUTOMATION CONCENTRATION

## Program Overview

Electrical engineering is concerned with electrical and electronic devices and systems essential to contemporary life. It is a rapidly advancing field that has a significant impact on shaping modern societies. Electrical Engineering includes signal processing, control, electrical power and renewable energy, communications, and electronics. It is concerned with the way electrical energy is produced and used in homes, communities and the industry.

Electrical engineers design and build the systems and machines that generate, transmit, measure, control and use electrical energy. They work with various types of equipment ranging from heavy power generators to tiny computer chips, and their work contributes to almost every sector of the society. For example, they may work on the design of communication systems, the operation of electric power stations, the lighting and wiring of buildings, the design of household appliances or the electrical control of industrial machinery or in designing and fabricating integrated circuits.

Abu Dhabi University is accredited by the Western Association of Schools and Colleges (WASC) in the United States of America. Moreover, the Bachelor of Science in Electrical Engineering program at Abu Dhabi University is accredited by the Engineering Accreditation Commission of ABET. The Electrical Engineering program at Abu Dhabi University has been developed according to the standards of international professional bodies such as the Institute of Electrical and Electronic Engineering (IEEE). This ensures that graduates of the program will be uniquely qualified to design, analyze, and test wide-ranging solutions for state-of-the-art electrical and electronic systems.

Electrical Engineering students who pursue the Robotics and Automation concentration will participate in engineering a future highly dependent on robotics and automations in all aspects of our daily lives including governance, health, education, industry, business, tourism, security, and military. They will enjoy increasing demand for their unique set of skills.

## Student's Testimonial

**Maha Yaghi - Alumna**

I am glad to have the opportunity to follow my passion and become a Robotics and Automation Engineer. It is hard to name a field that will not be transformed by automation, and I feel I have a strong advantage and ready to join the 4th Industrial Revolution. Studying at ADU has helped me tackle the future with confidence thanks to a cutting-edge curriculum, dedicated faculty, and excellent practical experiences.



## Career Prospects

- Robotics engineers work in the government, healthcare, education, industry, business, tourism, security, and military sectors.
- Automation engineers work in businesses such as consultancy offices, contractors, factories, manufacturers, and product design firms.
- Electrical Engineers working in the area of smart, sustainable, and renewable energy systems for the government or private sector
- Power Engineers working on the generation, transmission, and the distribution of electrical power for consultants, contractors, power plants, factories, airports, or the oil and gas industry
- Microelectronics Engineers who deal with design and micro-fabrication of tiny electronic circuit components
- Control Engineer working in the retail product manufacturing, biochemical engineering, and software development
- Communications Engineers for international communication companies such as Etisalat, DU, Atlas, etc
- Instrumentation Engineer who design measuring devices for pressure, flow and temperature can be employed by manufacturing firms, defense contractors, or biomedical companies
- Research and development engineers in laboratories to design, build and test various types of electrical systems

