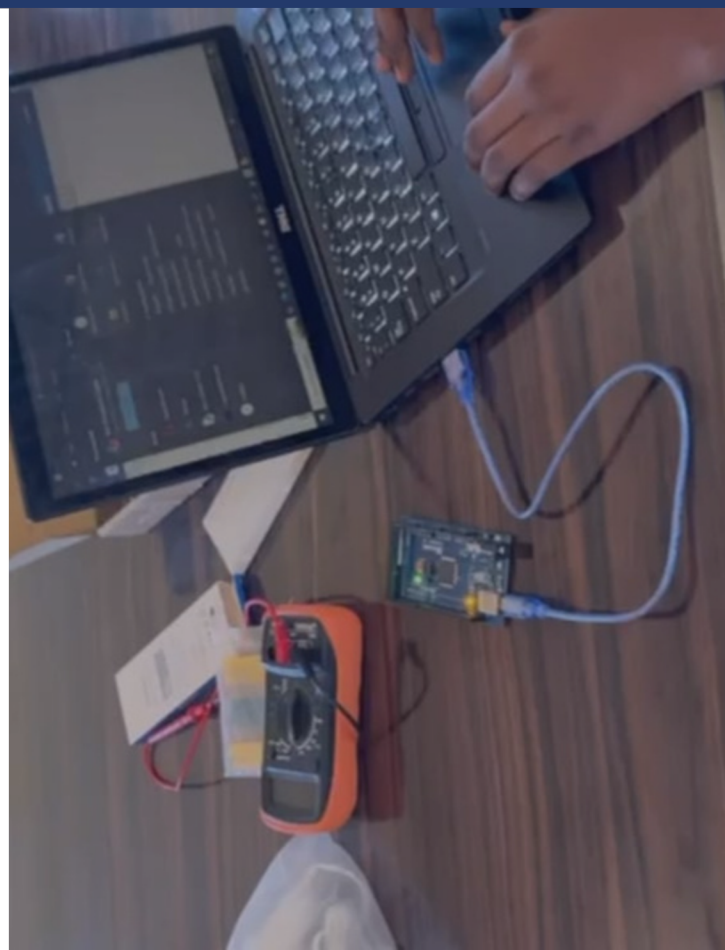
2025 - 2027

Electrical &Electronic Engineering Curriculum



Message from the H

Dear Students, Lecturers, and Readers,

Welcome to the official magazine of the Electrical and Electronic Engineering (EEE) Department. This magazine is more than just pages filled with information—it's a reflection of who we are as a department, and what we stand for.
Our curriculum is designed to challenge and inspire, balancing theory with hands-on experience to prepare our students for the real world. Whether you are passionate about power systems, telecommunications, automation, or emerging technologies, we are committed to equipping you with the knowledge and skills so that you can advance in your career and benefit society with what you have learned from here.

But beyond coursework, our department is planing to become a hub of innovation and research in the near future. We are paving the way the process to make our Lecturers and students to actively involve in projects that push boundaries and contribute to advancements in the field. We encourage curiosity, creativity, and collaboration—because engineering isn't just about solving problems; it's about shaping the future.

Head of Department

To our students:
make the most of your time here. Explore, experiment, and don't be afraid to challenge yourself. Your journey in engineering is just beginning, and the opportunities ahead are limitless.
Thank you for being part of the EEE family.
Let's continue to learn, innovate, and make an impact.

Ridwan I Hassan
Head of the Department
Electrical and Electronic Engineering

IN THIS CONTENT

AIMS

- Help students become knowledgeable, principled, and reflective thinkers capable of solving complex engineering problems.
- Offer a challenging and balanced curriculum that combines theoretical and practical knowledge.
- Teach active learning, critical thinking, and open inquiry to develop innovative engineers.
- Provide opportunities for professional growth through state-of-art facilities and continuous staff development.

PROGRAM GOALS

- Equip Graduates for Global Competence
- Foster Research and Innovation
- Develop Communication Skills
- Support sustainable Development

STUDENT OUTCOMES

- Identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline.
- Formulate or design a system, process, procedure or program for the intended purpose within realistic constraints, such as economic, environmental, and social factors.
- Develop and conduct experiments or test hypotheses, analyse and interpret data and use scientific judgment to draw conclusions.
- Communicate effectively with a range of audiences.
- Understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.
- Function effectively on teams that establish goals, plan tasks, meet deadlines, and analyse risk and uncertainty.

EDUCATIONAL OBJECTIVES

Develop Technical Expertise

Promote Ethical Leadership

Encourage Lifelong Learning

Support Holistic Development

Maintain Global Standards

Contribute to Community Development

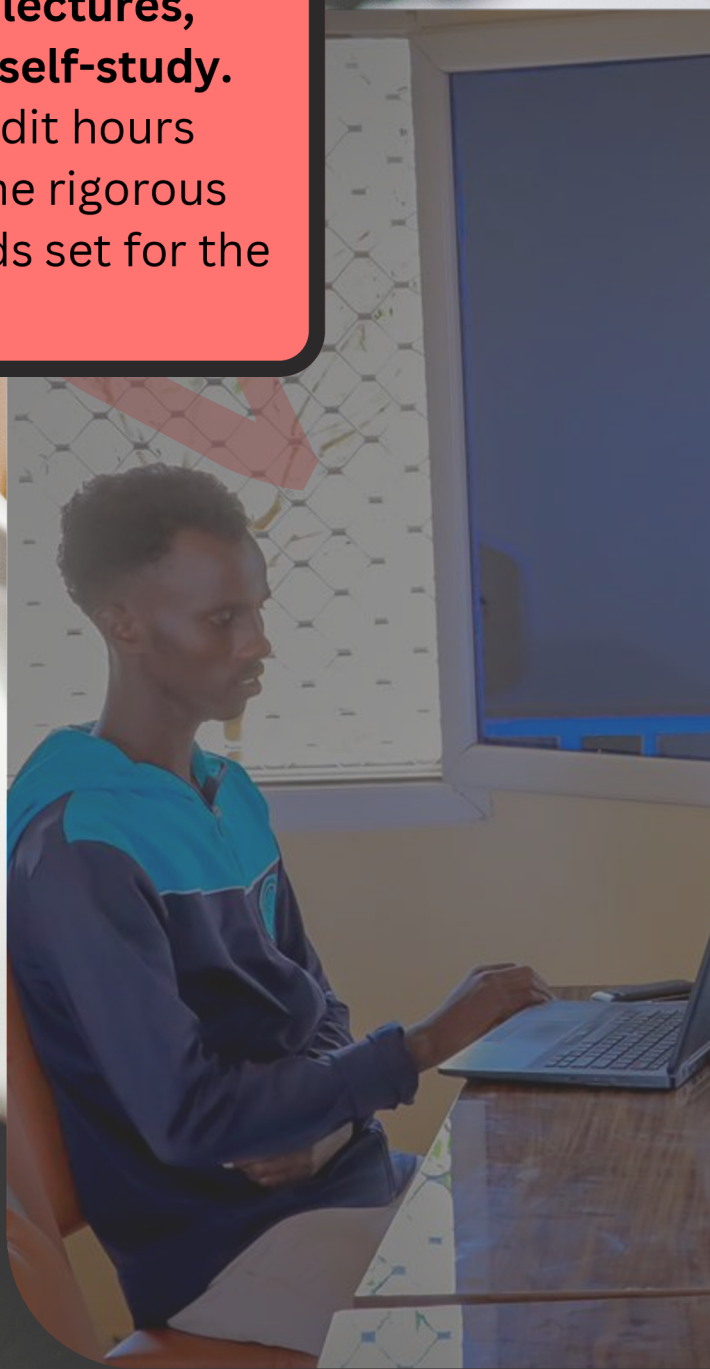
Enhance Employ-ability and Entrepreneurship

Sakarie Yasin Saleban
Student

Jama Abdirahman Salah
student

CREDIT HOURS

To earn the Bachelor's degree in Electrical and Electronic Engineering, students are required to complete a total credit hours between **450-720**. Each credit hour represents 10 hours of academic effort, which **includes lectures, practical work, Assessments, and self-study.** Successfully achieving these credit hours ensures that students have met the rigorous academic and professional standards set for the program.



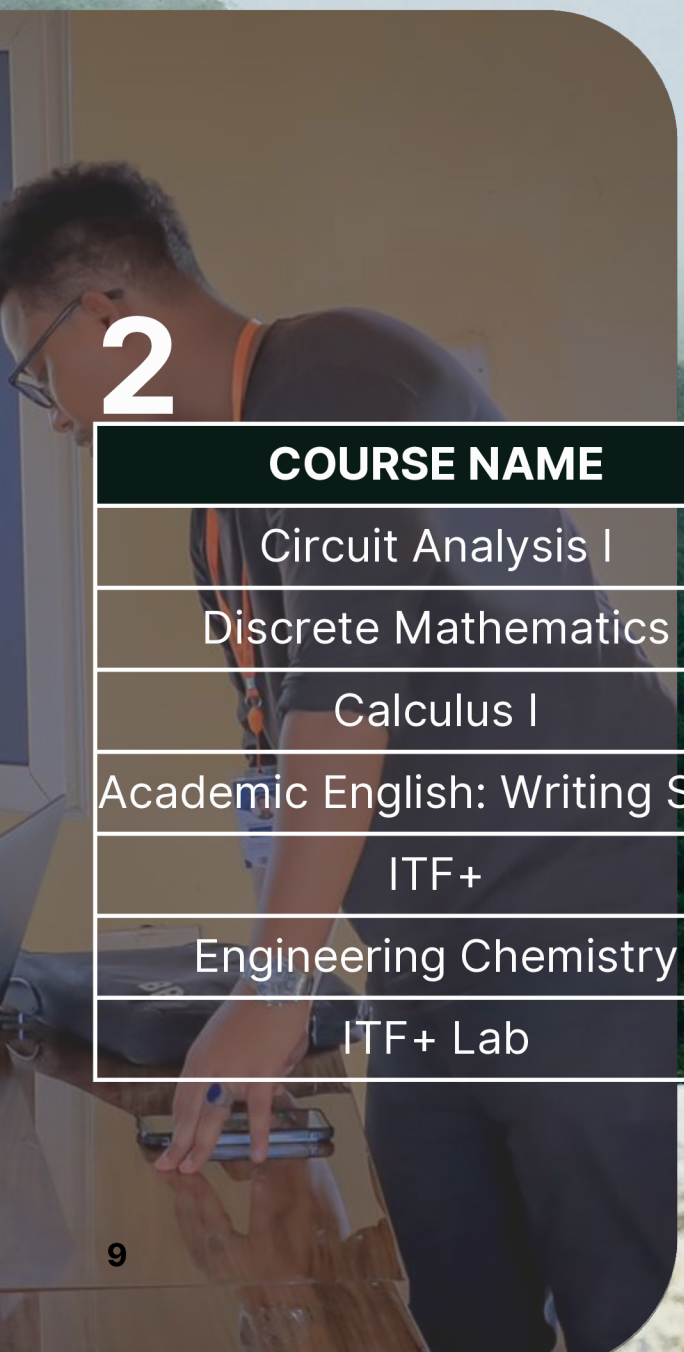
CURRICULUM COURSES *of the EEE*

1

COURSE NAME
Introduction to EEE
Programming I: C
Pre-calculus
Academic English: Grammar & Vocubulary
Microsoft Office for Professionals
Introduction to Linux Os
C Lab

YEAR-1 TRAININGS

- University Studies Life



2

COURSE NAME
Circuit Analysis I
Discrete Mathematics
Calculus I
Academic English: Writing Skills
ITF+
Engineering Chemistry
ITF+ Lab

3

COURSE NAME
Programming II: Python
Academic English: Communication Skills
Circuit Analysis II
Calculus II
Fundamentals of Networking
Electronics I
Electronics I Lab

4

COURSE NAME
Fundamentals of Classical Mechanics
Electrical Wiring and Workshop
Advanced Engineering Mathematics
Academic English: Reading Skills
Electronics II
Introduction to Electromagnetism
Electronics II Lab

YEAR-2 ELECTIVES & TRAININGS

- Environmental Sensors and Monitoring
- Smart Cities
- MATLAB

5

COURSE NAME
Environmental Engineering
Signal and System
Electromagnetism Fields and Waves
Data Communication systems
Microprocessors and Embeded Systems
Introduction to Telecommunications
Signal and System Lab

YEAR-3 ELECTIVES & TRAININGS

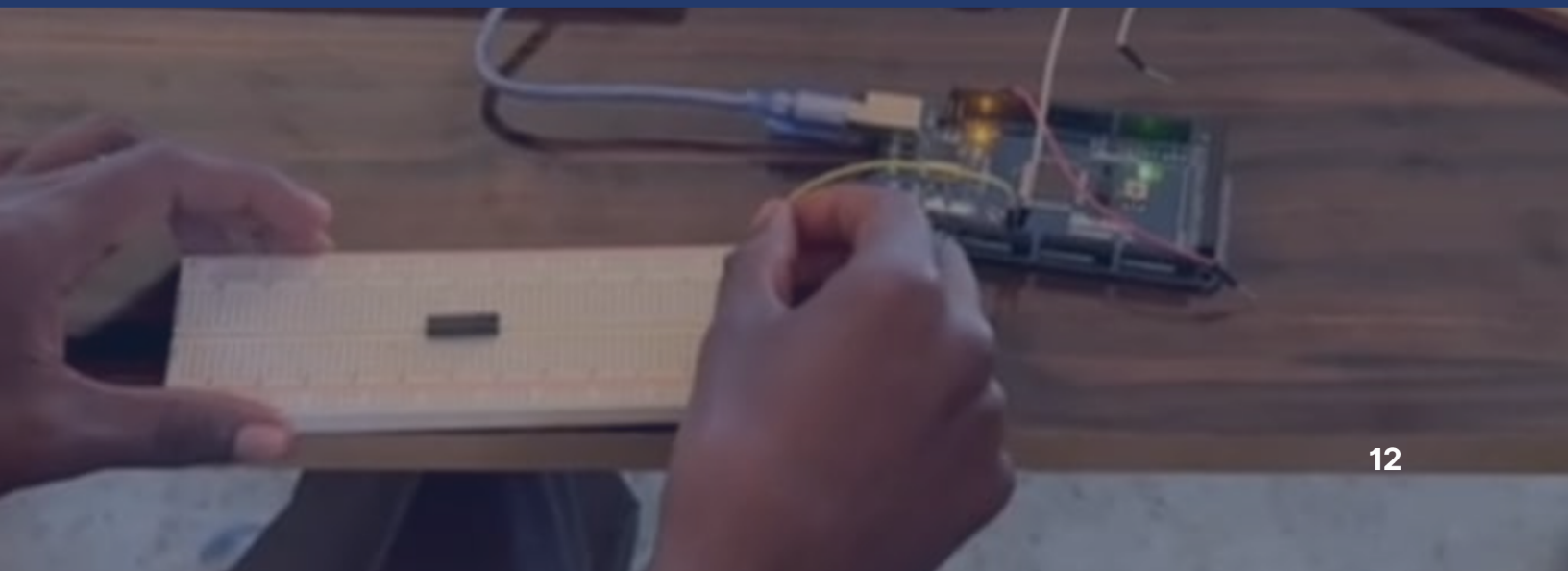
- Machine Learning
- Big Data
- Internet of Things

6

COURSE NAME
Solar Energy System
Digital Signal Processing
Artificial Intelligence for Engineers
Engineering Management, and Economics
Control Theory
Research Methodology
Solar Energy System Lab
Digital Signal Processing Lab

Specialization in the FINAL YEAR

In the final year of the Electrical and Electronic Engineering program, students have the unique opportunity to specialize in one of two dynamic fields: Telecommunications or Power Systems. This specialization allows students to tailor their education to align with their career goals and interests. The Telecommunications track focuses on modern communication systems, networking, and signal processing, preparing graduates for roles in the ever-evolving communications industry. On the other hand, the Power Systems track emphasizes electrical power generation, distribution, and sustainable energy solutions, equipping students with the expertise to address challenges in energy systems and infrastructure. This choice empowers students to deepen their knowledge and gain a competitive edge in their chosen area of specialization.



MAIN COURSES

Telecommunication

YEAR-4 ELECTIVES & TRAININGS

- Introduction to Cybernetics
- Setellite Communications

7

COURSE NAME
Capstone Project I
Probability and Statistics
5G Wireless Communication
Optical Communication
Antenna and Propagation Theory

8

COURSE NAME
Capstone Project II
Sustianble Engineering - Ethics, Civics, and Responsibilities
Occupational Health and Safety
Cyper-Security

MAIN COURSES

Power Systems

7

COURSE NAME
Capstone Project I
Probability and Statistics
Smart Grid and IoT
Power Electronics
Distribution Systems

8

COURSE NAME
Capstone Project II
Sustianble Engineering - Ethics, Civics, and Responsibilities
Occupational Health and Safety
Electrical Power System

YEAR-4 ELECTIVES & TRAININGS

- Introduction to Cybernetics
- Energy Storage Systems
- Electrical Vehicle Systems
- MicroGrids

FOR EXCELLENCE

Accreditation Standards

The Institution of Engineering and Technology

ABET | Engineering Accreditation Commission

The Department of Electrical and Electronics Engineering (EEE) is committed to maintaining the highest standards of quality in education by adhering to globally recognized accreditation frameworks. Our programs align with the standards set by the Institution of Engineering and Technology (IET), UK, and the Accreditation Board for Engineering and Technology (ABET), USA. These esteemed bodies emphasize a holistic approach to education, focusing on technical excellence, ethical practices, and professional development.

By following these internationally benchmarked standards, the department ensures a rigorous and industry-relevant curriculum that prepares graduates to excel in a dynamic, technology-driven world. Regular program reviews, practical training, and alignment with global best practices enable us to produce professionals with the skills, innovation, and ethical grounding required to contribute meaningfully to society and advance the engineering field.

Join Us in Shaping the Future of Electrical and Electronic Engineering – Where Bright Minds Illuminate Tomorrow

CONTACT US

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