



## Yarmouk University

### Hijawi Faculty for Engineering Technology

# Master's in Electrical Power Engineering

## Program Overview

A Master's degree in Power Engineering focuses on the design, analysis, and management of electrical power systems. The program includes core courses in power system analysis, power electronics, electric machines, control systems, and advanced engineering tools. Students also study renewable energy systems, smart grids, power system protection, and energy storage technologies. Graduates are equipped for careers in power utilities, renewable energy companies, consultancy firms, and research institutions. The program culminates in a comprehensive exam or a thesis which often includes collaborations with the industry to overcome modern power system challenges. Students in the comprehensive exam track are required to conduct additional coursework requirements that account for 9 credit hours.

## Program Importance:

The program offers a comprehensive education in modern power system design, analysis, and management, integrating cutting-edge technologies like renewable energy, smart grids, micro-grids, and energy storage. The program combines rigorous coursework in all power systems aspects, making the graduates highly skilled professionals, ready to tackle challenges in power utilities, renewable energy firms, and consultancy, driving innovation and sustainability in the energy sector.

## Program Objectives:

The MSc program in Power Engineering at Yarmouk University aims to achieve the following objectives:

- Develop advanced technical expertise in the design, analysis, and management of electrical power systems.
- Equip students with practical skills in power system simulation, and renewable energy technologies.
- Foster innovation through research and development in areas such as smart grids, energy storage, and power electronics.
- Promote sustainability by integrating knowledge of renewable energy sources and their implementation in power systems.
- Prepare graduates for leadership roles in the power industry, consultancy firms, and research institutions.
- Enhance problem-solving abilities through complex real-world projects and industry collaboration.
- Encourage lifelong learning and professional development to stay current with evolving technologies and industry practices.

## Targeted Groups and Accepted Majors:

### Targeted Groups:

1. Recent Graduates.
2. Industry Professionals.
3. International Students.

## Accepted Majors:

1. Power System Engineering.
2. Electrical Engineering.
3. Renewable Energy Engineering.
4. Electrical Engineering Majored in Electronics, Telecommunication, or Computer are subjected to additional coursework requirements selected by the department.
5. Related Fields: Degrees that include substantial coursework in electrical power systems and related technologies.

## Job Areas

Graduates of a Master's degree in Power Engineering can pursue careers in various job areas, including:

- 1- Power Utilities: Working in the power industry with companies specialized in generate, transmit, or distribute electricity.
2. Renewable Energy Companies: Specializing in the design, implementation, and management of renewable energy systems like solar, wind, and hydropower.
3. Manufacturing Companies: Developing and producing equipment and components used in power systems, such as transformers, generators, and protective devices.
4. Regulatory and Policy Organizations: Working with government agencies to develop and enforce energy policies and regulations.
5. Consultancy Firms: Providing expert advice on power system design, optimization, and integration of new technologies such as Smart Grid Development, Power Electronics, Machines, Energy storage systems, and Load Management.
6. Research and Development: Conducting innovative research in academic institutions, government agencies, or in private sector.

## Credit Hours and Tuition Fees:

The MSc program in Electrical Power at Yarmouk University consists of 33 Credit Hours. The price of one Credit Hour is 80 JOD for Jordanian students, and 300 USD for Non-Jordanian students.

## Study Plan Overview:

The study plan typically spans for two years and includes a mix of core courses, electives, and a thesis or comprehensive exam for non-theses tracks as follows:

- **Core Courses:** Mandatory courses that provide foundational knowledge in power system engineering. These courses include Power System Operation and Control, Power Electronics, Renewable Energy Systems and Energy Efficiency, Power system Protection, and Advance Mathematics.
- **Elective Courses:** Allow students to tailor their education to specific interests and career goals. These courses include Advance Electric Machine Analysis, Modern Control Theory, Power System Stability, Distribution systems, Smart Grids, Advance High voltage Engineering, Electric Drive Systems, Computational Methods in Power Systems, Power System Quality, Insulation Coordination, and Special Topics in Power systems.
- **Thesis Defense (thesis track):** An assessment to ensure students have a thorough understanding of their field and can effectively communicate their research findings.
- **Comprehensive Exam(non-thesis track):** Comprehensive exam is designed to ensure that students have a thorough and integrated understanding of their field before their graduation. Exam topics are based on courses conducted during the program.

## Contact Information

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