

ENSAM Rabat Comprehensive Information Guide

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Contact Information:

- Address: Avenue de l'Armée Royale, B.P. 6207 - Rabat-Instituts, Rabat, Morocco
- Phone: +212 537 77 19 11
- Email: ensamrabat@um5.ac.ma
- Website: ensam.um5.ac.ma

Table of Contents

1. General Information 2

1.1 School Overview 2

1.2 Contact Information 3

2. Academic Information 3

2.1 Admission Information 3

3. Filiales 4

3.1 Overview 4

3.2 MASTER PROGRAM : 5

3.2.1 Master's in Electrical Engineering 5

3.2.2 Master's in Advanced Mechanics 5

3.2.3 Master's in Management of Innovation and Technology 5

3.3 ENGINEERING CYCLE: 6

3.3.1 ELECTRICAL ENERGY AND DIGITAL INDUSTRY (EEIN) 6

3.3.2 BIOMEDICAL ENGINEERING (GBM) 7

3.3.3 INDUSTRIAL ENGINEERING & DIGITAL TECHNOLOGIES (GITN) 7

OBJECTIVES: 7

- Integrate technical, economic, and management skills. 7
- Understand advanced digital technologies, such as: communication technologies, robot automation, intelligent sensors, software associated with different production functions, maintenance: GMAO, ERP, SAP, etc. 7
- Optimize costs and quality throughout the product lifecycle at the level of: procurement and storage; handling; manufacturing (CAD and CAM); quality control; logistics, etc.7

CAREER OPPORTUNITIES:

7

- Industrial Engineer 7
- Quality Management and Control Engineer 7
- Industrial Process and Performance Engineer 7
- Logistics and Supply Chain Management Engineer 7
- Inventory and Procurement Management Engineer 7
- Industrial Maintenance and Safety Engineer 7

3.3.4 MATERIALS ENGINEERING QUALITY & ENVIRONMENT (GMQE) 8

OBJECTIVES:

8

- Master the characteristics of different material families (metals and alloys, polymers, ceramics, composites, etc.) based on the existing relationships between their microscopic structures and macroscopic properties, for various types of applications. 8
- Master the consideration of the environmental aspect through an approach that allows the evaluation of impacts and their evolution according to various parameters. 8
- Master the adoption of Management systems (according to their nature) by following recognized standards allowing organizations to evolve towards an improvement of their performance. 8

CAREER OPPORTUNITIES:

8

- Production Engineer 8
- Design and Engineering Office Engineer 8
- Maintenance Engineer 8
- Quality, Safety, and Environmental Engineer 8
- Research and Development Engineer 8
- Engineer in maintenance and technical support services 8

3.3.5 MECHANICAL ENGINEERING (GM) 8

3.3.6 Aeronautical Mechanical Engineering (IMIA) 9

3.3.7 Digital Engineering in Data Science, Artificial Intelligence & Digital Health (INDIA&SD)

10

3.3.8 Energy Systems Engineering (ISE) 11

3.4 Preparatory Classes CYCLE: 11

4. Student Life 13

4.1 Campus Facilities 13

4.2 Extracurricular Activities 13

5. Policies and Procedures 13

6. Financial Information 13

7. Frequently Asked Questions (FAQ) 13

1. General Information

1.1 School Overview

History: Established in 1980 In 2009, its transfer to Mohammed V University marked a turning point for ENSET. With this transition, the school embarked on a path of continuous improvement, enhancing its development potential and expanding its educational offerings. The establishment of new programs, including six DUTs (University Technology Diplomas), five Professional Licenses, and two Master's degrees, epitomized this growth.

The year 2014 ushered in another significant milestone with the introduction of the new National Educational Standards Framework. This framework paved the way for a revamped educational offering, culminating in the accreditation of three engineering programs: Industrial Design and Production, Electrical Engineering, and Biomedical Engineering. This transformation fueled a remarkable surge in ENSET's stature and influence.

Today, ENSET stands at a crossroads, poised to embrace a paradigm shift as it embarks on its transformation into ENSAM-Rabat. This transformation aims to solidify its position as a national leader in engineering education. Guided by its rich history, extensive experience, and profound expertise, the school aspires to continue playing a pivotal role in nurturing future leaders in the fields of technology and engineering.

Unwavering commitment is evident in the efforts dedicated to ensuring that ENSET remains a dynamic, innovative, and creative institution. With unwavering ethical and professional principles, the school fulfills its educational and research missions. It fosters an inclusive environment that embraces openness, cooperation, and partnerships with local, regional, continental, and international communities.

ENSAM Rabat (École Nationale Supérieure d'Arts et Métiers) is a premier engineering school in Morocco, dedicated to providing high-quality education and research opportunities in engineering and applied sciences.

ENSAM Rabat, also known as the National School of Arts and Crafts of Rabat, plays a vital role in Morocco's development plans. The school has a strong reputation for providing technical education and expertise for over 42 years [3]. The credit for this success goes to the dedication of its faculty and staff over the years [4].

ENSAM Rabat is committed to supporting Morocco's strategic goals, particularly those focused on building a knowledge-based society and driving economic and commercial growth [2].

The school's director, Pr. Samir Belfkih, is dedicated to maintaining this legacy and fulfilling the trust placed in ENSAM Rabat [1]. Looking ahead, he has ambitious plans for the school's development over the next four years. These plans include:

- **Strengthening scientific research** within the institution [5].
- **Enhancing the quality of education** across all programs, including undergraduate degrees, continuing education courses, masters programs, and doctoral programs [5].
- **Developing the school's industry focus** to better prepare students for the workforce [5].
- **Enriching student life** for a well-rounded educational experience [5].

Mission Statement: To educate future leaders in engineering, foster innovation, and contribute to the socio-economic development of Morocco.

Accreditations: ENSAM Rabat is accredited by the Ministry of Higher Education, Scientific Research, and Innovation of Morocco.

1.2 Contact Information

Main Office:

Address: Avenue de l'Armée Royale, B.P. 6207 - Rabat-Instituts, Rabat, Morocco

Phone: +212 537 77 19 11

Email:

ensamrabat@um5.ac.ma

Departments:

- Health Technologies Engineering
- Electrical Engineering Mechanical
- Engineering Applied Mathematics and Computer Engineering
- Energy and Environmental Engineering
- Economics and Management
- Languages, Communication, and Education Sciences

2. Academic Information

2.1 Admission Information

Requirements: * High school diploma with a strong background in mathematics and science. * Entrance exam scores. * Personal statement and letters of recommendation.

Application Process: * Online application through the ENSAM Rabat portal. * Submission of required documents. * Interview (if applicable).

Deadlines: all informations are displayed in ensam's website : <http://ensam.um5.ac.ma>

3. Filiales

3.1 Overview

ENSAM Rabat has several specialized filiales focusing on different branches of engineering. Each filiale offers unique programs tailored to meet industry needs.

3.2 MASTER's PROGRAM :

3.2.1 Master's in Electrical Engineering

This program focuses on the principles and applications of electrical engineering, encompassing topics such as:

- **Electronics:** Design and analysis of electronic circuits, devices, and systems
- **Electromagnetics:** Electromagnetic fields, waves, and their interactions with matter
- **Power Systems:** Generation, transmission, and distribution of electrical power
- **Control Systems:** Analysis and design of control systems for various applications
- **Communication Systems:** Principles and techniques of data transmission and communication

3.2.2 Master's in Advanced Mechanics

This program delves into the advanced concepts and applications of mechanics, covering areas such as:

- **Solid Mechanics:** Analysis of stress, strain, and deformation in solids
- **Fluid Mechanics:** Study of the behavior of fluids, including flow, pressure, and forces
- **Dynamics:** Analysis of motion and its causes, including forces, inertia, and energy

- **Materials Science:** Properties and behavior of engineering materials
- **Computational Mechanics:** Use of computational methods to solve complex mechanical problems

3.2.3 Master's in Management of Innovation and Technology

This program equips students with the skills and knowledge to manage innovation and technology effectively. It covers topics such as:

- **Innovation Management:** Strategies, processes, and tools for managing innovation
- **Technology Management:** Acquisition, development, and implementation of new technologies
- **Entrepreneurship and Innovation:** Creating and launching new ventures based on innovative ideas
- **Intellectual Property Management:** Protecting and commercializing intellectual property
- **Innovation Policy:** Government policies and programs that support innovation

3.3 ENGINEERING CYCLE:

3.3.1 ELECTRICAL ENERGY AND DIGITAL INDUSTRY (EEIN)

OBJECTIVES:

- To train new generations of engineers capable of facing the new global revolutions: digital, energy, and industrial.
- Programming and mastery of embedded and connected electronics.
- Modeling, virtualization, and prototyping of mechatronic systems.
- Mastery of connected object technologies and intelligent systems.
- Support for sectors of activity in the digitalization process.
- Sizing and installation of a Smart-Grid/Micro-Grid station.
- Optimization and diversification of renewable energy supply sources.
- Autonomous management of sources/loads associated with electrical networks.
- Supervision, control, and safety within the electrical network.
- Automatic control and supervision of industrial systems.
- Industrial diagnostics and maintenance.
- Industrial project management.

- Mastery of quality and safety in industrial production.

CAREER OPPORTUNITIES:

- Integrate into a wide range of sectors of activity:
 - Automotive industry
 - Aeronautics sector
 - Energy sector
 - Electronics sector
 - Digital technology sector •

Occupy various positions such

as:

- Production-operations engineer
- Design and consulting engineer
- Research and development engineer
- Entrepreneur, start-up
- Project manager and business manager

3.3.2 BIOMEDICAL ENGINEERING (GBM)

OBJECTIVES:

- To train generalist biomedical engineers who possess both the technical and scientific knowledge of an engineer and the knowledge of the specificities of the medical field, capable of applying the most advanced sciences and techniques to:
 - Design, installation, and maintenance of medical devices;
 - Management of the hospital biomedical service and consultation for the purchase of biomedical equipment;
 - Study, development, and integration of biomedical engineering solutions and staff training...

CAREER OPPORTUNITIES:

- Research and development engineer;
- Hospital biomedical service manager;
- Engineer in a maintenance and technical support service;
- Design and engineering office engineer;

- Quality, safety, and environmental engineer.

3.3.3 INDUSTRIAL ENGINEERING & DIGITAL TECHNOLOGIES (GITN)

OBJECTIVES:

- Integrate technical, economic, and management skills.
- Understand advanced digital technologies, such as: communication technologies, robot automation, intelligent sensors, software associated with different production functions, maintenance: GMAO, ERP, SAP, etc.
- Optimize costs and quality throughout the product lifecycle at the level of: procurement and storage; handling; manufacturing (CAD and CAM); quality control; logistics, etc.

CAREER OPPORTUNITIES:

- Industrial Engineer
- Quality Management and Control Engineer
- Industrial Process and Performance Engineer
- Logistics and Supply Chain Management Engineer
- Inventory and Procurement Management Engineer
- Industrial Maintenance and Safety Engineer

3.3.4 MATERIALS ENGINEERING QUALITY & ENVIRONMENT (GMQE)

OBJECTIVES: • Master the characteristics of different material families (metals and alloys, polymers,

ceramics, composites, etc.) based on the existing relationships between their microscopic structures and macroscopic properties, for various types of applications.

- Master the consideration of the environmental aspect through an approach that allows the evaluation of impacts and their evolution according to various parameters.
- Master the adoption of Management systems (according to their nature) by following recognized standards allowing organizations to evolve towards an improvement of their performance.

CAREER OPPORTUNITIES:

- Production Engineer
- Design and Engineering Office Engineer
- Maintenance Engineer
- Quality, Safety, and Environmental Engineer
- Research and Development Engineer
- Engineer in maintenance and technical support services

3.3.5 MECHANICAL ENGINEERING (GM)

OBJECTIVES:

- Master the methods and means of industrial design.
- Master industrial production processes.
- Master mechanical modeling and simulation methods.
- Master the automation and control of industrial production systems. • Master project and business management.

CAREER OPPORTUNITIES:

- Mechanical Engineer
- Industrial Design Engineer (Study)
- Industrial Production Engineer (Method)
- Industrial Maintenance Engineer
- Industrial Systems Automation Engineer

3.3.6

Aeronautical Mechanical Engineering (IMIAe)

OBJECTIVES:

- Prepare engineering students for the current and future challenges of the aeronautical sector.
- Acquire the essential scientific and technical foundations for the profession of aeronautical engineer to design, test, manufacture, maintain, and market airplanes, drones, and helicopters (civil or military).
- Acquire the practical knowledge to understand the tools and methods of engineering, project management in teams,
- Acquire operational skills through internships in companies.

CAREER OPPORTUNITIES:

- **DESIGN ENGINEER:** Responsible for designing and developing aircraft components, systems, and structures.
- **PRODUCTION SUPPORT ENGINEER:** Provides technical support to manufacturing processes, ensuring the quality and efficiency of production.
- **PRODUCTION MANAGER:** Oversees the entire production process, from planning and scheduling to quality control and delivery.
- **MAINTENANCE ENGINEER:** Performs maintenance tasks on aircraft and aircraft systems to ensure their safe operation.
- **ADMINISTRATIVE SUPPORT ENGINEER:** Provides administrative and technical support to engineering projects.
- **SALES ENGINEER:** Works with customers to identify their needs and sell them aeronautical products and services.

Digital Engineering in Data Science, Artificial Intelligence & Digital Health (INDIA&SD)

OBJECTIVES:

- Support the development of the national and international digital ecosystem by offering technological and digital engineering solutions for:
 - Accelerating the digital transition, particularly in the healthcare sector

3.3.7

- Ensuring vertical networking of intelligent production systems, different intelligent services, and production data for the healthcare sector
- Designing, developing, and deploying Data Science, Big Data, and Artificial Intelligence solutions and their applications in various fields, especially in the healthcare sector
- Mastering technologies and development frameworks for Big Data and Artificial Intelligence solutions
- Mastering algorithms and tools for data science and data visualization and their applications in the healthcare sector
- The ability to lead, develop, and manage an IT project within a healthcare institution

CAREER OPPORTUNITIES:

- Healthcare decision-makers
- E-health engineers
- Data Scientist
- Data Engineer
- Data Officer
- IT project manager in a healthcare institution
- Big Data developer
- Analytics and visualization consultant
- AI engineer
- Digitalization engineer
- Digital solution integrator
- Decision engineer or consultant

Energy Systems Engineering (ISE)

OBJECTIVES:

- Master the processes of energy management and energy efficiency.
- Be able to solve problems related to energy production and distribution.
- Size solar thermal, solar thermodynamic, and wind power installations and conduct energy audits.
- Provide expertise in the design of energy systems.
- Propose diagnostics of installations and find solutions to save energy in the building sector as well as in all industries.
- Analyze the impact of technological innovations on the performance of energy systems.
- Integrate the international market, particularly the African market, in the field of energy.

3.3.8

CAREER OPPORTUNITIES:

- Engineer in energy production and control services.
- Heating, Ventilation, and Air Conditioning (HVAC) Engineer.
- Energy and environmental engineer.
- Hydraulics and Sanitation Engineer.
- Energy audit engineer.
- Energy sales engineer.
- Thermal engineer.
- Energy efficiency engineer.

3.4 Preparatory Classes CYCLE:

Overview

The École Nationale Supérieure d'Arts et Métiers de Rabat (ENSAM-RABAT) offers a comprehensive five-year training program accessible to students after high school through a competitive entrance exam. This program includes an integrated preparatory cycle that aims to provide students with the essential scientific, technical, and human foundations for the engineering cycle.

Key Objectives

The main objectives of this preparatory program are multifaceted:

1. **Acquire fundamental knowledge in mathematics, physics, and chemistry, as well as general engineering tools:** By delving into these subjects, students are able to develop a solid foundation of technical and scientific knowledge.

2. **Strengthen students' autonomy and methodological know-how:** These skills are essential to foster their ability to independently carry out projects and solve complex problems.
3. **Develop computer skills:** This is a key aspect of this training, given the growing importance of information technology in the field of engineering.
4. **Cultivate rigor of reasoning and work:** This is a fundamental aspect that is nurtured throughout the program. Students are encouraged to adopt a methodical and rigorous approach in their thinking and actions, preparing them to tackle professional challenges with precision and efficiency.
5. **Promote open-mindedness and adaptability:** This is particularly important during the first year, which represents a transition period between high school and engineering school. This initial period aims to encourage students to develop their adaptability to new academic demands and broaden their worldview to adapt to the ever-changing field of engineering. This diverse foundational training plays a crucial role in preparing future ENSAM-RABAT engineering students to be highly adaptable professionally.
6. **Strengthen the teaching of technical languages:** This includes French and English. Students are grouped into classes and follow courses, tutorials, and practical work, while also being involved in a final interdisciplinary project.

Additional Notes

- The preparatory cycle at ENSAM-RABAT is a rigorous and demanding program that prepares students for the challenges of engineering studies and future careers.
- The program emphasizes the development of strong technical skills, critical thinking abilities, and problem-solving abilities.
- Students also gain valuable experience in teamwork, communication, and project management.
- Graduates of the program are well-prepared for a wide range of engineering careers in both the public and private sectors.

4. Student Life

4.1 Campus Facilities

- **Library:** A state-of-the-art library with extensive resources.

- Labs and Classrooms: Modern labs and classrooms equipped with the latest technology.
- Housing: On-campus and nearby off-campus housing options.

4.2 Extracurricular Activities

- Clubs and Organizations: Over 20 student clubs ranging from robotics to arts.
- Sports: Facilities for football, basketball, tennis, and more.
- Events: Annual engineering fair, hackathons, and cultural festivals.

5. Policies and Procedures

- Academic Policies: Details on grading, attendance, and academic integrity.
- Student Conduct: Code of conduct and disciplinary procedures.
- Safety and Security: Campus safety measures and emergency procedures.

6. Financial Information

- Tuition Fees: Detailed breakdown of tuition and other fees.
- Financial Aid: Information on scholarships, grants, and financial aid options.
- Payment Plans: Available payment plans for students.

7. Frequently Asked Questions (FAQ)

- Question: What are the admission requirements?
 - Answer: High school diploma, entrance exam scores, personal statement, and letters of recommendation.
- Question: What programs are offered?
 - Answer: Undergraduate and graduate programs in Mechanical, Electrical, and Industrial Engineering.
- Question: Est-ce qu'il y a une internat a l'ecole?
 - Answer: Oui.