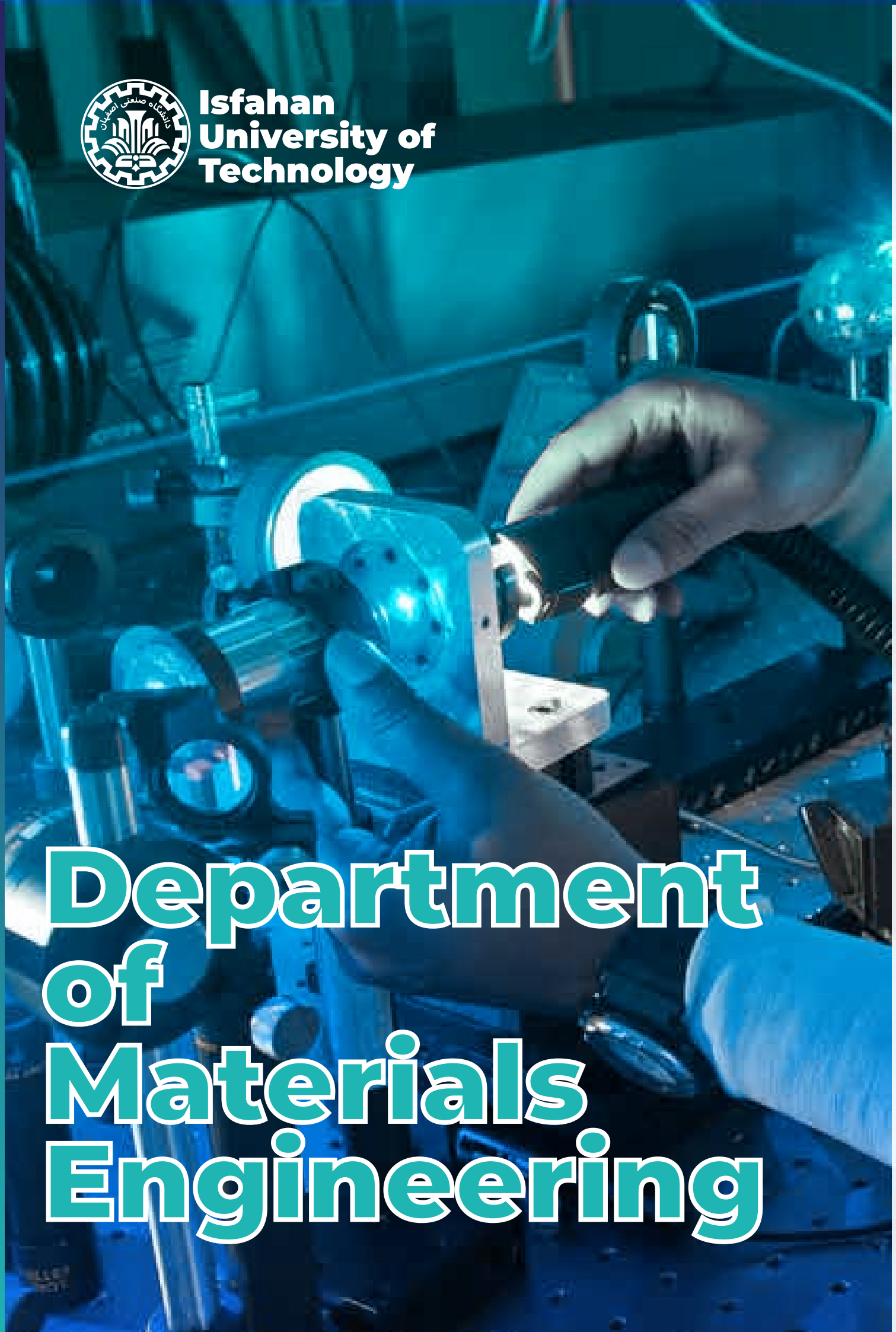

Isfahan University of Technology

Department of Materials Engineering

In The Name of God

Contents

	Page
Overview	1
Degree Programs	3
Program Structures	7
Program Objectives	7
Research Cores	9
Interdisciplinary Approaches	11
National and International Collaborations	11
A Profile of the Labs	14

Overview

The Department of Materials is currently recognized as one of the leading Departments in Iran with over 50 full-time faculty members including academic staff, technician and administrative staff. This Department offers undergraduate and graduate programs with over 580 students currently studying at bachelor, master and PhD academic levels.

The goal of the Department is to offer a comprehensive understanding of all aspects associated to the processing and applications in Materials Engineering today. Current academic staffs work on multidisciplinary projects ranging from the design, fabrication, and processing of materials for several industries such as ferrous and nonferrous, automotive, energy, aerospace to nano- and bio-based materials for medical applications.

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Department of Material Engineering

Degree Programs

B.Sc

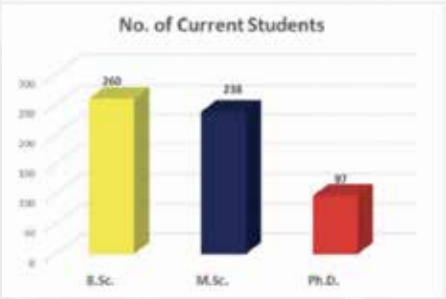
- *Materials Engineering*

M.Sc

- *Materials Engineering - Extractive Metallurgy*
- *Materials Engineering - Identification & Selection of Materials*
- *Materials Engineering - Corrosion & Protection*
- *Materials Engineering – Welding*
- *Materials Engineering – Casting*
- *Materials Engineering - Biomaterials*

Ph.D

- *Materials Engineering*
- *Biomedical Engineering – Biomaterials*
- *Nanotechnology Engineering – Nanomaterials*

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Program Structures

All of our undergraduate courses follow a core series of modules. To accomplish a successful B.Sc. in Materials Engineering, undergraduate students must take a total of 140 credits. Experimental work is a core part of most courses, through which a series of laboratory tutorials and key techniques in practical setting are introduced. These will provide students with a strong base of theoretical principles.

Graduate students must take 13 credits in compulsory courses, 9 credits from elective courses, 2 credits for seminar and 6 credits from a thesis, overall 28 credits to receive M.Sc. degree.

The Ph.D program consists of 16 credits in relevant courses and 20 credits of dissertation. Students must pass the written and oral examinations after completion of the required modules.

Program Objectives

Materials engineering is an interdisciplinary subject, covering the physics, chemistry and mechanics of matter, engineering applications and industrial manufacturing processes. Materials-based teaching focuses on applied science with a great emphasis on practical works. Materials scientists study the fundamentals of matter, both its structure and its properties and use the knowledge towards manipulation of existing materials and also development of improved ones to meet engineering specifications. The scope of Materials Engineering is huge, covering almost all areas of science. The subject enables the study of a diverse range of materials including metals, alloys, composites, ceramics, polymers, nanomaterials and biomaterials.


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WARNING !
HOT Surfaces
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Research Cores

- **Advanced Materials**

  Advanced materials are found in all classes of materials: ceramics, metals, polymers and organic molecules. The research activities within this group include; Functional Materials with native characteristics; Ceramics and Glasses; Nanoscience and Nanotechnology; Biomaterials and Tissue Engineering. A large portion of our work focuses on the physiochemical, mechanical and biological aspects of functional and advanced materials. The main emphasis is on the design, fabrication and characterization of materials and devices, at advanced level, for potential industrial applications.

- **Surface Engineering and Corrosion**

  The Surface Engineering and Corrosion Group (SECG) is hosted by Department of Materials Engineering, at Isfahan University of Technology. The group research lines are Surface Engineering and Functionalization, Coatings, Nanomaterials, Corrosion, and Applied Electrochemistry in collaboration with different industries from aeronautics, automotive, biomedical, oil & gas and energy sectors.

- **Materials Processing and Fabrication**

  The main focus of the group lies on the development of new alloys, extracting metals from their ores to make refined alloys, and physical metallurgy, production methods, heat treatment, joining, and testing metals.


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Interdisciplinary Approaches

The Department presents an interdisciplinary approach to curriculum integration planning in both teaching and research that generates an understanding of different subjects and ideas that cut across disciplines and of the connections between different disciplines and their relationship to the real world. It normally emphasizes on combining contents, theories, methodologies and perspectives from two or more disciplines.

National and International Collaborations

The main application sectors categorized by our research are; construction, automotive and aerospace, energy and utilities, and healthcare. The strong support and involvement of industrial organizations enable a high quality research within the Department. These organizations include; Oil and Gas, Automotive, Petro-chemical, Steel and Aluminium, and biomaterials. In addition, the Department has close International Collaborations with Universities from the United States, Canada, United Kingdom, Germany and East Asia. These close collaborations with both industry and international institutes, alongside our facilities, ensure that the Department is at the head of Materials Engineering research.


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A Profile of the Labs

The Department is equipped with modern equipment and facilities for almost all disciplines of research such as Scanning Electron Microscopy (SEM), X-ray Diffraction (XRD), Spark Plasma Sintering (SPS), Vacuum Induction Melting (VIM), Vacuum Arc Remelting (VIR), Physical Vapor Deposition (PVD), Chemical Vapor Deposition (CVD), Potentiostats/ Galvanostats, Hot Corrosion Cells, High Temperature Creep, Fatigue and Welding machines, Various Molding and Casting Machines, Hot Rolling Machine, Differential Thermal Analysis (DTA), Thermal Gravimetric Analysis (TGA), Room and High Temperature Wear Tester Machines, Tribo Corrosion Tester Machine.

We would like to express our gratitude to faculty members of the Department of Materials Engineering, and colleagues at International and Scientific Cooperation Center (ISCC) for sincere assistance in providing the Prospectus.

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