2025-2026 ACADEMIC YEAR ORIENTATION FOR NEW STUDENTS

January 2026

ANKARA YILDIRIM BEYAZIT UNIVERSITY

METALLURGICAL AND MATERIALS ENGINEERING

Table of Contents

1. General Information About the Department

Ankara Yıldırım Beyazıt University Department of Metallurgical and Materials Engineering was established in 2011 and offers 100% English undergraduate, graduate, and doctoral programs. Education is carried out with the support of modern classrooms and laboratories located on the Etlik campus, as well as the Central Research Laboratory (MERLAB). Our students receive one year of English preparatory education. Students who successfully complete the preparatory education are entitled to start their undergraduate education in Metallurgical and Materials Engineering. Our department is located in the 15 July Building in Etlik, Ankara.

What is Metallurgical and Materials Engineering? Metallurgical and Materials Engineering is an applied branch of engineering that studies the structure, properties, production, processing, and usage of materials. It covers many types of materials including metals, ceramics, polymers, composite materials, and nanomaterials. This engineering field investigates the atomic-level structure of a material, as well as its mechanical, electrical, optical, and thermal properties, aiming to design materials for better performance.

What Do They Do? Metallurgical and Materials Engineers are involved in the production and shaping of metals and alloys. Enable the development of advanced technology materials such as ceramics, glass, polymers, and composites. Provide solutions to make products more durable, lightweight, and resistant to heat, corrosion, and wear. Take part in the design of special materials used in sectors such as defense, automotive, biomedical, and electronics. Carry out quality control, testing, and analysis of materials. Optimize production processes and develop sustainable technologies.

Why AYBU Metallurgical and Materials Engineering?

- **Internationally Recognized Education:** Access to international opportunities in both academic and professional life through a 100% English program.
- **Strong Academic Staff:** A dynamic team consisting of 4 professors, 4 associate professors, 3 assistant professors, and research assistants.
- **Modern Laboratories:** Advanced laboratory infrastructure including metallography, ceramics, electron microscopy, and X-ray diffraction.
- **Industry Collaboration:** Close contact and cooperation with sectors such as defense, automotive, aerospace, and energy.

International-Level Educational Environment: The language of instruction is 100% English, and the English preparatory school is located on the university campus. In addition to undergraduate education, academic career opportunities are offered through master's and doctoral programs under the Institute of

Science. There are also opportunities to study abroad through student exchange programs such as Erasmus and Mevlana.

Fields of Work and Career Opportunities

Job opportunities for Metallurgical and Materials Engineers are quite extensive. They can work in various positions in both the private and public sectors. Here are some detailed areas:

- **Aerospace Industry:** Development of lightweight and durable materials used in aircraft and spacecraft.
- **Automotive:** Production of engine parts, body materials, and safety components.
- **Energy:** Special materials for solar panels, wind turbines, and nuclear energy systems.
- **Defense Industry:** Durable composites for armor, rocket bodies, and weapon systems.
- **Biomedical Applications:** Development of biocompatible materials such as orthopedic implants, dental implants, and stents.
- **Electronics and Semiconductor Sector:** High-performance conductors, microchip production, battery technologies.
- **Academia and R&D:** Academic positions at universities, conducting research projects related to materials science and engineering, project-based work with institutions such as TÜBİTAK and the Ministry of Industry.
- **Quality Control and Inspection:** Material testing, quality assurance systems, and compliance with standards.
- **Production and Design Engineering:** Material selection, planning and improvement of production processes.

Advice for Students Who Will Choose This Department

- **Be curious:** Understanding how materials behave from the atomic level to the macro scale will set you apart in this profession.
- **Think interdisciplinarily:** Knowledge of physics, chemistry, and mathematics is highly valuable in this field.
- **Learn English:** It is essential for working with academic publications and global companies.
- **Intern:** Internships are crucial for getting to know the industry and gaining experience.

- **Stay connected with technology:** Improve your skills in simulation programs, microscopes, analytical devices, and software.

Web Sitesi: aybu.edu.tr/metalurjimalzememuh

2. Course Structure and Academic Program

The undergraduate program consists of fundamental engineering courses, mandatory courses related to materials science, and various technical elective courses.

1st TERM

Code	Course	Credits
CHEM101	GENERAL CHEM	5
ENG103	ACADEMIC ENGLISH I	2
MATH101	CALCULUS I	6
MSE101	INTRO TO MAT'S EN	2
MSE103	CAD	5
PHYS101	PHYSICS I	4
PHYS103	PHYSICS LAB I	2
TDL101	TÜRK DİLİ I	2
TİT101	TÜRK İNKILAP TARİHİ I	2

2nd TERM

Code	Course	C/E	ECTS
CHEM102	ANALYTICAL CHEM	C	3
ENG104	ACADEMIC ENG II	C	2
MATH102	CALCULUS II	C	6
MSE102	COMP PROG	C	6
MSE106	STATICS	C	3
PHYS102	PHYSICS II	C	4
PHYS104	PHYSICS LAB II	C	2
TDL102	TÜRK DİLİ II	C	2
TİT102	İNKILAP TARİHİ II	C	2

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3rd TERM

Code	Courses	O/E	ECTS
ENGR206	SCIENCE, TECH AND	S	3
ENGR251	ENGINEERING ETHICS	S	3
ENGR265	OCCUP HEALTH AND S SCIENCE	Z	3
ENG201	TECHNICAL ENGLISH I	Z	4
MATH201	DIFFERENTIAL EQ	Z	6
MSE201	MATERIALS SCIENCE I	Z	6
MSE203	THERMODYNAMICS OF MATERIALS I	Z	6
MSE211	PHYSICAL MEASURE	S	4

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Courses – First Year

Courses – Second Year

4th TERM

CODE	Course	C/E	ECTS
ENGR206	SCIENCE, TECH…	E	3
ENGR210	SOCIAL ACTIVITIES II	E	3
ENGR266	HEALTH AND SAFETY II	C	3
ENG202	TECHNICAL ENG II	C	4
MATH204	NUMERICAL METHODS	C	5
MSE202	MATERIALS SCIENCE II	C	6
MSE204	THERMODYNAMICS OF MATERIALS II	C	6
MSE208	PHYSICS OF SOLIDS	C	5

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5th TERM

Code	Course	ECTS	O/C
MSE300	PRACTICES I	4	C
MSE301	MATERIALS PROC LAB.I	5	C
MSE303	PROCCESSING OF MATERIALS I	5	C
MSE309	MECHANICAL BEHAVIOUR OF MATERIALS	5	C
MSE311	MATERIALS CHARACTERIZATION	5	C
MSE317	INTRODUCTION TO POLYMERS	5	C

MSE355	CHEMICAL METALURGY	4	E
MSE361	NUCLEATION AND SOLIDIFICATION	4	E

Courses – Third Year

6th TERM

CODE	Course	C/E	ECTS
MSE302	PROCESSING LAB. II	C	5
MSE304	PROCESSING OF MATERIALS II	C	5
MSE306	PHASE RELATIONS AND DIAGRAMS	C	5
MSE312	KINETICS	C	5
MSE316	PHYSICAL METALLURGY	E	4
MSE334	STEEL AND HEAT TREATMENT	E	4
MSE336	INTRODUCTION TO COMPOSITE MATERIALS	E	4
MSE338	MICROSTRUCTURAL EVOLUTION	E	4
MSE340	MODELING	E	4
MSE356	SENSORIAL APPLICATIONS	E	4
MSE370	BIOMATERIALS	E	4

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Courses – Fourth Year

7th TERM

Code	Course	O/C	ECTS
ENGR450	ENGINEERING APPLICATION	S	15
MSE400	INDUSTRIAL PRACTICES II	Z	4
MSE401	NANOTECHNOLOGY AND NANOMATERIALS	S	5
MSE403	SELECTION AND PERFORMANCE OF MATERIALS	Z	5
MSE410	GRADUATION PROJECT	Z	6
MSE413	THIN FILMS	S	4
MSE415	GLASS TECHNOLOGY	S	4
MSE417	POWDER BASED	S	4
MSE431	NOVEL MATERIALS	S	4
MSE435	WASTE MANAGEMENT	S	4
MSE437	METAL FATIGUE AND CREEP	S	4

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8th TERM

Code	Course	C/E	ECTS
ENGR374	STANDARD AND PATENTING	E	5
MSE402	ELECTRICAL ,MAGNETIC AND OPTICAL PROPERTIES OF MATERIALS	C	5
MSE412	GRADUATION PROJECT II	C	4
MSE436	FORENSIC MATERIALS	E	4
MSE438	PROCCESSING AND CHARACTERIZATION OF POLYMERS	E	4

MSE442	CORROSION AND SURFACE PROTECTION	E	4
MSE446	SEMICONDUCTORS	E	4
MSE448	BIOSENSORS	E	4
MSE450	ADVANCED TECHNOLOGY CERAMICS	E	4
MSE452	WELDING TECHNOLOGY	E	4
MSE462	SELECTED TOPICS	E	3
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Non technical
Departmental
Engineering
Basic science

ECTS and Other Requirements for Graduation

To graduate from the Metallurgical and Materials Engineering undergraduate program at Ankara Yıldırım Beyazıt University (AYBU), students must fulfill the following requirements:

- Total ECTS Credits: 240 ECTS
- Cumulative Grade Point Average (CGPA): At least 2.00/4.00
- Graduation Project: Must be successfully completed.
- Mandatory Internships: Must be completed within the specified duration and content.

Candidate Enginnering- ENGR 450

The ENGR450 – Professional Training in Industry course offered within the Faculty of Engineering and Natural Sciences at Ankara Yıldırım Beyazıt University is a comprehensive program aimed at providing students with the opportunity to apply their engineering knowledge in real work environments and gain practical experience. Unlike internships or graduation projects, this course requires the student to actively work in an industry setting for at least one day per week (preferably two days) during an academic semester and fulfill specific academic obligations.

Participation Requirements

- **Cumulative Grade Point Average (CGPA):** Must be at least 2.75 at the time of application.
- **Internship Status:** Both summer internships must be completed.
- **Class Level:** Only 4th-year students can apply.
- **Industry Eligibility:** The industry must have at least one engineer from the student's engineering field.
- **Protocol Status:** If there is no protocol between the university and the industry, a letter of acceptance from the industry must be obtained and submitted to the department head.

Application Process

1. **Industry Selection:** The student selects a suitable industry and obtains the necessary acceptance documents.
2. **Application:** The application is submitted to the department head along with the acceptance form and transcript.
3. **Advisor Assignment:** An industry and academic advisor are appointed; the topic is approved.
4. **Reporting:** Weekly progress reports are submitted to the academic advisor.
5. **Mid-Term Report**: Delivered by the last day of the mid-term period; the mid-term grade is given based on this report.
6. **Final Report and Presentation:** At the end of the semester, the final report is submitted with the approval of the industry advisor.

- **Insurance:** Students are covered under the "work accident and occupational disease" insurance in accordance with the Social Insurance and General Health Insurance Law
- **Confidentiality:** A confidentiality agreement may be made between the student and the industry if necessary.
- **Concurrent Courses:** The professional training in industry must not overlap with university course schedules; the responsibility lies with the student.

3. Laboratories and Classrooms

The Department of Metallurgical and Materials Engineering at Ankara Yıldırım Beyazıt University not only provides theoretical knowledge to its students but also places great importance on practical education. The fundamental principles of materials science and engineering can only be reinforced through experimental studies. In this regard, the department's laboratories provide significant contributions to both undergraduate education and graduate/postgraduate research work for students and researchers. The laboratories are designed to provide students with practical experience in areas such as material production, characterization, mechanical testing, and microstructure analysis. Additionally, they are equipped with infrastructure to meet

the needs of external researchers and industrial organizations. Furthermore, our lecture halls are spacious and well-equipped.

3.1. **Metallography Laboratory**

The metallography laboratory plays a crucial role, especially in the preparation of material samples before microstructure examination. The processes carried out in this laboratory typically include the following steps: cutting, molding, grinding, polishing, and etching. As a result of these processes, smooth surfaces are obtained that can be examined under an optical microscope. This laboratory primarily hosts the practical applications of courses such as "Materials Science" and "Physical Metallurgy." The following devices and equipment are typically used in the laboratory:

- Sanding machine (manual and automatic)
- Polishing devices
- Sample molding press
- Etching solutions and safety equipment
- Jominy apparatus

- Foundry furnace
- General furnace

3.2. **Characterization Laboratory**

The characterization laboratory, used for examining the physical and mechanical properties of materials, is equipped with hardness measurement devices and optical microscopes. The analyses performed in this laboratory provide detailed information about the microstructures of materials.

The main devices used are as follows:

- Optical microscopes (light microscopes)
- Microhardness testing device
- Image analysis software
- Macrohardness testing device

In this laboratory, parameters such as microhardness profiles, phase distributions, and grain structures can be analyzed.

3.3.**Ceramic Laboratory**

In the Ceramic Laboratory, students learn the production processes of ceramic-based materials, from powdered form to the sintered final product. The main goal of this laboratory is to experimentally apply the stages of preparing, shaping, sintering, and characterizing ceramic powders. Students relate the microstructure data obtained during these processes to properties such as density and porosity, learning to establish the process-microstructure-property link in ceramic production.

Main Equipment Used:

- Manual Pressing Device
- High-Temperature Sintering Furnace
- Precision Balance (for density measurement)
- pH Meter
- Centrifuge

This laboratory is an important hands-on experience for students who aim to comprehensively understand the processes that form the foundation of both traditional and advanced ceramic technologies.

3.4. **Electron Microscope Laboratory**

In modern materials engineering, high-resolution microstructure analysis is often required. One of the most important devices to meet this need is the Scanning Electron Microscope (SEM). The SEM available at AYBU is used to examine the surface morphology of materials and sometimes their composition. In addition to the SEM device, the laboratory is equipped with an EDS (Energy Dispersive Spectroscopy) system. This system allows for the analysis of the elemental composition of the sample. The applications conducted in the laboratory include the following:

- Surface fracture analysis
- Particle distribution observations
- Elemental mapping (EDS)

3.5. **Material Furnace Laboratory**

High-temperature processes are crucial in the production and heat treatment of many materials. This laboratory allows the processing of metals, ceramics, and composite materials under various temperature conditions. The equipment available in the laboratory includes:

- Tube furnaces (between 1200–1500°C)
- Chamber furnaces
- Atmosphere-controlled furnaces

3.6.**Computer Laboratory**

The department's computer laboratory is equipped with the necessary infrastructure for CAD/CAM and material modeling software used in engineering applications. In this laboratory, students learn to create 2D and 3D technical drawings and also have the opportunity to use simulation programs.

The programs used include:

- SolidWorks
- AutoCAD
- Ansys
- MATLAB

3.7. **MERLAB**

The Central Research Laboratory (MERLAB) of Ankara Yıldırım Beyazıt University meets advanced analysis needs outside the department. Master's and doctoral students, in particular, make effective use of the MERLAB infrastructure in their thesis work. For more detailed information, you can visit the website of the Central Research Laboratory (MERLAB) of Ankara Yıldırım Beyazıt University.

https://aybu.edu.tr/merlab

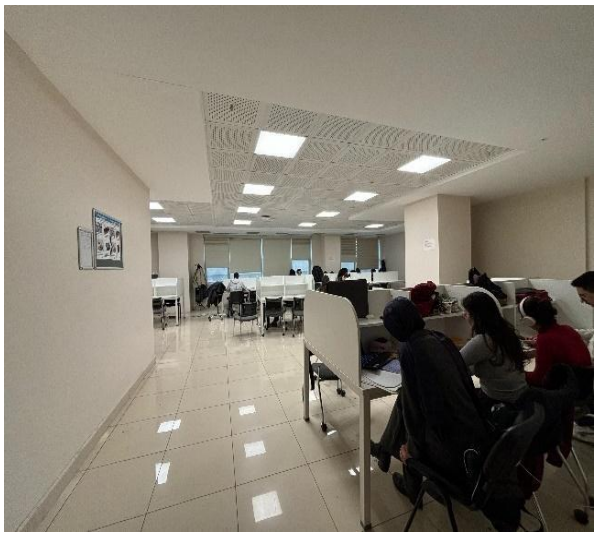
4. MATEC Club – Student Community

MATEC (Materials and Metallurgy Engineering Community) is an active student club established by the students of the Department of Metallurgical and Materials Engineering at Ankara Yıldırım Beyazıt University. The club contributes to students' professional development and strengthens their social connections through technical trips, seminars, and social events. Additionally, it aims to enhance students' engineering vision through sectoral connections, career planning activities, and collaborations with other universities. MATEC is an important platform that allows students to have a more active and productive university life.

https://www.instagram.com/aybumatec?igsh=YjE0cmQ0NzVnajNm

https://www.linkedin.com/in/aybu-matec-8230a7200?trk=contact-info

5. Areas of Activity

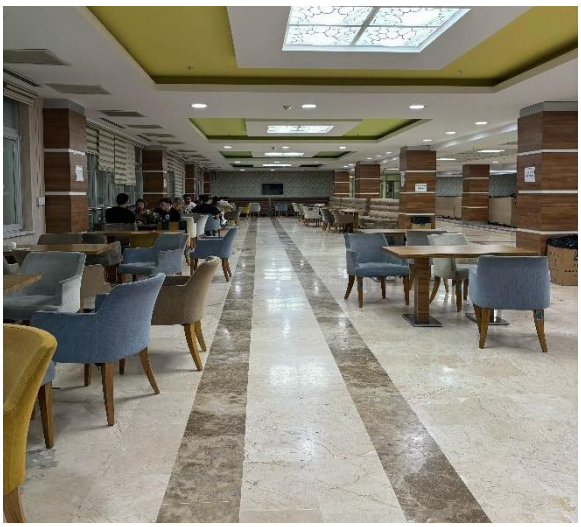


Our university offers study areas where students can comfortably study 24/7. The library, which provides access to a wide range of resources, is located on the 8th floor. Additionally, study rooms are available on the Ground and 8th floors. Apart from these, there is an e-library system that students can access online.

6. Canteen and Social Areas

The canteen is located on the -3rd floor. Inside the canteen, there are billiards, table tennis, and foosball tables.

On the -1 floor, there is an establishment offering alternative food options.




Affordable meal options are offered at the canteen located on the ground floor of Block A.

Additionally, there is a café on campus where students can socialize. The café is surrounded by various seating areas in the open space where students can spend time.


Our university has football, basketball, tennis, and volleyball courts where students can engage in sports and recreational activities.

There is a stationery shop on the ground floor of Block A.

There is a mosque for both women and men on the -5 floor.

7. Transportation

Our students can reach the Ankara Yıldırım Beyazıt University Etlik Campus by using bus lines 208, 414, 480, and 202.

8. Double Major and Minor Programs

➢ Double Major Program

Students of the Department of Metallurgical and Materials Engineering at AYBU have the right to pursue a double major with the following departments, provided they meet certain success criteria:

- Mechanical Engineering
- Civil Engineering
- Energy Systems Engineering

Application Requirements:

- Grade Point Average (GPA): At least 3.00/4.00
- Class Success: Be in the top 20% of students in their class
- Application Period: Applications can be made between the 3rd and 5th semesters
- A quota is determined for each department (usually 1-2 students are admitted each semester)

What Are the Benefits?

Thanks to the double major program, students graduate with a second bachelor's degree. This offers opportunities to work in different engineering fields both academically and in the industry after graduation.

➢ Minor Degree Program

Metallurgical and Materials Engineering students can pursue a minor in another field in addition to their own program, gaining certified expertise in that area.

Departments Available for Minor Programs:

- Mechanical Engineering
- Civil Engineering
- Energy Systems Engineering
- Industrial Engineering
- Electrical and Electronics Engineering
- Computer Engineering
- Mathematics

Application Requirements

- Applications can be made between the 3rd and 6th semesters
- All courses in the major program must be successfully completed
- A student can apply to only one minor program

Why Pursue a Minor?

A minor allows a student to gain foundational knowledge in another discipline. It provides significant advantages, especially in multidisciplinary work and industry projects.

Application and Current Information

All applications are made according to the relevant announcements of the Student Affairs Department. It is important to follow the following addresses for the most up-to-date information and application guides:

- https://www.aybu.edu.tr/oidb/
- AYBÜ Metalurji ve Malzeme Mühendisliği Web Sayfası

Application announcements for the term are published directly. It is recommended that students carefully review the applicable regulations before applying.

9. AYBU Erasmus+ 2025 Summer Term Internship Mobility Information Guide

For students of Ankara Yıldırım Beyazıt University, the Erasmus+ Internship Mobility offers a unique opportunity for students who wish to gain professional experience abroad during the summer term. This program allows internships at companies, universities, or research centers in Europe, while also providing financial support to students and offering them the chance to gain international living experience.

Who Can Apply?

Students enrolled in full-time undergraduate, graduate, and doctoral programs can apply for the program. Those in preparatory classes and first-year undergraduate students in their first semester are not eligible to apply. The GPA requirement is at least 2.20 for undergraduate students and at least 2.50 for graduate students. Taking the Erasmus Language Exam is mandatory, and it holds a 50% weight in the evaluation.

Ölçüt	Ağırlıklı Puan
Akademik başarı düzeyi (Genel Not Ortalaması)	*%50 (toplam 100 puan üzerinden)*
Dil seviyesi (Yabancı Dil Puanı)	*%50 (toplam 100 puan üzerinden)*
Şehit ve gazi çocuklarına (belgelenmesi kaydıyla)	*+15 puan*
Engelli öğrencilere (belgelenmesi kaydıyla)	*+10 puan*
2828 Sayılı Sosyal Hizmetler Kanunu ile 5395 sayılı Çocuk Koruma Kanunu kapsamında haklarında korunma, bakım veya barınma kararı alınmış öğrencilere	*+10 puan*
*Dijital becerileri geliştirmeye yönelik stajlar (DOTs) önceliklendirilir** ** Aşağıdaki faaliyetlerden biri ya da birkaçını deneyimleyen stajlar bu kapsamda sayılır: dijital pazarlama (Örn. sosyal medya yönetimi, web analitiği), dijital grafik, mekanik ve mimari tasarım; uygulama, yazılım ve kod ya da web sitesi geliştirme; bilişim sistem ve ağlarının kurulumu, bakımı ve yönetimi, siber güvenlik, veri analitiği, veri madenciliği ve görselleştirmesi; programlama, robotik ve yapay zekâ eğitimleri. Genel müşteri hizmetleri, talep oluşturma, veri girişi ya da rutin ofis görevleri bu kapsamda sayılmaz.*	*+5 puan*
Kendisi veya 1. derece yakınları AFAD'dan afetzede yardımı alanlar (tek sefere mahsus)	*+10 puan*
Daha önce yararlanma (ve/veya feragat etmeksizin daha önce Eramus+ Öğrenim/Staj Hareketliliği faaliyetine hak kazanmış olma) (her bir Erasmus+ Öğrenim ve/veya Erasmus+ Staj Hareketliliği faaliyeti için, hibeli veya hibesiz)	*-10 puan*
Vatandaşı olunan ülkede hareketliliğe katılma	*-10 puan*
Hareketliliğe seçildiği halde süresinde feragat bildiriminde bulunmaksızın hareketliliğe katılmama	*-10 puan*
Hareketliliğe seçilen öğrenciler için: Yükseköğretim kurumu tarafından hareketlilikle ilgili olarak düzenlenen toplantılara/eğitimlere mazeretsiz katılmama (öğrencinin Erasmus'a tekrar başvurması halinde uygulanır)	*-5 puan*
Dil sınavına gireceğini beyan edip mazeretsiz girmeme (öğrencinin Erasmus'a tekrar başvurması halinde uygulanır)	*-5 puan*

Application Process and Documents

Applications are made online through the Turna Portal. During the application, documents such as the student certificate, transcript, and, if available, the invitation letter are uploaded to the system. The invitation letter is not mandatory but provides additional points if available. The student must find the institution where the internship will be carried out on their own.

Grant and Durations

The internship duration can be a minimum of 2 months and a maximum of 12 months. The grant amount varies by country and is calculated on a daily basis. Not all applications may be supported by a grant; in this case, the student can participate in the program under the Erasmus framework without a grant.

Scoring and Priorities

Applications are evaluated based on the overall grade point average and the results of the Erasmus Language Exam. Students who have previously benefited from the program will receive a score reduction. Additional points are awarded to relatives of martyrs/veterans, students with disabilities, and those receiving social assistance.

Important Information

- The student status continues throughout the program.
- You must obtain an invitation letter approved by your internship institution.
- The total Erasmus duration (study + internship) for the same level of education cannot exceed 12 months.
- Participation without a grant is possible; students who are eligible but do not receive a grant can still participate.
- The invitation letter must be obtained before the Erasmus process begins.
- In addition to meeting the success criteria, all required documents must be submitted in full to benefit from the program.

Contact and Assistance

AYBU Directorate of International Relations

erasmus@aybu.edu.tr
+90 312 906 13 31

For more detailed information, you can visit the following pages.

https://aybu.edu.tr/dib/tr/sayfa/2682/Program%2DHakk%C4%B1nda

https://aybu.edu.tr/dib/tr/sayfa/8408/S%C4%B1k%C3%A7a%2DSorular%2DSorular

10. Academic Staff

• Prof. Dr. Hasan OKUYUCU (Department Chair) (A512)

• Dr. Öğr. Üyesi İdris Tuğrul GÜLENÇ (Department Vice Chair) (A523)

• Öğr. Gör. Dr. Mehmet Remzi ABUL (Department Vice Chair) (C511)

• Prof. Dr. Cihangir DURAN (A522)

• Prof. Dr. Güven ÇANKAYA (A510)

• Doç. Dr. Metehan ERDOĞAN (A530)

• Doç. Dr. Gülsüm TOPATEŞ (A521)

• Doç. Dr. Mehmet Fatih ÖKTEM (A530)

• Doç. Dr. Şerife AKKOYUN (A514)

• Doç. Dr. Begüm ÜNVEROĞLU (A309)

• Doç. Dr. Nimet YILDIRIM TİRGİL (A529)

• Dr. Öğr. Üyesi Furkan ÖZDEMİR (A521)

• Arş. Gör. Dr. Semih AĞCA (A513)

• Arş. Gör. Aynur İNAN ÜSTÜN (B308)

• Arş. Gör. Bahadır AYDAŞ (B308)

• Arş. Gör. Gülsüm Meryem DURSUN (B308)

• Arş. Gör. İremnur AKÇAKOCA (B308)

• Arş. Gör. Sude YAZICI (B308)

• Arş. Gör. Zeynep ERDEM (B308)

• Arş. Gör. Mustafa Altay KARACAOĞLU (B308)

• Arş. Gör. Alperen KAYA (B308)

Contact Information

- **Address:** Ayvalı Mah. Gazze Cad. No: 7, Etlik-Keçiören / ANKARA
- **Phone:** +90 312 906 1000
- **E-mail:** mse@aybu.edu.tr
- **Website:** aybu.edu.tr/metalurjimalzememuh