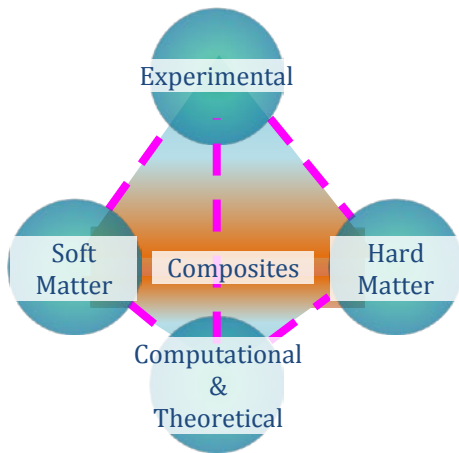


Materials Science and Engineering Undergraduate Education at Sabancı University



Freshmen University Courses: mandatory, regardless of major

1. 2 semesters of Calculus
2. 2 semesters of introduction to Physics, Chemistry, and Biology in Nature of Science
3. 2 semesters of Turkish Language and Literature
4. 2 semesters of Principles of Atatürk
5. 2 semesters of Humanities courses

Expected Outcomes

- Demonstrate an understanding of structure-properties-processing-performance interrelationships for materials in general
- Acquire the modern tools they will need for the synthesis, processing, characterization, and modeling of materials.
- Develop intuition through hands-on practice in lab exercises and in extracurricular research.
- Master analytical and communication skills

Fundamentals of Materials Science

- Introduction to Materials Science
- Thermodynamics (*mandatory*)
- Kinetics
- Electrical, Optical, Magnetic Properties (*mandatory*)
- Mechanical Properties
- Transport Phenomena
- Materials Characterization (*Lab*) & Advanced Materials Characterization (*Lab*)
- Computational Modeling and Methods (*Lab*)
- Surfaces (e.g., Surface Chemistry, Introduction to Nanoscience, Tribology)
- Electrochemistry

Soft Matter Track

- Organic Chemistry (*Lab*)
- Polymer Chemistry (*Lab*)
- Polymer Physics
- Polymer Engineering I & II
- Biomaterials
- Composites
- Structural Biology

Hard Matter Track

- Phase Equilibria
- Introduction to Ceramics
- Glass Science & Technology
- Semiconductor Physics and Devices
- Solid State Physics
- Microelectronics Fabrication (*Lab*)
- Composites

Professional Preparation

- Students are encouraged to participate in extracurricular research activities as early as possible
- Breadth through coursework in other engineering & science fields
- Minors in Chemistry, Physics, and Mathematics possible
- Project-based summer internship after their 6th semester
- Substantial graduation project demonstrating competence in at least one sub-field of MatSE