

Course Code	Course Name	(T,A,L)	Credit	ECT S	Compulsory/Elective Course
AIT101	Atatürk's Principles and the History of Turkish Revolution I	(2,0,0)	2	2	Compulsory

The reasons that prepared the collapse of the Ottoman Empire and the Turkish Revolution. Disintegration of the Ottoman Empire, Tripoli War, Balkan Wars, First World War. Armistice of Mudros. The situation of the country in the face of the occupations and the reaction of Mustafa Kemal Pasha, the departure of Mustafa Kemal Pasha to Samsun. The opening of the Turkish Grand National Assembly of the National Struggle. Treaty of sevr. The Lausanne Peace Treaty. Atatürk's Principles: Republicanism, Nationalism. Populism, Statism. Secularism, Revolutionism.

Course Code	Course Name	(T,A,L)	Credit	ECT S	Compulsory/Elective Course
AIT102	Atatürk's Principles and the History of Turkish Revolution II	(2,0,0)	2	2	Compulsory

Abolition of the Sultanate; Proclamation of the Republic; Taking the Election Decision in the First Parliament; Establishment of the People's Party; Ankara Becoming the Capital, Proclamation of the Republic and Reactions; Abolition of the Caliphate (The Emergence of the Problem of the Caliphate and the Events Preparing the Abolition of the Caliphate), Progressive Republican Party and Sheikh Said Rebellion; Law of Takrir-i Sukun; Closing the Progressive Republican Party; İzmir Assassination Attempt), Free Republican Party and Menemen Incident; An Overview of Atatürk-Inönü Separation, Revolutions and Their Goals; Revolutions in Law; 1924 Organization-ı Esasiye Law; Adoption of the Turkish Civil Code; Adoption of Other Basic Laws; Revolutions in Women's Rights, Education and Culture; The Law of Unification of Education; Adoption of the New Turkish Alphabet; New Understanding of History and Language; From Darülfünun to Istanbul University; Fine Arts, Developments in Economics; Late Ottoman Economy; Turkish Economy Congress and Its Results; Economic Activities in the First Years of the Republic; Transition to the Practice of Statism, Revolutions Made in Social Life (Modernization in Clothing: The Law on Wearing Hats; Closure of Lodges, Zawiya and Tombs, Adoption of International Time, Calendar, Numbers, Measurements and Week Holidays; Adoption of the Law on Surnames; Developments), Turkey's Foreign Policy in Atatürk Era; Years 1919-1923; Years 1923-1930, Going to the Second World War and Turkish Foreign Policy 1931-1939, Principles of Atatürk; General Overview of Atatürk's Principles; Republicanism, Nationalism, Populism, Statism, Secularism, Revolutionism, İsmet İnönü Period (1938-1950); Domestic Policy During the Second World War; Establishment of the Democratic Party, Democratic Party Period (1950-1960); May 27 Military Intervention and National Unity Committee

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
ING101	English I	(3,0,0)	3	4	Compulsory

Talking about biographies, asking and anYMPPring about general knowledge, talking about past events, talking about technology in the future, asking for permission/making a request, formal phone conversations, informal phone conversations, making an appointment, talking about products, checking understanding/ asking for clarification.

Note: This course is offered by the departments in which the medium of instruction is INGLISH.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
ING102	English II	(3,0,0)	3	4	Compulsory

Health matters, restaurant problems-complaints and responses, talking about computer problems, reporting the news and the weather, product problems- complaints at the store, talking about the future possibilities, health problems and herbs, job qualifications and working conditions.

Note: This course is offered by the departments in which the medium of instruction is INGLISH.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
ENG201	Academics Reading and Writing Skills	(3,0,0)	3	4	Compulsory

This course follows an intermediate to upper intermediate level of curriculum designed to enable skills of accessing and arranging the necessary information and to improve students' writing and reading comprehension skills that they will need in their academic and professional lives. Paragraph organization, identifying and producing different types of paragraphs, stages of essay writing and organization are some of the topics that will be covered.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KIM105	General Chemistry	(3,0,2)	4	6	Compulsory

Metric system, introduction to stoichiometry, the structural and physical properties of matter, i.e., electronic structure of atoms, chemical binding, and molecular orbitals and states of matter, i.e., gases, liquids and solids. Basis of concentration. Balancing the reactions.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MAT101	Calculus I	(4,0,0)	4	6	Compulsory

Functions, limits and continuity. Derivatives. Rules of differentiation. Higher order derivatives. Chain rule. Related rates. Rolle's and the mean value theorem. Critical Points. Asymptotes. Curve sketching. Integrals. Fundamental Theorem. Techniques of integration. Definite integrals. Application to geometry and science. Indeterminate forms. L'Hospital's Rule.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MAT102	Calculus II	(4,0,0)	4	6	Compulsory

Sequences and Infinite Series; The integral test, comparison test, geometric series, ratio test, alternating series. Power series, Taylor series. Parametric equations and Polar coordinates. Functions of several variables, limits, continuity, partial derivatives, chain rule, extreme of functions of several variables. Multiple integrals: Double integrals, Area, volume, double integral in polar coordinates, surface area, triple integrals, spherical and cylindrical coordinates.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MAT112	Linear Algebra	(3,0,0)	3	5	Compulsory

System of linear equations: elementary row operations, echelon forms, Gaussian elimination method. Matrices: elementary matrices, invertible matrices. Determinants: adjoint and inverse matrices, Cramer's rule. Vector spaces: linear independents, basis, dimension. Linear mapping. Inner product spaces: Gram-Schmit orthogonalization. Eigenvalues and eigenvectors, Cayley-Hamilton theorem, diagonalization

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MAT201	Differential Equations	(4,0,0)	4	6	Compulsory

Ordinary and partial differential equations. Explicit solutions, Implicit Solution. First-order differential equations, separable, homogenous differential equations, exact differential equations. Ordinary linear differential equations. Bernoulli differential equations. Cauchy-differential equations. High-order ordinary differential equations. Introduction to Laplace transforms. Introduction to series method for solving differential equations

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MAT312	Probability and Statistical Methods	(3,0,0)	3	5	Compulsory

Definition of probability. Sample space and events. Permutations and combinations. Conditional probability and Bayers theorem. Random variables. Discrete and continuous distrubutions. Moment generating function. Expectation, variance, covariance and correlation. Condition densities and regression and transformation of variables. Descriptive statistics.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective
FIZ101	Physics I	(3,0,2)	4	6	Compulsory

Measurements, vectors, kinematics, force, mass. Newton's laws, applications of Newton's laws. Work and kinetic energy. Conservation of linear momentum. Impulse, collisions, rotation, moments of inertia. Torque, angular momentum, conservation of angular momentum, static equilibrium.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective
FIZ102	Physics II	(3,0,2)	4	6	Compulsory

Kinetic theory of ideal gases. Equipartition of energy. Heat, heat transfer and heat conduction. Laws of thermodynamics, applications to INGene cycles. Coulombs law and electrostatic fields. Gauss's law. Electric potential. Magnetic field. Amperes law. Faradays law.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP100	Software INGeneering Orientation	(0,0,0)	0	3	Compulsory

Course Code	Course Name	(T,A,L)	Credit	ECT S	Compulsory/Elective Course
An introduction to fundamental concepts, construction of digital computer system hardware and software. Machine language concepts and internal data representations, integer, real and character data types. Algorithms and flowcharts as tools of program design process. Basic program structure: sequencing, alteration and iteration methods. Parts of a PC, motherboard, memory, graphics card, sound card, memory, hard disk, floppy disk, network card.					

Course Code	Course Name	(T,A,L)	Credit	ECT S	Compulsory/Elective Course
YMP200	Staj I	(0,0,0)	0	3	Compulsory
Summer Practice I The minimum time for this practice in an organization is four weeks (20 working days). The main objective is to observe a company in an original setting and an YMP questions on the fundamental areas of Computer Engineering and Information Science. A written report summarizing the training experience is required.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP141	Introduction to Programming	(3,0,2)	4	5	Compulsory
Algorithm development. Elements of C. Structure of a C program, data types, constants, input and output of integer numbers, real numbers. Variables, expressions and assignments. Input and output functions. Control Structures. Selection- If statement, multiple selection- switch statement. Iteration- while, do-while, for operators. User-defined functions, arrays and subscripted variables, single arrays.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP142	Object Oriented Programming I	(3,0,2)	4	5	Compulsory
Introduction, Types and Operations. Statements and Syntax, Input/Output. Functions, Modules, Classes and Object Oriented Programming, Exceptions and Tools, Advanced Topics. The students are expected to work within a GNU/Linux environment. The course provides a basic introduction into object-oriented programming.					

Course Code	Course Name	(T,A,L)	Credit	ECT S	Compulsory/Elective Course
YMP144	Discrete Structures	(3,0,0)	3	4	Compulsory

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
Set theory: basic operations on sets, finite sets and mathematical induction. The theory of counting: multiplication rule, ordered and unordered samples, permutations and principle of inclusion and exclusion. Graphs and algorithms: Euler cycles, minimal spanning trees, Prim's algorithm, division algorithm, recursion, Euclidian algorithm, binary trees and tree searching, the matching problem and the Hungarian algorithm. Proposition calculus and Boolean algebra. Introduction to the Turing machine. Formal languages and decision algorithms.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP241	Digital Logic and Design	(3,0,2)	4	5	Compulsory
Introduction to number systems and codes. Boolean algebra and logic gates. Simplification of switching functions. Combinational logic. Combinational circuit design with programmable devices. Introduction to sequential devices. Modular sequential logic. Analysis and synthesis of synchronous sequential circuits. Sequential circuits with programmable logic devices. Introduction to microprocessors programming.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP242	Object Oriented Programming II	(3,0,2)	4	6	Compulsory
Introduction to Java. Java and object-oriented programming. Introduce advanced Java concepts – inheritance, polymorphism, abstract classes, exception handling, use of collections and database connectivity. Gain more practical experience by designing and writing Java applications. Components of Java projects. Designing Graphic User Interface GUI. Java Internet applications. Java applets.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP243	Data Structures and Algorithms	(3,0,2)	4	6	Compulsory
Foundational Data Structures, Data Types and Abstraction, Stacks-Queues, and Deques, Ordered Lists and Sorted Lists, Hashing- Hash Tables and Scatter Tables, Trees, Search Trees, Heaps and Priority Queues, Sets-Multisets and Partitions, Garbage Collection and the Other Kind of Heap, Algorithm Analysis, Asymptotic Notation, Algorithmic Patterns and Problem Solvers, Sorting Algorithms, Searching Algorithms, Graphs and Graph Algorithms.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP244	Database Management Systems	(3,0,2)	4	6	Compulsory
Database Management Systems Database architecture, comparison to file-based systems, historical data models, conceptual model; integrity constraints and triggers; functional dependencies and normal forms; relational model, algebra, database processing and Structured Query Language (SQL), Dynamic SQL, Stored Procedures. Emerging trends, O.O. Database Model. Internet & Databases. Study of Oracle, MsSql and MySql as popular DBMS.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP246	Computer Architecture and Organization	(3,0,0)	3	5	Compulsory

Computer Architecture and Organization Basics of modern computer architectures and organization. Understanding the interaction between computer hardware and software at various levels. Performance evaluation, Instruction set design, Computer arithmetic, data path and control unit design of processors and enhancing performance with pipelining. RISC and vector computers. The laboratories include the design, simulation and implementation of a RISC processor.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP344	Data Communications and Networking	(4,0,0)	4	6	Compulsory

Data Communications and Networking Basic elements of data communication systems. Reference models. ISO OSI reference model. Serial networks & protocols. Analogue networks, modems and multiplexors. PSTN and leased line (2 and 4 wire). Permanent digital networks. ISDN network and equipment. Packet switched networks & X.25. Frame relay. ATM & SMDS. Introduction to LANs. LAN physical layer.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP345	Operating Systems	(3,0,0)	3	6	Compulsory

Operating Systems Principles of operating systems. Memory management. Multiprocessing. Virtual memory concepts. Memory protection. Scheduling. Process management. Time-slicing and priorities, deadlocks and process synchronization. Peripheral control. Filing system management. Resource control and monitoring. Linux and Windows Operating Systems.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP431	Economics For INGeneers	(3,0,0)	3	6	Compulsory

Economics for INGeneers Principles and economic analysis of INGeneering decision making. Cost concept. Economic environment. Price and demand relations. Competition. Make-versus-purchase studies. Principles and applications of money-time relations. Depreciation. Money and banking. Price changes and inflation. Business and company finance.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP203	Introduction to Software ENGINEERING	(3,0,0)	3	5	Compulsory

The aim of this course is to explain the importance of the Software ENGINEERING department and its related disciplines. In addition, it is an introduction to the main subjects, which are the foundations of software ENGINEERING, and some of the other courses that will be encountered in the coming years.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP206	Software Specification and Design	(4,0,0)	4	6	Compulsory

The main objective of this course is to obtain, define, analyze, prioritize, balance and model the functional and non-functional requirements of the system. More specifically, the software requirement document aims to provide comprehensive information on industrial standards and UML models. Each student must prepare a project to demonstrate the skills developed in this course.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP300	Internship II	(0,0,0)	0	3	Compulsory

Internship II is at least 4 weeks (20 working days) in a company and covers the observation of Computer Systems and Software. The main purpose is to observe the real-life functioning of a company and to answer questions asked in the field of Computer ENGINEERING and Information Technologies. A written internship report summarizing the experiences gained during the internship is requested from the student.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP301	Software Architecture	(4,0,0)	4	4	Compulsory

The aim of this course is to introduce software architecture in terms of its concept, principles and techniques. In addition, this course aims to teach the student how to describe the architecture of a software using various techniques and what kind of operations can be performed on it. With this course, the student will be able to apply the knowledge he has learned on a project and will be able to define the architecture of sufficiently large and complex systems and gain experience in performing various operations on it. Finally, this course will also provide the student with the opportunity to do research.

Course Code	Course Name	(T,A,L)	Credit	EC TS	Compulsory/Elective Course
YMP302	Software Requirement Analysis	(4,0,0)	4	6	Compulsory

Functional, non-functional and space requirements. User and system requirements. Feasibility study. Estimation methods. Requirement models and languages. Performance, reliability, readiness, security and protection considerations. Requirements document standards. Handling requirements changes.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP304	Software Verification and Analysis	(4,0,0)	4	6	Compulsory

The aim of this course is to provide information about the techniques and basic models used in quality assurance and reliability analysis. Course topics include hypothesis testing, sampling, Shewhart control charts, Xbar and R control charts, process capability and reliability.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP305	Human Computer Interaction	(3,0,0)	3	4	Compulsory

The aim of this course is to enable students to understand the basic concepts and theories in human-computer interaction. In general, the course focuses on how people perceive and interact with the computer. Through this course, students will realize that there are many different interaction techniques, and will also gain the ability to apply the right principles in the graphical user interface design phase..

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP307	Internet Programming I	(3,0,0)	3	4	Compulsory

The aim of this course is to enable students to develop client-side web applications by teaching them the necessary knowledge, tools and languages. After giving general information about Internet and Web technologies to the student, an introduction to web design will be made. HTML markup language, which is the basis of Internet programming and used to create the content of web pages, Cascading Style Templates (CSS) for visual (text and format) formatting, and JavaScript, the popular client-side script language used to create interactive pages, are the main topics of the course.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP308	Internet Programming II	(2,0,0)	3	4	Compulsory

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
<p>Within the scope of this course; site identification, Web Forms, data transfer methods between pages, XML applications and web services, session control management with cookies, cookie, SESSION session management, MySql server connection, database operations, encryption with MD5 and crypt, global transactions, ajax usage with PHP, Host rental, Web site publishing and database management on the host.</p>					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP341	Programming Language Concepts	(3,0,0)	3	6	Compulsory
<p>Programming Languages Concepts Classification of programming languages. Syntactic and semantic description of programming languages. Imperative programming languages: data objects, data types, control structures, sub-programs, principles of implementation. Procedural programming languages. Object-oriented programming languages. Declarative programming languages: logic programming, functional programming, structure-query language programming.</p>					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP401	Graduation Project I	(2,0,0)	2	4	Compulsory
<p>Continuation of their research that start in COM402 course. Application of new scientific methods for solving different INGeineering problems and their modelling, development different software packages, analysis and investigation of new research areas in computer INGeineering fields. Students prepare (write) the graduation project.</p>					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP402	Graduation Project II	(2,0,0)	2	4	Compulsory
<p>Continuation of their research that start in YMP401 course. Application of new scientific methods for solving different INGeineering problems and their modelling, development different software packages, analysis and investigation of new research areas in computer INGeineering fields. Students prepare (write) the graduation project.</p>					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YMP403	Software Project Management	(4,0,0)	4	5	Compulsory

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
<p>Recognizing the basics of information and application areas, analyzing various constraints and problems, listing what needs to be done in which information field for a solution, current rapid software development processes, process improvement and quality models (CMMI) recognition, MS Project etc. Ability to use project management software and execute a so-called project's plan to apply this information</p>					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TUR101	Turkish I: Written Expression	(2,0,0)	2	2	Compulsory
<p>Reading passages related to the chapter; grammar studies; vocabulary and translation activities; listening activities; debates on current issues related to the department (Repetition of tenses, Internet history, Health and medicine, passive frameworks, Social issues, Environmental issues, Repetition of modals, Law and punishment, repetition of adjective phrases, Language and Literature, Repetition of noun phrases.</p>					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TUR102	Turkish II: Oral Expression	(2,0,0)	2	2	Compulsory
<p>Spelling, punctuation and composition (punctuation marks, other signs), Spelling, spelling rules (capital letters, spelling of numbers, spelling of abbreviations, spelling of quoted words), Composition (purpose of composition, method of writing composition), plan in composition, introduction, development, result, Expression features, clarity in expression, simplicity in expression, clarity and sincerity in expression, Expression disorders (using synonyms in sentences), Misuse of idioms, Expression styles (explanation, story, concise expression, description, satire, portrait, proof, speech, Verbal expression types (daily and impromptu speech, prepared speech, panel discussion, debate, panel), Written expression types (letter, telegram, greeting, invitation, literary letter), business letters, official letter, petition, report, report, decision, advertisement, conversation, criticism, memoir, travel writing, interview, survey, autobiography, biography, novel, story, fairy tale, fable, theatre, tragedy,drama ,scenario) .</p>					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
NTE1	Non-Technical Elective I	(0,0,0)	3	6	Elective

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
NTE2	Non-Technical Elective II	(0,0,0)	3	6	Elective

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TE1	Technical Elective I	(3,0,0)	3	5	Elective

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TE2	Technical Elective II	(3,0,0)	3	5	Elective

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TE3	Technical Elective III	(3,0,0)	3	5	Elective

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TE4	Technical Elective IV	(3,0,0)	3	5	Elective

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TE5	Technical Elective V	(3,0,0)	3	5	Elective

Course Code	Course Name	(T,A,L)	Credit	ECT S	Compulsory/Elective Course
TE6	Technical Elective VI	(3,0,0)	3	5	Elective

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TE7	Technical Elective VII	(3,0,0)	3	5	Elective