

Course Code: "ATA1031"

Course Title: "Principles of Atatürk and History of Modern Turkey I"

Course Objectives: To inform students about essential political, economic, social and cultural facts of the historical period from the late eighteenth century through the signing of Lausanne Treaty in 1923; in other words, to inform them about the background of these facts in the course of the transition from the Ottoman Empire to the establishment of republican Turkey. To provide students with some examples of a multi-layered point in order to make them able to approach historical events in a multi-dimensional way. To introduce to students certain basic theoretical concepts, discussions and methods of thought of different social sciences, with a particular emphasis on history.

Course Content: Basic political, economic, social and cultural facts of the historical period beginning by the classical age of the Ottoman Empire and ending by the signing of Lausanne Treaty in 1923 - the fundamental academic interpretations on them.

Course Learning Outcomes:

1. The students will learn meaning and benefits of historical researches.
2. The students will learn the pre-modern Ottoman history in general.
3. The students will be able to evaluate Ottoman history within the European modernization process.
4. The students will be able to evaluate 19.th century Ottoman history within the context of reform efforts.
5. The students will understand and evaluate today in relation to the history of Ottoman Empire and modern Turkey.

Course Code: "BLM1011"

Course Title: "Introduction to Computer Science"

Course Objectives: To teach the basics of Computer Engineering and the algorithm concepts to zero-experienced students.

Course Content: History of Computers ; The Basics of Computer Science and Computer Engineering ; Software and Hardware Concepts ; Computer Architecture ; Data Manipulation ; Signed and Unsigned Integers ; Floating Point Numbers ; Number Systems ; Introduction to Algorithms ; Flowcharts ; Pseudo Code; Input/Output ; Arithmetic Operations ; Controls ; Loops ; Introduction to Coding ; Data Types ; Arrays ; Min-Max Problem ; Strings ; Multi-dimensional Arrays ; Search Algorithms ; Complexity of Algorithms

Course Learning Outcomes:

1. Students will understand fundamental underlying principles concepts of computer engineering.
2. Students will understand how to design correct and efficient algorithms.
3. Students will learn about the process of writing and debugging a program.
4. Students will learn how to describe the devised algorithms as flowcharts.
5. Students will be able to know different branches of computer engineering.

Course Code: "BLM1991"

Course Title: "Occupational Health and Safety 1"

Course Objectives: The main aim of the course is to educate the students about occupational health and safety, to get involved in accidents and occupational diseases within the Department of Electronics and Communication Engineering, to inform about the Law on Occupational Health and Safety No. 6331 and as a result the participation of students in occupational health and safety and the creation of safe culture.

Course Content: Basic Rights and Obligations, Occupational Health and Safety Law No. 6331, Obligations of Employers, Employee Responsibilities, Employee Participation and Informing, OHSAS / TS 18001, Occupational Health and Safety Policy, Occupational Accidents and Occupational Diseases Prevention, Occupational Health and Safety Culture Health and Safety Signs, Health and Safety Education and Communication at Work, National and International Organizations and Contracts, Occupational Health and Safety Committees, Occupational Health and Safety Services, Emergency Management, Risk Management and Evaluation, Health and Safety Management System, Basic First Aid Information, Occupational Health and Safety in Education

Course Learning Outcomes:

1. Student has knowledge about Occupations and occupational diseases
2. Learn legal rights and responsibilities in occupational health and safety
3. Has knowledge about the Law No. 6331 on Occupational Health and Safety and its applications
4. Know the duties and responsibilities of the occupational safety specialist and the occupational physician, the work of the occupational health and safety body, and the importance of risk assessment
5. It plays an active role in creating a Job Safety Culture by creating safe behaviors and habits
6. Know what to do or not in case of an accident or emergency
7. He may notice the risks that may be encountered in the faculty, and he or she has the ability to take precautions to keep them under control
8. Adapt to occupational health and safety practices to be implemented in the faculty, awareness occurs
9. Having the necessary knowledge to create a healthier and safer environment in the faculty

Course Code: "FIZ1001"

Course Title: "Physics 1"

Course Objectives: To introduce the fundamental principles and concepts of physics in detail at freshmen level. To build a strong background for physics major as well as showing the necessity and importance of physics for other branches of natural sciences and engineering through applications in real life, and industry and technology.

Course Content: Physics and Measurement, Vectors, Motion in One Dimension, Motion in Two Dimensions, The Laws of Motion, Circular Motion and other Applications of Newton's Laws, Work and Kinetic Energy, Potential Energy and Conservation of Energy, Linear Momentum and Collisions, Rotation of a Rigid Object About a Fixed Axis, Rotation of a Rigid Object About a Moving Axis, Torque and Angular Momentum, Static Equilibrium and Elasticity, Oscillatory Motion.

Course Learning Outcomes:

1. Students would have up to date information, software, theoretical and practical knowledge on Physics. Moreover, they will be equipped with knowledge

sufficiently to use Physics related resources.

2. Students would acquire theoretical knowledge on subject of Physics theories.
3. They could apply the theoretical knowledge gained in the field of Physics
4. Students would be able to analyze the experimental results.
5. They would acquire the ability to figure out the physical concepts and issues in the field of Physics through scientific methods and interpret them.

Course Code: "ITB2090"

Course Title: "Democracy Culture Principles and Institutions"

Course Objectives: The objective of the course is to introduce students with a conceptual framework of democracy together with its basic principles and institutions in an interdisciplinary manner and relate the course to the Turkish case.

Course Content: The course deals with the issue of democracy both from theoretical and practical perspectives. First, it looks at what is the relevance of democracy in political theory; whether it is just a procedure or it has a substantial moral and political foundation that requires specific norms and institutions. Then the course discusses it in relation to other disciplines such as religion, economy and law. In the course are also addressed the essential democratic institutions and procedures in terms of political participation as a citizenship right. It then specifically addresses the political history of Turkey in terms of transition to democracy and consolidating it.

Course Learning Outcomes:

1. At the end of the course, students are expected to have a better understanding of what the philosophical foundations of

democracy are

2. be able to articulate the conceptual frameworks, essential procedures and institutions of a working democracy, alongside its limitations
3. be able to critically evaluate the real daily life and politics in the light of democratic ideals
4. develop their ability to participate in social and political life as active citizens with effective deliberation
5. analyse the possibilities for the future of democracy in the global age

Course Code: "ITB3020"

Course Title: "Introduction to Philosophy"

Course Objectives: • To grasp the meaning and significance of philosophical thinking. • To learn the methods and perspectives of philosophical thinking. • To learn basic philosophical disputes and discussions. • To learn transformations in the field of thought and knowledge through basic discussions and problems in the works of historically significant philosophers.

Course Content: The class focuses on the basic philosophical problems and discussions within the framework of the history of philosophy. Knowledge, science, individual, society, politics, ethics, and arts will be among the topics as these topics discussed by philosophers like Socrates, Plato, Aristotle, Descartes, Locke, Hobbes, and Kant.

Course Learning Outcomes:

1. Students will develop critical thinking and research skills
2. Students will develop their ability and skill to engage with opposing ideas in a constructive manner
3. Students will contribute actively to the process of acquiring knowledge
4. Students will develop scholarly reading and writing skills
5. Students will learn the basic philosophical terminology

Course Code: "MAT1071"

Course Title: "Mathematics 1"

Course Objectives: To give information of foundation of Mathematics and to satisfy properties of analytical thinking.

Course Content: Functions: Domain of a function, Functions and Graphs, Even-Odd Functions, Symmetry, Operations on Functions (Sum, difference, multiplication, division and powers), Composite functions, Piecewise Functions, polynomials and Rational Functions, Trigonometric functions

Limits and Continuity: Limit of a Function and Limit Laws, The Sandwich (The Squeeze theorem), The Precise Definition of a Limit, One-sided Limits, Limits Involving Infinity, Infinity limits, Continuity at a point, Continuous Functions, The Intermediate Value Theorem Types of Discontinuity, Differentiation: Tangents, Normal Lines, The Derivative at a Point, The Derivative as a Function, One-sided Derivatives, Differentiable on an Interval, Differentiation Rules, High order Derivatives, Derivatives of Trigonometric Functions, The chain rule, Implicit Differentiation, Linearization and Differentials, Increasing Functions and Decreasing Functions, Transcendental Functions: Inverse Functions and Their Derivatives, Logarithms and Exponential Functions and Their Derivatives, Logarithmic Differentiation, Inverse Trigonometric Functions and Their Derivatives, Hyperbolic Functions and Their Derivatives, Inverse Hyperbolic Functions and Their Derivatives, Indeterminate Forms and L'Hospital's Rule, Extrem Values of Functions, Critical Points, Rolle's Theorem, The Mean Value Theorem, The First Derivative Test for Local Extrema, Concavity, The Second Derivative Test for Concavity, Point of Inflection, The Second Derivative Test for Local Extrema, Asymptotes of Graphs Graphing of $y=f(x)$, Antiderivatives, Indefinite Integrals, Integral table, Integration: Area and Estimating with Finite Sums, Sigma Notation and Limits of Finite Sums, Riemann Sums, Definite Integral, Properties of Definite Integral, Area Under the Graph of a nonnegative Function, Average Value of Continuous Functions, Mean Value Theorem for Definite Integrals, The Fundamental Theorem of Calculus: Fundamental Theorem Part 1, Fundamental Theorem Part 2, Techniques of Integration: Integration by Substitution, Integration by Parts, Trigonometric Integrals, Reduction Formulas, Trigonometric Substitutions, $\tan(\theta/2)$ substitutions, Integrations of Rational Functions by Partial Fractions, Applications of definite integrals: Area between two curves, Volumes Using Cross-sections, The Disk Method, the Washer Method, The Cylindrical Shell method, Arch Length, Areas of Surfaces of Revolution, Improper Integrals, Improper Integrals of Type 1 and Type 2

Course Learning Outcomes:

1. Students will learn using the concepts of limit, continuity and differentiation of one variable functions,
2. Students will learn sketching the graph of a function using asymptotes, critical points and the derivative test for increasing/decreasing and concavity properties,
3. Students will learn setting up and solving max/min problems,

4. Students will learn evaluating definite integrals by using the Fundamental Theorem of Calculus and evaluating areas, volumes and arc lengths by mean of definite integral,
5. Students will learn applying techniques of integration and working with transcendental functions.

Course Code: "MAT1320"

Course Title: "Linear Algebra"

Course Objectives: Create the necessary information for more advanced mathematics topics

Course Content: -Matrices: Definition of matrix, Types of matrices, matrix equality, Sum and difference of matrices, The product of scalar and matrix and their properties, Transpose of matrix and its properties

- Some Special Matrices and Matrix Applications
- Elementary row and column operations in matrices, Reduced row-echelon form, Rank of a matrix, The inverse of a square matrix,
- Determinants: The determinant of a square matrix, Laplace's expansion, Properties of determinants
- Sarrus rule, Additional matrix, Calculation of the inverse of a matrix with the aid of additional matrix
- Systems of Linear Equations: Solving systems of linear equations with the aid of equivalent matrices, Linear homogeneous equations,
- Cramer's method, The solution with the help of coefficients matrix
- Vectors: Vector definition, the sum of vectors, the difference, the analytical expression vectors, scalar product of vectors, properties of the scalar multiplication Scalar product and its features, the mixed multiplication and properties, and properties of double vector product,
- Vector spaces: Definition of vector spaces and theorems. Subspaces. Span concept and fundamental theorems. Linear dependence and linear independence of vectors and some theorems about linear dependence and linear independence.
- Bases and dimension concepts and fundamental theorems. Definition of coordinates and transition matrices and some theorems.
- Eigenvalues and Eigenvectors: The Calculation of Eigenvalues and Eigenvectors of a square matrix,
- The calculation of Inverse and power of a square matrix with the help of the Cayley-Hamilton theorem.

Course Learning Outcomes:

1. On successful completion of this course unit students will be capable of gained the ability to; perform matrix operations (addition, subtraction, multiplication). Compute the determinant of a given matrix,
2. Solve systems of linear equations by using Gaussian elimination; and apply the basic techniques of matrix algebra, including finding the inverse of an invertible matrix using Gauss-Jordan elimination,
3. Understand the basic ideas of vector algebra: linear dependence and independence; comprehend vector spaces and subspaces,
4. Find the eigenvalues and eigenvectors of a square matrix using the characteristic polynomial,

5. Calculate the inverse and n-th power of a square matrix by using Cayley-Hamilton theorem.

Course Code: "MDB1031"

Course Title: "Advanced English I"

Course Objectives: Reinforcing students' ability to read analytically. Facilitating students' ability to comprehend an appropriately chosen source text, to craft an effective analysis. Supporting the students' exposure to a specified range of text complexity across a wide range of disciplines aligned to college and career readiness. Reinforcing an understanding of relevant words in context and how word choice helps shape meaning and tone. Encouraging students to write an organized summary of a given text by using annotating and paraphrasing techniques.

Course Content: • reading strategies • annotating, paraphrasing, summarizing techniques • vocabulary exercises

Course Learning Outcomes:

1. Reading a passage and identifying the main points
2. Constructing a summary of the important points in the texts
3. Identifying factual information and distinguishing between facts and ideas
4. Inferring information from the passage
5. Understanding vocabulary in context

Course Code: "BLM1012"

Course Title: "Introduction To Procedural Programming"

Course Objectives: Gain the ability to design, analysis, and optimization of an algorithm.

Course Content: Concepts of an algorithm and an effective algorithm; Introduction to the basic problem solving techniques; Algorithm design; Algorithm analysis; Algorithm optimization; Several applications in C programming language.

Course Learning Outcomes:

1. Compares the different solutions to a given problem.
2. Design an algorithm with the simple data structures.
3. Determines the common parts of different problems and constructs functions about these parts.
4. Designs and analyses recursive algorithms.
5. Implements an algorithm with C programming language.

Course Code: "BLM1022"

Course Title: "Numerical Analysis"

Course Objectives: Explanation of how to solve a complex non-practical problem manually with approximate numerical solutions.

Course Content: Errors and Mistakes, Solution of Nonlinear Equations, Solution of Nonlinear & Linear Systems, Numerical Integration, Numerical Differentiation, Difference Table, Interpolation, Curve Fitting, Solution of Differential Equations which are the main topics of numerical analysis will be explained.

Course Learning Outcomes:

1. The student will learn the methods to solve any advanced mathematical problem which is conventionally solvable or not.
2. The student will be able to interpret the numerical calculations of the methods and errors.
3. The student will be able to solution of single-variable and non-linear equations.
4. The student will know how to solve the integral and derivative numerical methods.
5. The student will know now to use of numerical interpolation and approximation of functions.

Course Code: "BLM1032"**Course Title:** "Circuit Theory"

Course Objectives: This course is intended to provide fundamental information about circuit elements and solution techniques and to apply these information in the laboratory environment.

Course Content: Electric circuit variables; Circuit elements; Resistive circuits, Methods of analysis of resistive circuits, Circuit theorems, The operational amplifier, Energy storage elements, The complete response of first order circuits, The complete response of second order circuits, Complex algebra, Sinusoidal steady-state analysis, AC steady-state power, Frequency response, The Laplace transform, Filter circuits.

Course Learning Outcomes:

1. Students comprehend basic circuit theory.
2. Students recognize fundamental concepts of electric circuits.
3. Students estimate the behaviours of energy storage devices.
4. Students know how to analyze first and second order circuits.
5. Students learn AC circuit analysis.
6. Students learn how to find the frequency response of circuits.
7. Students know how to apply Laplace Transform in circuit solutions.

Course Code: "BLM1992"**Course Title:** "Occupational Health and Safety 2"

Course Objectives: The main purpose of the course is to introduce the risk factors having effects on occupational accidents and diseases, and to teach how to perform the evaluation of risks which have an important role on avoiding such situations. Simultaneously, to get involved in accidents and occupational diseases within the Department of Control and Automation Engineering, to inform about the Law on Occupational Health and Safety No. 6331 and as a result the participation of students in occupational health and safety and the creation of safe culture are also included in the aims of the course.

Course Content: Risk Management, Risk Evaluation, Risk Analysis, Risk Perception, Psychosocial Risk Factors, Physical Risk Factors, Ergonomic Risk Factors, Chemical Risk Factors, Risk Evaluation Methods, Risk Control Steps, Risk Evaluation Stages,

Risk Evaluation Documentation, Risk Evaluation Application, Working on Tools with Screen, Ergonomic Work, Protection from Occupational Musculoskeletal diseases

Course Learning Outcomes:

1. The student knows the concepts of danger, risk, near miss, event / case, accident and the difference between them
2. The student learns why the risk assessment is performed, its function, who and how it is done
3. The student knows the psychosocial, biological, chemical, physical hazards and knows the principles of protection from these hazards
4. The student has an idea and can contribute to a healthier work environment
5. She detects the hazards earlier and can be more sensitive about the precautions
6. Know what to do or not in case of an accident or emergency
7. He may notice the risks that may be encountered in the faculty, and he or she has the ability to take precautions to keep them under control
8. Adapt to occupational health and safety practices to be implemented in the faculty, awareness occurs
9. Having the necessary knowledge to create a healthier and safer environment in the faculty

Course Code: "FIZ1951"

Course Title: "Semiconductor Physics for Engineering"

Course Objectives: The aim of the course, semiconductors and to give information about uses of semiconductors.

Course Content: Semiconductors, Semiconductor types, semiconductors electrical, optical and magnetic properties and semiconductor applications (devices).

Course Learning Outcomes:

1. Students will have up to date information, theoretical and practical knowledge on Physics. Moreover, they will be equipped with knowledge sufficiently to use Physics related resources.
2. Students will acquire theoretical knowledge on subject of Physics theories
3. Students will apply the theoretical knowledge gained in the field of Physics
4. Students will be able to analyze the experimental results.
5. Students will acquire the ability to figure out the physical concepts and issues in the field of Physics through scientific methods

Course Code: "MAT1072"

Course Title: "Mathematics 2"

Course Objectives: To give a broad knowledge and basic understanding of sequences and series and to gain ability of using the concepts of limit, continuity, partial differentiation , double integrals

Course Content: Infinite Sequences : Convergence and Divergence of Sequences, Calculating limit of sequences, The Sandwich Theorem for Sequences, The Continuous Function Theorem for Sequences, Commonly Occurring Limits, Recursive Definitions, Bounded Monotonic Sequences, Monotonic Sequences Theorem .Infinite Series: Geometric Series, The nth-Term Test for a Divergent Series, Combining Series, Adding or Deleting Terms, Convergence Tests For Positive Series: The Integral Test , P-Series , Harmonic

Series, The Comparison Test , The Limit Comparison Test , The Ratio Test , The Root Test. Alternating Series : Alternating Harmonic Series , The Alternating Series Test (Leibniz's Test) , Absolute and Conditional Convergence. Power Series : The Radius of Convergence of a Power Series, Operations on Power Series ,The Series Multiplication Theorem for Power Series , The Term-by-Term Differentiation Theorem , The Term-by-Term Integration Theorem, Taylor and Maclaurin Series, Taylor Polynomial of order n . Applications of Taylor Series: Evaluating non Elementary Integrals, Arctangents, Evaluating Indeterminate Forms. Parametric Equations and Polar Coordinates: Parametrizations of Plane Curves , Parametric Equations , Calculus With Parametric Curves: Derivative, Length of Parametrically Defined Curve. Polar Coordinates: Polar Equations , Relating Polar and Cartesian Coordinates, Graphing in Polar Coordinates (line, circle, cardioid), Areas and Lengths in Polar Coordinates : Area in the Plane, Length of a Polar Curve. Vectors: Three-Dimensional Coordinate Systems, Vectors, The Dot Product, Angle Between Two Vectors, Perpendicular Vectors, The Cross Product, Parallel Vectors. Lines and Line Segments in Space: Vectors Equation for a Line, Parametric Equations for a Line, An Equation for a Plane in Space, Lines of Intersection. Vector-Valued Functions: Curves in Space and Their Tangents, Limits and Continuity, Derivatives, Velocity Vector, Acceleration Vector, Differentiation Rules, Arc Length Along a Space Curve. Functions of Several Variables: Domains and Ranges , Functions of Two Variables , Graphs and Level Curves of Functions of Two Variables, Functions of Three Variables, Level surfaces (plane, sphere, cone, elliptic paraboloid, ellipsoid, cylinder), Limits for Functions of Two Variables, Continuity, Two-Path Test for Nonexistence of a Limit , Continuity of Composites, Functions of More Than Two Variables. Partial Derivatives: Partial Derivatives of two variables functions, Partial Derivatives and Continuity, Second-Order Partial Derivatives, Partial Derivatives of Still Higher Order, Differentiability, The Chain Rule: Functions of Two Variables , Chain Rule for Functions of two Independent Variables, Functions of Three Variables, Chain Rule for Functions of Three Independent Variables, Chain Rule for Two Independent Variables and Three Intermediate Variables. Implicit Differentiation Revisited. Directional Derivatives and Gradient Vectors : Directional Derivatives in the Plane , Interpretation of the Directional Derivative , Calculation and Gradients , Gradients and Tangents to Level Curves , Functions of Three Variables, Tangent Planes and Differentials: Tangent Plane of The Surface, The Normal Line of The Surface. The Linearization of a Function of two Variables, Differentials . Extreme Values: Local Extreme Values, First Derivative Test for Local Extreme Values, Critical Point, Saddle Point , Second Derivative Test for Local Extreme Values. Double Integrals : Double and Iterated Integrals over Rectangles, Double Integrals as Volumes, Fubini's Theorem (First Form), Double Integrals over General Regions , Double Integrals over Bounded Nonrectangular Regions , Volumes (volumes between two surfaces), Fubini's Theorem (Stronger Form) . Finding Limits of Integration : Using Vertical Cross-sections , Using Horizontal Cross-sections , Properties of Double Integrals, Area by Double Integration, Average Value Theorem, Double Integrals in Polar Form: Finding Limits of Integration, Changing Cartesian Integrals into Polar Integrals. Calculating volumes by using polar coordinates (volume between two surfaces), Substitutions in Double Integrals.

Course Learning Outcomes:

1. Student will find to convergence of sequences and series and interval of convergence of power series
2. Student will use vector algebra in 3d-space and in plane and writing the equations of planes and lines

3. Student will understand the limit and the continuity of multivariable functions, computing partial derivatives of them, finding tangent lines, directional derivatives, gradients
4. Student will understand solving the problem of extreme values by using second derivative test
5. Student will evaluate double integrals and applying double integrals for computing of area and volume

Course Code: "MDB1032"

Course Title: "Advanced English II"

Course Objectives: Skimming a text to find relevant information. Putting ideas in a coherent order using linking words. Rewriting a statement with synonyms and/or similar structures keeping the meaning same. Identifying parts of a paragraph/text. Writing a well-organized paragraph by producing introductory, developing/supporting and concluding sentences. Expressing opinions about the texts covered both orally and in written. Being able to pronounce the target vocabulary accurately and use them in appropriate contexts.

Course Content: Grammatical support and exercises on linking words, adjectives and determiners. Rewriting/paraphrasing exercises. Paragraph organization and writing exercises. Up-to-date texts aiming to improve general knowledge and demonstrate different uses of language. Audio-visual materials that will be appealing for students with differing learning types. Audio-visual materials that will boost learning target vocabulary.

Course Learning Outcomes:

1. Students will be able to answer open-ended questions in written forms and verbally.
2. Students will be able to write paragraphs consisted of topic sentences and supporting sentences.
3. Students will be able to comprehend the text by using reading strategies
4. Students will be able to accurately pronounce the vocabulary items and will be able to make sentences with them

Course Code: "BLM2011"

Course Title: "Statistics and Probability"

Course Objectives: Learning how to model and solve problems involving uncertainty using probabilistic and statistical models and methods.

Course Content: Elementary probability rules, discrete and continuous probabilistic models, descriptive statistics, elementary statistical inference

Course Learning Outcomes:

1. Students calculate the statistics of numerical data.
2. Students use concepts of probability, and random variables to represent uncertainty within phenomena.
3. Students can solve probability computation problems involving probability density and cumulative distribution functions.
4. Students can recognize several common probability distributions and solve distribution problems.

5. Students can construct confidence intervals and conduct hypothesis test.

Course Code: "BLM2021"

Course Title: "Low Level Programming"

Course Objectives: Ability to use 80x86 assembly language as a low level programming language, to interact with Input-Output devices and interact with high level programming languages.

Course Content: Intel 8086 Processor Family Architecture; Registers and Their Functions; Flags;; 80x86 Assembly Mnemonics; Addressing Models; Pseudo Commands; EXE and COM Style Programs; Procedures and Procedure Calls; Macro; Segment Union; Parameter Passing Techniques; Interrupts; Interaction with High Level Programming Languages

Course Learning Outcomes:

1. Defines registers of the 80x86 processor and their usage characteristics.
2. Knows the 80x86 processor's command set in real mode.
3. Describes the structural differences between EXE and COM type programs.
4. Being familiar with procedure calls, interrupt and macro handling as well as the methods of passing parameters.
5. Ability to write appropriate assembly programs, to debug errors and, if necessary, the use of these programs in conjunction with high-level languages.

Course Code: "BLM2031"

Course Title: "Structured Programming"

Course Objectives: To teach advanced C programming

Course Content: Data Types ; Control Flows ; Loops ; Arrays and Pointers ; Multi-dimensional Arrays ; Pointer Arrays ; Strings ; Dynamic Memory Allocation ; Functions ; Function Pointers ; Recursive Functions ; Local and Global Variables ; Structures ; Bit-wise Operations ; File Operations ; C Preprocessing ; Macros ; Data Structures in C ; Linked Lists ; Static and Dynamic Libraries

Course Learning Outcomes:

1. Students will have advanced C programming language skills.
2. Students will be able to design efficient algorithms.
3. Students will have modular programming skills.
4. Students will be able to use low level capabilities of C programming language.
5. Students will be able to write readable and reusable source codes.
6. Students will able to debug their programs.

Course Code: "BLM2041"

Course Title: "Signals and Systems for Computer Engineers"

Course Objectives: This course is intended to provide fundamental information about signals and systems in both continuous and discrete domain for computer engineers.

Course Content: Introduction to Fundamental Concepts; Signals and Systems; Linear and Time-Invariant Systems; Time Domain Analysis of Continuous Time Systems; Time Domain Analysis of Discrete Time Systems; Continuous Time Fourier Series; Discrete Fourier

Transform; Continuous Time Fourier Transform; Fourier Transform of Some Functions; Sampling; Laplace Transform; Z-Transform.

Course Learning Outcomes:

1. Students understand the basics of signals and systems properties.
2. Students know the continuous and discrete domain signal processing concepts.
3. Students learn how to extract the frequency content of continuous and discrete domain signals.
4. Students know how to analyze linear time invariant systems' transient and steady state responses.
5. Students learn how to design continuous and discrete time linear time invariant systems.

Course Code: "BLM2051"

Course Title: "Seminar"

Course Objectives: To improve the ability of students doing scientific research and to speaking in front of the community.

Course Content: Making Literature Study that Students Will Contribute to Their Education in the Field of Computer Engineering; Making research; Gatherin Data and Analyzing them; Reporting Resultsi; Doing Presentation in front of the Community.

Course Learning Outcomes:

1. Students will make academic research on a topic.
2. Students will analyze and interpret a research data.
3. Students will prepare their research as report and presentation.
4. Students will speak and share information in front of the community.
5. Students will develop written and oral presentation skills.

Course Code: "BLM2521"

Course Title: "Discrete Mathematics"

Course Objectives: To learn a particular set of mathematical facts and how to apply them and how to think mathematically.

Course Content: Logic; Sets and Functions; Fundamentals of Algorithms; Integers and matrices; Counting Techniques; Chromatics Polinomials; Graphs; Trees; Boolean Algebra; Finite-State Machine with/without Output

Course Learning Outcomes:

1. The student will learn the basics of creating a mathematical model.
2. The student will learn mathematical concepts and terminology.
3. The student will know how to analyze recursive definitions, and how to use it.
4. The student will understand how to use different types of discrete structures.
5. The student will know how to perform mathematical proofs.

Course Code: "BLM2611"

Course Title: "Logic Circuits"

Course Objectives: The aim of the course is to provide students with the ability to analyze and design combinational and sequential circuits and to reinforce this knowledge in the laboratory environment.

Course Content: Number Systems; Boole Algebra; Simplification of Logic Functions; Karnaugh Maps; Quine-McClusky Method; Combinational Circuit Analysis; Combinational Circuit Design; Synchronous and Asynchronous Circuits; Sequential Circuit Analysis; Sequential Circuit Design; Registers, Counters, Memory Units.

Course Learning Outcomes:

1. Students will learn to manipulate logic expressions using theorem and properties of Boole algebra, and simplify these expressions algebraically and through mapping methods.
2. Students will learn how to implement digital systems using medium scale integrated circuits, and then understand the functional and timing characteristics of data storage units such as latches, flip-flops and registers.
3. Students will learn to analyze the synchronous sequential circuits and to generate the next state/output diagrams and tables, and to derive the output equations of the flip-flops.
4. Students will learn to use digital evaluation of the logic circuits they have learned during the course using simulation programs.
5. Students will learn to perform the physical realization of logic circuits with the problems encountered in the real world during laboratory studies.

Course Code: "MDB2051"

Course Title: "Reading and Speaking in English"

Course Objectives: Reading a passage/listening to a lecture about the same topic and identifying the main points of both texts in order to respond them orally. Providing topics of discussion in a variety of fields with a particular focus on art, social science and scientific innovations. Facilitating students' ability to comprehend both written and audio-visual texts. Encouraging students to improve ideas to eventually produce an oral response and to show expository skills in the oral exam.

Course Content: Written and audio-visual texts in a variety of fields with a particular focus on art, social science and scientific innovations. Strategies and vocabulary exercises which help students improve ideas to produce an oral response and to show required expository skills in the oral exam.

Course Learning Outcomes:

1. Being able to identify the main points of the texts and responding to them orally after reading a passage and listening to an audio-visual text about the same topic.
2. Being aware of topics of discussion in a variety of fields with a particular focus on art, social science and scientific innovations.
3. Improving their abilities to comprehend both written and audio-visual texts.
4. Being able to improve ideas to eventually produce an oral response and to show expository skills in the oral exam.

Course Code: "BLM2012"

Course Title: "Object Oriented Programming"

Course Objectives: Become able to design and implement object-oriented code by using Java and UML

Course Content: Objects, Classes and Members; Final and Static Members; Constructors and Finalizers; UML Class Diagrams; Command-line I/O; Control Flow; Relationships Between Classes and Objects (Association, Dependency, Aggregation, Composition, Inheritance); Overriding and Overloading; Primitives and Wrappers; Enum; Exception Handling; File Operations (Serialization and Deserialization using Streams); Generics; List and Map Data Structures; Introduction to Multithreading;

Course Learning Outcomes:

1. Students will be able to do object oriented modeling for the business logic layer of an information system.
2. Students will be able to document their designs using UML Class and Sequence diagrams
3. Students will be able to make two-way transformation between Java code and learned UML diagrams
4. Students will be able to write Java code that works from the command prompt
5. Students will be able to carry out fundamental tasks with modern IDE's

Course Code: "BLM2022"

Course Title: "Computer Hardware"

Course Objectives: This course is intended to overview of combinational and sequential circuits and to give information about the technology of computer hardware like memory systems, pipeline processing, cache memories and virtual memory.

Course Content: This course gives information about Central Processing Unit (CPU) and Control Unit design, Input/Output Interface and Communication, memory systems and management

Course Learning Outcomes:

1. Students understand the basic design of central processing unit(CPU) and control unit
2. Students can design a communication circuitry between CPU and I/O devices.
3. Students understand the memory systems, cache memories and mapping methods.
4. Students learn how to design a digital circuit.
5. Students learn fundamentals of logic design and their relation to computer organization.

Course Code: "BLM2032"

Course Title: "Electronic Circuits"

Course Objectives: To teach diode, BJT and FET transistors and OP-AMP structures which are basic electronic elements and to gain ability of analysis and synthesis of circuits formed with these elements.

Course Content: Diode; Diode Applications; Diode Logic; Bipolar Junction Transistor (BJT); DC Analysis of BJT Circuits; Diode Transistor Logic (DTL); Resistor Transistor Logic (RTL); Transistor Transistor Logic (TTL); Operational Amplifier (OP-AMP) and

Applications; Field Effect Transistor (FET); Junction Field Effect Transistor (JFET); Metal Oxide Semiconductor Field Effect Transistor (MOSFET); DC Analysis of field effect transistor circuits; MOS Logic.

Course Learning Outcomes:

1. Students will have general knowledge about diode, BJT, FET and OP-AMP elements.
2. Students will learn DC and AC analysis methods in electronic circuits.
3. Students will be able to make hardware applications using diode, BJT, MOSFET elements.
4. Students will also be able to realize basic logic gates using diode, BJT, MOSFET elements.
5. Students will learn to evaluate electrical simulation of circuits they have learned during the course in physical environment and using simulation programs.

Course Code: "BLM2042"

Course Title: "System Analysis and Design"

Course Objectives: To teach the concept of systems analysis, information systems and information system development life cycle.

Course Content: System Concept and General System Theory / Information System and Information System Types / Information System Development Process / System Analyst Duties and Capabilities / Preliminary Investigation and Feasibility Analysis / System Proposal Preparation and Presentation / Systems Analysis / Systems Design / Object Oriented Analysis and Design / Systems Implementation / New System to Handle Process

Course Learning Outcomes:

1. Students know the system concept and implement a system model.
2. Students understand the information system development process.
3. Students apply various structured analysis and design techniques.
4. Students design system solutions that fit the needs of the business.
5. Students understand and practise the responsibilities of the computer professionals on different roles.

Course Code: "BLM2502"

Course Title: "Theory of Computation"

Course Objectives: The objectives of this course are not only to introduce students to the mathematical foundations of computation including automata theory and the theory of formal languages and grammars; but also to provide students with an understanding of such basic concepts as automata, the equivalent regular expressions, the equivalence of languages described by automata, regular expressions, pushdown automata, the equivalent context free grammars, the equivalence of languages described by pushdown automata, context free grammars, Turing machines and the equivalence of languages described by Turing machines.

Course Content: Mathematical Tools (Definitions, Theorems, and Proofs); Types of Proofs; Regular Languages; Finite Automata; Nondeterminism; Regular Expressions; Nonregular Languages; Context-Free Languages; Context-free Grammars; Pushdown Automata; Non-context-free Languages; Turing Machines; Variants of Turing Machines; Definition of "Algorithm"; Decidability; Decidable Languages; Reducibility; NP-completeness; Reducibility; Recognizability

Course Learning Outcomes:

1. Students will be able to analyze finite automata, deterministic and non-deterministic automata, regular expressions, pushdown automata, Turing machines, formal languages, and grammars
 2. Students will be able to design finite automata, deterministic and non-deterministic automata, regular expressions, pushdown automata, Turing machines, formal languages, and grammars.
 3. Students will be to demonstrate their the understanding of key notions, such as algorithm, computability, decidability, and complexity through problem solving.
 4. Students will be familiar with Turing Machines and Problem Classes.
 5. Students will improve problem solving skills.
 6. Students will prove the basic results of the Theory of Computation.
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Course Code: "BLM2512"

Course Title: "Data Structures and Algorithms"

Course Objectives: The aim of this course is to teach the students to understand and implement fundamental data structures and algorithms and their effective use in a variety of applications.

Course Content: Fundamentals of Algorithmic Problem Solving, Fundamentals of the Analysis of Algorithm Efficiency, Lists and Linked Lists, Queues and Stacks, Trees, Search Algorithms, Sorting Algorithms, Divide and Conquer, Graph Algorithms, Recurrence Relations

Course Learning Outcomes:

1. Student will understand how to design correct and efficient algorithms.
 2. Student will learn major elementary data structures including stacks, queues, trees, graphs and should be able to use them appropriately to solve problems.
 3. Student will learn the most important algorithms and data structures in use on computers today
 4. Student will able to analyze worst-case, best-case and average case running times of algorithms using asymptotic analysis.
 5. Student will able to apply prior knowledge of standard algorithms to solve new problems.
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Course Code: "ISL4611"

Course Title: "Business Ethics"

Course Objectives: Contributing to make university students conscious about ethics and especially business ethics

Course Content: Morality and ethics, ethical theories, right and justice, ethical decision making, ethics in business life, social responsibility, ethical and unethical behaviors.

Course Learning Outcomes:

1. Students understand and embrace own values systems
2. Students understand corporate values and rules
3. Students understand the differences between morality and ethic
4. Students analyze ethical and unethical behaviors in organizations.

Course Code: "BLM3011"

Course Title: "Operating Systems"

Course Objectives: This course aims at teaching the students the hardware and software architecture of operating systems.

Course Content: Basic architecture of operating systems, hardware and software requirements and application areas of operating systems.

Course Learning Outcomes:

1. Students will be able to distinguish different styles of operating system design.
2. Students will understand device and I/O management functions in operating systems as part of a uniform device abstraction.
3. Students will understand the main principles and techniques used to implement processes and threads as well as the different algorithms for process scheduling.
4. Students will understand the main mechanisms used for inter-process communication.
5. Students will understand the main problems related to concurrency and the different synchronization mechanisms available.
6. Students will be able to give the rationale for virtual memory abstractions in operating systems.

Course Code: "BLM3021"

Course Title: "Algorithm Analysis"

Course Objectives: The goal of this course is to introduce advanced techniques for the design and analysis of major classes of algorithms, and explores a variety of applications.

Course Content: Fundamentals of the Analysis of Algorithm Efficiency, Asymptotic Notations, Analysis of Divide and Conquer Algorithms, Hashing Algorithms, Graph Algorithms, Balanced Search Trees, Dynamic Programming, Backtracking, P, NP and NP-Complete Problems

Course Learning Outcomes:

1. Students will be able to analyze the correctness of algorithms.
2. Students will learn the concepts of time and space complexity, worst case, average case and best case complexities and asymptotic notations.
3. Students will be able to design efficient algorithms for major engineering problems.
4. Students can compute complexity measures of algorithms.
- 5.

Course Code: "BLM3031"

Course Title: "Microprocessor Systems"

Course Objectives: Theory and applications on Intel microprocessors, peripheral devices and memory organizations.

Course Content: Intel 8086 and 286 Architecture; Input-Output Device; 8255 PPI; 8251 USART; 8254 PIT; ADC and DAC; Interrupt Requests; 8259 PIC; Memory Organizations; Address Decoding

Course Learning Outcomes:

1. The ability of designing conceptual microprocessor systems and developing target based software
2. Ability to apply basic sciences in the field of computer engineering.
3. Understanding the concept of microprocessor architecture and programming.
4. Ability to design hardware microprocessor systems to meet desired needs.
5. Ability to create algorithmic solutions to inspect, improve and enhance existing systems by means of analytical approaches.
6. Ability to use techniques and modern engineering tools necessary for engineering practice.
7. Ability to function as a member of a team (from lab).

Course Code: "BLM3041"

Course Title: "Database Management"

Course Objectives: Understanding database modeling, querying, and management techniques.

Course Content: Conceptual Design with ER/UML Modelling; Relational Model; Relational Algebra; SQL; DB Integrity Programming Techniques (Assertions, Triggers); DB-driven Programming Languages (Stored Procedures, Embedded SQL, JDBC); Semi-structured Modelling; XML; XML Programming Languages (XPath, XQuery)

Course Learning Outcomes:

1. The student is able to design and model medium-scale databases.
2. The Student is able to criticize the database design issues and how to write basic SQL queries.
3. The student is able to use database management tools in the laboratory environment.
4. The student is able to design and program database-driven programs.
5. The student is able to apply new generation DB modelling/programming languages such as XML, XQuery and XPath

Course Code: "BLM3051"

Course Title: "Data Communication"

Course Objectives: To obtain a detailed view of the first four layers of OSI reference model, understand how LAN and WANs are operating and to have knowledge about data transmission technologies.

Course Content: OSI Reference Model; Signaling and Encoding Techniques; Serial and Parallel Transmission; Communication Media Specifications; Error Detection and Correction; Flow Control Techniques; Synchronous and Asynchronous Transmission; Connection Oriented and Connectionless Services and Their Specifications; Switching; Local Area Network Technologies; Wide Area Network Technologies; IP, TCP and UDP;

Course Learning Outcomes:

1. Knowledge on fundamentals of networks, network structures and network device's functions.
2. Learn signal encoding techniques.
3. Knowledge on technical characteristics of various communication media.
4. Learn error detection techniques, flow control/management techniques and synchronous, asynchronous data link protocols.
5. Knowledge on local and wide area network technologies and ability to design computer networks.

Course Code: "BLM3120"

Course Title: "Information Retrieval and Web Search Engines"

Course Objectives: The purpose of the Web Data Mining course is to teach students how to mine information from the Web content, Web Structure and Web Usage data. This course also teaches how to use this information to better understand the data.

Course Content: Introduction to Web mining concepts, Internet and the Web graph, Information retrieval and Web search, Link analysis, Web crawling, Web usage mining, Clustering approaches for Web mining, Classification approaches for Web mining.

Course Learning Outcomes:

1. Web mining concepts will be learned.
2. Web mining skills will be acquired to extract knowledge from Web content, Web Structure and Web Usage data.
3. Web data will be analyzed and prepared for mining and outlier data will be discovered.

Course Code: "BLM3130"

Course Title: "Introduction To Game Development"

Course Objectives: Student should get a review of issues related to developing games, and develop at least one simple game.

Course Content:

Course Learning Outcomes:

1. Students have an understanding of how game engines work.
2. Students have an understanding of basic game design considerations.
3. Students can develop prototypes of their game ideas.
4. Students have an understanding of game artificial intelligence algorithms.
5. Students have an understanding of development of 3D game models.

Course Code: "BLM3520"

Course Title: "Introduction to Mobile Programming"

Course Objectives: To teach mobile programming techniques and basics of mobile technologies

Course Content: An Overview of Mobile Technologies ; Mobile Devices ; Mobile OS ; Introduction to Mobile Application Development ; Mobile App Components ; Application Lifecycle ; User Interface Design (Menus, Dialog boxes, etc.) ; ListView ; ViewPager ; ArrayAdapter; Databases on Smartphones and Data Management ; Sensors on Smartphones

and Sensor Data Collection ; Broadcast Receivers ; Notifications, User Rights and Permissions ; Location-based Services ; Background Tasks

Course Learning Outcomes:

1. Students will design, develop and test a mobile application taking the smartphone restrictions into account.
2. Students will learn the (dis)advantages of each mobile development methods.
3. Students will follow up-to-date progress on mobile technologies.
4. Students will learn in-situ (on-premise) processing techniques.
5. Students will able to upload his/her mobile application into app market.

Course Code: "BLM3590"

Course Title: "Statistical Data Analysis"

Course Objectives: Solving various problems by using basic statistical methods

Course Content: The basic laws of probability and descriptive statistics, conditional probability, random variables, expectation, discrete and continuous probability models, joint and sampling distributions, hypothesis testing, point estimation, confidence intervals, contingency tables, logistic regression, linear and multiple regression.

Course Learning Outcomes:

1. Students recognize the characteristics of the data that can be obtained from surveys.
2. Students create an appropriate data collection tool in a case investigated.
3. Students can prepare available data by using appropriate methods in a case investigated.
4. Students can determine the purpose of the research and data analysis technique in one study.
5. Students can evaluate the research problem based on the existing evidence.

Course Code: "BLM3750"

Course Title: "File Organization"

Course Objectives: Understanding the Basics of Disk Storage Unit and Disk-based Access Methods.

Course Content: Disc Basics: Performance and Reliability; File Types/Access Types; Static Hash Files; Extendible Hash Files; Linear Hash Files; Multi-level Indexing; ISAM; B-tree; Access Methods on Multiple Attributes: kd-tree; Grid-file

Course Learning Outcomes:

1. The student will have knowledge about disk, disk access performance, and data organization on the disk.
2. The student will have the knowledge about the identification and appropriateness of the data structures needed by different applications evaluation.
3. Student can analyse and compare the disk-based data sturctures like B-tree and hashing.

4. Student will be able to compare the disk-based structures with the in-memory data structures.
5. Student will have the knowledge of the importance of file structures in the dbms implementation.

Course Code: "BLM4120"

Course Title: "Big Data Processing and Analytics"

Course Objectives: This course will offer to students programming models, algorithms and tools of big data computing to support data-intensive applications. Students will get to know the latest research topics of big data platforms.

Course Content: In this course, new computing paradigms that are emerging for big data applications will be covered. These include big data algorithms, big data programming paradigms and platforms, big data analysis tools. In addition, the course will cover a lot of scientific papers.

Course Learning Outcomes:

1. Students will learn recent research trends and special topics in big data computing area.
2. Big Data Processing and Analysis concepts will be learned.
3. Big Data Processing and Analysis skills for developing data-intensive applications will be acquired.
4. Big Data computing platforms will be analyzed, and the skills to evaluate (performance, scalability, usability criteria) big data computing applications will be gained.
5. Students may have information about current software used in Big Data Processing.

Course Code: "BLM4130"

Course Title: "Formal Languages and Automata"

Course Objectives: To improve programming language skills by achieving basic knowledge of classification and definition of languages, and relation to automata and their functions.

Course Content: Alphabet, Language, Grammar, Classification of Grammars, Chomsky Hierarchy, Regular Grammars, Context Free Grammars, CFG and BNF, Parse Tree, Left Recursion and Elimination, Pumping Dilemma, Decision Problem, Normal Forms, Pushdown Automata, Context Sensitive Grammars, Linear Bounded Automata, Unrestricted Grammars, Turing Machine, Church Turing Hypothesis, Codes, Schutzenberger Criteria, Sardinas Patterson Algorithm, Prefix Codes, Bounded Delay Codes, Optimal Codes And Huffman Algorithm.

Course Learning Outcomes:

1. Students know the hierarchy of formal grammars.
2. Students will learn motivations to learn and design new programming languages.
3. Students will have confidence in fundamental subjects such as finite automata and Turing machines.
4. Students will learn the limitations of the codes generated by grammars
5. Students will be able to differentiate the grammars that can be used as programming languages

Course Code: "BLM4800"

Course Title: "Introduction to Data Mining"

Course Objectives: The objective of data mining is to find useful patterns in bulky data and to use discovered patterns to help explain behavior or to predict future outcomes.

Course Content: Data Mining Concepts, Preparing the Data, Statistical Classification Method (Naïve Bayes), Clustering Methods(K-Means,Hierarchical), Decision Trees and Decision Rules, Association Rules

Course Learning Outcomes:

1. After finishing this course the students will have the basicknowledge and application ability about the data mining methods.
2. They will have the ability of exploring the knowledge from bulky data.
3. They will have the ability to analyse, clear and find the outliers from bulky data.
4. They will have knowledge about supervised classification methods.
5. They will have knowledge about unsupervised clustering methods.

Course Code: "BLM4860"

Course Title: "Compiler Design"

Course Objectives: Basic knowledge of fundamentals of programming languages, compiler functions and stages, interaction between compilers and programs/programming languages.

Course Content: Phases of Compiling, Lexical Analysis, Syntax Analysis, Semantic Analysis, Intermediate Code Generation, Target Code Generation, Code Optimization

Course Learning Outcomes:

1. Students have knowledge about algorithms used in all steps of compilation.
2. Students know how to design new programming languages and able to use necessary analysis techniques.
3. Students are confident with the optimization methods and algorithms used by compilers.
4. Students learn platform spesific compiler algorithms.
5. Students know compiler implementation methods.

Course Code: "BLM3002"

Course Title: "General Internship"

Course Objectives: The purpose of the internship is improve the practical works of student in the academical area.

Course Content: Internship jobs in any public or private sector, six weeks (30 working days) requires the acquisition of professional experience. Students who successfully complete the internship are required to follow the rules of the Department of Computer Engineering Internship directive.

Course Learning Outcomes:

1. The student will apply the acquired theoretical knowledge in practice.
2. The student, who will offer him a job in the IT field in the future to establish a relationship with the employees learn.
3. The student will assess the student's ability to apply discipline-related knowledge to the field.
4. The student will learn to present the information acquired in an official report.
5. Students will learn to take responsibilities and learn to work with different groups.

Course Code: "BLM3010"

Course Title: "Computer Projects"

Course Objectives: Make students to gain experience about hardware and software related subjects with projects that combine them.

Course Content: Ability to solve problems in public and global domains with the help of studied software and hardware topics.

Course Learning Outcomes:

1. Students will learn the requirements of computer engineering, analytical thinking and approaching problems to produce algorithmic solutions.
2. Students will able to implement systems development life cycle in the projects.
3. Students will able to revise and improve systems designed by using the results obtained by implementing experiments and solutions.
4. Students will learn effectively writing of their team projects in reports.
5. Students will understand independent learning of new technologies and concepts in order to complete the project.
6. Students will learn how to interact professionally with others in the workplace, to engage effectively in teamwork.

Course Code: "BLM3012"

Course Title: "Occupational Law and Ethics"

Course Objectives: To equip the students with the occupational regulations and ethical rules of computer engineering.

Course Content: Occupational principles and regulations stated by the chambers and laws are explained to the students in a discussion. Students prepare and present research homework and projects on the terminology defined in the class.

Course Learning Outcomes:

1. Students will gain applicable knowledge on occupational regulations and rules of computer engineering.
2. Students will learn to communicate effectively.
3. Students will identify global and social effect of occupation.
4. Students will fulfill the professional requirements while avoiding interest conflicts
5. Students learn the laws related to the profession

Course Code: "BLM3022"

Course Title: "Computer Networking Technologies"

Course Objectives: This course aims at teaching the students the analysis, design and implementations of computer networks.

Course Content: The upper layers (3rd to 7th) of the OSI reference model, and understanding and evaluation of these layers via TCP/IP protocol suite.

Course Learning Outcomes:

1. Students will understand fundamental underlying principles of computer networking.
2. Students will understand details and functionality of layered network architecture.
3. Students will be able to identify the different types of network topologies and protocols.
4. Students will be able to enumerate the layers of the TCP/IP and explain the functions of each layer.
5. Students will understand subnetting and routing mechanisms.
6. Students will be able to design and implement a network application utilizing several application and transport layer protocols.

Course Code: "BLM3722"

Course Title: "Software Engineering"

Course Objectives: Teaching the processes and methods of implementing high-quality and economic software

Course Content: Traditional Software Development Lifecycle Models; Agile Software Development Lifecycle Models; Requirements Engineering; Use-case Scenarios; UML Use-Case and Activity Diagrams; Software Testing; Software Quality; Software Maintenance; Software Re-use; Software Configuration Management; Software Project Management; Software Metrics and Measurement; Software Effort Estimation; Software Risk Management; Software Process Improvement (CMMI)

Course Learning Outcomes:

1. Students will learn the classical and recent software development processes, including their advantages, disadvantages and appropriateness for different types of projects.
2. Students will learn the risks related with software development projects and gain the ability to carry out risk management tasks.
3. Students will gain the necessary prerequisites of working as a member or as the lead of a software development team.
4. Students will gain the ability to work in all phases of a software development project.
5. Students will gain the ability to create the technical documentation of a software development project.

Course Code: "BLM4011"

Course Title: "Security of Computer Systems"

Course Objectives: This course aims at making the students to achieve basic security skills and how to use them in the design and implementation of computer systems and

networks.

Course Content: This course focuses on the security issues in computer systems and computer networks.

Course Learning Outcomes:

1. The student will be able to master basic security concepts for computer systems, networks and applications.
2. The student will be able to analyze and describe elements of computer system security.
3. The student will be able to research and analyze network security issues and solutions from the Internet perspective.
4. The student will be able to evaluate platform specific operating systems and application security issues and solutions.
5. The student will be able to analyze a given case study with a view to determining and evaluating possible security solutions.

Course Code: "BLM4021"

Course Title: "Embedded Systems"

Course Objectives: Gaining ability to create solutions based on embedded systems.

Course Content: Introduction to microprocessors, microcontrollers, embedded systems and programming technics on embedded systems

Data acquisitions; sensors, sampling theory, analog digital converters, digital to analog converters, data processing Timers, interrupts and DMA on embedded systems. Communication hardware and methods. Using high level languages for application development on embedded systems, Introduction to fundamental concepts of Real Time Systems,

Real Time Operating Systems Embedded system design applications

Course Learning Outcomes:

1. The ability of developing application for embedded systems with resource constraints
2. Learning of software development techniques for embedded systems
3. Application development for embedded systems with high level languages
4. Learning of fundamental concepts of Real Time Systems
5. The ability of developing embedded systems with Real Time constraints

Course Code: "EHM4991"

Course Title: "Multidisciplinary Design Project"

Course Objectives:

Course Content:

Course Learning Outcomes:

Course Code: "TDB1031"

Course Title: "Turkish Language 1"

Course Objectives: Structure of Turkish and acquisition of basic grammar rules, comprehension of reading texts, expanding learners' vocabulary knowledge.

Course Content: History and basic rules of Turkish language, reading exemplary literary and scientific texts.

Course Learning Outcomes:

1. Know about the languages used in the world and the place of Turkish among world languages.
2. Acquires the correct use of spelling rules and punctuation marks
3. Acquires a larger vocabulary
4. Can use science and knowledge in a better way.
5. Acquires reading habit and pleasure

Course Code: "ATA1032"

Course Title: "Principles of Atatürk and History of Modern Turkey II"

Course Objectives: To inform students about political, economic, social and cultural facts of the historical period beginning from 1923 to the present. To provide students with some significant examples of a multi-layered point of view in evaluating historical events. With an interdisciplinary perspective, to introduce to students some basic theoretical concepts, discussions and methods of thought of different social sciences, with particular emphasis on history.

Course Content: Basic political, economic, social and cultural facts of the historical period beginning from 1923 to the present; fundamental academic interpretations on them.

Course Learning Outcomes:

1. The students will acquire a perspective to evaluate the 20.th century.
2. The students will evaluate the political, economic and cultural policies of the early republican era.
3. The students will evaluate the political, economic and cultural policies of the Democratic Party era.
4. The students will evaluate the political, economic and cultural policies after the military coup of 1980.
5. The students will evaluate today within the context of Republican history.

Course Code: "BLM4002"

Course Title: "Professional Internship"

Course Objectives: The purpose of the internship is improve the practical works of student in the academical area.

Course Content: Internship jobs in any public or private sector, six weeks (30 working days) requires the acquisition of professional experience. Students who successfully complete the internship are required to follow the rules of the Department of Computer Engineering Internship directive.

Course Learning Outcomes:

1. The student will apply the acquired theoretical knowledge in practice.

2. The student will establish a relationship with the future colleagues who work in the IT field.
3. The student will assess the student's ability to apply discipline-related knowledge to the field.
4. The student will learn to present the information acquired in an official report.
5. The student will learn to take responsibilities and learn to work with different groups.

Course Code: "BLM9000"

Course Title: "Graduation Thesis"

Course Objectives: Make students to gain experience about hardware and software related subjects with projects that combine them.

Course Content: Ability to solve problems in public and global domains with the help of studied software and hardware topics.

Course Learning Outcomes:

1. To fulfill the requirements of computer engineering, analytical thinking and approaching problems to produce algorithmic solutions.
2. Ability to implement systems development life cycle in the projects.
3. Ability to revise and improve systems designed by using the results obtained by implementing experiments and solutions.
4. Students will learn effectively writing of their team projects in reports.
5. Students will understand independent learning of new technologies and concepts in order to complete the project.
6. Students will learn how to interact professionally with others in the workplace, to engage effectively in teamwork.

Course Code: "TDB1032"

Course Title: "Turkish language 2"

Course Objectives: Correct use of Turkish, reading the professional and extraprofessional texts, successful oral and written expression.

Course Content: Reading sample literary and contemporary texts. Oral and written expression.

Course Learning Outcomes:

1. Know about the languages used in the world and the place of Turkish among world languages.
 2. Can express themselves better by internalizing Turkish language and get recognition in the society.
 3. Can understand and use their mother tongue in a better way.
 4. Can use science and knowledge in a better way.
 5. Can express themselves better in written and oral expression.
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