Course Descriptions – I - English: All compulsory courses offered by the department of the program

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Category</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMPE100</td>
<td>Introduction to Profession</td>
<td>Area Core Course</td>
<td>3/1/0</td>
<td>None</td>
<td>A series of seminars are held in current topics and areas of specialization in Computer Engineering. Speakers are invited from different departments of EMU including Computer Engineering Department or other International Universities, Industry and Consulting firms, to deliver seminars in all aspects of engineering that are not normally covered in the lecture courses.</td>
</tr>
<tr>
<td>CMPE101</td>
<td>Foundations of Computer Engineering</td>
<td>Area Core Course</td>
<td>3/1/0</td>
<td>None</td>
<td>This course introduces the student to the fundamental concepts of the computer engineering discipline. Topics covered include: Computers and information processing - notion of computers, concepts of data and information, applications of computers, history of computing. Computer hardware - CPU, memory, input/output interface, secondary storage, ports, types of computer systems, computer software - system software, utilities, application software, data communication, an overview of operating systems. General Problem Solving Concepts: basic data types, constants and variables, basic operators and expressions, algorithms, pseudocodes, and flow charts, sequential, and conditional problem solving (IF statements and switch statement), looping (WHILE, DO-WHILE, and FOR structures), formatted output, examples in C programming language.</td>
</tr>
<tr>
<td>CMPE112</td>
<td>Programming Fundamentals</td>
<td>Area Core Course</td>
<td>4/1/0</td>
<td>CMPE112</td>
<td>An overview of C programming language, Sequential structure Data types and classes of data, arithmetic operators and expressions, assignment statements, type conversions, simple I/O functions (printf, scanf, fprintf, gets, puts, fgets, fputs). Selective structure Relational operators, logical operators, conditional expression operator, conditional statements (if, switch). Repetitive structures While, do-while, for loops, loop interruptions (goto, break, continue). Null statement, comma operator. Functions Function definition and function call, external variables, storage classes, recursion. Arrays Array declaration, array initialization, arrays as function arguments. Pointers Basics of pointers, functions and pointers, arrays and pointers, strings and pointers, library functions for processing strings, pointer arrays. Structures Basics of structures, structures and functions, arrays of structures.</td>
</tr>
<tr>
<td>CMPE211</td>
<td>Object-Oriented Programming</td>
<td>Area Core Course</td>
<td>4/1/0</td>
<td>CMPE112</td>
<td>Basics of C++ and control structures. Object-Oriented programming and its specific features. Layout of a simple C++ program (elementary C++ programming). Overview of selection and iteration structures of C and C++ languages. Functions and Arrays. Pointers and dynamic memory allocation with C++ operators new and delete. C strings and C++ string class. C-strings, input/output operations, standard C-string functions, C++ string type (the standard string class). Class declarations, constructors, destructor initialization lists. Class destructor, member access specifiers public and private, const member functions, friend functions and classes, static data and function members. Operator Overloading. Composition and Inheritance.</td>
</tr>
</tbody>
</table>
| CMPE224     | Digital Logic Systems | Area Core Course | 4/1/0 | None | Synchronous Sequential Logic; Latches, Circuit Delay Model, Flip-Flops. Mealy and Moore Models for Sequential Circuits. Analysis of
7. **CMPE226 Electronics for Computer Engineers**


   Credits: **(4 / 1 / 0)**

   Abbreviated Title: Electron. For Comp. Eng. Category: Area Core Course Teaching Language: English

   Keywords: Ohm’s law, Kirchoff’s current and voltage laws, Thevenin theorem, diode, transistor, operational amplifier

   Department offering the course: Computer Engineering Department

8. **CMPE231 Data Structures**


   Credits: **(4 / 1 / 0)**

   Abbreviated Title: Data Structures Category: Area Core Course Teaching Language: English

   Keywords: Data organization, Programming, Algorithms

   Department offering the course: Computer Engineering Department

9. **CMPE242 Operating Systems**

   Operating system definition, simple batch systems, multiprogramming, time-sharing, personal computer systems, parallel systems. Introduction to process, process scheduling, operations on processes, cooperating processes, interprocess communications, interrupts, process synchronization, critical-section problem, atomic instructions, semaphores, synchronization problems, CPU scheduling, scheduling criteria and algorithms, multiple processes and real-time scheduling, algorithm evaluation, deadlocks, characterization and handling of deadlocks, deadlock prevention avoidance and detection, deadlock recovery, memory management and virtual memory, address spaces, swapping, memory allocation, paging, segmentation, file-systems, file concepts, access methods, directory structure.

   Credits: **(4 / 1 / 0)**

   Abbreviated Title: Operating Systems Category: Area Core Course Teaching Language: English

   Keywords: Operating Systems, process scheduling, process synchronization, deadlocks

   Department offering the course: Computer Engineering Department

10. **CMPE318 Principles of Programming Languages**

    Formal specification of programming languages: syntax, analysis, and semantics; evolution of programming languages and concepts; names and scope; data representation; evaluation sequence in expression, statement, and subprogram levels; OO implementation issues: abstraction, inheritance, polymorphism, concurrency and exception handling; sampling of other paradigms such as functional, logical, scripting, high-performance, etc. as time permits. Weekly homework and lab work are assigned in parallel to lectures.

    Credits: **(4 / 1 / 0)**

    Abbreviated Title: Prin. Of Progr. Languages Category: Area Core Course Teaching Language: English

    Keywords: Concepts of programming languages, syntax, analysis, semantics, programming paradigms and implementation

    Department offering the course: Computer Engineering Department

11. **CMPE321 Basics of Signals and Systems**


    Credits: **(4 / 1 / 0)**

    Abbreviated Title: Basics of Signals and Syst. Category: Area Core Course Teaching Language: English

    Keywords: Signals, systems, Fourier transform, z transform, filters

    Department offering the course: Computer Engineering Department

12. **CMPE323 Microprocessors**

    Introduction to computing: inside the computer, CPU-RAM-ROM. Registers, data transfer instructions, segmented logical and physical
addresses, stack operations, flags, addressing modes. Assembly Language: Directives, linking, and debugging, control transfer instructions, data types and data definition. Arithmetic Logic Instructions: unsigned, signed, bcd, packed-bcd and ascii number operations, rotate and shifts. Bios and DOS programming, ISA bus, Memory interfacing: memory devices, address decoding, ISA bus memory interfacing, I/O methods: I/O address decoding and simple I/O ports, Programmable Peripheral Interface applications with LED, display, switch, button, stepper motor interfacing. D/A and A/D converters. Serial Data Communication and 8251 USART. Interrupt Servicing.

Credits: (4 / 1 / 0)  
Prerequisites: CMPE224  
Abbreviated Title: Microprocessors  
Category: Area Core Course  
Teaching Language: English  
Keywords: 80x86 Assembly, Peripheral Interface Hardware, Embedded Controller Circuits  
Department offering the course: Computer Engineering Department

13. CMPE324 Computer Architecture and Organization  
Introduction to RISC architecture, MIPS Instruction set: Representing instructions in the computer, Supporting procedures in computer hardware, Passing the arguments to a procedure, Addressing in branches and jumps in MIPS, MIPS addressing modes, MIPS assembly program. Integer Arithmetic: Negative number representations, Addition and subtraction, Logic operations, Constructing the Arithmetic Logic Unit (ALU), Multiplication and Division algorithms, Floating point arithmetic algorithms. Design Performance Measures: CPU performance, Evaluating the performance. Processor Data path: Logic conventions and clocking, MIPS single clock cycle implementation: The simple implementation scheme, The multiple clock cycle implementation, Designing the control unit for the multiple clock cycle implementation.

Credits: (4 / 1 / 0)  
Prerequisites: CMPE224  
Abbreviated Title: Computer Arch. & Org.  
Category: Area Core Course  
Teaching Language: English  
Keywords: RISC Processor Design, VHDL simulation  
Department offering the course: Computer Engineering Department

14. CMPE343 Systems Programming  

Credits: (4 / 1 / 0)  
Prerequisites: CMPE242  
Abbreviated Title: Systems Programming  
Category: Area Core Course  
Teaching Language: English  
Keywords: UNIX, system calls, interprocess communication, sockets  
Department offering the course: Computer Engineering Department

15. CMPE344 Computer Networks  

Credits: (4 / 1 / 0)  
Prerequisites: CMPE242  
Abbreviated Title: Computer Networks  
Category: Area Core Course  
Teaching Language: English  
Keywords: computer networks, data communication, protocols, TCP/IP  
Department offering the course: Computer Engineering Department

16. CMPE354 Database Systems Design  
This course introduces the student to the fundamentals of database management. Topics covered include: the Entity-Relationship model; the Relational model and its mathematical foundations; most important features of Structured Query Language (including basic structure, aggregate functions, nested queries, index definition, stored procedures and functions, views, database modification, domain constraints, assertions, triggers, transaction definition, data definition language, granting privileges, security), query languages Datalog and QBE; Object-Oriented and Object-Relational databases; design principles of Relational databases (normal forms, functional dependencies, decomposition).

Credits: (4 / 1 / 0)  
Prerequisites:CMPE231  
Abbreviated Title: Databases Sys. Design  
Category: Area Core Course  
Teaching Language: English  
Keywords: Databases, model, E-R Diagram , relation, object, query, language, schema, design  
Department offering the course: Computer Engineering Department

17. CMPE371 Analysis of Algorithms  
### Course Descriptions – II - English : Area Electives courses offered by the department of the program

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Credits</th>
<th>Course Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CMPE412</strong></td>
<td>Software Engineering</td>
<td>CMPE231</td>
<td>4</td>
<td>The software life cycle and the phases in software development: Project scheduling, feasibility study, analysis, specification, design, implementation, testing, quality assurance, documentation, maintenance. Management issues: Planning, organization, control. Also included are formal specification techniques, structured programming, modular system design and other current issues.</td>
</tr>
<tr>
<td><strong>CMPE413</strong></td>
<td>Compiler Construction</td>
<td>CMPE318</td>
<td>4</td>
<td>This technical elective course mainly focuses on the following topics: Introduction to compilers, A simple one-pass compiler, Lexical analysis, Syntactic specification of programming languages, The parsing problem, top-down and bottom-up parsing, Syntax-directed translation, Symbol tables, Run time environment and storage administration, Code generation and optimization, Compiler development.</td>
</tr>
<tr>
<td><strong>CMPE414</strong></td>
<td>Modern Programming Platforms</td>
<td>CMPE211</td>
<td>4</td>
<td>This course covers software development in the .Net framework and the C# programming language that makes full use of this framework and has all the important features that a modern language should have. The topics include the philosophy of the .Net framework and the .Net class library, object-oriented programming, event handling, graphical user interfaces, graphics and media, multithreading, exception handling, strings and characters, files and database connections.</td>
</tr>
</tbody>
</table>
4. **CMPE415  Visual Programming**
The main concern of this course is to teach Graphical User Interface, event-driven programming and object-oriented programming for Windows and Internet environments with a visual programming language. Windows Presentation Foundation (WPF) Graphical User Interface, WPF Graphics and Multimedia, XML and XAML, Strings, and Database and Web Application development will also be introduced.

Credits: (4 / 1 / 0)  
Prerequisites: CMPE354  
Abbreviated Title: Visual Programming  
Category: Area Elective Course  
Teaching Language: English  
Keywords: User interface, Event driven, Object oriented programming, File management  
Department offering the course: Computer Engineering Department

5. **CMPE416  Object-Oriented Programming and Graphical User Interfaces**
The purpose of this course is to expose the Object Oriented Programming approach and its use in building Graphical User Interfaces. It will be done in fact through the presentation of the JAVA language. The student is to learn the language structure of JAVA, its object oriented aspect, the similarities and differences with C. He must also acquire a practical programming experience in Java through a number of exercises and projects. Concerning the applications of the language, we will focus on the implementation of Graphical User Interfaces as well as animation programs. Blueprints and a practical object oriented development methodology will be given for such applications.

Credits: (4 / 1 / 0)  
Prerequisites: CMPE211  
Abbreviated Title: O.O Prog.&GUI's  
Category: Area Elective Course  
Teaching Language: English  
Keywords: OOP, GUI, JAVA  
Department offering the course: Computer Engineering Department

6. **CMPE417  Advanced Topics in C**

Credits: (4 / 1 / 0)  
Prerequisites: CMPE211  
Abbreviated Title: Advanced Topics in C  
Category: Area Elective Course  
Teaching Language: English  
Keywords: Advance C, C's memory map, Type, Storage, Pointers  
Department offering the course: Computer Engineering Department

7. **CMPE418  Internet Programming**
This course is an introduction to the core technologies, tools, techniques and languages needed for the design and implementation of static and dynamic Web pages, as well as Web applications. Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), Extensible Markup Language (XML), Extensible Stylesheet Language transformations (XSLT), JavaScript and AJAX are covered for programming on the client side. The list of technologies covered may change as new technologies become available and current ones become obsolete. Web servers, XML Web services, a scripting language and a corresponding web application framework are covered for programming on the server side. Issues that are dealt with concerning server side programming also include session tracking, authentication, authorization, and database connectivity.

Credits: (4 / 1 / 0)  
Prerequisites: CMPE354  
Abbreviated Title: Internet Programming  
Category: Area Elective Course  
Teaching Language: English  
Keywords: Internet, programming, client side, server side, HTML, XML, HTTP, Javascript  
Department offering the course: Computer Engineering Department

8. **CMPE421  Parallel Computer Architecture**
This course discusses various processing techniques used to improve the performance of computing systems. MIPS architecture is considered as an example to Pipelined processing. Memory issues and cache memories are discussed, followed by main topics of parallel processing including a taxonomy of parallel computers, interconnection schemes, single-bus MIMD's and networked MIMD's. Memory bottleneck, memory consistency models and cache coherence issues are also considered.

Credits: (4 / 1 / 0)  
Prerequisites: CMPE324  
Abbreviated Title: Parallel Computer Architecture  
Category: Area Elective Course  
Teaching Language: English  
Keywords: Computing systems, MIPS, Memory & cache memory, Parallel processing  
Department offering the course: Computer Engineering Department

9. **CMPE422  Microprocessor Systems**
This unit aims to study the main aspects in microprocessor systems; Microprocessors: CISC and RISC microprocessor concepts. The Intel 80386 microprocessor; Addressing and memory, segmentation, and protection mechanisms. Tasking, virtual memory, and exceptions. The Motorola 68030 microprocessor: The user programming model. The 68030 supervisor state.

Credits: (4 / 1 / 0)  
Prerequisites: CMPE323
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Abbreviated Title</th>
<th>Category</th>
<th>Teaching Language</th>
<th>Keywords</th>
<th>Department offering the course</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMPE423</td>
<td>Embedded System Design</td>
<td>Embedded System Design</td>
<td>Area Elective Course</td>
<td>English</td>
<td>CISC, RISC, Intel 80386, Segmentation, Protection</td>
<td>Computer Engineering Department</td>
</tr>
<tr>
<td>10.</td>
<td>CMPE424 Speech and Image Processing</td>
<td>Speech and Image Proc.</td>
<td>Area Elective Course</td>
<td>English</td>
<td>Harvard + RISC, Embedded computing, Design applications</td>
<td>Computer Engineering Department</td>
</tr>
<tr>
<td>12.</td>
<td>CMPE427 Hardware Realization of Algorithms</td>
<td>Hardware Realization of Algo</td>
<td>Area Elective Course</td>
<td>English</td>
<td>Hardware implementation, Software realization, CAD, FPGA</td>
<td>Computer Engineering Department</td>
</tr>
<tr>
<td>13.</td>
<td>CMPE443 Real-time System Design</td>
<td>Real-time System Design</td>
<td>Area Elective Course</td>
<td>English</td>
<td>Real-time systems, ADA, programming, architecture and design of real-time systems, concurrent programming and synchronization, real-time scheduling, reliability and exception handling, real-time OS, and distributed real-time systems.</td>
<td>Computer Engineering Department</td>
</tr>
<tr>
<td>14.</td>
<td>CMPE444 Data Communications</td>
<td>Data Communications</td>
<td>Area Elective Course</td>
<td>English</td>
<td>Data Communications</td>
<td>Computer Engineering Department</td>
</tr>
</tbody>
</table>
16. CMPE445  Internet Architecture and Protocols

Credits: (4 / 1 / 0)
Prerequisites: CMPE344

17. CMPE447  Fiber Optic Computer Communication
This course will describe the basic principles of fiber optics, light propagation theories, attenuation of optical fibers, dispersion and dispersion compensation of fiber optics. In addition, optical fiber transmitters, receivers and fiber optic system design are also discussed. Finally, an introduction to fiber optic network is considered.

Credits: (4 / 1 / 0)
Prerequisites: CMPE344

18. CMPE461  Artificial Intelligence
This undergraduate-level course introduces the basic concepts of artificial intelligence (AI). General understanding of basic concepts with emphasis on the agent perspective to artificial intelligence through intelligent agents, blind and informed search algorithms, constraint satisfaction, reasoning, and knowledge representation, are the major goals in the preparation of lectures and practical laboratory works. Active student participation is necessary in both lecture and laboratories. The students, by the end of this course, are expected to identify the uses of basic techniques in different fields of computer engineering.

Credits: (4 / 1 / 0)
Prerequisites: CMPE231

19. CMPE462  Functional and Logic Programming
This course is about the two main declarative programming paradigms, namely functional and logic. A logic programming language such as Prolog or any one its derivatives will be taught as a representative of the Logic programming paradigm. A modern functional programming language such as Haskell, ML, CAML or any one of their derivatives will be taught as a representative of the Functional programming paradigm. Instead of two distinct languages, a functional/logic language such as Curry may be used, which has the features of both functional programming and logic programming in the same computational framework. On the logic programming side, topics that will be covered include logic variables, substitution, unification, resolution, non-determinism, backtracking, arithmetic, lists, trees, structure inspection, meta-logical predicates, the cut, negation and incomplete data structures. On the functional programming side, topics that will be covered include expressions, predefined types and operations, functions, pattern matching, conditions, non-determinism, user-defined types, lists, strings, tuples, higher-order functions, lazy evaluation, local definitions and exceptions.

Credits: (4 / 1 / 0)
Prerequisites: CMPE318

20. CMPE466  Computer Graphics
This course studies; computational geometry, curve, surface and object representations, geometric transformations, three dimensional graphics, color, shading, shadowing, hidden line elimination, surface removal, anti-aliasing, digitizing and scanning, display algorithms, graphics hardware, display devices.

Credits: (4 / 1 / 0)
Prerequisites: CMPE211

21. CMPE474  Performance Analysis of Comp. Sys. and Networks

Credits: (4 / 1 / 0)
Prerequisites: MATH322
### CMPE475 Operation Research

This course focuses on: Linear programming. Solution techniques of linear programs. The transportation problem. Project scheduling by critical path method. Nonlinear programming. Integer programming.

**Credits:** (4 / 1 / 0)

**Prerequisites:** MATH241

### CMPE476 System Simulation


**Credits:** (4 / 1 / 0)

**Prerequisites:** MATH322

### CMPE471 Automata Theory


**Credits:** (4 / 0 / 0)

**Prerequisites:** MATH163

### Course Descriptions – III - English : All compulsory courses offered by other academic units

#### MATH151 Calculus - I


**Credits:** (4 / 0 / 1)

**Prerequisites:** None

#### MATH152 Calculus - II


**Credits:** (4 / 0 / 1)

**Prerequisites:** MATH 151

#### MATH163 Discrete Mathematics

Set theory, functions and relations; introduction to set theory, functions and relations, inductive proofs and recursive definitions. Combinatorics; basic counting rules, permutations, combinations, allocation problems, selection problems, the pigeonhole principle, the principle of inclusion and exclusion. Generating functions; ordinary generating functions and their applications. Recurrence relations; homogeneous recurrence relations, inhomogeneous recurrence relations, recurrence relations and generating functions, analysis of algorithms. Propositional calculus and boolean algebra; basic boolean functions, digital logic gates, minterm and maxterm expansions, the basic theorems of boolean algebra, simplifying boolean function with karnaugh maps. Graphs and trees; adjacency matrices, incidence
matrices, eulerian graphs, hamiltonian graphs, colored graphs, planar graphs, spanning trees, minimal spanning trees, Prim's algorithm, shortest path problems, Dijkstra's algorithms.

Credits: (3/0/1) 3  Prerequisites: None
Abbreviated Title: Discrete Mathematics  Category: Area Core Course  Teaching Language: English
Keywords: set, function, relation, permutation, combination, pigeonhole principle, principle of inclusion and exclusion, recurrence relations, boolean algebra, graph, tree
Department offering the course: Mathematics

4. MATH241  Linear Algebra and Ordinary Differential Equations
Linear Algebra; Matrix algebra, special matrices and row operations, Gaussian elimination method, determinants, adjoint and inverse matrices, Cramer's rule, linear vector spaces, linear independence, basis and dimension. First order ordinary differential equations; definitions and general properties of solutions, separable, homogeneous and linear equations, exact equations and integration factors. Higher order equations with constant coefficients; Basic theory and the method of reduction of order, second order homogeneous equations with constant coefficients, the method of undetermined coefficients, the method of variation of parameters, the Cauchy-Euler equations. Power series solutions; classification of points, ordinary and singular points, power series solutions about ordinary points, power series solutions about regular singular points, the method of frobenius. Systems of differential equations; general properties of constant coefficient systems, eigenvalues and eigenvectors, diagonalizable matrices, solutions of linear systems with constant coefficients. Boundary value problems.

Credits: (4/0/1) 4  Prerequisites: MATH151
Abbreviated Title: Lin.Alg.&Diff.Equat.  Category: Area Core Course  Teaching Language: English
Keywords: matrix, determinant, linear independence, differential equations, Cauchy-Euler equation, power series, system of differential equations, eigenvalue, eigenvector
Department offering the course: Mathematics

5. MATH322  Probability and Statistical Methods

Credits: (3/0/1) 3  Prerequisites: MATH151
Abbreviated Title: Prob.&Statistical Met  Category: Faculty Core Course  Teaching Language: English
Keywords: conditional probability, random variable, expectation, distribution function, statistics
Department offering the course: Mathematics

6. MATH373  Numerical Analysis for Engineers

Credits: (3/0/1) 3  Prerequisites: MATH241
Abbreviated Title: Num. Anal for Engineers  Category: Faculty Core Course  Teaching Language: English
Keywords: numerical error, nonlinear equation, linear system of equations, interpolation, extrapolation, numerical differentiation, numerical integration
Department offering the course: Mathematics

7. PHYS101  Physics - I

Credits: (4/1/0) 4  Prerequisites: None
Abbreviated Title: Physics I  Category: Faculty Core Course  Teaching Language: English
Keywords: Measurements, Units, Vectors, Kinematics, Dynamics, Newton's Laws, Work and Energy, Linear Momentum, Rotational Kinematics/Dynamics, Static Equilibrium
Department offering the course: Physics

8. PHYS102  Physics - II

Credits: (4/1/0) 4  Prerequisites: PHYS101
Abbreviated Title: Physics II  Category: Faculty Core Course  Teaching Language: English
Keywords: Heat, Thermodynamics, Charge, Electric/ magnetic Fields, Gauss’ Law, Electromagnetic Induction
Department offering the course: Physics

9. ENGL191  Communication in English - I
ENGL 191 is a first semester freshman academic English course. It is designed to help students improve the level of their English to B1 level, as specified in the Common European Framework of Reference for Languages. The course connects critical thinking with language skills and incorporates learning technologies such as GEMoodle. The purpose of the course is to consolidate students' knowledge and awareness of academic discourse, language structures and lexis. The main focus will be on the development of productive (writing,...
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<tr>
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<th>Keywords</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL192</td>
<td>Communication in English – I</td>
<td>This course is designed to further help students improve their English to B2 level, as specified in the Common European Framework of References for Languages. The course aims to reconsolidate and develop students' knowledge and awareness of academic discourse, language structures, and critical thinking. The course incorporates more technologies on MOODLE that will promote self study and Microsoft computer skills. The course will focus on reading, writing, listening, speaking and emphasizing documentation and presentation skills in academic settings.</td>
<td>(3 / 0 / 1)</td>
<td>ENGL191</td>
<td>University Core Course</td>
<td>English</td>
<td>None</td>
<td>School of Foreign Languages</td>
</tr>
<tr>
<td>ENGL201</td>
<td>Communication Skills</td>
<td>ENGL201 is a Communication Skills course for students at the Faculty of Engineering. The course aims to introduce a range of skills, including effective written and oral communication, research skills and study skills. Throughout the course the students will be involved in project work intended to help them in their immediate and future academic and professional life. This will include library research, technical report writing and an oral presentation. By investigating a topic of their own choice, students will develop their understanding of independent research skills. During the report writing process, students will improve their writing and develop the ability to produce organized, cohesive work. The oral presentation aims to enhance spoken fluency and accuracy and provide training in the components of a good presentation.</td>
<td>(3 / 0 / 1)</td>
<td>ENGL192</td>
<td>Faculty Core Course</td>
<td>English</td>
<td>None</td>
<td>School of Foreign Languages</td>
</tr>
<tr>
<td>HIST280</td>
<td>History of Turkish Reforms</td>
<td>A history of the foundation of the Turkish Republic under the light of Kemal Atatürk's principles. A required course for all Turkish students</td>
<td>(2 / 0 / 0)</td>
<td>None</td>
<td>University Core Course</td>
<td>Turkish</td>
<td>None</td>
<td>Atatürk Research Center</td>
</tr>
<tr>
<td>TUSL181</td>
<td>Introduction to Turkish Language</td>
<td>TUSL181 is a basic Turkish course introducing the Turkish language. It incorporates all four language skills and provides an introduction to basic grammar structures. Students will be encouraged to develop their writing skills through a variety of tasks. The aim of this course is for students to be able to understand and communicate in everyday situations, both in the classroom and in a Turkish speaking environment.</td>
<td>(2 / 0 / 0)</td>
<td>None</td>
<td>University Core Course</td>
<td>Turkish</td>
<td>None</td>
<td>School of Foreign Languages</td>
</tr>
<tr>
<td>CMPE108</td>
<td>Algorithms and Programming</td>
<td>This course is intended to serve as an introduction to a wide range of modern computational methods and technologies for solving mathematical problems and for disseminating their solutions. This course will be to discover what tools are available, how they work, and how to choose the best tool for a given problem. In addition, programming with FORTRAN (one, two and three dimensional array, subroutine) the students who successfully fulfill the course requirements will be able to utilize FORTRAN and MATLAB problem solving environment for computational implementation.</td>
<td>(3 / 0 / 0)</td>
<td>None</td>
<td>Area Core Course</td>
<td>English</td>
<td>Computers, Programming, FORTRAN Programming Language</td>
<td>Computer Engineering Department</td>
</tr>
<tr>
<td>CMPE110</td>
<td>Fundamentals of Computing and Programming</td>
<td>This course presents the basic description of computer hardwares and softwares. Also, it introduce the basics of problem solving concept, algorithm, pseudocode, and flowchart. Finally, the fundamentals of programming using PASCAL programming language are covered.</td>
<td>(3 / 0 / 0)</td>
<td>None</td>
<td>Area Core Course</td>
<td>English</td>
<td>Computer Programming</td>
<td>Computer Engineering Department</td>
</tr>
<tr>
<td>Credits: (4 / 0 / 0)</td>
<td>Prerequisites: None</td>
<td>Co-requisites: None</td>
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<tr>
<td>Abbreviated Title:</td>
<td>Fundamentals of Computing and Programming</td>
<td>Category: Area Core Course</td>
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<td>Keywords: Computers, Hardware, Software, Programming, PASCAL Programming Language</td>
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