

**MARMARA UNIVERSITY TECHNICAL EDUCATION FACULTY
ELECTRONICS AND COMPUTER EDUCATION DEPARTMENT
COMPUTER EDUCATION PROGRAM
COURSE DESCRIPTIONS**

1ST TERM

ATA121 ATATURK'S PRINCIPLES AND THE HISTORY OF TURKISH RENEVATION I (2+0)2

General information about Turkish Republic between 1900 – 1940

CCM101 USING FUNDAMENTALS OF INFORMATION TECHNOLOGIES (2+2)3

Introduction to Computers: What is computer systems, Elements of computer systems , Classification of computers. . System Software: Operating systems, operating system concepts, single tasking, multi-tasking, multi-user, time sharing virtual memory, multiprogramming ,, programming languages, assemblers, compilers, linkers, interpreters, utility programs. Application Software: word processing, and desktop publishing, Spreadsheet programs, Database programs, multimedia, Computer's Hardware: CPU Section; .microprocessors, primary storage EPROM, RAM, cache memory, main board, parallel and serial ports USB, Fire Wire, Input Devices, Output Devices, Secondary Storage Devices. Computer communication systems: Data communication, LAN and Networking, Internet applications.

CHEM125 CHEMISTRY (2+0)2

Introduction to atomic theory, stoichiometry, electronic structure, molecular orbital properties of solutions, equilibrium chemical kinetics, thermodynamics and electrochemistry

EDU183 INTRODUCTION TO TEACHING PROFESSION (3+0)3

Properties and Principle of Teaching Occupation, School and Clasroom environment. Social, philosopic, psychologig and historical base of Education. Education System of Turkey

MATH141 MATHEMATICS I (4+0)4

Limits and derivatives. The Mean Value Theorem. Definite and indefinite integral. The logarithmic, exponential, inverse trigonometric and hyperbolic functions. L'Hospital rule. Techniques of integration. Numerical methods of integration. Applications to geometry and physics. Area in polar coordinates. Improper integrals. Sequences. Infinite series, power series and Taylor's series.

MECH105 TECHNICAL DRAWING (1+2)

Professional drawing tools, writing types, point, straight line, drawing three dimension objects and their projection, drawing three appereance of object which is given as perspective Picture, appereance types, intersection appereance drawing perspectives, drawing the isometric-dimetric-trimetric perspectives, drawing the electronic components, drawing the circuit diagram and drawing the printed circuit, drawing underside and upperside view on a page

PHYS131 PHYSICS I (3+0)3

Vectors; kinematics; particle dynamics work and energy; conservation of energy; system of particles; collisions; rotational motion; oscillations

TRD121 TURKISH LANGUAGE I(2+0)2

Language and culture connection, Turkish language in world languages, Development of Turkish language, Turkish language, Sound classification, Rules of Turkish language, Syllable, Spelling rules, Punctuation , Appendix, Verbs, Adverbs and prepositions

YDI131 ADVANCED ENGLISH I(3+0)3

Numbers, letters, verb to be in present tense, Subjective-objective-possessive pronouns, this-that-these-those, adjectives, there is-there are, some propositions (on, in, under), ordinal numbers; Would like, Which?, Whose?, emphatic pronouns, instructions, What make?, can, have got-has got; How much-How many?, What?, one-ones, Which one?, Which ones?, letter format, name, address; What is it like?, present continuous tense; Who?, days of the week, too-either

2.YARIYIL

ATA122 ATATURK'S PRINCIPLES AND THE HISTORY OF TURKISH RENEVATION II (2+0)2

General information about Turkish Republic between 1940 – 1960

CCM106 INTRODUCTION TO OBJECT ORIENTED PROGRAMMING(2+2)3

Structural and modular program logic, problem analysis methods. Basic algorithm terms, module separation and sorting techniques. The flow chart symbols, symbols, inter-connectivity, input, output, decision, and the reference symbols. Variable and fixed types, numeric variables, alphanumeric variables, variable selection criteria. Assignment, decision and loop structures, graphical programming input

EDU184 SCHOOL EXPERIENCE I(1+4)3

Define technical and vocational education, describe the historical context of technical and vocational education, describe the foundations and organization of technical and vocational education, understand the legal basis of technical and vocational

Mevcut Elektronik İmzalar

Recep Akyol - (Fakülte Sekreteri) - 06.02.2026

Bu belge, güvenli elektronik İmza ile imzalanmıştır.

Evrak sorgulaması <https://turkiye.gov.tr/ebd?eK=5709&eD=BSNCFYS2A2&eS=1211644> adresinden yapılabilir. (PIN:82852)

EDU487 SPECIAL INSTRUCTION METHODS II(2+2)3

Define technical and vocational education, describe the historical context of technical and vocational education, describe the foundations and organization of technical and vocational education, understand the legal basis of technical and vocational education, describe the current provision and characteristics of technical and vocational education, understand some of the problems and trends in technical and vocational education.

CCM401 GRADUATE PROJECT I (0+2)1

project, research, experiment, report concepts

CCM461 COMPUTER NETWORKS I (2+0)2

Using computer networks, Network hardware and software, Reference models(OSI,TCP/IP), Example networks, Network standards, Basic information on data communication, Network Cables and wireless network communication, Switching technologies, Data link layer, framing, error detection and correction, basic data link protocols, LAN, The Medium Access Control Sublayer. Channel allocation, CSMA protocols, Ethernet protocols and standards, 1GB- 100GB ethernet standards. Wireless LAN standards and protocols, datalink switching, hub, switch and bridges Virtual LAN. Example LAN system designs. Real world examples.

CCM463 COMPUTER ORGANIZATION (2+2)3

Computer organization and architecture, Structure and functions, performance criteria, international performance standards, performance-price analysis methods and technological trends. Computer components and bus structures, PCI and PCI express bus, Computer memory systems, cache memory principles, cache design methods, cache memory structures of Intel and AMD processors, Semiconductor RAM design and latest developments, External memory, magnetic disk, optic disc RAID structures, I/O modules and interface systems, USB and firewire ports, Computer arithmetic, Integer and floating point arithmetic operations, Instruction set and addressing modes design. Instruction sets of Intel and AMD processors. CPU structure, pipeline structures and examples from Intel and AMD processors.

CCM465 LAN SERVER MANAGEMENT (2+2)3

Required hardware and software for LAN operating. Options for LAN installation, Domain and workgroups, LAN server configuration. Active directory, creating users and groups, giving rights for users and groups, printer and file management, LDAP protocol, limits for file access.

8TH TERM

EDU424 GUIDANCE (3+0)3

Identify the differences between individual students in relation to a number of psychological factors, use a variety of measures to identify quantitatively the differences between students, understand the differences between adolescent and adults and the transition from one to the other, be aware of the different developmental stages as they occur within the individual, describe some of the basic principles that relate the human learning processes, plan and prepare lessons that take into account and understanding of human learning processes

EDU486 TEACHING PRACTICE (2+6)5

Demonstrate knowledge of the concept, factors and procedures involve determining the required teaching/learning resources, demonstrate a knowledge of techniques and procedures for organizing various types of learning systems, demonstrate a knowledge of the national legal requirements occupational health and safety, plan a tool and equipment inventory control system for a practical activities area in your special.

CCM402 GRADUATE PROJECT II(0+2)1

hardware and software design of project writing and presenting project

CCM 462 COMPUTER NETWORKS II (2+2)3

Network Layer, Network layer design, routing algorithms, congestion controls, quality of service, IP addressing, protocols, TCP and UDP protocols, performance, Application layer, Multimedia network systems, Network security, WEB security.

CCM464 COMPUTER ARCHITECTURE (2+0)

RISC processors, characteristics and architectures, Sun sparc RISC processors, Instruction level parallelism, Superscalar processor and designs, example processors from Intel and AMD, 64 bits processor architectures, parallel processing, symmetric and asymmetric processors, multithreading processors.

CCM474 EDUCATIONAL SOFTWARE DEVELOPMENT (2+2)3

Lesson software design programs, preparing lesson presentations, animations, multimedia supported software development techniques and important aspects in educational software. Simulation design techniques for education-learning environment, authoring systems, web based learning and software planning, development. Evaluating e-learning environment. Lesson and learning management.

CCM405 COMPUTER PROGRAMMING III(2+2)3

Visual Basic .NET applications variables, operators, statements, functions, decision statements, loops, error handling, creating class and objects, references, arrays, inheritance, operators over loading, windows forms, dialog toolbox, MDI and SDI concepts

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CCM467 E-COMMERCE APPLICATIONS (2+2)3

Internet, electronic shopping, e-commerce, business management, online services, business policies, electronic paying systems, customers' rights and advertisement. Advantages of e-commerce, comparison e-commerce with traditional commerce, application of current developments to e-commerce. Web sub-structure, (hardware, software) designing customer interface, database operations, relationships, querying, adding and deleting records, installation, updating and publishing. Risks in e-commerce and preservation of customers' rights. Encryption methods (certifying, validation and encryption security), Designing interfaces for encryption and using security software.

CCM469 SYSTEM PROGRAMMING (2+2)3

File system, system libraries:input/output, files and directories, code conversion,file/directory attributes and windows registry.Loader and linkers, compilers.Heap and heap memory management, memory mapped files and dynamic linked libraries. Process management, defining processes, consol control events and process time. Threads timing, management and using a library in a thread, thread models, priority and synchronization of threads. Sockets, socket server, client functions,server programs, Client/Server Communication

CCM473 COMPUTER GRAPHICS (2+2)3

Two-dimensional basic drawing algorithms, scanning and conversion to form, shape, filling in, styles, trim the hotfix concepts. Three-dimensional transformations, the rotation axis and aynalama. Three-dimensional and cross-section of izdüşümü reception. Three-dimensional geometry, can be seen to define the surfaces and lighting, creating shadows.

CCT473 INTRODUCTION TO ARTIFICIAL INTELLIGENCE (2+2)3

Fundamental properties of artificial intelligence. Search algorithms. Questining, learning theory and styles, artificial neural networks, semanthic circuits, uncertainty, probability, planning, markov desicion process, natural language processing, and classification. Applications of advanced artificial intelligence, perception of vision, learning, and questioning.

ETT453 DIGITAL SIGNAL PROCESSING (2+2)3

Discrete time signals and systems. Sampling and reconstruction. Linear time-invariant systems. The Z transformation. Structures for discrete time systems. The discrete Fourier transform. Fourier analysis of signal using discrete Fourier transformation. Digital filter design techniques. Fast Fourier transformation methods. Optimal filtering and linear prediction.

TE 3.4: 8TH TERM

CCM458 GAME SOFTWARE DEVELOPMENT (2+2)3

Two dimensional game design and development. Historical development of computer games, defining main requirements of games. Objects in games, moving graphics, implementing sound effect and scoring system in games. Providing hardware interaction in games

CCM466 INTERNET SERVER MANAGEMENT (2+2)

Introduction to Linux OS. WEB server installation and configuring , publishing user web pages, management of web errors, DNS installation and configuration, IP routing structures, Proxy server , DHCP server instalation and configuration, IP versions and dynamic address distrubutions, FTP server installation and configuration. NEW server systems (exchange, Commerce ISA, Content management)

CCM468 COMPUTER SECURITY (2+2)3

General view to TCP-IP networks , security concept: physical-virtual, general attact types, protocol based attacks, virus-trojan attacks, ip-spoofing, mac spoofing, wireless network security. Protection methots of network attacks, working principles of firewalls, working principles of intrusion dedection system

CCM472 NETWORK&INTERNET PROGRAMMING (2+2)

TCP/IP programming, socket programming techniques, opening and closing sockets, remote access, sending and receiving files, client/server programming, web services. Program design like FTP and Web services with socket programming.

CCT374 PROGRAMMABLE LOGIC CONTROLLERS (2+2)3

Fundamentals of control systems. Components of control systems; contactors, relays, timers, protective relays and basic standarts of control circuits. Programmable logic controllers (PLC); CPU, input and outputs, memory structure. Operating system of PLC and running of user program. Programming languages; statement list, ladder diagram and function block diagram. Basic instruction list, timers, counters, arithmetic and comparing instruciones. Communication protocols. Selection crítearies of PLC and industrial applications of PLC.

CCT474 INTRODUCTION TO ROBOTICS (2+2)3

Fundamental components of robotic systems. Freedom degree of actuators and features of structures. End effectors, drivers, driver systems, and sensors. Kinematics of actuators, selection of coordinate limits, forward and inverse kinematics, jacobian matrix, soution of kinematic equations. Velocities, forces and moments of bodies and joints. Dynamic modeling; Equations of Lagrange energy and movement. Trajectory planning. Actuator control; system and controller design.

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