EUROPEAN UNIVERSITY OF LEFKE

DEPARTMENT OF
ELECTRONICS & COMMUNICATION

PROGRAMME HANDBOOK

2023

Table of Contents

The Electronics and Communication Engineering (ECE) Department

The Electronics and Communication Engineering (ECE) Department was founded in 2007 under the Faculty of Engineering and admitted its first students in Fall 2007-2008 academic year. The department is recognized by the Higher Education Council of Turkey (YÖK), with Ref Number: B.30.0. EÖB.000.00.03-01.01-2224. The department offers formal education in English. The ECE department has been accredited by ASIIN since 2017.

The program follows a curriculum with 141 credits (240 ECTS) that lasts for 8 semesters. The credits of the courses are expressed in terms of both the credit system and the European Credit Transfer System (ECTS). In the current credit system, for each course and in each semester, the evaluation criteria are determined by the lecturer, which is acknowledged by the department. The lecturer decides on the appropriate weighting applied to each assessment element of the course, e.g. exams, coursework, laboratory work, presentations, projects and course participation. The students completing the program are awarded a Bachelor of Science degree in Electronics and Communication Engineering. Our diploma explicitly states the length of the education (4 years) and the degree awarded. The ECE Department academic year includes two semesters, Fall and Spring, each lasting at least 14 weeks. The academic calendar to be used in conjunction with the program is determined every year by the University Senate. Some classes may be re-offered during the summer, namely Summer School. The purpose of the Summer School is to offer classes to those students who have taken the offered course before but failed, who have not taken the offered course before, and/or who are having to retake some courses to raise their CGPA. Summer School has a compressed 7-week duration, where the weekly class hours have been doubled. The ECE Department engineering program is a program supported by practical, laboratory, and internship studies, as well as theoretical teaching. In this way, students are given the ability to use the theoretical knowledge they have acquired in solving real-life problems. The ECE Department uses the already set-up laboratories together with the sister departments (the Electrical and Electronics Engineering Department and the Computer Engineering Department). Our laboratories include Circuit Theory Laboratory, Electronics Laboratory, Power Electronics Laboratory, Digital Circuits laboratory, Communications Laboratory, Microprocessor laboratory, Antenna laboratory, and computer programming laboratories. Also, our recently established 3D-design laboratory is shared with the sister departments.

Vision:
The Department of Electronics and Communication Engineering strives to become one of the prestigious engineering departments in the area. The aim is to graduate engineers produce who are able to keep up with the latest developments, are aware of the problems of the era, are able to come up with creative solutions to these problems as a part of a team, or alone, and who are able to take part in national and international projects.

Mission:
The experienced faculty and strong infrastructure in the Electronic and Communication Engineering Department aim for high quality engineering education, so as to have graduates

who are able to critically think, write and speak, have understanding and respect for social and ethical issues, who have a wide perspective and integrity; and who have ability produce solutions to various engineering and research topics.

Objectives and learning outcomes of the ECE Department

The proposed qualifications profile enables our students to embark upon a career within the ECE discipline. The competence profile has followed from the Electrical and Electronics Engineering Department (EEE), which has previously been accredited by MÜDEK (Association for Evaluation and Accreditation of Engineering programs) and also holds the EUR-ACE label, with emphasis on the topics in the Electronics and Communication sector. Besides this, the ECE Department has been accredited by ASIIN since 2017, as well as being awarded the EUR-ACE label. Our program has invariably been improved as a consequence of addressing all feedback received during the aforementioned accreditation processes. The program aims to include course topics highly relevant to the needs of industry, the ECE community and ongoing research. The program outputs were developed and decided upon via departmental meetings, which were attended by all lecturers, in conjunction with the opinions and expectations of external stakeholders. The ECE programs offered by other institutions were also taken into account whilst determining these program outputs. If necessary, the program outputs are reviewed and updated periodically (within a four-year period), taking into account academic student meetings, graduate student correspondence, sector/consultant surveys, alumni surveys, and the opinions of all stakeholders mentioned above. The review of the educational objectives also occurs in similar time periods. An intended qualifications profile has been established in accordance with the vision and mission of our department; this is summarised in the educational objectives and defined by eleven program outcomes. These program outcomes and educational objectives are easily accessible from our University website, a link to which is provided here for your convenience: (https://www.eul.edu.tr/en/academic/faculties/faculty-of-engineering/electronics-and-communication-engineering/).

The ECE educational objectives are summarized as follows:

EO1: Graduates actively start and improve their professional careers in their field or in a multi-disciplinary area in international organizations/institutions.

EO2: Graduates are able to continue on to postgraduate studies and take part in research and development in a related field.

EO3: Graduates are capable of self-motivation and self-improvement, consequently who are actively involved in various certificate programs, courses or symposia.

EO4: Graduates have leadership and team-working abilities and are able to excel through their peers and become entrepreneurs.

The program outcomes for the ECE department are listed below. Students graduating from the program should have:

PO1: Adequate knowledge in mathematics, science and engineering subjects pertaining to the Electronics and Communication Engineering discipline; ability to use theoretical and applied knowledge to solve complex engineering problems.

PO2: Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modelling methods for this purpose.

PO3: Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.

PO4: Ability to devise, select, and use modern techniques and tools needed for analysing and solving complex problems encountered in Electronics and Communication Engineering practice; ability to employ information technologies effectively.

PO5: Ability to design and conduct experiments, gather data, analyse and interpret results for investigating complex engineering problems or Electronics and Communication Engineering specific research questions.

PO6: Ability to work efficiently in intra-disciplinary and multi-disciplinary teams; ability to work individually.

PO7: Ability to communicate effectively, both orally and in writing; knowledge of a minimum of one foreign language; ability to write effective reports and comprehend written reports, prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions.

PO8: Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.

PO9: Consciousness to behave according to ethical principles and professional and ethical responsibility; knowledge on standards used in engineering practice.

PO10: Knowledge about business life practices such as project management, risk management, and change management; awareness in entrepreneurship, innovation; knowledge about sustainable development.

PO11: Knowledge about the global and social effects of Electronics and Communication Engineering applications on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering; awareness of the legal consequences of engineering solutions.

Curriculum

The Electronics and Communication Engineering curriculum is systematically geared to help students smoothly reach their competence profile. In the Department, we understand that, in order to acquire the required engineering skills, the students must first comprehend the underlying science and mathematics together with computer programming skills. The updated Education program consists of 48 courses with a total of 141 credits and 240 ECTS. The updated curriculum is given in Table 1. and has been used since the 2020-2021 Fall semester. The ECE curriculum contains six technical electives and two social elective courses in addition to the compulsory courses. Among the technical elective courses offered every semester, our students make a choice depending on the special fields they intend to focus on. The curriculum also includes mandatory summer training where the students are expected to complete 30 working days under the supervision of a certified engineer in industry.

Table 1. The ECE Department Curriculum

ELECTRONICS & COMMUNICATION ENGINEERING							
1st SEMESTER				2nd SEMESTER			
Course Code	Course Name	CREDIT	ECTS	Course Code	Course Name	CREDIT	ECTS
COM101	ENGLISH I	(3,0)3	3	COM108 / ORT108	HISTORY / TARİH	(2,0)2	2
COM111	CHEMISTRY	(3,0)3	4	COM110	ENGLISH II	(3,0)3	3
ENG131	PHYSICS I	(3,0)3	4	COM122	PHYSICS II	(3,0)3	5
COMP117	COMPUTING FOUNDATIONS	(3,2)4	6	COMP124	COMPUTER PROGRAMMING	(3,2)4	6
ECE119	INTRODUCTION TO PROFESSION	(2,0)0	2	ENG122	PHYSICS II LAB	(0,2)1	2
ENG111	CHEMISTRY LAB	(0,2)1	2	MATH109	LINEAR ALGEBRA	(3,0)3	5
ENG121	PHYSICS I LAB	(0,2)1	2	MATH110	CALCULUS II	(3,2)4	7
MATH101	CALCULUS I	(3,2)4	7				
TOTAL		**19**	**30**	**TOTAL**		20	30
3rd SEMESTER				4th SEMESTER			
COM106 / ORT106	TURKISH / TÜRKÇE	(2,0)2	2	ECE214	ELECTROMAG THEORY I	(3,0)3	6
ECE203	DIGITAL CIRCUITS I	(2,2)3	8	ECE216	CIRCUIT THEORY II	(3,2)4	8
ECE205	CIRCUIT THEORY I	(3,2)4	8	ECE204	ELECTRONICS I	(3,2)4	8
ECE227	ELECTRICAL MATERIALS	(3,0)3	5	MATH224	ENGINEERING MATHS	(3,0)3	5
MATH201	ORDINARY DIFFERENTIAL EQUATIONS	(3,2)4	5	MATH226	PROBABILITY & STATISTIC METHODS	(3,0)3	5
TOTAL		16	28	**TOTAL**		17	32
5th SEMESTER				6th SEMESTER			
COMP333	COMPUTER ARCHITECTURE AND ORGANIZATION	(3,2)4	6	ECE308	MICROPROCESSOR SYSTEMS	(3,2)4	7
ECE311	ELECTRONICS II	(3,2)4	7	ECE312	COMMUNICATION ENGINEERING	(2,2)3	4
ECE317	ELECTROMAGNETIC THEORY II	(3,0)3	6	ECEXX1	TECHNICAL ELECTIVE I	(3,0)3	5
EE317	SIGNALS AND SYSTEMS	(3,0)3	6	ECEXX2	TECHNICAL ELECTIVE II	(3,0)3	5
LEUXX1	FREE ELECTIVE I	(3,0)3	4	EE322	CONTROL SYSTEMS	(3,0)3	6
				LEUXX2	FREE ELECTIVE II	(3,0)3	4
TOTAL		17	29	**TOTAL**		19	31
7th SEMESTER				8th SEMESTER			
ECE310	SUMMER TRAINING	(0,1)0	2	ECE403	DIGITAL COMMUNICATION	(3,0)3	5
ECE408	DIGITAL SIGNAL PROCESSING	(3,0)3	5	ECE420	GRADUATION PROJECT II	(0,6)5	10
ECE410	GRADUATION PROJECT I	(0,3)1	3	ECEXX5	TECHNICAL ELECTIVE V	(3,0)3	5
ECEXX3	TECHNICAL ELECTIVE III	(3,0)3	5	ECEXX6	TECHNICAL ELECTIVE VI	(3,0)3	5
ECEXX4	TECHNICAL ELECTIVE IV	(3,0)3	5	ENGG434	ENGINEERING ETHICS	(3,0)3	5
ECON413	ENGINEERING ECONOMICS	(3,0)3	5				
BUSN461	STRATEGIC PLANNING AND MANAGEMENT	(3,0)3	5				
TOTAL		16	30	**TOTAL**		17	30

DEPARTMENT OF
ELECTRONICS & COMMUNICATION

COURSE CATALOGUE DESCRIPTIONS

Course Name	English 1
Course Level	Undergraduate
Course Code	COM101
Semester	Fall
Person Responsible for the course	Mehmet Mert
Lecturer	Mehmet Mert
Language	English
Relation to Curriculum	Undergraduate degree program
Type of teaching, expected class size	Online
Workload	1. Lectures: 4 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 30 hours
Credit Points - ECTS	3 Credit Points – 3 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	
Catalogue Descriptions/Content	This course introduces the main grammatical structures to the students and helps them to develop their listening, speaking, reading and writing skills as well as vocabulary and pronunciation. The students are provided with clear rules and example sentences. The lessons contain high-frequency vocabulary that the students are likely to come across during their studies and future their future careers
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: 1. The students will be able to understand and use English structures accurately to express themselves. 2. The students will be able to learn and use the vocabulary learnt during the lessons.
Study and examination requirements and forms of examination	• Midterm Examination • Final Examination
Media Employed	Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. English File, Intermediate Plus, Student's Book, Christina Latham- Koenig, et al, Oxford University Press, Third Edition Supporting: 1. English File, Pre-Intermediate Plus, Workbook, Christina Latham- Koenig, et al, Oxford University Press, Third Edition

Course Name	Chemistry
Course Level	Undergraduate
Course Code	COM111
Semester	Spring
Person Responsible for the course	Assist. Prof. Dr Saltuk Pirgalıoğlu
Lecturer	Assist. Prof. Dr Saltuk Pirgalıoğlu
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 1st semester
Type of teaching, expected class size	Face to face lectures, <100 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total exercises and Examination Preparation time: 39 hours
Credit Points - ECTS	3 Credit Points – 4 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	
Catalogue Descriptions/Content	The aim of this course is to describe to students how substances interact with one another. Students will be informed on how the atom is made up, how atoms come together to make molecules and how molecules can interact, chemical compounds, chemical bonds, chemical equations and reactions, aqueous solution the s, periodic table, gases, the electronic structure of the atom and introduction to thermochemistry.
Course Learning Outcomes	On successful completion of the course, the student will be able to (1) understand and carryout calculations on properties of Substances (2) learn atomic structure and naming of compounds (3) learn mole concept, balancing equations, stoichiometry (4) carry out calculations on aqueous reactions (5) learn ideal gasses, gas mixtures and gas properties (6) understand electronic configurations and covalent bonding (7) learn basic principles of thermochemistry
Study and examination requirements and forms of examination	• Midterm Examination 2 • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. William L. Masterton, Cecile N. Hurley, Chemistry Principles and Reactions, 8th edition Cengage Learning, 2016 Supporting: 1. Raymond Chang and Kenneth Goldsby, General Chemistry: The Essential Concepts 7th Edition, 2014

Course Name	Physics I
Course Level	Undergraduate
Course Code	ENG131
Semester	Fall
Person Responsible for the course	Assist. Prof. Dr. Nemika Cellatoğlu
Lecturer	Assist. Prof. Dr. Nemika Cellatoğlu
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 1st semester
Type of teaching, expected class size	Face-to-face lectures, <250 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 90 hours
Credit Points - ECTS	3 Credit Points – 4 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	None
Catalogue Descriptions/Content	This course aims to introduce the fundamental concepts of physics necessary for engineering science and to provide essential background for engineering students. The course provides deep understanding about kinematics and dynamics of one dimensional, two dimensional, circular and rotational motion.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: (1) an ability to translate, interpret and extrapolate important scientific models and laws governing classical mechanics, (2) an ability to demonstrate critical thinking and problem solving skills in the area of physics, (3) an ability to perform mathematical modeling of basic problems and establish their analytic solutions in field of classical mechanics, (4) an understanding of the connection of course material to real life applications.
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination 1 • Midterm Examination 2 • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. Physics for Scientists and Engineers with Modern Physics,9th edition, (2012) Raymond Serway, John W. Jewet 2. Fundamentals of Physics, 10th edition (2013) Halliday and Resnick,

Course Name	Computing Foundations
Course Level	Undergraduate
Course Code	COMP 117
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Ezgi Deniz Ülker
Lecturer	Assoc. Prof. Dr. Ezgi Deniz Ülker
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 1st semester
Type of teaching, expected class size	Open Access, online <200 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 70 hours
Credit Points - ECTS	4 Credit Points – 6 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	-
Catalogue Descriptions/Content	Introduction to general problem-solving concepts, algorithms and applications. Computer terminology, units, number systems. Steps in problem-solving. Problem solution, pseudocode, algorithms, flowcharts, data types, control structures. History of computers and programming. A simple C program layout, syntax and rules. C language basics, native types, identifiers, declarations, variables, expressions, assignments. Basic console input and output functions. Operators, unary, binary, mathematical, relational, equality and logical, precedence and associativity rules, type conversions and casting. Statements, flow of control. Sequential structure. Selective structure, if-else statement. Repetitive structure, while loop, do-while loop. Tracing a C code.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: 1. Able to understand programming and computing concepts 2. Ability to analyze a problem to extract requirements and constraints 3. Develop an ability to solve a simple and develop algorithms for complex problems 4. Ability to trace programs 5. Knowledge of C programming language
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination • Laboratory Works • Final Examination
Media Employed	Moodle for Lecture video, lecture note sharing. MS Teams for online lectures
Reading List/ Recommended Text Book	Main: 1. Maureen Sprankle, “Problem Solving and Programming Concepts”, Pearson Prentice Hall, 2006, ISBN: 0-13-119459-3 Supporting: 1. Marshall Brain, “The Basics of C Programming”, 2013.

Course Name	Introduction to Profession
Course Level	Undergraduate
Course Code	ECE119
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Yönal Kırsal
Lecturer	Assoc. Prof. Dr. Yönal Kırsal
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 1st semester
Type of teaching, expected class size	Face-to-face lectures, <35 Students
Workload	1. Lectures: 1 Lecture hour per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 68 hours
Credit Points - ECTS	0 Credit Points – 2 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	None
Catalogue Descriptions/Content	A series of seminars are held on current topics and areas of specialization in Electronics and Communication Engineering. The course introduces the EUL Organisation, EUL policy Electronics and Communication Engineering undergraduate program, ECE curriculum, the definition of Engineering, the definition of Electronics and Communication Engineering, basic concepts of charge, voltage, current, power, Ohm's law, current and voltage relation with cable cross-sectional areas and the insulation, legal responsibilities and code of ethics for ECE. Specialisation areas speakers are invited from different departments of EUL including Electrical & Electronics Engineering, Computer Engineering and Software Engineering Department or other International Universities, Industry and Consulting firms, to deliver seminars in all aspects of engineering that are not normally covered in lectures.
Course Learning Outcomes	On successful completion of the course, students should be able to: (1) An ability to show understanding of the University organisation and policy, (2) An ability to demonstrate an appreciation of the concepts of engineering and the future of ECE, (3) An ability to demonstrate the ability to problem solve as part of a team, (4) An ability to show a familiarity with the basic concepts of Ohm's Law and Kirchhoff's Voltage and Current Laws, (5) An ability to show an understanding and ability to apply basic circuit analysis, (6) An ability to demonstrate an understanding of basic electronic component models and basic electronic circuits.
Study and examination requirements and forms of examination	• In-class exercises • Assignment 1 & 2 • Quizzes
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. E. D. Gates, Introduction to Electronics, 5th Edition, Thomson Delmar Learning, 2007, ISBN: 978-1-4018-8900-5

Course Name	Chemistry Laboratory
Course Level	Undergraduate
Course Code	ENG111
Semester	Fall
Person Responsible for the course	Assist. Prof. Dr Devrim ÖZDAL
Lecturer	Assist. Prof. Dr Devrim ÖZDAL
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 1st semester
Type of teaching, expected class size	Face to face lectures, >150 Students
Workload	1. Lectures: 2 Lecture hours per week 2. Self-Study: 1 hour per week 3. Total Exercises and Examination Preparation time: 18 hours
Credit Points - ECTS	1 Credit Point – 2 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the experiment to sit in the exams.
Pre-requisites	-
Catalogue Descriptions/Content	This course has been specially designed as an intensive introduction to the techniques of experimental chemistry. Laboratory safety and regulations, Molarity, Solution preparation, Calculation of density, distillation, Separation methods, precipitation reaction, acid-base titration, thermochemistry.
Course Learning Outcomes	All students will have developed knowledge and understanding of: (1) develop skills in collecting and managing data in order to express their results in a precise and reliable quantitative or qualitative form in the lab. reports (2) use basic apparatus, apply experimental methodologies in the chemistry laboratory setting and Demonstrate the basic laboratory safety concepts (3) To gain ability to calculate the concentration of solution and learn preparation of solution experimentally (4) To understand separation techniques and apply them in laboratory (5) an understanding of thermodynamics laws, enthalpy and free energy concepts (6) To observe precipitation reaction experimentally and calculate percentage yield of experiments (7) Defining acids and bases and conduct acid-base titration experiment (8) To calculate density of materials.
Study and examination requirements and forms of examination	• In laboratory exercises • Midterm Examination • Final Examination • Lab. Report writing
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. the European University of Lefke Chemistry Lab. Manual, 2021. Supporting: 1. William L. Masterton, Cecile N. Hurley, Chemistry Principles and Reactions, 8th edition Cengage Learning, 2016. 2. Ralph Petrucci, Geoffrey Herring, Jeffry Madura, Carey Bissonnette, General Chemistry: Principles and Modern Applications, 11th edition, 2017.

Course Name	Physics-1 Lab
Course Level	Undergraduate
Course Code	ENG121
Semester	Fall
Person Responsible for the course	Mehmet Burhan
Lecturer	Mehmet Burhan
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 1st semester
Type of teaching, expected class size	Face to face lectures, <200 Students
Workload	1. Theoritical: 1 Lecture hour per week (First 3 weeks) 2. Laboratory: 2 Lecture hours per week 3. Self-Study: 2 hours per week 4. Total Exercises and Examination Preparation time: 41 hours
Credit Points - ECTS	1 Credit Points – 6 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Along with Physics-1
Catalogue Descriptions/Content	This course is directed to PHYS103-Physics I. The aim course is providing a medium for students to see the experimental applications of kinematics and dynamics of one dimensional, two dimensional, circular and rotational motion. The course supports students to validate the underlying theory through experiment and observation.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: (1)nature of science and scientific method (2) the ability to apply knowledge/skills to real world settings by identifying possible sources of error and implementing techniques that enhance precision. (3) an ability to demonstrate critical thinking and problem solving skills in the area of physics, (4) teamwork skills/ ability to collaborate by working in groups on a laboratory experiment. (5) written communication ability by reporting verbally the experimental data, results, and assessment of reliability.
Study and examination requirements and forms of examination	• Laboratory Work • Lab Report • Midterm Examination 1 & 2 • Final Examination
Media Employed	Whiteboard and Projection in class, Moodle and MS Teams for sharing video and lecture notes
Reading List/ Recommended Text Book	Main: 1. EUL Physics Lab Booklet Supporting: 1. Serway, Physics for Scientists and Engineers with Modern Physics, 9/e

Course Name	Calculus I
Course Level	Undergraduate
Course Code	MATH101
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Yönal Kırsal
Lecturer	Assoc. Prof. Dr. Yönal Kırsal
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 1st semester
Type of teaching, expected class size	Face-to-face lectures, <250 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 80 hours
Credit Points - ECTS	4 Credit Points – 7 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	None
Catalogue Descriptions/Content	Fundamentals of calculus and its applications for engineers. The conceptual and visual representation of limits, continuity, differentiability, and tangent line approximations for functions at a point. Applying the power rule, product rule, quotient rule and chain rule to functions explicitly and implicitly for finding derivatives. Applying the fundamental theorem of calculus to evaluate definite integrals. Performing accurately improper integrals, definite and indefinite integration, integration by parts, substitution, and inverse trigonometric substitution.
Course Learning Outcomes	On successful completion of the course, the student should: (1) learn the Cartesian coordinates system, understand function evaluation, graph functions, recall composite functions, odd-even functions, the domain-range concept of the functions, and trigonometric functions; (2) understand conceptual and visual representation of limits, continuity, differentiability, and tangent line approximations for functions at a point; (3) apply the power rule, product rule, quotient rule and chain rule to functions explicitly and implicitly for finding derivatives; (4) apply the Fundamental Theorem of calculus to evaluate definite integrals, and calculate the area between the curves; (5) perform accurate substitution method, improper integrals, integration by parts, and inverse substitution.
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination 1 • Midterm Examination 2 • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. Calculus: A Complete Course 8th Edition (2013), Robert A. Adams, Christopher Essex 2. Calculus 8th Edition (2016), James Stewart

Course Name	History
Course Level	Spring
Course Code	COM108 / ORT108
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Osman Erciyas
Lecturer	Assoc. Prof. Dr. Osman Erciyas
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 2nd semester
Type of teaching, expected class size	Pre-recorded Videos, Online Lectures, <700 Students
Workload	1. Lectures: 1 Online hour per week 2. Self-Study: 2 hours per week 3. Total Exercises and Examination Preparation time: 30 hours
Credit Points - ECTS	2 Credit Points – 2 ECTS
Requirements according to the examination regulations	-
Pre-requisites	-
Catalogue Descriptions/Content	The course provides a detailed exposure on the history of the construction of the Turkish Republic under the light of Kemal Atatürk's principles this course is designed for Turkish speaking students. COM108 is designed for non-Turkish speaking foreign students. The aim of the course is to introduce a brief history of Turkish Republic and Cyprus. Social, economic and political aspects and effects of Western Civilization on Turkey and Cyprus. Relations with Middle East.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: 1. Analyzes the developments after World War I and the attitude of Mustafa Kemal and his friends in the face of these developments. 2. Understanding the Turkish Foreign Policy of the Atatürk Era. 3. They will have basic information about the political developments in Turkey and the world during and after the Second World War. 4. To have general information about the History of Cyprus.
Study and examination requirements and forms of examination	• Midterm Examination • Final Examination
Media Employed	Moodle for lecture note and video sharing
Reading List/ Recommended Text Book	Main: 1. Lewis, Bernard, The Emergence of Modern Turkey, London, 1967. Supporting: 1. Kinross, Patrick, Atatürk The Rebirth of a Nation, A Phoenix Giant Paperback Publishing, London, 1998. 2. Luke, Harry, Cyprus Under The Turks 3. Oberling, Pierre, The Road To Bellapais, USA, 1982. 4. Denktash, Rauf R, The Cyprus Triangle, The Office of the Turkish Republic of Northern Cyprus, New York, 1988.

Course Name	English II
Course Level	Undergraduate
Course Code	COM110
Semester	Fall
Person Responsible for the course	Mehmet Mert
Lecturer	Mehmet Mert
Language	English
Relation to Curriculum	Undergraduate degree program
Type of teaching, expected class size	Online
Workload	1. Lectures: 4 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 30 hours
Credit Points - ECTS	3 Credit Points – 3 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	
Catalogue Descriptions/Content	This course introduces the main grammatical structures to the students and helps them to develop their listening, speaking, reading and writing skills as well as vocabulary and pronunciation. The students are provided with clear rules and example sentences. The lessons contain high-frequency vocabulary that the students are likely to come across during their studies and future their future careers
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: 1. The students will be able to understand and use English structures accurately to express themselves. 2. The students will be able to learn and use the vocabulary learnt during the lessons.
Study and examination requirements and forms of examination	• Midterm Examination • Final Examination
Media Employed	Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. English File, Intermediate Plus, Student's Book, Christina Latham-Koenig, et al, Oxford University Press, Third Edition Supporting: 2. English File, Pre-Intermediate Plus, Workbook, Christina Latham-Koenig, et al, Oxford University Press, Third Edition

Course Name	Physics II
Course Level	Undergraduate
Course Code	COM122
Semester	Spring
Person Responsible for the course	Assist. Prof. Dr. Nemika Cellatoğlu
Lecturer	Assist. Prof. Dr. Nemika Cellatoğlu
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 1st semester
Type of teaching, expected class size	Face-to-face lectures, <250 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 90 hours
Credit Points - ECTS	3 Credit Points – 4 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	None
Catalogue Descriptions/Content	This course aims to introduce fundamental concepts of physics for engineering science and to provide essential background for engineering students. The course provides deep understanding of thermodynamics, electricity and magnetism. Also, the course aims to show the students the engineering applications of the course material.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: (1) An ability to translate, interpret and extrapolate important scientific models and laws governing thermodynamics, electricity and magnetism. (2)An ability to demonstrate critical thinking and problem solving skills in the area of physics (3) An ability to perform mathematical modeling of basic problems and establish their analytic solutions in field of thermodynamics, electric and magnetism (4) An understanding of the connection of course material to engineering applications
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination 1 • Midterm Examination 2 • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. Physics for Scientists and Engineers with Modern Physics,9th edition, (2012) Raymond Serway, John W. Jewet 2. Fundamentals of Physics, 10th edition (2013) Halliday and Resnick,

Course Name	Computer Programming
Course Level	Undergraduate
Course Code	COMP 124
Semester	Fall
Person Responsible for the course	Assist. Prof. Dr. Ferhun Yorgancıoğlu
Lecturer	Assist. Prof. Dr. Ferhun Yorgancıoğlu
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 2nd semester
Type of teaching, expected class size	Face to face lectures, <65 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 20 hours
Credit Points - ECTS	4 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Computing Foundations
Catalogue Descriptions/Content	Overview of C language. Expressions: constants, data types, type modifiers, const qualifier, operators, order of evaluations, type conversions and casts. Types of statements: sequential, selective and iterative. Selective statements: if-else, switch-case, conditional operator, nested forms. Iterative statements: for, while, do-while, infinite loops, comma operator, break and continue statements, nested forms. Functions: definitions, formal parameters, actual arguments, function calls, call-by-value parameter passing, function prototypes, scope rules and storage classes. Arrays: declarations, initialisation lists, define directive, arrays as function arguments, call-by-reference parameter passing. Strings: character arrays, null character, string-handling functions. Pointers: declarations, pointer and array relationship, pointer arithmetic, array-subscript and pointer-offset notations, pointers as function arguments. Structures: user-defined types, typedef definitions, structures as function arguments, array of structures, pointer to a structure.
Course Learning Outcomes	Upon successful completion of the course, the student should be able to: 1. recall basics of the C language such as the data types, operators, expressions and order of evaluations 2. use if and switch statements to implement selective structures in C 3. use while, for and do-while loops to construct iterative structures in C 4. define and write functions in C to gain procedural programming skills 5. understand the scope rules and storage classes of C 6. use arrays and pointers in C and understand the close relationship between arrays and pointers 7. use strings in C and define and write user-defined string-handling functions 8. use structures in C and understand the concept of a user-defined data type
Study and examination requirements and forms of examination	• In class exercises • Laboratory works • Midterm Examination • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. S.G. Kochan, Programming in C, 4th ed., Addison-Wesley, 2015. Supporting: 1. S. Prata, C Primer Plus, 6th ed., Addison-Wesley, 2014.

Course Name	Physics-2 Lab
Course Level	Undergraduate
Course Code	ENG121
Semester	Fall
Person Responsible for the course	Mehmet Burhan
Lecturer	Mehmet Burhan
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 2nd semester
Type of teaching, expected class size	Face to face lectures, <200 Students
Workload	1. Theoritical: 1 Lecture hour per week (First 3 weeks) 2. Laboratory: 2 Lecture hours per week 3. Self-Study: 2 hours per week 4. Total Exercises and Examination Preparation time: 41 hours
Credit Points - ECTS	1 Credit Points – 6 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Along with Physics-2
Catalogue Descriptions/Content	This course is directed with Physics II. The aim of course is providing a medium for students to see the experimental applications of thermodynamics, electricity and magnetism. The course supports students to validate the underlying theory through experiment and observation
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: (1) Conduct experimental investigations of simple electric, magnetic and thermodynamic phenomena. (2) Carry out measurements utilizing appropriate techniques and safety practices. (3) Practice record keeping of experimental work and data graphing. (4) Analyze data using simple statistics and compare the results with the relevant theory (5)Write a lab report including a summary explaining the theoretical background and major experimental achievements and findings."
Study and examination requirements and forms of examination	• Laboratory Work • Lab Report • Midterm Examination 1 & 2 • Final Examination
Media Employed	Whiteboard and Projection in class, Moodle and MS Teams for sharing video and lecture notes
Reading List/ Recommended Text Book	Main: 1. EUL Physics Lab Booklet Supporting: 1. Serway, Physics for Scientists and Engineers with Modern Physics, 9/e

Course Name	Linear Algebra
Course Level	Undergraduate
Course Code	MATH109
Semester	Fall
Person Responsible for the course	Mehmet Burhan
Lecturer	Mehmet Burhan
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 2nd semester
Type of teaching, expected class size	Face to face lectures, <200 Students
Workload	1. Theoritical: 1 Lecture hour per week (First 3 weeks) 2. Laboratory: 2 Lecture hours per week 3. Self-Study: 2 hours per week 4. Total Exercises and Examination Preparation time: 41 hours
Credit Points - ECTS	3 Credit Points – 6 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	
Catalogue Descriptions/Content	This course is a branch of mathematics that studies systems of linear equations and the properties of matrices. The course covers matrix theory and linear algebra, emphasizing topics useful in other disciplines.
Course Learning Outcomes	At the conclusion of the course, students should be able to 1. demonstrate knowledge and understanding of the basic elements of linear algebra 2. apply results and techniques from linear algebra to solve simple engineering problems
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 & 2 • Final Examination
Media Employed	Whiteboard and Projection in class, Moodle and MS Teams for sharing video and lecture notes
Reading List/ Recommended Text Book	Main: EUL Linear Algebra Lecture Notes Supporting: Elementary Linear Algebra w/ Supplement Applications (Howard Anton, Chris Rorres)

Course Name	Calculus II
Course Level	Undergraduate
Course Code	MATH110
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Yönal Kırsal
Lecturer	Assoc. Prof. Dr. Yönal Kırsal
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 2nd semester
Type of teaching, expected class size	Face-to-face lectures, <250 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 80 hours
Credit Points - ECTS	4 Credit Points – 7 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	MATH101
Catalogue Descriptions/Content	Techniques of integration, integration by parts, trigonometric substitution, integration of rational functions, and integration of trigonometric integrals. Application of integrals, areas between curves, volume, volumes by slicing, volumes by cylindrical shells, arc length, area of a surface of revolution, moments and centre of mass. Parametric equations, curves defined by parametric equations, calculus with parametric equations, derivation, area and arc length calculations. Polar coordinates, plotting with polar coordinates, derivation and integration with polar coordinates. Sequences, series, integral tests and estimates of the sum.
Course Learning Outcomes	On successful completion of the course, the student will be able to: (1) evaluate an integral by the method of substitution; (2) use integrals to calculate areas between curves, volumes, work, and the average value of a function; (3) evaluate integrals, using the techniques of integration by parts, using trigonometric identities and trigonometric substitution, and using partial fractions; (4) evaluate the two types of improper integrals; (5) use integrals to find the arc length and area of a surface of revolution; (6) use integrals in applications to physics and engineering; (7) describe curves in parametric form and polar coordinates; (8) determine whether or not a sequence of real numbers converges; (9) test a series for convergence or divergence, using the integral, ratio, root, and comparison tests.
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination 1 • Midterm Examination 2 • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. Calculus: A Complete Course 8th Edition (2013), Robert A. Adams, Christopher Essex 2. Calculus 8th Edition (2016), James Stewart

Course Name	Turkish
Course Level	Undergraduate
Course Code	COM106
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Osman Erciyas
Lecturer	Assoc. Prof. Dr. Osman Erciyas
Language	Turkish
Relation to Curriculum	Undergraduate degree program, Compulsory, 2th semester
Type of teaching, expected class size	Open access course, <150 Students
Workload	1. Lectures: 2 Lecture hours per week 2. Self-Study: 8 hours per week 3. Total Exercises and Examination Preparation time: 30 hours
Credit Points - ECTS	2 Credit Points – 2 ECTS
Requirements according to the examination regulations	
Pre-requisites	-
Catalogue Descriptions/Content	To show the characteristics and rules of operation of Turkish language with examples; to give the students the ability and habit to express their feelings and thoughts accurately and effectively; developing vocabulary through written and oral texts; The aim of this course is to teach the rules of reading texts or the programs they listen to correctly.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: 1. Explains and exemplifies the phonological properties of Turkish 2. Explains and exemplifies the structures of Turkish. 3. Explains and exemplifies the sentence properties of Turkish 4. Reads and evaluates different text types 5. Compares different text types
Study and examination requirements and forms of examination	• Open Access (Course Notes and Videos on the Moodle) • Midterm Examination • Final Examination
Media Employed	Moodle for Lecture notes and videos sharing
Reading List/ Recommended Text Book	Main: 1. Birsen Çankaya ve diğerleri. Easy Turkish Course. İstanbul: Fono Yayınları, 2006. Supporting: 1. Kurtuluş Öztopçu. Elementary Turkish. İstanbul, 2006. 2. Doğan Günay, Özdan Fidan ve diğerleri, Yabancılar İçin Türkçe Ders Kitabı + Alıştırma Kitabı, Papatya Yay., Ankara: 2013.

Course Name	Digital Circuits I/Digital Circuits/Digital Logic Design
Course Level	Undergraduate
Course Code	EE203 ECE203 COMP205
Semester	Fall
Person Responsible for the course	Assist. Prof. Dr Ahmet Yaşlı
Lecturer	Assist. Prof. Dr Ahmet Yaşlı
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 3rd semester
Type of teaching, expected class size	Face to face lectures, <200 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Laboratory: 2 Lecture hours per week 3. Self-Study: 3 hours per week 4. Total Exercises and Examination Preparation time: 40 hours
Credit Points - ECTS	4 Credit Points – 6 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	-
Catalogue Descriptions/Content	Number systems, binary, octal and hexadecimal systems, conversions. Boolean algebra –- logic gates. Postulates, Laws and Theorems, truth tables, simplifications of Boolean functions using Boolean laws, map method and tabular method, product- of - Sums and Sums - of - Products expressions, Universal gates. Multiplexers and de-multiplexers, encoders and decoders, combinational logic design using logic gates, multiplexers, PROM array and PAL, Half adder/subtractor, full adder/subtractor, 4-bit parallel binary adder, NAND/NOR Latcehes, Flip Flops, Binary counters (Up-Down), Shift registers (parallel-Serial shift)
Course Learning Outcomes	On successful completion of the course, students should be able to understand: (1) Boolean functions and their minimisation (2) Design a combinational logic circuit, (3) Design a Sequential logic circuits, (4) Analyse a given logic circuit to assess its function and its performance
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 • Homework • Laboratory Work • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. M. Morris Mano, Digital Design, 5th Ed, Prentice Hall, 2012. ISBN-10: 0-13-277420 Supporting: 1. J. F. Wakerly, Digital Design: Principles and Practices, 4th Ed, Prentice Hall, 2019. ISBN-10: 013446009X 2. Thomas LFloyd, Digital fundamentals, Prentice Hall International.

Course Name	Circuit Theory I
Course Level	Undergraduate
Course Code	EE215-ECE205
Semester	Fall
Person Responsible for the course	Prof. Dr. Özgür Cemal Özerdem
Lecturer	Prof. Dr. Özgür Cemal Özerdem
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 3rd semester
Type of teaching, expected class size	Face to face lectures, < 60 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Laboratory: 2 Lecture hours per week 3. Self-Study: 3 hours per week 4. Total Exercises and Examination Preparation time: 40 hours
Credit Points - ECTS	3 Credit Points – 6 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	-
Catalogue Descriptions/Content	Introduces the fundamentals of Circuit variables, circuit elements. Simple resistive circuits. Techniques of circuit analysis. Topology in circuit analysis. Inductance and capacitance. State variables and state equations. Response of first-order RL, RC circuits. Natural and step responses of second-order RLC circuits.
Course Learning Outcomes	On successful completion of this course, all students will able to: 1. Identify linear systems and represent those systems in schematic form 2. Apply Kirchhoff's current and voltage laws and Ohm's law to circuit problems 3. Simplify circuits using series and parallel equivalents and using Thevenin and Norton equivalents 4. Perform node and loop analyses and set these up in standard matrix format 5. Identify and model first and second order electric systems involving capacitors and inductors 6. Predict the transient behavior of first and second order circuits 7. Design, construct, and take measurement of various circuits to compare experimental results in the laboratory with theoretical analysis.
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 • Laboratory Work • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. William H. Hayt, Jack E. Kemmerly and Steven M. Durbin, Engineering Circuit Analysis, 9th Ed. Mc Graw Hill, 2018, ISBN-13: 978-0073545516 Supporting: 1. James W. Nilsson and Susan A. Riedel,Electric Circuits, Eleventh Eddition, Pearson, 2018, ISBN-13: 978-0-13-474696-8, 2. C. K. Alexander, M. N. O. Sadiku, Fundamentals of Electric Circuits (Sixth Edition), McGraw Hill, 2016, ISBN-13: 978-0078028229

Course Name	Electrical Materials
Course Level	Undergraduate
Course Code	ECE227
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Yönal Kırsal
Lecturer	Assoc. Prof. Dr. Yönal Kırsal
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 3rd semester
Type of teaching, expected class size	Face-to-face lectures, <60 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 44 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	COM122
Catalogue Descriptions/Content	Basic semiconductor structure and the atom model (Basic lattice types, Hydrogen atom, Schrodinger's wave equation, etc.), Energy band-gap theory, Basic semiconductor theory (intrinsic carrier concentration, donors acceptors, etc.), Physics of p-n junction diodes (Bipolar junction transistors, field effect transistors). Transistor biasing and small-signal models, Secondary effects in transistors, Dynamic models for diodes and transistors (p-n-p-n switching devices), Semiconductor junctions with metals (Schottky barrier diode, current flow in a Schottky barrier, small-signal equivalent circuit, etc.)
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: (1) basic quantum mechanics (2) band diagrams for different devices (3) basics of semiconductors and crystal structures (4) pn junction operating principles and solving basic diode circuits (5) BJT and FET operating principles and solving basic transistor circuits.
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. Dolad A Neamen, Semiconductor Physics and Devices: Basic Principles, 4th Edition, Mc GrawHill, 2011. ISBN 0-07-232107-5 2. R. Boylestad and L. Nashelsky, Electronic Devices and Circuit Theory, 11th Ed, Prentice-Hall, 2015.

Course Name	Ordinary Differential Equations
Course Level	Undergraduate
Course Code	MATH201
Semester	Fall
Person Responsible for the course	Assist. Prof. Dr Salih Karanfil
Lecturer	Assist. Prof. Dr Salih Karanfil
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 4^{th} semester
Type of teaching, expected class size	Face to face lectures, <65 Students
Workload	1. Lectures: 4 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 30 hours
Credit Points - ECTS	4 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Calculus 1
Catalogue Descriptions/Content	Definition and classification of differential equations. Solution of first order linear differential equations, initial value problems, homogeneous differential equations, non-homogeneous differential equations, separation of variables, exact differential equations, integrating factors, the method of undetermined coefficient, Bernoulli equations, higher order differential equations, Systems of linear differential equations with constant coefficients, Cauchy Euler equations, Laplace transforms and properties of Laplace Transforms.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: 1. Identify types of differential equations 2. Solving first order differential equations 3. Solving higher order differential equations 4. Solving Inhomogeneous linear systems 5. Basics of Laplace Transforms
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 • Midterm Examination 2 • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. S.L ROSS, Introduction to Ordinary Differential Equations, 4th Edition, John Wiley & Sons, 1989 Supporting: 1. Polking, Bogges, Arnold, “Differential Equations”, Pearson Education, 2006 2. EDWARDS & PENNY, Elementary Differential Equations, 6th Edition Pearson Education, 2013.

Course Name	Electromagnetic Theory I
Course Level	Undergraduate
Course Code	ECE214
Semester	Spring
Person Responsible for the course	Assist. Prof. Dr. Nemika Cellatoğlu
Lecturer	Assist. Prof. Dr. Nemika Cellatoğlu
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 1st semester
Type of teaching, expected class size	Face-to-face lectures, <70 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 5 hours per week 3. Total Exercises and Examination Preparation time: 100 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	None
Catalogue Descriptions/Content	Review of vector calculus. Orthagonal coordinate systems, transformation of coordinate systems, Del operator, gradient, divergence and curl of a vector field. Electrostatics in vacuum, Coulomb's and Gauss's laws. Conductors in the presence of electrostatic fields, Dielectrics and Capacitance. Electrostatic forces by the virtual work principle, Steady currents, Ohm's and Joule's laws and Ampere's force law.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: (1) Orthagonal Coordinate System (2) Electrostatic potential,Coulomb's and Gauss's laws, (3) Conductors in the presence of electrostatic fields, (4) Electric Flux density, Gaus and Divergence Theorems (5) Magnetic Forces and Steady Magnetic Field
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination 1 • Midterm Examination 2 • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. Fundamentals of Engineering Electromagnetics, David K. Cheng, Addison Wesley, 1993 2. Engineering Electromagnetics, William H. Hayt, John A. Buck, 6th Edition, McGraw-Hill,2001

Course Name	Circuit Theory II
Course Level	Undergraduate
Course Code	ECE216-EE216
Semester	Spring
Person Responsible for the course	Asst. Prof. Dr. Burçin Özmen
Lecturer	Asst. Prof. Dr. Burçin Özmen
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 4th semester
Type of teaching, expected class size	Face to face lectures, <75 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Laboratory: 2 Lecture hours per week 3. Self-Study: 5 hours per week 4. Total Exercises and Examination Preparation time: 100 hours
Credit Points - ECTS	4 Credit Points – 8 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Circuit Theory I
Catalogue Descriptions/Content	The course builds up on the Circuit Theory I. The basic objective of this course is to introduce students to the fundamental theory and mathematics for the analysis of Alternating Current (AC) electrical circuits, complex numbers, frequency response and transfer function of circuits. Sinusoidal sources and phasors. Circuit analysis in the s-domain (Nodal analysis, mesh analysis, superposition, Thevenin/Norton equivalent). AC steady-state analysis. AC steady-state power analysis. Three-phase circuits. The Laplace transforms. Circuit analysis in the s-domain. Magnetically coupled circuits, frequency response. Mutual inductance and transformers. Two-port circuits.
Course Learning Outcomes	On successful completion of this course, all students will have: 1. Identify the usage of transformators in AC circuits. 2. Make analysis of balanced three-phase circuits. 3. Analyze frequency response characteristics. 4. Analyze magnetically coupled circuits. 5. Extend these principles into a way of thinking for problem solving in mathematics, science and engineering. 6. An ability to design, construct, and take measurement of various circuits to compare experimental results in the laboratory with theoretical analysis.
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 • Project • Laboratory Work • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. C. K. Alexander, M. N. O. Sadiku, Fundamentals of Electric Circuits (Fifth Edition), McGraw Hill, 2012. Supporting: 1. C. K. Alexander, M. N. O. Sadiku, Problem Solving Made Almost Easy, McGraw-Hill, USA, 2003. 2. J. W. Nilsson, S. A. Riedel, Electric Circuits (Seventh Edition), Prentice-Hall, USA, 2005.

Course Name	Electronics I
Course Level	Undergraduate
Course Code	EE228-ECE204
Semester	Spring
Person Responsible for the course	Asst. Prof. Dr. Burçin Özmen
Lecturer	Asst. Prof. Dr. Burçin Özmen
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 4^{th} semester
Type of teaching, expected class size	Face to face lectures, <75 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Laboratory: 2 Lecture hours per week 3. Self-Study: 5 hours per week 4. Total Exercises and Examination Preparation time: 96 hours
Credit Points - ECTS	3 Credit Points – 6 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Electrical Materials
Catalogue Descriptions/Content	This course introduces the characteristics and applications of semiconductor devices and circuits. Emphasis is placed on analysis, selection, biasing, and applications. Upon completion, students should be able to construct, analyse, verify, and troubleshoot analog circuits using appropriate techniques and test equipment. The course includes basic concepts such as; semiconductor material, semiconductor diode circuits and applications, zener diodes, rectifiers, filters. BJT, MOSFET and JFET amplifier design including biasing, small signal analysis and frequency response. Design of multistage amplifiers. Differential and operational amplifier design. Output stages.
Course Learning Outcomes	On successful completion of this course, all students will have: 1. An ability to analyse diode circuits and design regulators and rectifiers. 2. An ability to use basic techniques for analysing diode circuits in different architecture including Zener Diodes. 3. Demonstrate substantial knowledge and understanding skills and operation of BJTs. 4. Demonstrate substantial knowledge, understanding and skills in the operation, of JFETs. 5. An ability to design, construct, and take measurement of various transistor circuits to compare experimental results in the laboratory with theoretical analysis.
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 • Project • Laboratory Work • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. R. Boylestad and L. Nashelsky, Electronic Devices and Circuit Theory, 8th Ed, Prentice-Hall, 2001. Supporting: 1. A. S. Sedra and K. C. Smith, Microelectronic Circuits, 6th Ed, Oxford University Press, 1997. 2. T. L. Floyd, Electronic Devices, 9th Edition, 2011.

Course Name	Engineering Mathematics
Course Level	Undergraduate
Course Code	MATH224
Semester	Spring
Person Responsible for the course	Assist. Prof. Dr Saltuk Pirgalıoğlu
Lecturer	Assist. Prof. Dr Saltuk Pirgalıoğlu
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 4th semester
Type of teaching, expected class size	Face to face lectures, <100 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 4 hours per week 3. Total Homework, exercises and Examination Preparation time: 45 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Calculus 1
Catalogue Descriptions/Content	The concept of numerical error, solution of nonlinear equations with root finding. Solution of linear systems of equations using software packages. Direct and iterative methods for the solution of linear algebraic equations. Polynomial interpolation (Lagrange and Newton polynomials) and extrapolation. Curve fitting for least squares line and polynomial fitting with data linearization method. Numerical differentiation, numerical integration with quadrature formulas and their error analysis. Numerical solution of ordinary differential equations.
Course Learning Outcomes	On successful completion of the course, students should have gained: (1) an ability to recognize the difference between analytical and numerical solutions (roundoff and truncation errors), (2) knowledge of bracketing and open methods to solve root of equation problems, (3) an ability to solve simultaneously sets of linear algebraic equations using Naive Gauss Eliminatlion, (4) ability to differentiate the fundamental difference between regression and interpolation and to solve the numerical method problems, (5) ability to solve numerical differentiation, ordinary differential equations and integration problems. (6) Having knowledge of complex numbers (7) ability to solve optimization problems
Study and examination requirements and forms of examination	• Homework • Midterm Examination 2 • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. S.C.Chapra, Raymond P Canale, Numerical Methods for Engineers, 7th Edition, McGrawHill, 2015 Supporting: 1. S.C.Chapra Applied Numerical Methods with Matlab for Engineers and Scientists, 4th Edition, McGrawHill, 2018 2. John. H. Mathews, Kurtis D. Fink, Numerical Methods Using MATLAB, 4th Edition Pearson Prentice Hall, 2004 3. James Stewart, Calculus, 8th Ed. Cengage, 2015

Course Name	Probability and Statistic Methods
Course Level	Undergraduate
Course Code	MATH226
Semester	Spring
Person Responsible for the course	Assist. Prof. Dr Semih Oğuzcan
Lecturer	Assist. Prof. Dr Semih Oğuzcan
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 2nd semester
Type of teaching, expected class size	Face to face lectures, >65 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 35 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	-
Catalogue Descriptions/Content	Basic probability laws, Random variables, Operations on Random Variables, Multiple random variables, Operations on multiple random variables, Sampling distributions, distribution functions, continuous distribution functions, Gaussian distribution and its properties and applications, Gaussian Q-function and its applications, Important discrete distributions, Simple discrete distributions (binomial, hypergeometric, combination, permutation)
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: 1) Understand basic concepts in probability including combinatorics, independence, conditional probability and Bayes rule. 2) Compute probabilities by modelling sample spaces and applying rules of permutations and combinations, additive and multiplicative laws and conditional probability. 3) Solve basic problems arising in engineering that involve discrete and continuous probability distributions. 4) Construct the probability distribution of a random variable, based on a real-world situation, and use it to compute expectation and variance. 5) Use statistical concepts such as means, variances and various types of graphs to analyse datasets, and sampling distributions.
Study and examination requirements and forms of examination	• Midterm Examination 1 • Final Examination • Quiz 1
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. Sheldon Ross, "Introduction to Probability and Statistics for Engineers and Scientists", Elseveir, Academic press, ISBN 10: 0-12-370483-9. Supporting: 1. R. E. Walpole, R. H. Myers, S. L. Myers and K. E. Ye, "Probability & Statistics for Engineers and Scientists", Prentice-Hall, 2011. 2. G. Tyler Miller, Scott Spoolman,«Environmental Science», 15th Edition, Cengage Learning, 2016.

Course Name	Computer Organization and Architecture
Course Level	Undergraduate
Course Code	COMP 333
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Ezgi Deniz Ülker
Lecturer	Assoc. Prof. Dr. Ezgi Deniz Ülker
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 5th semester
Type of teaching, expected class size	Open Access, online <90 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 6 hours per week 3. Total Exercises and Examination Preparation time: 50 hours
Credit Points - ECTS	4 Credit Points – 6 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	-
Catalogue Descriptions/Content	This course will review fundamental structures in modern processors and computer architecture. Topics will include technology trends, computer organization, instruction set design, memory system design and importance of buses within the computer organization. This course also covers introduction to symbolic assembly language programming for MIPS architectures.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: 1. Understand the fundamental organisation of a computer system 2. Perform basic operations with signed and unsigned integers in decimal and binary number systems 3. Use various metrics to calculate the performance of a computer system 4. Distinguish the organization of various parts of a system memory hierarchy 5. Trace and explain the result(s) of the execution of a given instruction or sequence of instructions in a subset of assembly language 6. Understand fundamentals concepts of pipeline processing
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination • Quiz • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture video links, lecture note sharing. MS Teams for recording the lectures.
Reading List/ Recommended Text Book	Main: 1. Computer Organization and Design: The Hardware/Sorfware Interface 5th edition (2014), David A. Patterson and John L. Hennessy

Course Name	Electronics II
Course Level	Undergraduate
Course Code	ECE311-EE337
Semester	Fall
Person Responsible for the course	Asst. Prof. Dr. Burçin Özmen
Lecturer	Asst. Prof. Dr. Burçin Özmen
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 5th semester
Type of teaching, expected class size	Face to face lectures, <75 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Laboratory: 2 Lecture hours per week 3. Self-Study: 5 hours per week 4. Total Exercises and Examination Preparation time: 90 hours
Credit Points - ECTS	4 Credit Points – 7 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Electronics I
Catalogue Descriptions/Content	Review of DC biasing procedures for transistor circuits. BJT and FET small-signal models: re and pi models and transconductance amplifiers. Multistage BJT and FET amplifiers. Frequency response of transistor amplifiers. Differential amplifiers. CMRR. Operational amplifiers. Applications of op-amps as integrators, differentiators and adders. Power amplifiers: push-pull amplifiers, Class A, B and AB amplifiers. Tuned amplifiers.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding tof: 1. Design and analysis of amplifiers circuits using BJT. 2. Design and analysis of amplifiers circuits using FET and MOSFET. 3.Analyze and design feedback amplifiers and transistor oscillators. 4. Calculate approximate frequency response diagrams of amplifiers. 5. Demonstrate understanding and skills in the design of passive to active filters.
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 • Project • Laboratory Work • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. E. A. S. Sedra and K. C. Smith, Microelectronic Circuits, 7th Ed, Oxford University Press, 2014. ISBN: 9780199339136. Supporting: 1. R. Boylestad and L. Nashelsky, Electronic Devices and Circuit Theory, 11th Ed, Prentice-Hall, 2015. ISBN: 9332542600. 2. R. C. Jaeger and Travis Blalock, Microelectronic Circuit Design, 5th Ed, McGraw-Hill, 2015. ISBN: 0073529605.

Course Name	Electromagnetic Theory 2
Course Level	Undergraduate
Course Code	ECE317
Semester	Fall
Person Responsible for the course	Prof. Dr Hüseyin Ademgil
Lecturer	Prof. Dr Hüseyin Ademgil
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 5th semester
Type of teaching, expected class size	Face to face lectures, <60 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 40 hours
Credit Points - ECTS	3 Credit Points – 6 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Electromagnetic Theory 1
Catalogue Descriptions/Content	Course includes in depth theoretical knowledge about Time-varying fields; Maxwell's equations; wave equations; time-harmonic fields; complex phasors; scalar and vector potential functions; plane waves in vacuum; plane waves in dielectrics and conductors; polarisation of plane waves, Poynting's theorem; reflection and refraction of plane waves at dielectric interfaces; Snell's laws; Fresnel formulas; critical angle; total internal reflection; total transmission; Brewster's angle; standing waves; transmission line theory; TEM waves; transmission line parameters; lossy and lossless lines; matching of transmission lines to their loads.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: 1. Understand basic time-varying fields and their interactions. 2. The basics of Maxwell's equations and properties of plane waves, 3. Basic transmission line theory, 4. Use of Graphical Methods: Smith Chart
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 & 2 • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. Fundamentals of Engineering Electromagnetics, David K. Cheng Addison Wesley, 1993 Supporting: 1. Elements of Electromagnetics, Matthew N O Sadiku, Oxford University Press, 2001 2. Schaum's Outline of Electromagnetics, 5th Edition. McGraw-Hill Education 2018

Course Name	Signals & Systems
Course Level	Undergraduate
Course Code	EE317-COMP343
Semester	Fall
Person Responsible for the course	Prof. Dr Hüseyin Ademgil
Lecturer	Prof. Dr Hüseyin Ademgil
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 6th semester
Type of teaching, expected class size	Face to face lectures, <75 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Laboratory: 2 Lecture hours per week 3. Self-Study: 3 hours per week 4. Total Exercises and Examination Preparation time: 40 hours
Credit Points - ECTS	3 Credit Points – 6 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Calculus 1
Catalogue Descriptions/Content	Introduces the fundamentals of signal and system analysis. Topics include discrete-time and continuous-time signal analysis, analysis of linear, time-invariant systems, convolution sum/integral representation, difference equations, Fourier series and transforms and representations of both continuous-time and discrete-time signals. The student is introduced to important Fourier properties and their application, e.g. time/frequency shifting, differentiation/integration, scaling/multiplication, convolution and Parseval's theorem. Applications drawn broadly from engineering and physics, including audio and communications. Class material is complemented with in-class demonstrations using MATLAB.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: 1. How to describe, categorize, and analyse signals and systems 2. The techniques for analysis and manipulation of linear, time-invariant systems 3. Time- and frequency-domain representions of signals and LTI systems 4. Fourier analysis of signals and systems.
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 & 2 • Laboratory Work • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. S. Haykin and B. Van Veen, Signals and Systems , 2nd Ed., John Wiley & Sons, 2003, ISBN: 0471164747. Supporting: 1. S. T. Karris, Signals and Systems with MATLAB Computing and Simulink Modeling, 3rd Ed., 2007, ISBN: 978-1934404119 2. A. V. Oppenheim, A. S. Willsky, S. Hamid, S. H. Nawab, Signals and Systems, Prentice Hall, 1997, ISBN: 0136511759.

Course Name	Microprocessor systems
Course Level	Undergraduate
Course Code	ECE308
Semester	Fall
Person Responsible for the course	Asst. Prof. Dr. Cem Kalyoncu
Lecturer	Asst. Prof. Dr. Cem Kalyoncu
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 6th semester
Type of teaching, expected class size	Face-to-face lectures, <70 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Lab work: 2 hours per week 4. Examination Preparation time: 35 hours
Credit Points - ECTS	4 Credit Points – 6 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	
Catalogue Descriptions/Content	This course will introduce the fundamentals of microprocessor systems, microcontrollers, hardware interfacing and system design techniques as well as microprocessor architectures. Additionally, embedded C/C++ programming, Arduino Nano microcontrollers, analogue to digital conversion, I/O methods, pin and port manipulation, pulse-width modulation, UART communication, a serial peripheral interface, inter-integrated circuit communication, interrupts, timers, counters, EEPROM access, power saving modes, and fuses will be covered.
Course Learning Outcomes	Upon completion, the student should have gained: 1. Understanding the microcontroller fundamentals 2. Practical and in-depth knowledge of I/O pin/port operations 3. Knowledge about communicating with peripheral devices 4. Ability to use UART, SPI, and I2C interfaces 5. Ability to use timers and counters 6. Ability to use EEPROM to save data and device settings
Study and examination requirements and forms of examination	• In-class exercises • Two quizzes • Midterm Examination • Lab works • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture notes, quiz
Reading List/ Recommended Text Book	• Arduino: A Technical Reference, J. M. Hughes, 2016 • Arduino: Advanced Strategies to Learn and Execute Arduino Programming, Daniel Jones, 2017 • Microcontrollers: Architecture, Implementation, & Programming, Kenneth J. Hintz and Daniel Tabak, 1992 • Programming: Principles and Practice Using C++, Second Edition, Bjarne Stroustrup

Course Name	Communication Engineering
Course Level	Undergraduate
Course Code	ECE312-EE342
Semester	Spring
Person Responsible for the course	Asst. Prof. Dr. Burçin Özmen
Lecturer	Asst. Prof. Dr. Burçin Özmen
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 6th semester
Type of teaching, expected class size	Face to face lectures, <75 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Laboratory: 2 Lecture hours per week 3. Self-Study: 4 hours per week 4. Total Exercises and Examination Preparation time: 50 hours
Credit Points - ECTS	3 Credit Points – 4 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Calculus I
Catalogue Descriptions/Content	Principles and theory of various modulation techniques such as Amplitude modulation, Angle modulation, their differences in terms of bandwidth, power efficiency. Double Side Band Suppressed Carrier Modulation. Single side band modulation and AM modulation. The Modulation and demodulation circuits for AM systems are discussed. Various types of filters are reviewed and their applications in communications theory is discussed. Envelope detection, Average detector, Peak detector and Synchronous detector are viewed. Frequency modulation and Phase modulation: similarities and differences. Spectra of modulated signals. Power Spectral Density. Frequency division multiplexing. Bessel functions. Spectra of FM signal. Frequency deviation. Reactance modulation for FM. FM discriminator. Radio transmitters. This course also has a co-requisite laboratory work, where students apply theoretical knowledge obtained to practical work.
Course Learning Outcomes	On successful completion of the course, students should be able to: (1) An ability to be able to analytically calculate the frequency spectra of known signals, (2) An ability to have basic understanding of analog modulation methods (AM, PM, FM), (3) An ability to differentiate between various modulation methods in terms of lineraity, bandwidth and power, (4) An ability to differentiate DSB, DSBSC and SSB systems, (5) An ability to identify and differentiate Phase and frequency modulations, (6) An ability to have basic knowledge of digital modulation methods, (7) An ability to obtain and demonstrate practical ability to perform experiments involving analog modulation methods, write reports and work as a part of a team.
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 • Project • Laboratory Work • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. U. Madhow, Introduction to Communication Systems, Cambridge University Press 2014, ISBN: 978-1-107-02277-5. Supporting: 1. Taub & Schilling Principle of Communication Systems, McGraw Hill 2006. 2. Leon W. COUCH II, "Digital and Analog Communication Systems", 6th Edition, Prentice Hall, 2001.

Course Name	Digital Signal Processing
Course Level	Undergraduate
Course Code	EE322
Semester	Spring
Person Responsible for the course	Asst. Prof. Dr. Burçin Özmen
Lecturer	Asst. Prof. Dr. Burçin Özmen
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 5^{th} semester
Type of teaching, expected class size	Face to face lectures, <75 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 6 hours per week 3. Total Exercises and Examination Preparation time: 75 hours
Credit Points - ECTS	3 Credit Points – 6 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Calculus II
Catalogue Descriptions/Content	Open loop and closed loop control. Transfer function, block diagram, signal flow graph, state equations. Sensitivity, disturbance rejection, steady-state error. Second- and first-order system performance, dominant roots, steady-state error of feedback systems. Routh-Hurwitz criterion, relative stability. Root locus method. Bode diagram, Nyquist stability criterion, gain margin and phase margin. PI, PD and PID controller design.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: (1) mathematical modelling of linear control systems, e.g. transfer functions, (2) the theoretical tools required for basic control system analysis, (3) techniques for stability analysis of control systems, (4) frequency domain techniques for the analysis of linear systems.
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 • Project • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. R. C. Dorf and R. H. Bishop, Modern Control Systems 13th Ed, Pearson - Prentice Hall 2016. ISBN: 0134407628. Supporting: 1. N. S. Nise, Control Systems Engineering, 3rd Ed., John Wiley & Sons, 2014. ISBN: 1118170512. 2. Franklin, Gene, J. David Powell, and Abbas Emami–Naeini. Feedback Control of Dynamic Systems. 6th ed. Prentice Hall, 2009. ISBN: 9780136019695.

Course Name	Summer Training
Course Level	Undergraduate
Course Code	ECE310
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Yönal Kırsal
Lecturer	Assoc. Prof. Dr. Yönal Kırsal
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 7th semester
Type of teaching, expected class size	Training, <10 Students
Workload	Total Training and Presentation Preparation time: 63 hours
Credit Points - ECTS	0 Credit Points – 2 ECTS
Requirements according to the examination regulations	Students are required to complete a total of 30 working days of Summer Training sessions after finishing their second or third year of studies.
Pre-requisites	-
Catalogue Descriptions/Content	The Electronics and Communication Engineering students are encouraged to take part in industrial work/organizations relating to their fields of study. This is required as part of the fulfilment of the degree program. Students are required to complete a total of 30 working days of Summer Training sessions after finishing their second or third year of studies.
Course Learning Outcomes	On successful completion of the course, the student will: (1) gain practical experience relevant to their field, (2) apply their knowledge to the task, (3) improve problem-solving and critical-thinking skills, (4) develop an understanding of professional customs and practices, (5) gain organizational skills and learn to maintain the information, (6) learn to behave ethically with health and safety in mind.
Study and examination requirements and forms of examination	• Training • Presentation
Media Employed	-
Reading List/ Recommended Text Book	-

Course Name	Digital Signal Processing
Course Level	Undergraduate
Course Code	ECE408
Semester	Spring
Person Responsible for the course	Asst. Prof. Dr. Burçin Özmen
Lecturer	Asst. Prof. Dr. Burçin Özmen
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 7^{th} semester
Type of teaching, expected class size	Face to face lectures, <75 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 4 hours per week 3. Total Exercises and Examination Preparation time: 50 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Signals & Systems
Catalogue Descriptions/Content	Discrete-time signals, the relationship between continuous and discrete-time transforms, and the sampling theorem. System properties. The impulse response of discrete time, linear time-invariant (LTI) systems and the convolution sum. The z-transform and its properties. Design and analysis of LTI systems using the z-transform. Filter structures. Design of FIR and IIR digital filters. Characterization using linear difference equations. Signal analysis using the discrete Fourier transform and the fast Fourier transform (FFT). Analysis and simulation using the MATLAB software package.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: (1) discrete-time signals & systems, and system properties, (2) digital LTI systems and the convolution sum, (3) the z-transforms and region of convergence, (4) the design of both FIR and IIR digital filters (5) computational tools for the analysis of signals and manipulation of LTI systems.
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 • Project • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. E. C. Ifeachor and B. W. Jervis, Digital Signal Processing: A Practical Approach, Englewood Cliffs, N. J. Prentice-Hall, 2001. ISBN: 0201596199. Supporting: 1. B. Mulgrew, P. Grant and J. Thompson, Digital Signal Processing: Concepts and Applications, 2nd Ed, Palgrave Macmillan, 2003. ISBN: 0333963563. 2. S. K. Mitra., Digital Signal Processing: A Computer based approach, MCGraw-Hill, 4th Ed., 2011. ISBN: 0071289461.

Course Name	Graduation Project I
Course Level	Undergraduate
Course Code	ECE410
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Yönal Kırsal
Lecturer	Assoc. Prof. Dr. Yönal Kırsal
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 7th semester
Type of teaching, expected class size	Face-to-face lectures, <20 Students
Workload	1. Self-Study: 3 hours per week 2. Total Exercises and Preparation time: 98 hours
Credit Points - ECTS	1 Credit Point – 3 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the meetings and submit the proposal on time.
Pre-requisites	-
Catalogue Descriptions/Content	4th academic year (final year) students in Electronics and Communication Engineering are required to prepare and present a graduation project (Graduation Project - Part I & II) under the supervision of a faculty member listed above. Each student has to prepare a separate (or, as part of a team with two members) project. The purpose of the project is to develop an understanding of independent research by studying a particular Electronic and Communication Engineering topic. It is an extended exercise in the professional application of the skills and experience gained in the undergraduate program.
Course Learning Outcomes	On successful completion of the course, students should be able to: (1) familiarize with their projects, (2) carry out literature survey, (3) prepare materials, (4) study components and relevant standards before the implementation phase in the following semester.
Study and examination requirements and forms of examination	• Project proposal form + report • Project topic selection • Poster Preparation • Meetings
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	1. Ralph M. Ford and William C. Lasher, Processes for Ensuring Quality Capstone Design Projects, 0-7803-8552-7/04/$20.00 © 2004, IEEE. 2. Abdelkarim Erradi, EasyCapstone: A Framework for Managing and Assessing Capstone Design Projects, 978-1-4673-0242-5/12/$31.00 ©2012, IEEE

Course Name	Engineering Economy
Course Level	Undergraduate
Course Code	ECON413
Semester	Fall
Person Responsible for the course	Assisr. Prof. Dr Saltuk Pirgalıoğlu
Lecturer	Assisr. Prof. Dr Saltuk Pirgalıoğlu
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 6^{th} semester
Type of teaching, expected class size	Face to face lectures, <75 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 4 hours per week 3. Total Exercises and Examination Preparation time: 20 hours
Credit Points - ECTS	3 Credit Points – 4 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	
Catalogue Descriptions/Content	Engineering economy principles. Cash-flow diagrams. Time effect on money. Formulas for reflecting time effect on money. How to value money that was spent before and how to value if it will be spent in the future while comparing different alternatives at present. Interest rate, simple interest rate, compound interest rate and compounding periods. How different compounding periods affecting the total amount of interest earned from the deposit. Why different alternatives need to be compared on economical basis. What is feasibility? Comparing different alternatives, examples. Minimum rate of return, attractive rate of return. Replacement and economic life concepts and problems about replacement concept by following different evaluation techniques.
Course Learning Outcomes	At the end this course, the student will be able to: (1) understand the some of the basic principles of economy, (2) understand and analyze the methods of comparing engineering projects' alternatives, (3) understand and analyze time effect on money by introducing interest rate, (4) evaluate how to make depreciation analysis, (5) evaluate how to investigate replacement concept.
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 & 2 • Laboratory Work • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. Leland T. Blank, Anthony Tarquin, Engineering Economy 8th Edition, Mc Graw Hill (2018) (Textbook). 2. William G. Sullivan, Elin M. Wicks, C. Patrick Koelling, Engineering Economy 16th Edition Pearson (2015) (Reference)

Course Name	Strategic Planning and Management
Course Level	Undergraduate
Course Code	BUSN461
Semester	Fall
Person Responsible for the course	Asst. Prof. Dr Devrim ÖZDAL
Lecturer	Asst. Prof. Dr Devrim ÖZDAL
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 7th semester
Type of teaching, expected class size	Face to face lectures, >150 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 40 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	
Catalogue Descriptions/Content	Strategic Planning, setting goals, basic concepts of strategic management, developing a strategic plan, vision, mission, objectives, strategies and action plans, project management, types of project management, risk management, the six step process of risk management, risk management steps and tools, entrepreneurship, innovation, invention, the practice of innovation, entrepreneurial management, change management and leadership, roles and responsibilities for change, leadership style, strategic leadership, strategic leadership failure, global and social effects of engineering practices.
Course Learning Outcomes	1. To provide a basic understanding of the nature and dynamics of the strategy formulation and implementation processes as they occur in complex organizations. 2. To encourage students to think critically and strategically. 3. To develop the ability to identify strategic issues and design appropriate courses of action. 4. Demonstrate the ability to think critically in relation to a particular problem, situation or strategic decision through real-world scenarios. 5. Begin building a strategic plan for your area of responsibility. 6. To adapt change management
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination • Project • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1 Michel Crouhy and Dan Galai., "The Essentials of Risk Management", Second Edition, McGraw-Hill Education, 2014 2 David Hillson., "The Risk Management Handbook: A Practical Guide to Managing the Multiple Dimensions of Risk", Kogan Page, 1st edition, 2016 3 Melissa Schilling., "Strategic Management of Technological Innovation", 5th Edition, Kindle Edition, 2016 4 Constance E. Bagley."Managers and the Legal Environment: Strategies for the 21st Century"8th Edition, South-Western College/West, 2015

Course Name	Digital Communication
Course Level	Undergraduate
Course Code	ECE403
Semester	Spring
Person Responsible for the course	Assoc. Prof. Dr. Yönal Kırsal
Lecturer	Assoc. Prof. Dr. Yönal Kırsal
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 8th semester
Type of teaching, expected class size	Face-to-face lectures, <40 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 4 hours per week 3. Total Exercises and Examination Preparation time: 50 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	None
Catalogue Descriptions/Content	The course starts with a review of probability and an introduction to stochastic processes so as to understand channel behaviour. Digital modulation and demodulation methods are explained with respect to analog modulation methods. Differences between analog and digital techniques and the importance of detectors. Baseband signals and dimensionality theorem. Gramm Schmidt orthogonalisation procedure. Pulse code modulation, Nyquist sampling theorem, explanation of aliasing. Pulse amplitude modulation, Pulse position modulation and minimum Eucladian distance between signals. Multiplexing methods. Digital Passband Transmission topics wnclude Additive White Gaussian Noise, Coherent and non-coherent digital modulation themes such as BPSK, DBPSK, BFSK, BASK, etc. Optical Communications.
Course Learning Outcomes	On successful completion of the course, students should be able to: (1) define and recognise stochastic processes and their relation to communications, (2) understand concepts related to vector spaces, dimensionality, and basis functions, (3) understand the differences in various digital modulation methods, (4) calculate the probability of error, for a given digital modulation technique, (5) compare the performance of digital modulation techniques, (6) be able to model a modulation method and assess its performance using Matlab, (7) have a basic understanding of today's popular modulation techniques.
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination 1 • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. Digital Communications: Fundamentals and Applications, By Bernard Sklar, Prentice Hall, 2 nd ed, 2001. Supporting: 2. Digital Communications, Fundamentals and Applications, Larsen & Keller 2017

Course Name	Graduation Project II
Course Level	Undergraduate
Course Code	ECE420
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Yönal Kırsal
Lecturer	Assoc. Prof. Dr. Yönal Kırsal
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 8th semester
Type of teaching, expected class size	Face-to-face lectures, <20 Students
Workload	1. Self-Study: 3 hours per week 2. Total Exercises and Preparation time: 314 hours
Credit Points - ECTS	5 Credit Points – 10 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the meetings, attend the presentation and submit the report on time.
Pre-requisites	ECE410
Catalogue Descriptions/Content	This course is the sequel to ECE410. It consists of the implementation of a realistic, preferably interdisciplinary, engineering capstone project emphasizing engineering design principles on an Electronics and Communication Engineering topic. The team must complete the detailed design and implementation of the preliminary design they started in the ECE410 course. It is an extended exercise in the professional application of the skills and experience gained in the undergraduate program. Students are expected to make a presentation and submit a detailed final report that documents the design, implementation and testing.
Course Learning Outcomes	On successful completion of the course, students should be able to: (1) undertaken a major piece of engineering work, (2) appreciated the problems of planning and investigating, experimental or computational tasks, (3) used relevant standards, (4) developed skills in modelling and analysis in a design context, (5) understood the significance of the design development cycle, (6) learnt how to search and report the relevant literature, (7) used advanced equipment and learn measurement techniques, (8) developed and applied presentation and communication skills in reporting technical research findings.
Study and examination requirements and forms of examination	• Project + report • Project Presentation + Demonstration • Poster Preparation • Meetings
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	1. Ralph M. Ford and William C. Lasher, Processes for Ensuring Quality Capstone Design Projects, 0-7803-8552-7/04/$20.00 © 2004, IEEE. 2. Abdallah M Hasna, Embedding Sustainability in Capstone Engineering Design Projects, 978-1-4244-6571-2/10/$26.00 © 2010, IEEE.

Course Name	Satellite Communications
Course Level	Undergraduate
Course Code	EE321
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Yönal Kırsal
Lecturer	Assoc. Prof. Dr. Yönal Kırsal
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 7^{th} or 8^{th} semester
Type of teaching, expected class size	Face-to-face lectures, <100 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 44 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	None
Catalogue Descriptions/Content	Satellite Orbits and launching procedures, look angles, Space Stations and Ground Terminals, Spacecraft, power, communications, TT&C, antenna systems, Link budgets, C/N calculation, Analog modulation techniques, S/N calculation, Frequency Allocation, Link Calculation and Signal Propagation, Digital Modulation, Error Correction Codes, Multiple Access, Receiver Synchronization, Baseband Processing and the basics of Satellite Networking. Case studies: DBS-TV, GPS, LEO and VSAT networks.
Course Learning Outcomes	On successful completion of the course, students should be able to: (1) An ability to understand the basics of satellite orbits, (2)An ability t to understand the satellite segment and earth segment, (3) An ability to analyze the various methods of satellite access, (4) To understand the applications of satellites.
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination • Project • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. Dennis Roddy, "Satellite Communication", 4th Edition, Mc Graw Hill International, 2006. 2. T. M. Braun, "Satellite communications payload and system", Hoboken, N.J : Wiley, ©2012.

Course Name	Introduction to Mobile Communications
Course Level	Undergraduate
Course Code	EE321
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Yönal Kırsal
Lecturer	Assoc. Prof. Dr. Yönal Kırsal
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 7^{th} or 8^{th} semester
Type of teaching, expected class size	Face-to-face lectures, <100 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 44 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	None
Catalogue Descriptions/Content	Introduction to wireless communications, cellular wireless networks, 2G to 4G cellular networks, Wi-Fi and WLAN, Internet, wireless and mobile IP. Network Planning in gsm systems, the architecture of the network, and how to handle Handover management. Review of multiplexing techniques such as TDMA, FDMA, and introduction to CDMA. Traffic planning and understanding of the trade-offs involved with quality vs capacity. This course also includes a Term Project where students design a mobile network considering various project specifications. The project involves the submission of a Report and an Oral Presentation. Wireless WANs and PANs such as Bluetooth, Wireless sensor networks, mobility management and radio resource management, traffic models and mobility models, multiple access techniques and an introduction to the simulation of wireless networks
Course Learning Outcomes	On successful completion of the course, the student will be able to: (1) Understand the basic concepts related to mobile communications, (2) Understand the issues and trade-offs related to mobile communications, (3) Understand mobile IP and the applications of mobile IP, (4) Describe and differentiate between multiple-access techniques, (5) Differentiate issues relating to 2G, 3G and 4G, (6) Look at IEEE standards and analyze them to understand a given standardized technique.
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination • Project • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. Mobile Communications, Jochen Schiller, 2nd Edition 2. Wireless Communications & Networks: Pearson New International Edition William Stallings, 2013

Course Name	Introduction to Telecommunication Networks
Course Level	Undergraduate
Course Code	EE329
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Yönal Kırsal
Lecturer	Assoc. Prof. Dr. Yönal Kırsal
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 6th semester
Type of teaching, expected class size	Face-to-face lectures, <100 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 44 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	None
Catalogue Descriptions/Content	Physical Layer-the theoretical basis for data communication, guided transmission media, wireless transmission, Data Link Layer, data link layer design issues, MAC Sublayer, MAC Sublayer (Wireless), MAC Sublayer (Bridges), network layer design issues, Network Layer (Routing and Routers), Network Layer (Internetworking/IP), Transport Layer/Services/ Protocols. The Transport Service, elements of transport protocols, flow control and buffering, multiplexing, introduction to UDP, the TCP service model, the TCP protocol, performance issues, the application layer, the domain name system. Internetworking with IP (classes of IP addresses; IPV4 and IPV6), Cisco Packet Tracer Tutorial.
Course Learning Outcomes	On successful completion of the course, students should have gained: (1) An understanding of overarching frameworks for telecommunications network designs and operations, (2) An appreciation of the OSI framework by focusing on specific example implementations, (3) An understanding of various multi-service network topologies and how specific industrial network implementations fit within the broad topologies, (4) An accurate appreciation of how different switched networks are designed and implemented in order to provide internet services.
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination • Project • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. A. S. Tanenbaum, Computer Networks, 5th ed., Prentice Hall, 2011. 2. L. L. Peterson and B. S. Davie, Computer Networks: A Systems Approach, 5th ed.,Morgan Kaufmann, 2012.

Course Name	Electromechanical Energy Conversion 1
Course Level	Undergraduate
Course Code	EE 348
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Samet Biricik
Lecturer	Assoc. Prof. Dr. Samet Biricik
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 6th semester
Type of teaching, expected class size	Face to face lectures, <75 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 40 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Electromagnetic 1 and Circuit Theory 1
Catalogue Descriptions/Content	This course provides an introduction to the basic principles of electromechanical energy conversion devices. Topics include three-phase circuits; magnetic circuits; theory, construction, and operation of transformers; performance characteristics and design prensiple of transformers.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: 1. Gain a general understanding of energy conversion. 2. Having knowledge of concepts and related laws used in electromechanical energy conversion. 3. Understanding electromechanical energy conversion devices and their operational principles. 4. Ability to analyze electromechanical energy conversion systems.
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 • Quizes • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. B. S. Guru, H. R. Hiziroglu, "Electric Machinery and Transformers", 3rd edition, Oxford University Press, 2001 Supporting: 1. Fitzgerald, Kingsley and Umans, Electric Machinery, McGraw-Hill 2. Guru and Hızıroğlu, Electric Machinery & Transformers, Electric Machinery and Transformers, The Oxford Series in Electrical and Computer Engineering

Course Name	High Voltage Engineering
Course Level	Undergraduate
Course Code	EE 409
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Samet Biricik
Lecturer	Assoc. Prof. Dr. Samet Biricik
Language	English
Relation to Curriculum	Undergraduate degree program, Compulsory, 7th semester
Type of teaching, expected class size	Face to face lectures, <75 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 40 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Electromagnetic 1 and Circuit Theory 1
Catalogue Descriptions/Content	This course provides electrical field analysis, Static electric field concept, basic electrode systems, experimental and computational methods for field analysis. Discharge phenomena electrical breakdown in gasses, Townsend's breakdown criterion, Paschen's law, Streamer or "Canal" mechanisms, breakdown in non-uniform field and corona, electrical breakdown of dielectric liquids and solids.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: 1. Understand fundamental concepts of high voltage AC, DC, and impulse generation 2. Learn the techniques employed in high voltage measurements 3. Apply analytical and numerical techniques for electric field calculations in high voltage systems 4. Learn the fundamental concept of electric breakdown in liquids, gases, and solids
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 • Quizes • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. High Voltage Engineering: Fundamentals, E. Kuffel, W. S. Zaengl, and J. Kuffel, Newnes: Oxford, 2nd edition, 2000

Course Name	Microwave Theory and Design
Course Level	Undergraduate
Course Code	EE418
Semester	Fall
Person Responsible for the course	Prof. Dr. Sadık Ülker
Lecturer	Prof. Dr. Sadık Ülker
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 7th or 8th semester
Type of teaching, expected class size	Face-to-face lectures, <100 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 44 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	EE 315 - Electromagnetic Theory II
Catalogue Descriptions/Content	Understanding the basics of microwave systems and circuits. Review of Electromagnetic Theory and Waves. Transmission Line Theory. Smith Chart description, use. Impedance Matching networks; Lumped Element Matching, Shunt Element Matching, Quarter Wave Transformers. Learning the basics of microwave network analysis and scattering matrix.
Course Learning Outcomes	LO 1. Electromagnetic wave propagation. LO 2. Identify the simple transmission line problems and solve simple transmission line problems. LO 3. Identify the role of the Smith Chart. LO 4. Use of Smith Chart and design of simple matching networks. LO 5. Learn the basics of microwave network analysis and scattering matrix.
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination • Project • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. D. M. Pozar, Microwave and RF Design of Wireless Systems, 3rd Edition, Wiley, 2000. 2. M. Kulkarni, Microwave and Radar Engineering, 5th Edition, 2012.

Course Name	Narrowband Wireless Communications
Course Level	Undergraduate
Course Code	EE419
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Yönal Kırsal
Lecturer	Assoc. Prof. Dr. Yönal Kırsal
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 7th semester
Type of teaching, expected class size	Face-to-face lectures, <100 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 40 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	None
Catalogue Descriptions/Content	This course introduces the characteristics and applications of transmission fundamentals, communication networks, the cellular concept and system design fundamentals frequency reuse, interference and system capacity. Protocols and the TCP/IP protocol suite. Antennas and radio propagation and large-scale path loss. Small-scale fading and multipath propagation. Doppler shift, mobile multipath channel parameters such as coherence bandwidth and coherence time. Diversity techniques and diversity combining. Spread spectrum communication techniques. Multiple access techniques TDMA, FDMA, CDMA, SDMA. Satellite Communications, Wireless LAN technologies.
Course Learning Outcomes	On successful completion of the course, students should be able to: (1) An ability to understand the basics of wireless communication, (2) An ability to acquire a good knowledge of wireless communication systems and applications, (3) An ability to understand the standards/technologies for various wireless computing systems, (4) An ability to be aware of trends in wireless computing systems and applications, (5) An ability able to compare the various access techniques and will learn the fundamentals of satellite communications.
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination • Quizzes • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. Stallings, W., Data & Computer Communications, 10th Edition, Prentice Hall, 2013 2. Wireless Communications, by A. F. Molisch, 2005, John Wiley and Sons. ISBN-13 978-0-470-84887-6 (HB) or ISBN-13 978-0-470-84888-3 (PB).

Course Name	Antennas and Propagation
Course Level	Undergraduate
Course Code	EE429
Semester	Spring
Person Responsible for the course	Prof. Dr Hüseyin Ademgil
Lecturer	Prof. Dr Hüseyin Ademgil
Language	English
Relation to Curriculum	Undergraduate degree program, Technical Elective
Type of teaching, expected class size	Face to face lectures, <30 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 30 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Electromagnetic Theory 1
Catalogue Descriptions/Content	Familiarizing students with the fundamental parameters of antennas and principles of radiation. Review of the theory of the electromagnetic radiation. Learning fundamental antenna parameters; major minor lobes, radiation patterns, directivity, radiated power. Different antenna types such as; dipole, Yagi-Uda, Log Periodic Antenna, printed circuit antennas (microstrip patch antenna). Basic antenna applications, new generation antenna systems, Health and safety issues and environmental effects on electromagnetic radiation.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: 1. Develop an understanding of the theory of electromagnetic radiation. 2. Recognize the fundamental concepts of antenna parameters 3. Calculate the basic antenna parameters. 4. Antenna Types and Features 5. Current Technology and Health and Safety Issues
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 • Quiz and Trainings • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. C. A. Balanis, Antenna Theory: Analysis and Design, 3rd Edition,Hoboken, NJ, Wiley, 2005 Supporting: 1. J. D. Kraus, R. J. Marhefka, A. S. Khan, Antennas for all applications, 3rd Edition, McGraw Hill 2007ö 2. W. L. Stutzman , G. A. Thiele, Antenna Theory and Design, 3rd Edition, Wiley 2013. 3. J. J. Carr, G. W. Hippisley, Practical Antenna Handbook, Fifth Edition, McGraw Hill, 2012.

Course Name	Principles of Digital Image Processing
Course Level	Undergraduate
Course Code	EE431
Semester	Fall
Person Responsible for the course	Asst. Prof. Dr. Cem Kalyoncu
Lecturer	Asst. Prof. Dr. Cem Kalyoncu
Language	English
Relation to Curriculum	Undergraduate degree program, Elective, 8^{th} semester
Type of teaching, expected class size	Face-to-face lectures, <50 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Examination (quiz, midterm, final) preparation time: 40 hours 4. Homework: 20 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	
Catalogue Descriptions/Content	This course introduces the principles of digital image processing applications and their implementations mainly in C++. Topic covers: Image sampling and quantization; interpolation techniques, nearest neighbor interpolation, bilinear interpolation; Histograms, understanding image histogram, constrast stretching, brightness and contrast, gamma, histogram equalization. Filtering in spatial domain, low pass filter, high pass filter, band pass filter, box filter, edge detection techniques. Color theory, human color vision, digital image color systems: RGB, HSI, HSV, CMYK. Image morphology, thresholding, erosion, dilation, opening and closing operations, and/or/not operations. Information theory, Shannon'e entropy, Huffmann compression, compression techniques, lossy/lossless compression.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: 1. Familiarity with image processing terms 2. Knowledge of histograms and histogram processing 3. Ability to understand and perform filters on grayscale and binary images 4. Ability to understand and implement image processing algorithms 5. Having theoretical understanding of topics related to image processing, such as color theory, information theory
Study and examination requirements and forms of examination	• In class exercises • Two quizzes • Midterm Examination • Homework • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture notes, homework, quizzesz and project
Reading List/ Recommended Text Book	Main: 1. R. C. Gonzalez and R. E. Woods, Digital Image Processing, 3rd Edition, Prentice Hall, 2008

Course Name	Wideband Mobile Communications
Course Level	Undergraduate
Course Code	EE432
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Ahmet Arca
Lecturer	Assoc. Prof. Dr. Ahmet Arca
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 6th semester
Type of teaching, expected class size	Face-to-face lectures, <100 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 44 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	None
Catalogue Descriptions/Content	Introduction to 3G systems. Radio channel models. Evolution from GSM to UMTS. User traffic modeling for future mobile systems. Introduction to WCDMA. WCDMA Physical Layer, WCDMA Radio Interface Protocols, WCDMA Radio Network Planning, WCDMA Packet Access, WCDMA Radio Resource Management, WCDMA Physical Layer Performance. The course involves a term Project qwhere the students simulate a DS-SS system in MatLab and compare it to regular BPSK under Additive White Gaussian Noise. The students are expected to submit their code and plots comparing for various SNR the two methods.
Course Learning Outcomes	On successful completion of the course, the student will be able to: (1) Identify key components and techniques in 3D systems (2) Differentiate between wideband and narrowband communication systems (3) Differentiate between Direct sequence and Frequency hopped systems (4) Understand the physical layer in CDMA (5) Understand multi-path effects in wireless communications (6) Have a basic understanding of the properties of codes in CDMA. (7) Build a multi-user CDMA system and assess its performance and assess and present the results.
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination • Project • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. Taub & Schilling Principle of Communication Systems, McGraw Hill 2006 2. Principles of Spread-Spectrum Communication Systems, Don Torrieri 2015

Course Name	Fibre Optic Communications
Course Level	Undergraduate
Course Code	EE433
Semester	Fall
Person Responsible for the course	Prof Dr Hüseyin Ademgil
Lecturer	Prof Dr Hüseyin Ademgil
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 6^{th} semester
Type of teaching, expected class size	Face-to-face lectures, <100 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 44 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	None
Catalogue Descriptions/Content	Fundamentals of fiber optics. Light propagation - Basic optical laws and types of fibers. Wave propagation and the propagation properties of optical fibers. Fiber optic system topology and optical fiber's advantages over other available technologies. Basic knowledge of new generation fibers (photonic crystal fibers) and applications of optical fibers in telecommunication.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: (1) Fundamentals of optical fibers, (2) Basic laws of light propagation, (3) Wave propagation and the propagation properties of optical fibers, (4) Fiber optic system topology and optical fiber's advantages over other available technologies. (5) A basic knowledge of new generation fibers (photonic crystal fibers) and applications of optical fibers in telecommunication.
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination • Project • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. G. P. Agrawal, Fiber-Optic Communication Systems, 3rd ed. New York: Wiley, 2002. 2. Poli, F., Cucinotta, A., Selleri, S., Photonic Crystal Fibers :Properties and Applications, Springer, 2007.

Course Name	Power System Analysis I
Course Level	Undergraduate
Course Code	EE436
Semester	Spring
Person Responsible for the course	Prof. Dr. Özgür Cemal Özerdem
Lecturer	Prof. Dr. Özgür Cemal Özerdem
Language	English
Relation to Curriculum	Undergraduate degree program, Elective, 8th semester
Type of teaching, expected class size	Face to face lectures, <55 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 40 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	-
Catalogue Descriptions/Content	Basic structure of electrical power systems, Electrical characteristics of transmission lines, transformers and generators, Control of power into a network. Distribution of load between units within a plant, Symmetrical three-phase faults,
Course Learning Outcomes	1. Get an overview of the power systems and its changing landscape, 2. Learn about transformers and the role they play in power systems. 3.Understanding the calculation of line parameters and represantation of transmission lines 4. Learning current and voltage relation on a transmission line 5. Understanding basic concepts of system modelling of power systems and basic symmetrical faults.
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination 1 • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. J. D. Glover, M. S. Sarma, T. J. Overbye, Power System Analysis and Design, Seventh edition, 2022, ISBN-13: 978-0357676189 Supporting: 1. T Gönen, Modern Power System Analysis, second edition, 2013, ISBN 9781466570818

Course Name	Renewable Energy System and Utilization
Course Level	Undergraduate
Course Code	EE437
Semester	Fall
Person Responsible for the course	Assoc. Prof. Dr. Samet Biricik
Lecturer	Assoc. Prof. Dr. Samet Biricik
Language	English
Relation to Curriculum	The undergraduate degree program, Compulsory, 6^{th} semester
Type of teaching, expected class size	Face-to-face lectures, <100 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 44 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	None
Catalogue Descriptions/Content	Basic principles of energy as a science. History and development of energy. Classification and description of primary energy sources. Energy conversion processes and secondary energy. Energy production, storage, transportation and consumption. Energy infrastructures. Economic and political aspects of energy systems. Energy security and geopolitics. This is an engineering introduction to renewable energy technologies and potentials. The course aims to introduce a general engineering/science audience to the basic concepts of renewable energy. Each lecture contains several examples from real-world applications and in-progress industrial developments.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: 1-Understand the concept of distributed generation and know its main types. 2-Understand the concept of micro-hydroelectric systems. 2-Evaluate economic efficiency and compare small-scale renewable energy projects using major economic measures of the pay-back period, simple rate of return, net present value, and internal rate of return. 3-Understand major concepts of wind energy. 4- Calculate the major parameters of sun movement, solar radiation, and tracking systems. 5-Design the parameters of a consumer scale stand-alone and grid-connected photovoltaic system for a given site location and performance specification. 6- Understand concepts of nuclear power systems. 7- Understand concepts of geothermal and marine power systems.
Study and examination requirements and forms of examination	• In-class exercises • Midterm Examination • Project • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1. G. P. Agrawal, Fiber-Optic Communication Systems, 3rd ed. New York: Wiley, 2002. 2. Poli, F., Cucinotta, A., Selleri, S., Photonic Crystal Fibers :Properties and Applications, Springer, 2007.

Course Name	Artificial Intelligence
Course Level	Undergraduate
Course Code	Comp415
Semester	Fall
Person Responsible for the course	Yrd. Doc. Dr. Vesile Evrim
Lecturer	Yrd. Doc. Dr. Vesile Evrim
Language	English
Relation to Curriculum	Undergraduate degree program, Elective, 7th semester
Type of teaching, expected class size	Face to face lectures, <150 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 30 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	-
Catalogue Descriptions/Content	Basic concepts of artificial intelligence; systems think/act rational, systems think/act human like, goal based, utility based, reflex agents. Environment types; static, discrete, accessible, episodic, and deterministic. Problem solving, problem, actions, goals, simple agent problem, multi agent problem. Uninformed search strategies; Breadth First Search, Depth First Search, Uniform Cost, Iterative Deepening. Informed search strategies; Greedy Search, A* search, hill climbing, annulated simulating, admissible heuristic, complexity, completeness, optimal algorithms, game playing, min max algorithm, alpha beta pruning algorithm. Propositional Logic, truth table, entailment, inference, valid, tautologies. First Order Logic, modus ponens, resolutions, conjunctive form, disjunctive form, horn form. Forward chaining, backward chaining, resolution by refutation, generalized modus ponens.
Course Learning Outcomes	At the end of this course student will be able to: 1. Gain an understanding of the key components of the artificial intelligence (AI). 2. Define a problem and environmental factors 3. Use the appropriate search method in achieving desired goals. 4. Represent knowledge using various techniques. 5. Learn inference methods to derive new sentences
Study and examination requirements and forms of examination	• Midterm Examination • Project • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1- S. Russell, P. Norvig, "Artificial Intelligence: A Modern Approach", Prentice-Hall, 2003.

Course Name	Artificial Neural Networks
Course Level	Undergraduate
Course Code	COMP448
Semester	Spring
Person Responsible for the course	Assist. Prof. Dr. Zafer Erenel
Lecturer	Assist. Prof. Dr. Zafer Erenel
Language	English
Relation to Curriculum	Undergraduate degree program, Technical Elective, 8^{th} semester
Type of teaching, expected class size	Face to face lectures, <120 Students
Workload	1. Lectures: 3 Lecture hours per week 2. Self-Study: 3 hours per week 3. Total Exercises and Examination Preparation time: 16 hours
Credit Points - ECTS	3 Credit Points – 5 ECTS
Requirements according to the examination regulations	A student must have attended at least 70% of the lectures to sit in the exams.
Pre-requisites	Linear Algebra
Catalogue Descriptions/Content	Background on Linear Algebra.History of Neural Networks. Articial and biological neural networks. Biological Neurons and Artificial Neurons. Models of single neurons. Different neural network models. Mc-Culloch-Pitts neuron, Hebb NET, Single Layer Perceptrons, Adaline, Least mean square algorithm. Learning rates. Activation Functions, Logic Gates, Threshold, Bias, Limitation of Linear models, The XOR problem. Multilayer Perceptrons, Back-propagation algorithm. Binary Classification, Multi-Class Classification. Unsupervised Learning strategies, Kohonen Self-Organising Maps, The SOM algorithm, Learning vector quantization, Hamming NET and Probabilistic Neural Networks.
Course Learning Outcomes	On successful completion of this course, all students will have developed knowledge and understanding of: (1) An ability to distinguish the main differences between artificial neural networks and biological neural networks and to understand the areas of neural nets, (2) An ability to create Mc-Culloch-Pitts, Hebb NET, Perceptron and Adaline architectures, (3) An aptitude for implementing Kohonen Self-Organizing Maps and its variations, (4) An ability to implement Learning Vector Quantization and Probabilistic Neural Networks, (5) An understanding of Backpropagation Neural Net with its variations, (6) Demonstration of competence in programming Single Layer and Multi Layer Neural Nets.
Study and examination requirements and forms of examination	• In class exercises • Midterm Examination • Final Examination
Media Employed	Whiteboard, Projector and Moodle for Lecture note sharing
Reading List/ Recommended Text Book	Main: 1- Cole M.R.; Hands-On Neural Network Programming with C#, Packt Publishing, 2018 Supporting: 1-Fausett, L..; Fundamentals of Neural Networks, Prentice Hall, 1994 2-Hassoun, M.; Fundamentals of Artificial Neural Networks, A Bradford Book, 2003

DEPARTMENT OF
ELECTRONICS & COMMUNICATION

ACADEMIC STAFF DETAILS

Prof. Dr. Özgür Cemal Özerdem		
BSc Degree	Eastern Mediterranean University, North Cyprus	1992
MSc Degree	Eastern Mediterranean University, North Cyprus	1994
PhD Degree	Near East University, North Cyprus	2005
Department	Electrical and Electronics Engineering	
Research Area	Power Systems, Power Electronics, Renewable Energy, Power Quality	

Assoc. Prof. Dr. Yönal Kırsal		
BSc Degree	Eastern Mediterranean University, North Cyprus	2006
MSc Degree	Middlesex University, UK	2008
PhD Degree	Middlesex University, UK	2013
Department	Electronics and Communication Engineering	
Research Area	Analytical Modelling, Performance Analysis, Wireless and Mobile Networks	

Assoc. Prof. Dr. Samet Biricik		
BSc Degree	Near East University, North Cyprus	2006
MSc Degree	Near East University, North Cyprus	2009
PhD Degree	Near East University, North Cyprus	2013
Department	Electrical & Electronics Engineering	
Research Area	Power Electronics, Power System, High Voltage Engineering	

Asst. Dr. Burçin Özmen		
BSc Degree	Eastern Mediterranean University, North Cyprus	1999
MSc Degree	Eastern Mediterranean University, North Cyprus	2001
PhD Degree	Eastern Mediterranean University, North Cyprus	2007
Department	Electrical and Electronics Engineering	
Research Area	Filter design, change detection, resolution enhancement, super-resolution, image processing	

Asst. Prof. Dr. Ahmet YAŞLI		
BSc Degree	European University of Lefke, North Cyprus	2006
MSc Degree	European University of Lefke, North Cyprus	2009
PhD Degree	European University of Lefke, North Cyprus	2018
Department	Electrical and Electronics Engineering	
Research Area	Optical devices, Photonics, Opto-electronics, Renewable energy	

Assist. Prof. Dr. Ferhun Yorgancıoğlu		
BS Degree	Eastern Mediterranean University, North Cyprus	2000
MS Degree	Eastern Mediterranean University, North Cyprus	2002
PhD Degree	Eastern Mediterranean University, North Cyprus	2008
Department	Computer Engineering	
Research Area	Control theory, fuzzy-logic control, sliding-mode control	

Assist. Prof.Dr. Nemika CELLATOĞLU		
BSc Degree	Eastern Mediterranean University, North Cyprus	2003
MSc Degree	Eastern Mediterranean University, North Cyprus	2007
PhD Degree	Eastern Mediterranean University, North Cyprus	2016
Department	Physics	
Research Area	Solar Concentrator Systems, Biomass Processing	

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BSc Degree	Gazi University, Turkey	2006
MSc Degree	Middle East Technical University, Turkey	2008
PhD Degree	Middle East Technical University, Turkey	2015
Department	Engineering	
Research Area	Water Treatment: adsorption, membrane processes, advanced oxidation	

Assist. Prof. Dr. Devrim Özdal		
BSc Degree	Suleyman Demirel University, Turkey	2006
MSc Degree	Eastern Mediterranean University, North Cyprus	2009
PhD Degree	Cyprus International University, North Cyprus	2017
Department	Civil Engineering	
Research Area	Synthesis, Environment, Renewable energy, Pollution, Sustainability	

Mehmet Burhan		
BSc Degree	Gazi University, Turkey	2001
MSc Degree	Middle East Technical University, Turkey	2004
PhD Degree	European University of Lefke, N.Cyprus	continuing
Department	Environmental Sciences	
Research Area	Climate Change Impacts	