NEAR EAST UNIVERSITY

DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING

BACHELOR`S DEGREE

MODULE HANDBOOK

Version: 06.04.2017

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Faculty of Engineering Department of Electrical & Electronic EngineeringStudy Plan (BSc.)

FIRST YEAR - FALL SEMESTER	I. Semester		
Course Code	**Course Name**	**Credits /ECTS**	**Prerequisite**
CHEM 101	General Chemistry	4 / 6	-
ENG 101	English I	3 / 4	-
MAT 101	Calculus I	4 / 6	-
PHY 101	General Physics I	4 / 6	-
COM 131	Computer Programming	3 / 5	-
TUR 100	Turkish for Foreign Students	0 / 1	-
		18 / 28	

FIRST YEAR –SPRING SEMESTER	II. Semester		
Course Code	**Course Name**	**Credits /ECTS**	**Prerequisite**
ENG 102	English II	3 / 6	ENG 101
MAT 102	Calculus II	4 / 6	MAT 101
MAT 112	Linear Algebra	3 / 6	MAT 101
PHY 102	G. Physics II	4 / 6	PHY 101
TDE 102	Tech. Drawing and Elec. Appl.	3 / 5	-
EE 100	Introduction to EE Engineering	1 / 3	-
		18 / 32	

SECOND YEAR - FALL SEMESTER	III. Semester		
Course Code	**Course Name**	**Credits /ECTS**	**Prerequisite**
EE 201	Circuit Theory I	4 / 5	PHY 102, MAT 102
EE 210	Computer Applications	3 / 6	COM 131
EE 241	Electrical Materials	3 / 4	CHEM 101
ENG 210	English Communication Skills	3 / 6	ENG 102
MAT 201	Differential Equations	4 / 6	MAT 102
NTE	Non-Technical Electives	3 / 6	-
		20 / 33	

SECOND YEAR - SPRING SEMESTER	IV. Semester		
Course Code	**Course Name**	**Credits /ECTS**	**Prerequisite**
EE 202	Circuit Theory II	4 / 5	EE 201

EE 216	Electromagnetic Theory	3 / 5	PHY 102-MAT 102
EE 220	Electrical Measurements	3 / 5	EE 201
EE 222	Electronics I	4 / 6	EE 201-EE 241
MAT 241	Complex Calculus	3 / 5	MAT 102
EE 200	Summer Training I	0 / 6	
		17 / 32	

FACULTY OF ENGINEERING
DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING
STUDY PLAN

THIRD YEAR - FALL SEMESTER	**V. Semester**		
Course Code	**Course Name**	**Credits /ECTS**	**Prerequisite**
EE 315	Logic Circuit Design	3 / 6	EE 222
EE 321	Electronics II	4 / 6	EE 222
EE 331	Electromech. Energy Conv. I	4 / 5	EE 202-EE 216
EE 341	Signals and Systems	4 / 7	EE 202
MAT 350	Prob. and Random Variables	3 / 6	MAT 102
		18 / 30	

THIRD YEAR -SPRING SEMESTER	**VI. Semester**		
Course Code	**Course Name**	**Credits /ECTS**	**Prerequisite**
EE 302	Microprocessors	4 / 6	EE 315
EE 324	Linear Control Systems	3 / 5	MAT 201-MAT 112
EE 346	Communication Systems	4 / 6	EE 341
MAT 301	Numerical Analysis	3 / 6	MAT 201
EE 332	Electromech. Energy Conv. II	3 / 5	EE 331
EE 300	Summer Training II	0 / 6	
		17 / 34	

FOURTH YEAR - FALL SEMESTER	**VII.Semester**		
Course Code	**Course Name**	**Credits /ECTS**	**Prerequisite**
TE 4..	Technical Electives	3 / 6	
TE 4..	Technical Electives	3 / 6	
TE 4..	Technical Electives	3 / 6	
TE 4..	Technical Electives	3 / 6	
RE 4..	Restricted Elective	3 / 4	
EE 401	Engineering Design I	3/5	
		18 / 33	

FOURTH YEAR –SPRING SEMESTER	**VIII. Semester**		
Course Code	**Course Name**	**Credits /ECTS**	**Prerequisite**
EE 402	Engineering Design II	3 /5	
TE 4..	Technical Electives	3 / 6	
TE 4..	Technical Electives	3 / 6	
TE 4..	Technical Electives	3 / 6	
TE 4..	Technical Electives	3 / 6	
		15/ 29	

Restricted Elective (RE) Courses

ECON431 Engineering Economy

MAN 402 Management for Engineers

Technical Elective (TE) Courses

	Telecommunication Major	**Credits**	**Prerequisite**
EE469	Electromagnetic Wave Propagation and Antennas	3	EE346
EE411	Telecommunications	3	EE346
EE412	Radar Systems	3	EE341, MAT350
EE416	Computer Networking	3	EE341
EE430	Wireless and Personnel Communications Systems	3	EE346
EE461	Digital Signal Processing	3	EE341
EE463	Image Processing	3	EE341
EE425	Satellite Communication Systems	3	EE346
EE427	Information Theory and Coding	3	EE341, MAT350
EE428	Communication Electronics	3	EE346
EE429	Mobile Communication Systems	3	EE346
EE469	Electromagnetic Wave Propagation and Antennas	3	EE346
	Control Major		
EE420	Neural Networks	3	EE210
EE424	Process Control Instrumentation Technology	3	EE324
EE435	Mechatronics	3	EE324
EE451	Digital Electronics	3	EE315
EE454	Digital Control Systems	3	EE324
EE457	Robotic Systems	3	EE324
EE470	Programmable Logic Controllers	3	EE315

Power Major

EE433	Power Electronics	3	EE321, EE331
EE471	Power System Analysis I	3	EE331
EE472	Power System Analysis II	3	EE471
EE473	Power System Protection	3	EE471
EE474	Static Power Conversion	3	EE433
EE475	High Voltage Techniques I	3	*
EE476	High Voltage Techniques II	3	EE476
EE478	Distribution System Techniques	3	EE471
EE492	Illumination Engineering	3	EE331

* Consent of the instructor

Academic Regulations For Undergraduate Studies

Article 1

An academic year consists of two semesters of approximately 17 weeks each, including enrolment and examination periods. The University Senate may, when it deems necessary, extend or reduce the length of semesters. Summer semesters may also be offered, the terms and conditions of which are determined by the decision of the University Senate.

Article 2: Curriculum

Undergraduate curriculum is arranged by the Department concerned and becomes effective upon the decision of the Faculty Board and approval of the University Senate.

Article 3: Required, Elective and Pre-requisite Courses

Each semester's curriculum is decided by the Department concerned. Courses are divided into two groups, either required or elective.Each student has to take the required courses of the department. Elective courses are decided on by the Department concerned, taking into account the wishes of the student. However, the department concerned may administer an exemption examination for the courses determined by the University Senate. Successful completion of the exemption examination will exempt the student from taking the courses in question upon his/her request. Students will receive a grade of (EX) for the exempted courses.A prerequisite course is the one which must be successfully completed before a specified course may be attempted. Prerequisite courses and their requirements are determined upon the recommendation of the Department offering them and the approval of the Faculty Board.

Article 4: Credit Value of Courses

The credit value of a course is the sum of the weekly theoretical course hours plus half of the weekly laboratory and practicum hours. Non-credit courses specified by the University Senate are not counted in grade point average calculation; and only the weekly theoretical and practicum hours of those courses are stated.

Article 5: Course Load

The normal course load of one semester consists of the courses listed in the curriculum of the Department concerned. Based on the credit value of courses, the course load is determined by the University Senate upon the recommendation of the Department and Faculty Board. A Student's course load for one semester may be reduced by a maximum of 2 courses with the approval of the Department Chairperson when necessitated by the course program or justified by an acceptable and valid reason or upon the request of a student whose cumulative grade point average is below 2.00. In such cases, the student must register for the courses missed in the next available semester. Students with a cumulative grade point average of at least 2.00 may increase their course load by a maximum of 2 courses upon the recommendation of their advisor and approval of the Department Chairperson. This limit may be exceeded for the students mentioned in the Articles 6, 7 and 19. The course load of a student with a grade point average or cumulative grade point average below 2.00 cannot be increased.

Article 6: Double Major Programs

Students may be permitted to pursue a double major with other undergraduate programs in disciplines relevant to their own both within and without the Faculty. Programs thus undertaken are called Double Major Programs. In order for students to be considered for admission into a Double Major Program, they must be in their third semester of study at the earliest and must have a good academic standing. The regulations concerning Double Major Programs are made by the Senate upon the recommendations of the Faculties concerned.

Article 7: Minor Programs

Students may be permitted to pursue a minor with other undergraduate programs in disciplines relevant to their own, both within and without the Faculty, by taking the core courses of the program concerned or with another undergraduate program offered by their own department by taking a minimum of 6 elective courses of the program concerned. Programs thus undertaken are called Minor Programs. In order for students to be considered

for admission into a Minor Program, they must be in their third semester of study at the earliest and must have a good academic standing. The regulations concerning Minor Programs are made by the Senate upon the recommendations of the Faculties concerned.

Article 8: Attendance

Students are required to attend classes, practicums and examinations. Students' attendance is monitored by the Instructor.

Article 9: Examinations and Assessment

Students are required to take a final examination in addition to mid-term examinations and other means of assessments. A minimum of one mid-term examination is given during each semester. The dates of mid-term examinations are announced by the Departments concerned in the first month of the semester. The timetables of mid-term examinations are announced by the Department Chairperson during the first month of the semester. They may be rescheduled with the approval of the Department Chairperson. Occasional short tests may also be held without prior notice. The times and places of final examinations are scheduled and announced by the University. Students are awarded a final course grade by the instructor based on their mid-term examination and final examination scores as well as their semester's work and attendance.

Students who are unable to take any exam may take a make-up exam provided that they have a reasonable excuse accepted as valid by the Department Chairperson. Courses with no mid-term and/or final examinations are specified by the Department concerned and the Registrar's Office is informed accordingly. In these cases, the final course grade is assigned on the basis of the course work done during the semester. The practical and/or laboratory components of a course may be graded separately. In these cases, the above rules apply separately to the course and its practical and/or laboratory components.

Final course grades become official when reported to the Registrar's Office by the Department Chairperson.

Article 10: Grades

Each course taken by the student will be assigned a letter grade by the instructor. The letter grades, coefficients and percentage equivalents are given below:

PERCENTAGE	COURSE GRADE	COEFFICIENT
90-100	AA	4
85-89	BA	3.5
80-84	BB	3
75-79	CB	2.5
70-74	CC	2
65-69	DC	1.5
60-64	DD	1
50-59	FD	0.5
49 and below	FF	0

I-Incomplete **S**-Satisfactory **P**-In Progress **EX**-Exempt **W**-withdrawn

A grade of (I) is awarded by the instructor when a student has completed most of the semester's work satisfactorily but is unable to finish due to illness or other valid reasons. Students receiving a grade of "I" must make up the missing work and earn a grade within 15 days from the day of submitting the grades to Registrar's Office. Otherwise the (I) grade will automatically become an (FF). In cases of prolonged illness or other incapacity, this period can be extended until the next registration period upon the recommendation of the Department Chairperson and approval of the Administrative Committee of the Faculty. The grade (S) is given to those students who are successful in non-credit courses. Students who have transferred from other universities or who previously attended a higher education institution are also granted the grade (S) for the courses that they have taken before and that are accepted as equivalent upon the recommendation of the Department Chairperson and approval of the Administrative Committee of the Faculty. Transfer students who are required by the Regulations to repeat a course will not be granted the grade (S). The grade (S) is not included in the computation of grade point average.

The grade (P) is assigned to those students who progress through non-credit courses extending over more than one semester.

The grade (U) is assigned to those students who are not successful in non-credit courses. The grade (EX) is awarded to those students who have been exempted from the courses determined by the University Senate through the successful completion of the exemption examination administered by the department concerned. The grade (EX) is not included in the computation of grade point average. But it is shown on the transcript. The grade (W) is given to those students who have withdrawn from a course after the add-drop period and within the first ten weeks of the semester upon the recommendation of the advisor and permission of the instructor. The following rules govern students' withdrawal from courses:

a) Students cannot withdraw from the courses of the first two semesters of undergraduate programs.
b) Students cannot withdraw from the courses which they have to repeat, in which they obtained the grade (W) before or which are not included in the computation of the grade point average.
c) A Student will not be allowed to withdraw from courses to the extent that his/her course load falls below the 2/3 of the normal course load.

d) A student is allowed to withdraw from a maximum of one course per semester and a maximum of six courses throughout his/her undergraduate program upon the recommendation of the advisor and permission of the instructor.

The letter grades will be announced by the Registrar's Office.

Article 11: Errors in Grading

If a clerical or procedural error has been made in assigning or reporting a letter grade, the request for change of grade by the instructor will be decided by the Department Board concerned. Clerical or procedural errors should be corrected no later than the registration period of the following semester.

Article 12: Grade Point Average

A student's academic standing is determined by calculating the grade point average and cumulative grade point average and is announced at the end of each semester by the Registrar's Office. The total credit point for a course is obtained by multiplying the course's

credit hours by the final grade's coefficient. The grade point average of any semester is obtained by dividing the semester's total credit points by the number of credit hours taken by the student for that semester. The obtained average is calculated to two decimal points. The cumulative grade point average will be computed by including all courses taken since admission to the University and recognized as valid by the Department with which he/she is registered. Both the grade point average and the cumulative grade point average will be based on the letter grades from AA to FF. The most recent grade earned in a repeated course will be used in computing the cumulative grade point average. All the grades are shown on the students' transcript.

Article 13: Honor and High Honor Students

Students who carry a normal course load and earn a semester grade point average of 3.00-3.49 are considered honor students while those with a semester grade point average of 3.50-4.00 are considered high honor students for that semester.

The list of these students is announced at the end of each semester.

Article 14: Academic Standing

In order for students to successfully complete the undergraduate program, they are required to obtain a Cumulative Grade Point Average of 2.00 or above and to earn a grade of DD or higher in each course they have taken.In order to continue in their course of study, students must meet the minimum "cumulative grade point average" requirement for each semester as follows:

The end of the Forth Semester 1.50
The end of the Fifth Semester. 1.60
The end of the Sixth Semester 1.70
The end of the Seventh Semester 1.80
The end of the Eighth Semester and After. 2.00

Students are placed on academic probation at the end of any semester for which their cumulative grade point average falls below the above-mentioned minimum cumulative grade point averages. Academic probation is the official notice to students that they will be

dismissed from the University if they also fail to meet the minimum requirement of the cumulative grade point average for the following semester.

Article 15: Dismissal Procedures

In order to continue in the program, the students placed on academic probation must meet the minimum requirement of the cumulative grade point average for the following semester.
Undergraduate students are dismissed from their programs for the following reasons:
(a) If a student's cumulative grade point average is less than 1.00 at the end of the third semester,
(b) If a student's cumulative grade point average is less than 1.40 at the end of the forth semester,
(c) If a student fails three times to earn a passing grade in any of the required courses of the first two semesters,
(d) If a student who is in the fifth semester or thereafter and who is on probation earns a cumulative grade point average below the minimum requirement of the cumulative grade point average for that semester mentioned above.
A student whose grade point average is 2.00 or above will not be dismissed and will be kept on probation even if he/she fails to meet the minimum requirement of the cumulative grade point average for that semester.

Article 16: Course Repeat Policy

A student who has earned a grade of (FF), (FD), (W) or (U) or who has not taken a course in the normal semester must take it the next semester it is offered. If the course is an elective one or has been removed from the curriculum, the department specifies another course as its equivalent.
Students may repeat courses in which they have earned a passing grade on the condition that a maximum of three semesters have elapsed since they first earned a passing grade. In such cases, the most recent grade shall be the grade of record.

Article 17: Students failing in their Final Semester

A student is considered to be a final semester student if he/she will have fulfilled all the

requirements for Bachelor's degree when he/she successfully completes the courses during the semester enrolled.

Students who have earned a grade of (FF) or (FD) from a maximum of two credit courses or a grade of (U) from a maximum of one non-credit course will be granted an additional time until the beginning of the following semester at the latest in order to complete their course work or to take an extra examination. The grade received in this examination replaces the final examination grade. Students' academic standing is computed by including the grades earned during the additional time.

Students whose grade point averages remain below 2.00 even if they have not earned a grade of (FF) or (FD) in their final semester may be granted an additional time for a maximum of two courses they received the grades of (DD), (DC) or (CC) under the conditions stated above.

Students who meet the conditions of this article should petition the Department Chairperson within one week after the final examination scores are announced. After examining the student's academic record, the Department Chairman will inform both the student and the instructors concerned about the courses for which an additional time is granted.

Additional time and the right to extra examination mentioned in this article will be granted to students only once.

Article 18: Conditions for the Award of the Bachelor's Degree

In order to earn a Bachelor's Degree, students must have completed all the courses in the undergraduate program they are enrolled in and must have earned a cumulative grade point average of 2.00 or above. Students with a cumulative grade point average of 3.00-3.49 graduate with honors, and students with a cumulative grade point average of 3.50-4.00 with high honors. Honors and High Honors will be indicated on the diploma.

In order to earn a Bachelor's degree, students who have transferred from other universities must have studied a minimum of two semesters at Near East University.

Article 19: Period of Study

The normal period of undergraduate study at Near East University is four years. Those students who have successfully completed all the required courses with a cumulative grade point average of at least 3.00 can graduate in a shorter period of time. Undergraduate students are required to complete their study in 7 years except with a valid excuse specified by the

regulations. Students who have not graduated within 7 years will be dismissed from the university. However those students who have to take a maximum of three credit courses to graduate will be granted an extension of two semesters, all other stipulations in the regulations remaining in effect. The Stipulations concerning grade point averages will continue to apply during the period of extension. Students who fail to graduate at the end of this period will be dismissed from the University.

Article 20: Conditions for the Award of the Pre-degree Certificate

The conditions for awarding pre-degree certificates to those students who have not completed or have failed to complete the undergraduate program will be governed by separate regulations. In order to be eligible for the pre-degree certificate, students must have received at least a grade of (DD) or (S) in all the required courses.

Article 21: Implementation of the Regulations

These regulations are implemented by the President of Near East University.

EE MODULE HANDBOOK

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	General Chemistry
Course Unit Code	**CHEM 101**
Type of Course Unit	Compulsory
Level of Course Unit	Freshman
National Credits	4
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/biweekly)	2
Year of Study	1
Semester when the course unit is delivered	1
Course Coordinator	Assist. Prof. Dr. Hürmüs Refiker
Name of Lecturer (s)	Assist. Prof. Dr. Hürmüs Refiker
Name of Assistant (s)	İhsan Özçil
Mode of Delivery	Face to Face, Laboratory.
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	-

Course description:

Matter and measurement; atoms, molecules and ions; mass relations in chemistry, stoichiometry; gases; electronic structure and the periodic table; covalent bonding; thermochemistry; acids and bases.

Objectives of the Course:

- Develop fundamental principles of theoretical and applied chemistry
- Develop scientific inquiry, complexity, critical thinking, mathematical and quantitative reasoning.
- Explain phenomena observed in the natural world.
- Develop basic laboratory skills

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Know and properly use the language of chemistry (nomenclature, terminology, and symbolic representations)	1
2	Comprehend and be able to apply chemical facts, concepts, and models	1, 5
3	Succeed in qualitative and quantitative problem solving skills.	1, 5
4	Think critically about the mutual impacts of science, society, natural resources, and the environment.	1, 5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	5
2	Ability to design and conduct experiments, and computer simulations, and be able to	5

	analyze data.	
3	Ability to design electric and electronic devices and products.	3
4	Ability to work with multi-disciplinary engineering sciences.	5
5	Ability to identify and solve problems using technical literature for research tasks and system design.	5
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	3
8	Be able to use engineering techniques, skills, and tools for practice and product development.	3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	1	Matter and Measurements	
2	1,2	Matter and Measurements Atoms, Molecules and Ions	
3	2	Atoms, Molecules and Ions	
4	3	Mass Relations in Chemistry; Stoichiometry	
5	5	Gases	
6	5	Gases	
7	6	Electronic Structure and the Periodic Table	
8			Midterm
9	7	Covalent Bonding	
10	8	Thermochemistry	
11	8	Thermochemistry	
12	9	Liquids and Solids	
13	9	Liquids and Solids	
14	13	Acids and Bases	
15			Final

Recommended Sources

Textbook:
Chemistry Principles and Reactions (7th edition, 2012) by William L. Masterton and Cecile N. Hurley, Brooks/Cole Cengage Learning

Assessment

Attendance	5%	
Laboratory	10%	
Midterm Exam	35%	Written Exam
Final Exam	50%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for

Undergraduate Studies			
Course Policies 1. Attendance to the course is mandatory. 2. Students may use calculators during the exam. 3. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations			
ECTS allocated based on Student Workload			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	3	48
Labs and Tutorials	6	2	12
Assignment	-	-	-
Project/Presentation/Report	5	2	10
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	15	15
Final Examination	1	20	20
Self Study	14	5	70
Total Workload			175
Total Workload/30(h)			5.83
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course UnitTitle	Technical Drawing and Electrical Applications
Course UnitCode	**TDE 102**
Typeof Course Unit	Compulsory
Levelof Course Unit	B.Sc.
NationalCredits	3
Number of ECTSCreditsAllocated	5 ECTS
Theoretical(hour/week)	4
Practice(hour/week)	-
Laboratory (hour/week)	-
Yearof Study	1
Semester whenthecourse unit	2
Course Coordinator	Engin Esenel
Name of Lecturer(s)	Engin Esenel
Name of Assistant(s)	-
Modeof Delivery	FacetoFace
Language of Instruction	English
Prerequisitesandco-requisites	
RecommendedOptionalProgramme	-

Learning Outcomes –
Working with CAD and creating 2D manufacturing drawings, screw threads and threaded fasteners, keys and keyways, limits and fits and their applications to mass production, economics of Limits and Fits, geometrical tolerances and applications, gears and shafts, spring and spring calculations, brief introduction to 3D.

Whenthiscourse hasbeencompletedthe studentshould :		Assessment.
1	develop a thorough understanding of the principles involved in CAD (Computer Aided Design)	1, 2
2	learn/develop drawing techniques using CAD and the thinking process involved in using CAD,	1, 2
3	develop design visualization process	1, 2
4	learn how to use the tolerances (Limits and Fits) when generating assembly/sub-Assy. Drgs.	1, 2
5	. learn how to use the geometric tolerances.	1, 2
6	understand threads for fastening and Torque transfer.	1, 2

AssessmentMethods:1. WrittenExam, 2.Assignment3. Project/Report, 4.Presentation, 5 Lab.Work

Course'sContributionto Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	2
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	3
3	Ability to design electric and electronic devices and products.	4
4	Ability to work with multi-disciplinary engineering sciences.	5
5	Ability to identify and solve problems using technical literature for research tasks and system design.	1
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	3
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	4

8	Be able to use engineering techniques, skills, and tools for practice and Product development.	4

CL:Contribution Level(1:VeryLow, 2: Low, 3:Moderate4:High,5:VeryHigh)

Course Contents

Week	Chapter		Assessment
1	15	Screw threads and conventions	
2	16	Nuts, bolts, screws and washers	
3	17,	Keys and keyways.	
4	18	Worked examples in machine drawings.	Assignment1
5	19	Limits and Fits.	
6	19	(as above)	Assignment 2
7	6	Application of Geometric tolerances.	
8	7	(Class Exercises)	Assignment 3
9			Mid-Term Exam.
10	1	Getting started with AutoCAD.	
11	2	Fundementals of 2-D construction using AutoCAD.	
12	3	Advanced Auto CAD commands.(Osnap toolbar, Layers, Block &Modify II toolbar.	
13		(class exercises.)	Assignment 4
14		(class exercises.)	
15			Final Exam.

RecommendedSources

Textbook:

1-Manual of Engineering Drawing to British and International Standards,

Colin H.Simmons, Dennis E Maguire.ISBN: 0-7506-5120-2

2- Engineering Graphics with AutoCad, James D,Bethune, ISBN: 0-13-177983-4

SupplementaryMaterial(s):

a) Fundamental of Engineering Drawing with an Introduction to InteractiveComputer Graphics for Design and Production, Warren J Luzadder, Jon M Duff, ISBN: 0-13-335 050-9

b) Engineering Drawing for Schools and Colleges, PD 7308:1980, BSI Education Section, British Standards Institution

Assesment:

Attendance & Assignment	6%	
MidtermExam(Written)	47%	
Quiz (Written)		
Final Exam(Written)	47%	
Total	100%	

ECTSAllocatedBased on theStudentWorkload

Activities	Number	Duration (hour)	Total Workload (hour)
Course durationinclass(includingthe Exam week)	15	4	60

Tutorials	-	-	-
Assignments	4	3	12
Project/Presentation/ReportWriting	-	-	-
E-learning Activities	5	2	10
Quizzes	-	-	-
MidtermExamination	1	2	2
FinalExamination	1	2	2
Self-Study	15	3	45
TotalWorkload			131
TotalWorkload/30 (h)			4.36
ECTS Creditof the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course UnitTitle	Ataturk's Principles and History of Turkish Revolution I
Course UnitCode	**AIT 101**
Typeof Course Unit	
Levelof Course Unit	1
NationalCredits	0
Number of ECTSCreditsAllocated	1 ECTS
Theoretical(hour/week)	2
Practice(hour/week)	-
Laboratory (hour/week)	-
Yearof Study	1
Semester whenthecourse unit isdelivered	1
Course Coordinator	Prof. Dr. Ali Eftal Özkul
Name of Lecturer (s)	Prof. Dr. Ali Efdal Özkul & Uz.Ayten Koruroğlu
Name of Assistant(s)	
Modeof Delivery	E-learning
Language of Instruction	Turkish
Prerequisitesandco-requisites	-
RecommendedOptionalProgramme	Basic background on History

Objectives of the Course:

- To understand the history of the Ottoman Empire
- State recovery towards Modernization / Westernization movement to comprehend
- To contribute to the formation of modern Turkey to understand Ottoman reform
- In conjunction with internal and external factors to understand the collapse of the Ottoman Empire Process
- To understanding Mondoros Teaty, first occupation and Mustafa Kemal's attitude.

Learning Outcomes

When this course has been completed the student should be able to		Assessment
1	Comparison between the Ottoman modernization process Ataturk revolution	1
2	Evaluate whether identified rupture and continuity between the Ottoman Empire and the Republic of Turkey .	2
3	To understanding Modern Turkey 's political and social problems in a historical perspective and the opportunity to critically	1
4	National identity is reinforced and it will determine its place among the nations of the world .	4
5		

AssessmentMethods:1. Written Exam, 2.Assignment3. Project/Report, 4.Presentation, 5

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	1

2	Ability to design and conduct experiments, and computer simulations, and be able to	1
3	Ability to design electric and electronic devices and products.	1
4	Ability to work with multi-disciplinary engineering sciences.	1
5	Ability to identify and solve problems using technical literature for research tasks and system design.	1
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	1
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and Product development.	1
CL: Contribution Level(1:VeryLow, 2: Low, 3:Moderate4:High,5:VeryHigh)		

Course Contents

Week	Chapter		Exams
1		Introduction: Introduction of the course and Resources	
2		Till the end of the 18th century Ottoman Empire	
3		Internal and External Factors on the stage of the collapse of the Ottoman Empire	
4		Classical Ottoman State and Social Structure	
5		Reform efforts to Ottoman Empire Recovery	
6		Reform efforts to Ottoman Empire Recovery(Continue)	
7		**Midterm Exams**	
8		First World War and Ottoman Empire, Mondoros and situation after the war	
9		Invasions and first reactions	
10		Societies, rebellions and different pursuits	
11		Mustafa Kemal and Anatolia Resistance Movement Organization process	
12		Attitude of Istanbul government and Sevr Treaty	
13		From The last Ottoman Parliament 's to TBMM	
14		**Review**	
15		Fınal Exams	

RecommendedSources

Textbook: Ali Efdal ÖZKUL-Hasan SAMANİ, İmparatorluktan Cumhuriyete Modern Türkiye'nin Oluşumu. Atatürk İlkeleri ve İnkılap Tarihi, Ankara, 2009.

Assessment

Attendance & Assignment	-	

MidtermExam(Written)	40%	
Quiz (Written)	-	
Final Exam(Written)	60%	
Total	100%	

ECTS Allocated Based on the Student Workload

Activities	**Number**	**Duration (hour)**	**Tot al Workload(ho**
Course duration in class(including the Exam week)	15	2	3
Tutorials	-	-	-
Assignments	-	-	-
Project/Presentation/Report Writing	-	-	-
E-learning Activities	-	-	-
Quizzes	-	-	-
Midterm Examination	2	1	2
Final Examination	1	2	2
Self Study	4	1	4
Total Workload			38
Total Workload/30 (h)			1.27
ECTS Credit of the Course			1

BS program, Computer Engineering Department

Course Unit Title	Introduction to Programming
Course Unit Code	**COM131**
Type of Course Unit	Compulsory
Level of Course Unit	1st year BSc program
National Credits	4
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	2
Year of Study	1
Semester when the course unit is delivered	1
Course Coordinator	Msc. Okan Donangil
Name of Lecturer (s)	Msc. Okan Donangil
Name of Assistant (s)	-
Mode of Delivery	Face to Face, Laboratory.
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	-

Course description:
Algorithm development. Elements of C. Structure of a C program, data types, constants, input and output of integer numbers, real numbers. Variables, expressions and assignments. Input and output functions. Control Structures. Selection- If statement, multiple selection- switch statement. Iteration- while, do-while, for operators. User-defined functions, arrays and subscripted variables, single and multi dimensional arrays. Array and functions. Pointers, pointers and strings. Structures, creating structures. Structure as function argument. Subprograms. Files. File operations.Application programs will be developed in a laboratory environment using the C language.

Objectives of the Course:

- To familiarize the students with computers and computing fundamentals.
- To be able to analyze and design a solution to a given problem.
- To enable the students to write structured programs using C programming Language.

Learning Outcomes

	At the end of the course the student should be able to	Assessment
1	Develop algorithms for problem solution	1,2,3
2	Use selection statements in programming	1,2,3,4
3	Apply iteration statements	1,2,3,4
4	Explain modular programming and function design	1,2,3,4
5	Construct readable programs with sufficient documentation	1,2,3,4

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Quiz 4. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	4
2	Ability to design and conduct experiments, and computer simulations, and be able	4

	to analyze data.	
3	Ability to design electric and electronic devices and products.	1
4	Ability to work with multi-disciplinary engineering sciences.	3
5	Ability to identify and solve problems using technical literature for research tasks and system design.	4
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	5
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	3
8	Be able to use engineering techniques, skills, and tools for practice and Product development.	4

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		Introduction & Algorithm Development (A pseudocede approach)	
2		Algorithm Development (A pseudocede approach)	
3		Algorithm Development (A pseudocede approach)	
4	2	Overview of C programming language	
5	2,3	Data types, expressions and I/0 statements	
6	4,5	Conditions, Boolean expressions and Control statements	
7			Midterm
8	6	Looping structures.	
9	6	Looping structures.	
10	8	Arrays(one dimensional & multidimensional)	
11	8	Arrays(one dimensional & multidimensional)	
12	9	Functions	
13	9	Functions	
14	16	Structures	
15			Final

Recommended Sources
Textbook:
C Programming: A Modern Approach, K. N. King,W.W.Norton&Company, 2nd Edition,2008.
Supplementary Course Material
C: How to Program, H.M.Deitel, P.J.Deitel, Pearson, 5th Edition,2007.

Assessment

Attendance	5%	Less than 25% class attendance results in NA grade
Assignment & Quiz	10%	
Lab Work	20%	
Midterm Exam	25%	Written Exam
Final Exam	40%	Written Exam
Total	100%	

Assessment Criteria
Final grades are determined according to the Near East University Academic Regulations for

Undergraduate Studies			
Course Policies • Attendance to the course is mandatory. • Late assignments will not be accepted unless an agreement is reached with the lecturer. • Students may use calculators during the exam. • Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations			
ECTS allocated based on Student Workload			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials	10	2	20
Assignment	5	2	10
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	4	2	8
Midterm Examination	1	15	15
Final Examination	1	15	15
Self Study	14	3	42
Total Workload			174
Total Workload/30(h)			5.80
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Introduction to Electrical engineering
Course Unit Code	**EE 100**
Type of Course Unit	Compulsory
Level of Course Unit	1st year BSc program
National Credits	1
Number of ECTS Credits Allocated	3
Theoretical (hour/week)	2
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	1
Semester when the course unit is delivered	2
Course Coordinator	Mohammed KMAIL
Name of Lecturer (s)	Mohammed KMAIL
Name of Assistant (s)	-
Mode of Delivery	Face to Face.
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	-

Course description:

This course aims to introduce basic notions of electrical engineering for the students of the first year of electrical engineering. The basic formulas of electrical engineering and definitions of the electrical current and voltage. The differences between DC and AC signals are also introduced in this course. It offers the student an opportunity to have basic idea about concepts of electrical engineering and prepares him for higher level courses.

Objectives of the Course:

To provide the students with the essential knowledge of elements of electrical engineering and prepare him for the next steps in his study.
To prepare students for different notions of electrical engineering
To provide basic understanding of electric circuits and their analysis.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Define the different electrical engineering notions	1
2	Differentiate between voltage, current and their relations	1, 2
3	Understand Ohm's law and its applications	1, 2
4	Apply Kirchhoff's laws of current and voltage on simple circuits	1, 2
5	Analyze simple electrical circuits	1, 2

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	2
2	Ability to design and conduct experiments, and computer simulations, and be able to	1

	analyze data.	
3	Ability to design electric and electronic devices and products.	1
4	Ability to work with multi-disciplinary engineering sciences.	2
5	Ability to identify and solve problems using technical literature for research tasks and system design.	1
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	2
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and product development.	3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	1	Introduction in the electrical materials (conductors and insulators)	
2	2	Resistance and resistivity of materials	
3	2	Parallel and series association of resistors	
4	3	Electrical voltage and current	
5	3	Ohm’s law and its applications	
6	3	Voltage and current divider rules	
7			Midterm
8	3	Power and energy of dissipated in resistors and maximum power transfer	
9	4	DC electrical sources	
10	5	analysis of simple circuits	
11	5	analysis of simple circuits	
12	5	analysis of simple circuits	
13	6	Introduction to basic AC signals	
14	6	AC signals drawing and analysis	
15			Final

Recommended Sources
Textbook:
B.L. Theraja, a textbook of electrical technology

Supplementary Course Material

Assessment

Attendance	20%	
Assignment	%	
Laboratory	%	
Midterm Exam	30%	Written Exam
Final Exam	50%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for

Undergraduate Studies

Course Policies

- Attendance to the course is mandatory.
- Students may use calculators during the exam.
- Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	2	32
Labs and Tutorials	-	-	-
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	2	2	4
Midterm Examination	1	10	10
Final Examination	1	15	15
Self Study	14	1.5	21
Total Workload			82
Total Workload/30(h)			2.73
ECTS Credit of the Course			3

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Calculus I
Course Unit Code	**MAT 101**
Type of Course Unit	Compulsory
Level of Course Unit	1st year BSc program
National Credits	4
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	1
Semester when the course unit is delivered	1
Course Coordinator	Assist. Prof. Dr. Ali Denker
Name of Lecturer (s)	Assist. Prof. Dr. Ali Denker
Name of Assistant (s)	-
Mode of Delivery	Face to Face,
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	

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

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Recognize properties of functions and their inverses .	1
2	Recall and use properties of polynomials, rational functions, exponential, logarithmic, trigonometric and inverse-trigonometric	1
3	Understand the terms domain and range	1, 2
4	Sketch graphs, using function, its first derivative, and the second derivative	1, 2
5	Use the algebra of limits, and l'Hôspital's rule to determine limits of simple expressions	1, 2
6	Apply the procedures of differentiation accurately, including implicit and logarithmic differentiation and apply the differentiation procedures to solve related rates and extreme value problems	1,2
7	Obtain the linear approximations of functions and to approximate the values of functions	1,2
8	Perform accurately definite and indefinite integration, using integration by parts, substitution, inverse substitution	1,2
9	Understand and apply the procedures for integrating rational functions	1,2

Assessment Methods: 1. Written Exam, 2. Assignment

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	5
2	Ability to design and conduct experiments, and computer simulations, and be able	4

	to analyze data.	
3	Ability to design electric and electronic devices and products.	1
4	Ability to work with multi-disciplinary engineering sciences.	2
5	Ability to identify and solve problems using technical literature for research tasks and system design.	2
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	1
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and Product development.	3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	1	Preparation for Calculus	
2,3	2	Limits and Their Properties , Continuity	Quiz
4,5	3	Differentiation: The Derivative and the Tangent Line Problem Basic Differentiation Rules and Rate of Change	
6	3	The chain rule, The derivative Of Trigonometric Functions. Higher Order Derivative , Derivative of InverseFunction, Implicit Differentiation,Related Rates	Quiz
7			Midterm
8,9	4	APPLICATIONS OF DIFFERENTIATION:Extrema on an Interval Rolle's Theorem and the Mean Value Theorem Increasing and Decresing Functions and The First Derivative Test	
10		Concavity and The Second Derivative Test, Limits at İnfinity, Curve Sketching, Optimization Problems	
11	5	INTEGRATION: Antiderivatives and Indefinite Integration, Areas Riemann Sum and Definite Integral, The Fundamental Theorem of Calculus	
12	5	Integration by Substitution, Numerical Integration, The Natural Logarithm as an Integral. Inverse Trigonometric Functions: Integration	Quiz
13	7	Applications of Integration: Area of a Region Between Two curves, Volume: The Disk Method	
14	8	INTEGRATION TECHNIQUES, L'HOPITAL'S RULE:Basic Integration Rules, Integration by Parts, Trigonometric Integrals Trigonometric Subtitution	Quiz
15	8	Partial Fractions, Indeterminate forms and L'Hopital's Rule	
16			Final

Recommended Sources

Textbook:

CALCULUS, Early Transcendental Functions Ron Larsaon, Bruce H.Edwards 5rd.edition, 2011

Supplementary Course Material

1- Early Transcendental Functions Robert Smith, Roland Minton 3rd.edition,2007

2- CALCULUS 7th edition Robert A.ADAMS , Christopher Essex 2010

Assessment

Attendance & Assignment	15%	

Midterm Exam	30%	Written Exam
Quizzes	10%	
Final Exam	45%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

1. Attendance to the course is mandatory.
2. Late assignments will not be accepted unless an agreement is reached with the lecturer.
3. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials	-	-	-
Assignment	2	2	4
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	4	4	16
Midterm Examination	1	15	15
Final Examination	1	15	15
Self Study	14	5	70
Total Workload			184
Total Workload/30(h)			6.1
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Calculus II
Course Unit Code	**MAT 102**
Type of Course Unit	Compulsory
Level of Course Unit	1st year BSc program
National Credits	4
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	1
Semester when the course unit is delivered	2
Course Coordinator	Prof. Dr. Cavit Atalar
Name of Lecturer (s)	Prof. Dr. Cavit Atalar
Name of Assistant (s)	-
Mode of Delivery	Face to Face,
Language of Instruction	English
Prerequisites	MAT 101
Recommended Optional Programme Components	

Course description:

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

Learning Outcomes

	At the end of the course the student should be able to	Assessment
1	Determine whether a sequence converges or diverges	1,2
2	Determine whether an infinite series converges or diverges	1,2
3	Find the radius of convergence of a power series and how to differentiate and integrate the power series and how to represent functions by power series	1, 2
4	Sketch a curve represented by parametric equations	1, 2
5	Find the arc length of a curve using the parametric curve	1, 2
6	Find the area of a region bounded by a polar graph and find the arc length of a polar graph	1,2
7	Sketch a graph, level curves and level surfaces.	1,2
8	Find the limit and determine continuity.	1,2
9	Find and use a partial derivatives. To use Chain Rule.	1,2
10	Find absolute and relative extrema and learn how to solve an optimization problem.	1,2
11	To evaluate an iterated integral and find the area of a plane region and volume of a solid region	1,2
12	Write and evaluate double integrals in polar coordinates and find the area of a surface	1,2

13	Write and evaluate the triple integrals and use a triple integral to find the volume of a solid region.	1,2

Assessment Methods: 1. Written Exam, 2. Assignment

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	5
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	5
3	Ability to design electric and electronic devices and products.	2
4	Ability to work with multi-disciplinary engineering sciences.	2
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	1
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and Product development.	3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	9	Infinite Series:Sequences, Infinite Series and Convergence	
2,3	9	The Integral test and p-test, Comparisons of series	Quiz
4	9	Alternating Series , The Ratio and the Root tests	
5,6	9	Power Series, Representation of Functions by power series, Taylor Series	Quiz
7			Midterm
8	10	Parametric Equations And Polar Coordinates: Conics, Plane Curves and Parametric Equations , Polar Coordinates and its Graphs, Area and Arc Length in Polar	
9,10	13	Functions of Several Variables : Introduction to Functions of Several Variables, Limits.	
11	13	Derivatives, Chain Rules,extrema of Functions of Two variables	
12	14	Multiple Integration: Iterated Integrals and Area in the plane	Quiz
13	14	Double integrals and Volume, Surface Area	
14	14	Triple integrals and Applications	Quiz
15	14	Triple Integrals in Cylindrical and Spherical Coordinates	
16			Final

Recommended Sources

Textbook:

CALCULUS, Early Transcendental Functions Ron Larsaon, Bruce H.Edwards 5rd.edition, 2011

Supplementary Course Material

1- Early Transcendental Functions Robert Smith, Roland Minton 3rd.edition,2007
2- CALCULUS 7th edition Robert A.ADAMS , Christopher Essex 2010

Assessment

Attendance & Assignment	15%	
Midterm Exam	30%	Written Exam
Quizes	10%	
Final Exam	45%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

1. Attendance to the course is mandatory.
2. Late assignments will not be accepted unless an agreement is reached with the lecturer.
3. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials	-	-	-
Assignment	3	3	9
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	2	3	6
Midterm Examination	1	15	15
Final Examination	1	15	15
Self Study	14	4	56
Total Workload			165
Total Workload/30(h)			5.5
ECTS Credit of the Course			6

BSc program, Electrical and Electronic Engineering Department

Course Unit Title	Linear Algebra
Course Unit Code	**MAT 112**
Type of Course Unit	Compulsory
Level of Course Unit	1st year BSc program
National Credits	3
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	1
Semester when the course unit is delivered	2
Course Coordinator	Assist.Prof. Dr.Firudin Muradov
Name of Lecturer (s)	Assist.Prof. Dr.Firudin Muradov
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	MAT 101 (Calculus I)
Recommended Optional Programme Components	Basic background in mathematics

Course description:

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

Objectives of the Course:

- To provide a student with methods for solving systems of linear equations
- To introduce the basic properties of determinants and some of their applications
- To show that the notion of a finite-dimensional, real vector space is not as remote as it may have seemed when first introduced
- To deal with magnitude and direction in inner product spaces
- To study linear transformations
- To consider eigenvalues and eigenvectors and solve the diagonalization problem for symmetric matrices

Learning Outcomes

When this course has been completed the student should be able to		Assessment
1	Solve the systems of linear equations. Provide arithmetic operations with matrices. Compute the inverse of matrix.	1, 2
2	Determine the value of determinant of a matrix. Use Cramer's rule to solve the systems of linear equations.	1, 2
3	Realize the importance of the concepts of vector space, basis and dimension.	1, 2
4	Compute the matrix representation of a linear transformation.	1, 2

5	Evaluate the eigenvalues and the corresponding eigenvectors of the matrix.	1, 2

Assessment Methods: 1. Written Exam, 2. Assignment

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	5
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	2
4	Ability to work with multi-disciplinary engineering sciences.	2
5	Ability to identify and solve problems using technical literature for research tasks and system design.	2
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	1
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and Product development.	2

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	1	Introduction to Systems of Linear Equations. Gaussian Elimination.	
2	1	Matrices and Matrix Operations. Inverses, Rules of Matrix Arithmetic.	
3	1	Elementary Matrices and a Method for Finding A^{-1}.	
4	1	Further Results on Systems of Equations and Invertability. Diagonal, Triangular and Symmetric Matrices	
5	2	Determinants by Cofactor Expansion.	
6	2	Evaluating Determinants by Row Reduction. Properties of the Determinant Function.	
7	4	Euclidean *n*-Space. Linear Transformations from $R^n$to R^m.	
8	4	Properties of Linear Transformations from $R^n$to R^m.	
9	4	Linear Transformations and Polynomials.	
10			Midterm
11	5	Real Vector Spaces. Subspaces. Linear Independence.	
12	5	Basis and Dimension.	
13	5	Row Space, Column Space and Nullspace. Rank and Nulity	
14	6	Inner Products. Angle and Orthogonality in Inner Product Spaces. Orthonormal Bases. Gram-Schmidt Process	
15	7	Eigenvalues and Eigenvectors. Diagonalization.	
16	7	Orthogonal Diagonalization.	
17			Final

Recommended Sources

Textbook:

Howard Anton , Chris Rorres, Elementary Linear Algebra, John Wiley Publications, 9th edition, 2005.

Supplementary Course Material

- Bernard Kolman, David R.Hill , Elementary Linear Algebra with Applications,9 th edition, 2008.
- Ron Larson, David C. Falvo, ElementaryLinear Algebra, sixth edition 2010.

Assessment

Attendance	10%	
Assignment	10%	
Midterm Exam	30%	Written Exam
Final Exam	50%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

- Late assignments will not be accepted unless an agreement is reached with the lecturer.
- Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials	2	2	4
Assignment	5	4	20
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	15	15
Final Examination	1	15	15
Self Study	14	3	42
Total Workload			160
Total Workload/30(h)			5.33
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Differential Equations
Course Unit Code	**MAT 201**
Type of Course Unit	Compulsory
Level of Course Unit	2nd year BSc program
National Credits	4
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	2
Semester when the course unit is delivered	3
Course Coordinator	Assoc. Prof. Dr. Fa'eq Radwan
Name of Lecturer (s)	Assoc. Prof. Dr. Fa'eq Radwan
Name of Assistant (s)	-
Mode of Delivery	Face to Face.
Language of Instruction	English
Prerequisites	MAT 102, (CALCULAS II)
Recommended Optional Programme Components	

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

Objectives of the Course:

1. Introduing first, second and higher order differential equations, and the methods of solving these equations.
2. Emphasizing the important of differential equations and its engineering application.
3. Introducing the Laplace transform and its applications in solving differential equations and other engineering applications.
4. Introducing the series method in solving differential equations.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Learning the definition of differential equation and the classification of differentional equations.	1
2	Learning the method of solving different types of differentials and its applications.	1, 2
3	Learning the concepts of Laplace transform and its applications.	1, 2
4	Learning the series methods for solving differential equations.	1, 2

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand	5

	electrical engineering related events	
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	3
4	Ability to work with multi-disciplinary engineering sciences.	2
5	Ability to identify and solve problems using technical literature for research tasks and system design.	1
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	2
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and Product development.	2

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Assessment
1	1	The nature of differential equations, definition, ordinary and partial differential equations, order and degree, linear and nonlinear equations.	Assignment 1
2	1	Separable equations and Homogeneous equations.	Assignment 2
3	1	Exact equations, and integrating factors,	Assignment 3
4	1	Linear equations, and Bernoull's equation, and initial value problems.	Assignment 4
5	2	Applications: simple electric circuits and free falling problems, parachute problem, radium decomposition and tank of water problem.	Assignment 5
6	2	Reduction of order and knowing one solution to find another solution and the general solution of second order linear differential equation.	Assignment 6
7			Midterm Exam
8	3	Introduction, the general solution of the homogeneous equation, and the general solution of nonhomogeneous differential equation.	
9	3	The homogeneous equation with constant coefficients and the solution of Euler's equidimensional equation.	Assignment 7
10	3	The method of undetermined coefficients for finding the particular solution.	
11	3	The method of variation of parameters for finding the particular solution and initial value problems.	Assignment 8
12	4	Laplace transform of continuous functions.	Assignment 9
13	4	Laplace transform of discrete functions.	Assignment 10
14	5	Introduction to solution by series.	Assignment 11
15			Final Exam.

Recommended Sources

Textbook:

Yunus A. Cengel, William J. Palm III, ‘Differential Equations for Engineers and Scientists’, First edition, 2013 McGraw-Hill Higher Education.

Supplementary Course Material

- Dnnis G. Zill, Michael R. Cullin, Differential Equations with Boundary Value Problems, Seventh Edition, Brooks/Cole, Cengage Learning. Kenneth C. Louden, Programming Languages. Principles and Practice, Thomson, 2003.
- Fae'q A.A. Radwan, Linear Algebra and Differential Equations, Near East University, Nicosia, – Turkish Republic of Northern Cyprus, 1999.

Assessment

Attendance	5%	Less than 25% class attendance results in NA grade
Assignment	5%	
Midterm Exam	45%	Written Exam
Final Exam	45%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

- Attendance to the course is mandatory.
- Late assignments will not be accepted unless an agreement is reached with the lecturer.
- Students may use calculators during the exam.
- Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	4	60
Labs and Tutorials	-	-	-
Assignment	11	2	22
Project/Presentation/Report	-	-	-
E-learning activities	5	2	10
Quizzes	-	-	-
Midterm Examination	1	2	2
Final Examination	1	2	2
Self Study	15	4	60
Total Workload			156
Total Workload/30(h)			5.20
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Complex Calculus
Course Unit Code	**MAT 241**
Type of Course Unit	Compulsory
Level of Course Unit	2nd year BSc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	2
Semester when the course unit is delivered	2
Course Coordinator	Assoc.Prof. Dr. Fae'q Radwan
Name of Lecturer (s)	Assoc.Prof. Dr. Fae'q Radwan
Name of Assistant (s)	-
Mode of Delivery	Face to Face,
Language of Instruction	English
Prerequisites	MAT 201
Recommended Optional Programme Components	

Course description:
Complex numbers. Rectangular and Polar forms. Analytic functions. Elementary functions. Integrals. series. Residues and poles. Mapping and elementary functions

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Understanding the concepts of complex numbers and its forms and how to convert from one form to another form.	1,2
2	Understanding the concept of Analytic Functions and Differentiation.	1,2
3	Understanding the concept of Elementary Functions.	1,2
4	Understanding the concept of Integrals. Series. Residues and poles.	1,2
5	Understanding the concept of Mapping and Elementary Functions.	1,2
6	Understandingthe concept of Fourier series and orthogonal Functions.	1,2

Assessment Methods: 1. Written Exam, 2. Assignment

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	5
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	3
3	Ability to design electric and electronic devices and products.	2
4	Ability to work with multi-disciplinary engineering sciences.	2
5	Ability to identify and solve problems using technical literature for research tasks and system design.	2
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	1
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and Product development.	2

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)			
Course Contents			
Week	Chapter	Topics	Exam
1	1	Complex Numbers: Definition, algebraic properties, geometric interpretation, Triangle Equality .	
2	1	Polar form and exponential form, powers and roots.	
3-4	2	Analytic Functions: Functions of a complex variable, mappings, limits, Derivatives, Differentiation Formulas, Cauchy-Riemann equations. Harmonic functions.	
5-6	3	The exponential function. Trigonometric functions and hyperbolic functions. The logarithmic function, complex exponent, inverse trigonometric and hyperbolic functions.	Assignment 1
7			Midterm
8-9	4	Integrals: Complex -valued function w(t). Contours. Contour integrals. Antiderivatives, Cauchy integral formula.	
10	4	Series: Convergence sequences and series. Taylor series, Maclaurin series, Laurent series, examples.	
11	5	Series: Convergence sequences and series. Taylor series, Maclaurin series, Laurent series, examples.	
12	5	Power series. Integration and differentiation of power series.	
13	5	Multiplication and division of power series	
14	6	Residue and Polars: Residues. Residue theorem.Principle part of a Function	
15	6	Residue at poles.Zeros and Poles of Order m	Assignment 2
16			Final

Recommended Sources

Textbook:

- Ruel V. Churchill, James Ward Brown, Complex Variables and Applications, Senth Edition, McGraw-Hill, Inc.

Supplementary Course Material

1- John H. Mathews and Russell W. Howell, Complex Analysis for Mathematics and Engineering, Sixth Edition, Jones & Bartlett Learning.

Assessment		
Attendance & Assignment	5%	
Midterm Exam	35%	Written Exam
Quizzes	10%	
Final Exam	50%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

- Attendance to the course is mandatory.
- Late assignments will not be accepted unless an agreement is reached with the lecturer.
- Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials	-	-	-
Assignment	2	3	6
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	3	1	3
Midterm Examination	1	15	15
Final Examination	1	15	15
Self Study	14	3	32
Total Workload			135
Total Workload/30(h)			5.1
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Numerical Analysis
Course Unit Code	**MAT 301**
Type of Course Unit	Compulsory
Level of Course Unit	3rd year BSc program
National Credits	3
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	3
Semester when the course unit is delivered	5
Course Coordinator	Assist.Prof. Dr. Firudin Muradov
Name of Lecturer (s)	Assist.Prof. Dr. Firudin Muradov
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	MAT 201 (Differential Equations)
Recommended Optional Programme Components	Basic background in mathematics

Course description:

Taylor Series Approximations. Numerical Differentiation. Propagation of Errors. Bisection Method. The False Position Method. Simple One-Point Iteration. Newton-Raphson Method. Secant Method. Newton Raphson Method for Nonlinear Equations. LU Crout Decomposition. Gauss-Seidel Method. Optimization. Newton's Method. Multivariate Unconstrained Optimization. Steepest Ascent Method. Constrained Optimization. Linear Programming. The Simplex Method. Linear Regression. Least Squares. Newton's Interpolating Polynomials. Lagrange Interpolating Polynomials. Newton Cotes Integration Formula. Trapezoidal Rules. Simpson Rules. Euler's Method. Heun's Method

Objectives of the Course:

The main purpose of the course is to introduce the students into fundamentals of numerical analysis that are mainly used in engineering. The course is focused on techniques of mathematical analysis that can be used in computer algorithms, etc.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Get familiar and understand conceptually topics of numerical analysis.	1,2
2	Apply the methods of solving elementary numerical analysis problems that leads to the first insights into the rudiments of related fields in engineering sciences.	1,2
3	Apply the curve fitting methods of linear and non-linear forms to analyse the data.	1, 2
4	Apply the fundamentals of classical iteration methods to find the roots of equations.	1, 2
5	Apply the methods of interpolation to construct new data points within the range of a discrete set of known data points.	1, 2

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work		
Course's Contribution to Program		
		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	5
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	3
3	Ability to design electric and electronic devices and products.	3
4	Ability to work with multi-disciplinary engineering sciences.	3
5	Ability to identify and solve problems using technical literature for research tasks and system design.	2
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	1
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and Product development.	1
CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)		

Course Contents

Week	Chapter	Topics	Exam
1	1	Introduction. Approximations and Errors. Computer Representation of numbers. Taylor Series Approximations.	
2	1	Numerical Differentiation. Propagation of Errors.	
3	2	Roots of Equations. Graphical Method. Bisection Method.	
4	2	The False Position Method. Open Methods. Simple One-Point Iteration.	
5	2	Newton-Raphson Method. Secant Method.	
6	2	Systems of Nonlinear Equations. One-Point Iteration. Newton Raphson Method for Nonlinear Equations.	Assignment1
7	3	Introduction. LU Crout Decomposition. Gauss-Seidel Method.	
8			Midterm
10	4	Introduction. Single-Variable Optimization. Newton's Method.Multivariate Unconstrained Optimization.	
11	4	Steepest Ascent Method. Constrained Optimization. Linear Programming. The Simplex Method.	
12	5	Curve Fitting. Linear Regression. Least Squares. Multiple Linear Regression.	
13	6	Introduction. Newton's Interpolating Polynomials. Lagrange Interpolating Polynomials.	
14	7	Numerical Integration. Newton Cotes Integration Formula. Trapezoidal Rule. Multiple Application. Simpson's 1/3 Rule.	
15	7	Multiple Application. Simpson's 3/83 Rule. Multiple Application.	Assignment2
16	8	Euler's Method. Heun's Method	
17			Final

Recommended Sources

Textbook:

Faeq A.A. Radwan, Numerical analysis, printed by NEU, 2000.

Supplementary Course Material

- Schaum's Outline of Theory and Problems of Numerical Analysis, 2nd edition, written by Francis Sheid,published by McGraw-Hill, 1989.

Assessment

Attendance	5%	
Assignment	15%	
Midterm Exam	30%	Written Exam
Final Exam	50%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

4. Attendance to the course is mandatory.
5. Late assignments will not be accepted unless an agreement is reached with the lecturer.
6. Students may use calculators during the exam.
7. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials	-	-	-
Assignment	5	4	20
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	15	15
Final Examination	1	15	15
Self Study	14	4	56
Total Workload			170
Total Workload/30(h)			5.6
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Probability and Random Variables
Course Unit Code	**MAT 350**
Type of Course Unit	Compulsory
Level of Course Unit	3rd year B.Sc program
National Credits	3
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	3
Semester when the course unit is delivered	4
Course Coordinator	Assoc. Prof. Dr. Fa'eq Radwan
Name of Lecturer (s)	Assoc. Prof. Dr. Fa'eq Radwan
Name of Assistant (s)	-
Mode of Delivery	Face to Face.
Language of Instruction	English
Prerequisites	MAT 102, (CALCULUS II)
Recommended Optional Programme Components	EXCEL

Course description:
Probability and counting, permutation and combination. Some probability laws, Axioms of probability. Random variables and discrete distributions. Continuous distributions. Joint distributions. Mathematical Expectation, Some Discrete Probability Distributions, Some Continuous Probability Distributions.

Objectives of the Course:

- Understanding the concept of data analysis..
- Understanding the concept of probability and the concept of random variables.
- Understanding the difference between discrete and continuous random variables.
- Understanding the concepts of expectation, variance and standard deviation.
- Understanding the concepts of probability mass functions and cumulative distribution function for discrete, continuous and joint distributions.
- Understanding and learning the different types of discrete and continuous distributions.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	To make data analysis and calculate many statistics parameters	1
2	To solve problems related to probability and to construct the tree diagram of many sample spaces of many experiments.	1, 2
3	To know the relation of variability to production process.	1, 2
4	The applications of probability distributions in engineering.	1, 2

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	4
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	3
3	Ability to design electric and electronic devices and products.	2

4	Ability to work with multi-disciplinary engineering sciences.	3
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	2
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and Product development.	1

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	**Assessment**
1	1	Introduction to statistics and Data Analysis.	Assignment 1
2	2	Definition of probability, interpreting probabilities, sample spaces and events.	
3	2	Counting formulas, permutations and combinations Axioms of probability, conditional probability, independence and the multiplication rule, Bayes theorem.	Assignment 2
4	3	Random variable and probability distributions	
5	3	Discrete probability distribution, continuous probability density.	
6	3	Joint distributions.	Assignment 3
7			Midterm Exam.
8	4	Mathematical Expectation.	
9	4	Mathematical Expectation.	Assignment 4
10	5	Some discrete probability distributions.	
11	5	Uniform distribution, binomial, multinomial and negative binomial distributions.	
12	5	Hyper geometric and Poisson distributions.	Assignment 5
13	12	Some continuous probability distributions	
14	15	Normal and standard normal distributions.	Assignment 6
15			Final Exam.

Recommended Sources

Textbook:

Ronald E. Walpole, Raymond H. Myers, Sharon L. Myers, Keying Ye. 'Probability and Statistics for Engineers and Scientists', 8Edition, Pearson Education International, Pearson Prentice Hall.

Supplementary Course Material

- J. S. Milton, Jesse C. Arnold, Introduction to Probability and Statistics, Principles and Applications for Engineering and the Computing Sciences, Second Edition, McGraw-Hill, Inc.

Assessment

Attendance	5%	Less than 25% class attendance results in NA grade
Assignment	5%	
Midterm Exam	45%	Written Exam

Final Exam	45%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

- Attendance to the course is mandatory.
- Late assignments will not be accepted unless an agreement is reached with the lecturer.
- Students may use calculators during the exam.
- Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	4	60
Labs and Tutorials	-	-	-
Assignment	6	4	24
Project/Presentation/Report	-	-	-
E-learning activities	6	2	12
Quizzes	-	-	-
Midterm Examination	1	2	2
Final Examination	1	2	2
Self Study	15	4	60
Total Workload			160
Total Workload/30(h)			5.33
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	General Physics I
Course Unit Code	**PHY 101**
Type of Course Unit	Compulsory
Level of Course Unit	B.Sc.
National Credits	4
Number of ECTS Credits Allocated	6 ECTS
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	1
Year of Study	1
Semester when the course unit is delivered	1
Course Coordinator	Erkut İnan İşeri -
Name of Lecturer (s)	Ali Uzun
Name of Assistant (s)	Khalid M. Ahmed, Samuel Nii Tackie
Mode of Delivery	FacetoFace, Group study
Language of Instruction	English
Prerequisites	-
Recommended Optional Program Components	-

Course description:
A basic physics course which study mechanic phenomenas. Topics include the description of motion, forces, gravitation, work, and energy, momentum, rotational motion, and Static equilibrium. Laboratory work is an important component of the course.

Objectives of the Course:

- Be able to know the basic laws of mechanics.
- To apply those laws for solving problems.
- To be able to us his/her knowledge in the fields of other sciences and/or engineering.
- Understanding how physics approach and solve problems in mechanics.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Gains skills to make vectoral processing	1, 2
2	Solves problems related to one- and two- dimensional motions	1, 2
3	Defines motion of bodies in a system by the Newton's Motion Laws	1, 2
4	Describes work, work-energy principle and conservation of energy	1, 2
5	Describes linear momentum and the conservation of the momentum	1, 2
6	defines motion of the rotating bodies about a certain axis	1, 2
7	describes torque and angular momentum	1, 2
8	Basic communication skills by working in groups on laboratory experiments and the thoughtful discussion and interpretation of data	3, 5
9	Enhance the student's ability and motivation to solve seemingly difficult problems in various fields	1, 2

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program		
		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	4
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	2
3	Ability to design electric and electronic devices and products.	1
4	Ability to work with multi-disciplinary engineering sciences.	1
5	Ability to identify and solve problems using technical literature for research tasks and system design.	4
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	3
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and product development.	2
CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)		

Course Contents

Week	Chapter	Topics	Exam
1	1	Measurement	
2	2	Motion along a straight line	
3	3	Vectors	
4	4	Motion in two and three dimensions	
5	5	Motion in two and three dimensions	
6	6	Force and motion I	
7	7	Force and motion II	
8	8	Kinetic Energy and work	
9			Midterm
10	8	Potential Energy and Conservation of Energy	
11	9	Center of mass and linear momentum	
12	10	Rotation	
13	11	Rolling, torque and angular momentum	
14	12	Equilibrium and Elasticity	
15			Final

Recommended Sources

Textbook:

R D. Halliday, R. Resnick, and J. Walker, "Principles of Physics", 9th Edition, Wiley.

Supplementary Course Material

R. A. Serway and R. J. Beichner , "Physics for Scientist and Engineers with Modern Physics",

8th Edition, Thomson Brooks/ColeDouglas C. Giancoli, Physics for Scientist and Engineers with Modern Physics, 4th Edition, Printice Hall.		
Assessment		
Attendance	-	
Assignment	-	
Laboratory	15%	
Midterm Exam	35%	Written Exam
Final Exam	50%	Written Exam
Total	100%	
Assessment Criteria Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies		

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	3	45
Labs and Tutorials	13	1	13
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	2	2
Final Examination	1	2	2
Self Study	14	6	90
Total Workload			152
Total Workload/30(h)			5.07
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	General Physics II
Course Unit Code	**PHY 102**
Type of Course Unit	Compulsory
Level of Course Unit	B.Sc.
National Credits	4
Number of ECTS Credits Allocated	6 ECTS
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	1
Year of Study	1
Semester when the course unit is delivered	2
Course Coordinator	Erkut İnan İşeri -
Name of Lecturer (s)	Hanifa Teimourian
Name of Assistant (s)	Khalid M. Ahmed, Samuel Nii Tackie
Mode of Delivery	FacetoFace, Group study
Language of Instruction	English
Prerequisites	PHY 101
Recommended Optional Program Components	-

Course description:
A basic physics course which study electric and magnetic phenomenas. Topics include electricity, magnetism, and direct current circuits. Laboratory work is an important component of the course.

Objectives of the Course:

- Be able to know the basic laws of electricity and magnetism.
- To apply those laws for solving problems.
- To be able to use his/her knowledge in the fields of other sciences and/or engineering.
- Understanding how physics approach and solve problems in electricity and magnetism.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Describes the electrical charge and electrification	1
2	Determines electrical potential and electrical potential energy	1
3	Determines the technological uses of the capacitors and designes basic circuits with them	1
4	analyzes basic direct current circuits	1
5	Describes the effected magnetic force on moving charges, applies Biot-Savart's Law or Ampere's Law to determine the magnetic field	1
6	Evaluates the electromagnetic induction, applies Faraday and Lenz law to electrical circuits	1
7	Basic communication skills by working in groups on laboratory experiments and the thoughtful discussion and interpretation of data	5
8	Enhance the student's ability and motivation to solve seemingly difficult problems in various fields	5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program		
		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	4
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	2
3	Ability to design electric and electronic devices and products.	1
4	Ability to work with multi-disciplinary engineering sciences.	1
5	Ability to identify and solve problems using technical literature for research tasks and system design.	4
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	3
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and product development.	2
CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)		

Course Contents			
Week	Chapter	Topics	Exam
1	21	Electric charge	
2	22	Electric fields	
3	23	Electric fields Gauss' law	
4	24	Gauss' law	
5	25	Electric potential	
6	26	Electric potential Capacitance	
7	27	Capacitance	
8	28	Current and resistance	
9			Mid-Term Exam.
10	29	Circuits	
11	29	Circuits	
12	30	Magnetic fields due to currents	
13	31	Magnetic fields due to currents Induction and inductance	
14	32	Induction and inductance	
15			Final

Recommended Sources

Textbook:
R D. Halliday, R. Resnick, and J. Walker, "Principles of Physics", 9th Edition, Wiley.

Supplementary Course Material

R. A. Serway and R. J. Beichner , "Physics for Scientist and Engineers with Modern Physics", 8th Edition, Thomson Brooks/ColeDouglas C. Giancoli, Physics for Scientist and Engineers with Modern Physics, 4th Edition, Printice Hall.

Assessment		
Attendance	-	
Assignment	-	
Laboratory	15%	
Midterm Exam	35%	Written Exam
Final Exam	50%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	3	45
Labs and Tutorials	13	1	13
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	2	2
Final Examination	1	2	2
Self Study	14	6	90
Total Workload			152
Total Workload/30(h)			5.07
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	English
Course Unit Code	**ENG 101**
Type of Course Unit	Compulsory
Level of Course Unit	1st year BSc program
National Credits	3
Number of ECTS Credits Allocated	4
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	1
Semester when the course unit is delivered	2
Course Coordinator	Sevilay Cangul
Name of Lecturer (s)	Feray Murat
	-
Mode of Delivery	Face to face teaching and midterm project (oral and written)
Prerequisites	Preparatory School
Recommended Optional Programme Components	Pre Intermediate English level grammar, reading, writing and listening skills.

Course description:

This course offers intermediate levels include wide range of grammatical structures and vocabulary of English in order to built onto the foundation established at the Preparatory School. This course aims to bring the students to a level that will enable them fulfill the requirements of main courses of their departments. Students will be encouraged to read a variety of texts as well as chapters from textbooks so that they can pursue their undergraduate studies at the university without major difficulty. ENG 101 is designed to improve the students' presentation ability. Students are expected to do an oral presentation. At the end of the course they submitted their written projects.

Objectives of the Course:

- To develop students' language skills and capacity to conduct writing task through the vocabulary, listening and speaking skills.
- To develop their level of knowledge, communicative capacity, and ability to analyze and reflect on the language.
- To give learners the language they need for real-life, hands-on task like explaining a process or analyzing risk and to put into practice the academic skills that they will need to use during their educations.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Improve reading, writing and presentation skills.	1
2	Prepare a project.	1, 2,3
3	Write an academic essay.	2,3,4
4	Gain team-work opportunities.	1, 2
5	Use the discourse patterns and structures in different essay types that they need for real life.	2, 3
6	To use power-point for presenting the written projects.	2,3,4
7	The written projects will be presented by the students	2,3,4
Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work		

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	1
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	1
3	Ability to design electric and electronic devices and products.	1
4	Ability to work with multi-disciplinary engineering sciences.	1
5	Ability to identify and solve problems using technical literature for research tasks and system design.	1
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	1
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and Product development.	1

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	1	Review of the tenses…….Jobs	
2	2	E-mails opening and closings. Common e-mail expressions.	
3	3	Specifications, measurement and dimensions	
	3	Features and benefits, technical persuasive description.	
5	3	Giving instructions(Sequences) Mechanism, machine part vocabulary	
6	4	Describing fixes(repair vocabulary, explaining effects)	
7			Midterm
8	4	Explaining processes (Active, Passive, present and past passive)	
9	5	Welcoming visitors, greeting and farewells. Requests, offers, apologies	
10	5	Tracking (Quantifiers)	
11	6	Planning (First conditional, if unless) Making comparisons, intensifiers.	
12	7	Rules and regulations	
13	7	Permission and obligation verbs	
14	7	Equipment documentation Location information in a manual	
15			Final

Recommended Sources

1. Oxford Practice Grammar-Intermediate, John Eastwood, Oxford
2. Dictionary of Technical Terms-Fono Press

Course book: tech-talk- Intermediate Student's Book, (Units 1-7)
John Sydes- Oxford University Press, 2009
Workbook: tech-talk – Intermediate Workbook, Lewis Lannsford-Oxford University Press 2009

Assessment

Attendance	5%	Less than 25% class attendance results in NA grade
Midterm Project	15%	Both oral presentation and written assignment
Midterm Exam	35%	Written Exam
Final Exam	45%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

8. Attendance to the course is mandatory.
9. Late assignments will not be accepted unless an agreement is reached with the lecturer
10. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	4	60
Tutorials	12	4	48
Assignment	-	-	-
Project/Presentation/Report	1	20	20
Project research	1	20	20
Quizzes	-	-	-
Midterm Examination	1	2	2
Final Examination	1	2	2
Self Study	10	1	10
Total Workload			102
Total Workload/30(h)			3.4
ECTS Credit of the Course			4

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	English
Course Unit Code	**ENG 102**
Type of Course Unit	Compulsory
Level of Course Unit	1st year BSc program
National Credits	3
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	1
Semester when the course unit is delivered	2
Course Coordinator	SEVILAY CANGUL
Name of Lecturer (s)	Sevilay Cangul
Name of Assistant (s)	-
Mode of Delivery	Face to Face taught programme & midterm project (oral and written)
Language of Instruction	English
Prerequisites	ENG 101
Recommended Optional Programme Components	Intermediate English level grammar, reading, writing and listening skills

Course Description:

ThiscourseoffersthestudentsawiderangeofgrammaticalstructuresandkeylanguageandvocabularyofEnglishinthetechnical,industrial,andscientificsectorsatintermediatelevelforeverydaycommunicationatwork.Thiscourseaimstobringthestudentstoalevelthatwillenablethemtofulfilltherequirementsofthemaincoursesoftheirdepartments.
Theabilitytoevaluate,analyzeandsynthesizeinformationinwrittendiscoursewillbehighlighted.Documentationinwritingwillbeintroducedatthebeginningofthecourse,inordertosolidlyestablishtheskillbytheend.Students willlearnthediscoursepatternsandstructurestobeusedindifferentessaytypesthattheyneedforreallife,hands-ontaskslikeexplainingprocess,organizingschedules,reportingorprogress,oranalyzingrisk.

Objectives of the Course:

- Todeveloptheestudents'capacitytoconductwritingtaskthroughthevocabulary,listeningandspeakingskills
- Toreinforceandconsolidatethelanguageandskillsthatthestudentshavelearnedfromearliercourses
- to developtheirlevelofknowledge,communicativecapacity,andabilitytoanalyzeandreflectonthelanguage
- to developstudents' languageskills
- to preparethemfortheirfutureprofessionallife

Learning Outcomes

At the end of the course the student should be able to	Assessment

1	The courseisdesignedtoimprovethestudents'reading,writingandpresentationskillsfurther	1
2	Aprojectreporttobeprepared,includingaliteraturereview(displayinganalysis/synthesisskills,anddocumentation)	1, 2,3
3	Definition/elaborationofaproblem(usingdefinition,description,cause/effectandcomparison/contrastpatterns)andsuggestionsforsolutionincludingpersonalviewsandargumentation	1, 2,3,
4	Local and regional topics, personalizing the research and viewpoints will be recommended to prevent plagiarism.	1,2
5	Offers team-work opportunities to the students besides self-study/individual study	2,3,4
6	Students will write an academic essay with proper documentation	1,2,3
7	The written projects will be presented by the students	2,3,4

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	1
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	1
3	Ability to design electric and electronic devices and products.	1
4	Ability to work with multi-disciplinary engineering sciences.	1
5	Ability to identify and solve problems using technical literature for research tasks and system design.	1
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	1
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and Product development.	1

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	8	Reporting Accidents, Causes and results (cause-effect verbs: lead to, resultinetc.) Negative prefixes: in-, un-, dis- etc.	
2	9	Materials & Inventions	
3	9	Mixed conditionals & exercises	
4	10	Explaining How & Making Conversations, Chemical reactions vocabulary, Preposition + ing. Writing: A Discursive Essay	
5	11	Making Predictions, Modal Verbs, Weighing alternatives	
6	12	Handling Complaints and Describing Damages	
7			Midterm
8		Damage vocabulary, Writing: A Newspaper Report	
9	13	Skills and Experience, Reporting Progress. Mixed Passive Forms	
10	14	Technical Writing, Measurement and Conversions	
11	15	DescribingLocation,PhrasalVerbs:cleanup,holdonto,comeupwith,getridofetc.	

12	16	Writing Style Text Abbreviations, Engine Part Vocabulary	
13	17	Organizing Schedules	
14	18	Faults and hazards	
15			Final
16			Final

Recommended Sources

1-OxfordPracticeGrammar-Intermediate, John Eastwood, Oxford
2-MacmillanEnglishGrammarInContext-Intermediate,MichaelVince,Macmillan.
3- General Certificate English, New Edition, Alan Etherton, Nelson.
Supplementary Course Material

- Course Book: tech talk – Intermediate Student's Book,(Units8-17) , Vicki Hollett & John Sydes – OxfordUniversityPress,2009

- Workbook: techtalk – Intermediate Workbook, LewisLansford-OxfordUniversityPress,2009

Assessment

Attendance	5%	Less than 25% class attendance results in NA grade
Midterm Project	20%	Both oral presentation & written assignment
Midterm Exam	30%	Written Exam
Final Exam	45%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

- Attendance to the course is mandatory.
- Late assignments will not be accepted unless an agreement is reached with the lecturer.
- Students may use calculators during the exam.
- Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	4	60
Labs and Tutorials	2	2	4
Assignment	5	4	20
Project/Presentation/Report	-	-	-

E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	15	15
Final Examination	1	15	15
Self Study	14	3	42
Total Workload			156
Total Workload/30(h)			5.2
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	ENGLISH COMMUNICATION SKILLS
Course Unit Code	**ENG 210**
Type of Course Unit	Compulsory
Level of Course Unit	2nd year BSc program
National Credits	3
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	2
Laboratory (hour/week)	-
Year of Study	2
Semester when the course unit is delivered	3
Course Coordinator	Heran Çiftçi, MA
Name of Lecturer (s)	Heran Çiftçi, MA
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	ENG102
Recommended Optional Programme Components	-

Course description:

To reinforces and consolidates the language and 4 skills that students have learned from earlier courses, as well as developing their level of knowledge, communicative capacity, and ability to analyse and reflect on language. Course on upper -intermediate AND ADVANCED levels include interesting and up-to-date topics, encouraging students to recognize the importance of acquiring a foreign language in a modern context, prepare them to for their future professional life.

Objectives of the Course:

- **Reading:** to develop the skill of reading for information from a wide variety of authentic Engineering texts. These include longer specialist reading texts to provide challenging reading for students already proficient in this field, and gain the ability to read and understand vacancy announcements and write an appropriate cover letter/letter of intent, CV to deliver a academic presentation in English.
- **Speaking:** to develop the ability to participate in exchanges of information and opinions in the context of IT and Engineering, provide explanations of features of Mechanical, Computer, Electronics, Biomedical, Food and Automotive Engineering. To develop communication skills for the job market which is becoming increasingly common to have give presentation in English.
- **Writing:** to write instructions, descriptions and explanations about topics in Engineering. Write a cover letter and interview winning C.V.
- **Language :**to consolidate and extend the student's understanding and use of structures and function common to Engineering at intermediate and advanced levels. Through the chosen texts they can learn also the vocabulary and expression that need when giving oral presentation. Giving a presentation in a foreign language is real challenge, even for those who have a good knowledge of the language.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Achieve the advance level of English, to be able to cope with the subjects of engineering; an ability to communicate effectively	1-2-3
2	Define/elaborate a problem(using linking words) and suggestions for solution including personal views and argumentation	1-2-3-4
3	Personalize a research and viewpoints to prevent plagiarism.	3-4
4	Have team-work opportunities besides self-study/individual study	3-4
5	Write an academic essay with proper documentation	1-2-3-4
6	Write a interview winning CV and a successful job interview	1-2
7	To use power- point for presenting the written projects.	2-3-4

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation,

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	1
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	1
3	Ability to design electric and electronic devices and products.	1
4	Ability to work with multi-disciplinary engineering sciences.	1
5	Ability to identify and solve problems using technical literature for research tasks and system design.	1
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	1
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and Product development.	1

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	1.1	Tips for Note-Taking	3
2	1.2	Focusing on Academic Presentation skills	2-3-4
3	1.3	Some signposts in oral presentation	2-3-4
4	1.4	Focusing on Vocabulary	2-3
5	2.1	Word Studies	2-3
6	2.2	Adjectives and perspectives on personality	2-3
7	2.3	Proverbs and Conversation Questions	2-3-6
8		MID-TERM EXAMS (17-21 Nov.2014)	2Hrs.Exam
9	3.1	Focusing on Job Market Requirements	1-3-4-6
10	3.2	Focusing on CV writing	1-6
11	3.3	Study of Application Forms/Letters	1-3-6
12	3.4	Cover letters and Vacancy announcements	1-3-6

13	3.5	Study of Sample Letters, team work on interviews	1-3-6
14	3.6	Study of Power Phrases and Action Verbs.	1-3-5-6
15		Revisions/deadline for Termite Project submission	5
16		FINAL EXAMS (05-16 Jan. 2015)	2Hrs.Exam

1- final exam 2-mid-term exam 3- assignments 4-oral academic presentation 5- written project 6-team working in class

Recommended Sources

TEXTBOOK(S):

1. Jason, Davis. Rhonda, Lisa (2006), *Effective Academic Writing 3*, Oxford university Press: Oxford, New York.
2. Çiftçi, Heran (2013), *English 210 Communication Skills For Engineering Students course hand-outs*, Yakın Doğu University : Nicosia, Cyprus
3. Boatload, I.,Rein art, Ü. Mending , E. Stagnant Ö., (2005) *Academic Oral Presentation Skills*, METU Press. Ankara.
4. Düsseldorf, Marion (2007) *English for Presentation*, Oxford University Press: Oxford, New York
5. Fried-Booth, D. (2002), *Project Work*, Oxford University Press : Oxford, New York
6. Apiarist Flannel, D. (1999), *Skills Builder*, Oxford: England
7. McGowan, J.& Glen Dinning, H. E. (1998), *Information Technology*, Oxford: New York
8. Wall work, A. (2002), *Business Vision*, Oxford University Press:Oxford, New York.
9. Glen Dinning, H.E. and Kohl Alison, *Technology 2*,(2008)Oxford English for careers, Oxford University Press: Oxford, New York

Assessment

Attendance	5%	Less than 25% class attendance results in NA grade
Assignment-Midterm Project	20%	
Midterm Exam	30%	Written Exam
Final Exam	45%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

1. Students are expected to attend each class on time. Attendance will be recorded if the students fail to attend %30 of the lectures they will get N. A. equal to F.F
2. Homework and assignments should be delivered on time.
3. A Mid- Term Project (written and oral presentation) should be submitted on time . For oral presentation student should be registered on the oral presentation list given in class. Non-show of registered date for oral presentation student will get directly FF from the mid- term project and a second chance will not be given to students unless the proof of medical report.
4. Student are expected to do an oral presentation of **10-15** min. in class on the chosen written topic project before they submit their written project.
5. Any mid-term project without oral presentation in class will not be accepted.
6. The task for Mid-Term Project(oral presentation in class) can be done individually or team work can be accepted (Max.3 students) from the same department
7. For oral presentation in class student are expected to narrowing down the topic and make the oral presentation listener-friendly, easier to understand than written text.
8. Oral presentation have the aim to gain the ability to research, to develop topical vocabulary, to organize material clearly, to overcome stage fright and to deliver confidently which the students will serve them well throughout their careers.
9. The task for Mid- Term Project is to write an abstract/review on an article, chosen from your field of study.
10. The review/abstract of chosen article should be no less than **750** words and a maximum of **1000** words.

The written Mid-Term Project should be submitted at announced deadline, it must be include a completed and signed coversheet.

11. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations.

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs/Tutorials	-	-	-
Assignments	5	3	15
Project/Presentation/Report	1	20	20
E-learning	-	-	-
Quizzes	-	-	-
Midterm Examination (study)	1	10	10
Final Examination (study)	1	14	14
Self Study	14	4	56
Total Workload			179
Total Workload/30(h)			5.96
ECTS Credit of the Course			6

BSc. program, Electrical & Electronic Engineering Department

Course Unit Title	Summer Training I
Course Unit Code	**EE 200**
Type of Course Unit	Compulsory
Level of Course Unit	2nd year BSc program
National Credits	-
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	-
Practice (hour/week)	40
Laboratory (hour/week)	-
Year of Study	2
Semester when the course unit is delivered	4
Course Coordinator	Mehmet Yenen
Name of Lecturer (s)	-
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	-
Recommended Optional Program Components	-

Course description: This course is the first of two summer practices that each student is required to complete.

Objectives of the Course: The goal of this course is to familiarize students with the daily work of Electrical and Electronic Engineers.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Provide vision to the student about the practical applications of electrical-electronics engineering knowledge	3

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	5
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	5
3	Ability to design electric and electronic devices and products.	5
4	Ability to work with multi-disciplinary engineering sciences.	4
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	5
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting	3
8	Be able to use engineering techniques, skills, and tools for practice and product development.	5

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam

1		Summer Training	
2		Summer Training	
3		Summer Training	
4		Summer Training	

Recommended Sources
Textbook: None

Assessment

Final Report	100 %	

Assessment Criteria Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies Attendance to the course is mandatory.

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	4	40	160
Labs and Tutorials	-	-	-
Assignment	-	-	-
Project/Presentation/Report	1	10	10
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	-	-	-
Final Examination	-	-	-
Self Study	-	-	-
Total Workload			170
Total Workload/30(h)			5.67
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Circuit Theory I
Course Unit Code	**EE 201**
Type of Course Unit	Compulsory
Level of Course Unit	2nd year BSc program
National Credits	4
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	2
Year of Study	2
Semester when the course unit is delivered	3
Course Coordinator	-
Name of Lecturer (s)	Assoc. Prof. Dr. Özgür Cemal Özerdem
Name of Assistant (s)	Samuel Tackie
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	PHY 102, MAT 101
Recommended Optional Program Components	-

Course description:
This course studies the System of units. Charge, current, voltage and power. Types of circuits and circuit elements. Ohm's law. Kirchhoff's law. Analysis methods, Inductance and capacitance. The unit-step forcing function. The natural and forced response of the first-order and second-order circuits

Objectives of the Course:

- Introduce students the fundamentals of circuit theory

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Know about the system of units, charge, current, voltage and power	1,5
2	Apply Kirchhoff's current and voltage laws and Ohm's law to circuit problems	1,5
3	Simplify circuits using series and parallel equivalents and using Thevenin and Norton equivalents	1,5
4	Perform node and loop analyses	1,5
5	Identify*andmodel* first and second order electric systems involving capacitors and inductors	1,5
6	Prove the theorems and laws studied, in the laboratories and improve the practical abilities	1,5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	5
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	4
4	Ability to work with multi-disciplinary engineering sciences.	5
5	Ability to identify and solve problems using technical literature for research tasks and system design.	4

6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and product development.	5

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		System of units	
2		Charge, current, voltage and power	
3		Types of circuits and circuit elements	End of Chapter assignment questions
4		Ohm's law. Kirchhoff's laws.	End of Chapter assignment questions
5		Analysis methods	End of Chapter assignment questions
6		Analysis methods	Quiz
7			MidTerm Examination
8		Analysis methods	
9		Inductance and capacitance	
10		Inductance and capacitance	End of Chapter assignment questions
11		The unit-step forcing function	Quiz
12		The natural and forced response of the first-order	End of Chapter assignment questions
13		The natural and forced response of the second-order circuits.	End of Chapter assignment questions
14			Final Examination
15			

Recommended Sources

Textbook:

- "Engineering Circuit Analysis" William H. Hayt, Jack E. Kemmerly and Steven M. Durbin, Mc Graw Hill, 2007, ISBN-10 0-07-110937-4
- Recommended Reading: "Electric Circuits", Seventh Edition, James W. Nilsson and Susan A. Riedel, Pearson- Prentice Hall, 2005, ISBN 0-13-127760-X

Supplementary Course Material

Assessment

Laboratory	15%	
Quizes	15%	
Midterm Exam	30%	
Final Exam	40%	
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies			
Course Policies			
ECTS allocated based on Student Workload			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	3	45
Labs and Tutorials	7	2	14
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	2	4	8
Midterm Examination	1	15	15
Final Examination	1	20	20
Self Study	14	4	56
Total Workload			158
Total Workload/30(h)			5.27
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Circuit Theory II
Course Unit Code	**EE 202**
Type of Course Unit	Compulsory
Level of Course Unit	2nd year BSc program
National Credits	4
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	2
Year of Study	2
Semester when the course unit is delivered	4
Course Coordinator	-
Name of Lecturer (s)	Assoc. Prof. Dr. Özgür Cemal Özerdem
Name of Assistant (s)	Samuel Tackie
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	EE 201
Recommended Optional Program Components	-

Course description:
The sinusoidal steady-state analysis; the phasor, the passive circuit elements in frequency domain. Phasor diagrams. Circuit Analysis Methods Instantaneous power. Average power. The effective (RMS) value. Apparent power and power factor. Complex power and power factor correction. Polyphase circuits. Circuit analysis in the s-domain. Magnetically coupled circuits. Two-port networks.

Objectives of the Course:
- Continues to introduce students the fundamentals of circuit theory

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Give the basic definitions of the AC analysis of the circuits	1,5
2	Apply Kirchhoff's current and voltage laws and Ohm's law to circuit problems of AC circuits	1,5
3	Simplify AC circuits using series and parallel equivalents and using Thevenin and Norton equivalents	1,5
4	Identify*andmodel* polyphase circuits	1,5
5	Define Y-Y and Y-Delta connection and work with 3-phase systems	1,5
6	Do Circuit analysis in the s-domain	1,5
		1,5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	5
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	4
4	Ability to work with multi-disciplinary engineering sciences.	5
5	Ability to identify and solve problems using technical literature for research tasks and system design.	4

6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and product development.	5

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		The sinusoidal steady-state analysis	
2		The phasor	End of Chapter assignment questions
3		The passive circuit elements in frequency domain	End of Chapter assignment questions
4		Phasor diagrams	End of Chapter assignment questions
5		Circuit Analysis Methods	End of Chapter assignment questions
6		Instantaneous power. Average power	Quiz
7			Midterm Examination
8		The effective (RMS) value	
9		Apparent power and power facto	
10		Complex power and power factor correction	End of Chapter assignment questions
11		Polyphase circuits	Quiz
12		Circuit analysis in the s-domain	End of Chapter assignment questions
13		Magnetically coupled circuits. Two-port networks	End of Chapter assignment questions
14			Final Examination
15			

Recommended Sources

Textbook:

1. "Engineering Circuit Analysis" William H. Hayt, Jack E. Kemmerly and Steven M. Durbin, Mc Graw Hill, 2007, ISBN-10 0-07-110937-4
2. Recommended Reading: "Electric Circuits", Seventh Edition, James W. Nilsson and Susan A. Riedel, Pearson- Prentice Hall, 2005, ISBN 0-13-127760-X

Supplementary Course Material

Assessment

Short Quizzes	15%	
Laboratory	15%	
Midterm Exam	30%	
Final Exam	40%	
Total	100%	

Assessment Criteria Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies			
Course Policies			
ECTS allocated based on Student Workload			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	3	45
Labs and Tutorials	6	2	12
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	2	4	8
Midterm Examination	1	15	15
Final Examination	1	20	20
Self Study	14	4	56
Total Workload			156
Total Workload/30(h)			5.2
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Computer Applications
Course Unit Code	**EE 210**
Type of Course Unit	Compulsory
Level of Course Unit	2nd year B.Sc. program
National Credits	3
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	2
Semester when the course unit is delivered	3
Course Coordinator	Mohammed KMAIL
Name of Lecturer (s)	Mohammed KMAIL
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	COM 131 Computer programming
Recommended Optional Program Components	MATLAB programming and Simulation software

Course description:
This course provides the students with the important tools for programming using MATLAB environment, it covers the basic concepts of programming in MATLAB using repetitive and conditional structures, the operations of vectors and matrices in MATLAB. The Solution of different numerical analysis problems using MATLAB. The design of User interfaces and communication abilities of MATLAB. An introduction of simulation of different electrical power and control systems. The use of multisim as an electronic simulation tool.

Objectives of the Course:
Provide the students with a basic knowledge of MATLAB as a programming and simulation environment.
Provide students with tools of problems analysis and solving using MATLAB
Provide students with basic understanding of simulation and electrical systems representation

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Understand the environment of MATLAB	1,2
2	Use different types of variables, vectors and matrices	1,2
3	Solve different programming and mathematical problems using MATLAB	1,2
4	Simulate electrical systems using MATLAB	1,2
5	Analyze data in MATLAB and provide results	1,2
6	Build and simulate electronic circuits in Multisim environment	2

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	5
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	2

4	Ability to work with multi-disciplinary engineering sciences.	2
5	Ability to identify and solve problems using technical literature for research tasks and system design.	4
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	2
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and product development.	4

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	1	Introduction to MATLAB, variables and reserved functions	
2	2	Arrays and matrices in MATLAB	
3	3	Basic plotting functions in MATLAB	
4	3	Figures and figure editing	
5	4	Conditional structures	
6	5	Repetitive Structures and loops	
7			Midterm
8		Problems solving in MATLAB	
9	6	User interface design and programming	
10	6	User interface design and programming	
11	7	Introduction to Simulink environment	
12	7	Simulation using Simulink	
13	8	Introduction to Multisim Program	
14	8	Simulation of different electrical circuits in Multisim	
15			Final

Recommended Sources

Textbook:
Supplementary Course Material

Assessment

Attendance	10%	
Assignment/Report	30%	
Midterm Exam	20%	
Final Exam	40%	
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies			
ECTS allocated based on Student Workload			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials	-		
Assignment	6	4	24
Project/Presentation/Report	-	-	-
E-learning activities			
Quizzes			
Midterm Examination	1	15	15
Final Examination	1	20	20
Self Study	14	3	42
Total Workload			165
Total Workload/30(h)			5.5
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Electromagnetic Theory
Course Unit Code	**EE 216**
Type of Course Unit	Compulsory
Level of Course Unit	2nd year BSc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	2
Semester when the course unit is delivered	4
Course Coordinator	Assist.Prof. Dr. Refet Ramiz
Name of Lecturer (s)	Assist.Prof. Dr. Refet Ramiz
Name of Assistant (s)	-
Mode of Delivery	Face to Face,
Language of Instruction	English
Prerequisites	PHY 102, MAT 102
Recommended Optional Programme Components	Mathematic skills

Course description:
Electromagnetic Spectrum, Vector Analysis, Coordinate Systems, Force Between the Point Sources, Coulomb Law , Electric Field Strength (E), Electric Field of Several Point Charges, Charge Distribution, Charge Density, Continuous Charge Distribution, Electric Scalar Potential (V), Electric Field Lines, Equpotential Countours, Field Lines, Electric Potential of Charge Distribution, The Electric Feild as the Gradient of the Electric Potential, Electric Flux, Electric Flux Through Closed Surface, Charged One Shell, Capasitors and Capasitance, Moving Particles in the Electric Field, Dielectrics, Permittivite, Electric Dipol, Electric Dipol Moment, Polarization, Boundary Conditions, Boundary of Two Dielectrics Capacitors with Dielectrics, Energy of the Capacitor, Diverjans Theorem, Laplacien Operator, Poisson Equation, Laplace Equation, Static Magnetic Fields of Stable Electric Currents, Force on the Wire that is Carrying Currents Inside the Magnetic Fields, Magnetic Field of Current Carrying Element (Biot Savart Law), Force Between the Two Linear Parallel Conductors , Magnetic Flux, Magnetic Flux Density, Magnetic Flux Through Closed Surface (Gauss Law), Torq on the Ring, Magnetic Moment, Solenoid Inductance, Inductances of Simple Geometries, Ampere Law and H, Amper Law Applied to Conductive Medium and Maxwell Equation, Conductors and Charged Particles Moving Inside the Static Magnetic Fields, Rotary Motor, Magnetic Leviation (Maglev), Hall-Effect Generator, Moving Conductor Inside the Static Magnetic Field, Electric and Magnetic Fields Changing with Time, Conductors Moving Inside the Magnetic Field, General Situation of the Induction

Objectives of the Course:

- To provide a student with the necessary tools for the critical evaluation of existing and future electromagnetic phenomena
- To teach the concepts and principles of constructions of electromagnetics
- To enable a student to evaluate and choose a electromagnetic tools to match the problem

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Use of evaluation criteria for an assessment of electromagnetics	1, 2
2	Demonstrate and reconstruct a specific electromagnetic problems	1, 2
3	Apply electromagnetic principles for verification of the problems	1, 2
4	Analyze variables of electromagnetic problems	1, 2
5	Examine different concepts implemented in electromagnetic problems	1, 2
6	Compare electrical, electronic and biomedical problems	2
7		
Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work		

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	4
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	3
3	Ability to design electric and electronic devices and products.	3
4	Ability to work with multi-disciplinary engineering sciences.	4
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	2
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	3
8	Be able to use engineering techniques, skills, and tools for practice and product development.	3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	1,2	Electromagnetic Spectrum Vector Analysis	
2	3,4	Coordinate Systems Force Between the Point Sources, Coulomb Law	
3	4	Electric Field Strength (E) Electric Field of Several Point Charges Charge Distribution, Charge Density Continuous Charge Distribution Electric Scalar Potential (V) Electric Field Lines, Equpotential Countours Field Lines	
4	4,5	Electric Potential of Charge Distribution The Electric Feild as the Gradient of the Electric Potential Electric Flux Electric Flux Through Closed Surface	
5	5,6	Charged One Shell Capasitors and Capasitance Moving Particles in the Electric Field Dielectrics, Permittivite	
6	6,7	Electric Dipol, Electric Dipol Moment Polarization Boundary Conditions Boundary of Two Dielectrics	

7			Midterm
8	7,8	Capacitors with Dielectrics Energy of the Capacitor Diverjans Theorem Laplacien Operator, Poisson Equation, Laplace Equation	
9	8	Static Magnetic Fields of Stable Electric Currents Force on the Wire that is Carrying Currents Inside the Magnetic Fields Magnetik Field of Current Carrying Element (Biot Savart Law) Force Between the Two Linear Parallel Conductors	
10	8,9	Magnetic Flux, Magnetic Flux Density Magnetic Flux Through Closed Surface (Gauss Law) Torq on the Ring, Magnetic Moment Solenoid	
11	9	Inductance Inductances of Simple Geometries Ampere Law and H	
12	10	Amper Law Applied to Conductive Medium and Maxwell Equation Conductors and Charged Particles Moving Inside the Static Magnetic Fields Rotary Motor	
13	10	Magnetic Leviation (Maglev) Hall-Effect Generator Moving Conductor Inside the Static Magnetic Field	
14	10,11	Electric and Magnetic Fields Changing with Time Conductors Moving Inside the Magnetic Field General Situation of the Induction	
15			Final

Recommended Sources

Textbook:

Supplementary Course Material

- John D.KRAUS, Electromagnetics, McGRAW-HILL, Fourth Edition

.

Assessment

Assignment& Attendance	10%	
Midterm Exam	40 %	Written Exam
Final Exam	50 %	Written Exam
Total	100 %	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

- Attendance to the course is mandatory.
- Late assignments will not be accepted unless an agreement is reached with the lecturer.
- Students may use calculators during the exam.
- Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	3	45
Labs and Tutorials	-	-	-
Assignment	5	2	10
Project/Presentation/Report	1	8	8
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	15	15
Final Examination	1	20	20
Self Study	14	4	56
Total Workload			154
Total Workload/30(h)			5.13
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Electrical Measurements
Course Unit Code	**EE 220**
Type of Course Unit	Compulsory
Level of Course Unit	2rd year BSc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	2
Year of Study	2
Semester when the course unit is delivered	4
Course Coordinator	Mr. Cemal KAVALCIOĞLU
Name of Lecturer (s)	Mr. Cemal KAVALCIOĞLU
Name of Assistant (s)	Khalid AHMED
Mode of Delivery	Face to Face, Laboratory
Language of Instruction	English
Prerequisites	EE 201
Recommended Optional Program Components	The students will be familiar with various measuring instruments used to detect electrical quantities

Course description:.
Measurement and errors, systems of units of measurements. Standards of measurements. Electromechanical indicating instruments. Bridge circuits. Comparison measurements. Oscilloscopes. The basics of digital instruments. Data converters. Intelligent instruments. Measurement transducers.

Objectives of the Course: The students will be familiar with various measuring instruments used to detect electrical quantities.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Understand and use measuring transducer for the most common physical quantities.	1, 5
2	Understand and perform a measurement result analysis.	1, 5
3	Use digital and analogue devices for measuring voltage, current, impedance, time and frequency.	1, 5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	3
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4

3	Ability to design electric and electronic devices and products.	4
4	Ability to work with multi-disciplinary engineering sciences.	5
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and product development.	3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		Introduction to Measurement	
2		Classification of Electrical Measuring Instruments	
3		Measurement System Errors	
4		DC Analogue Meters	Midterm
5		AC Analogue Meters	
6		Bridge Measurements	
7		Electronic Instruments	
8		Data Converters	
9		Measurement Transducers	Final

Recommended Sources

Textbook:

3. Albert D. HELFRICK, William D. COOPER "Modern Electronic Instrumentation and Measurement Techniques", 1990.

4. Khalil ISMAILOV " Principles of Measurement and Instrumentation" Near East University Press, Nicosia 2000.

Supplementary Course Material -

Attendance	5 %	Less than 25% class attendance results in NA grade
Laboratory	15 %	
Midterm Exam	30 %	Written Exam
Final Exam	50 %	Written Exam
Total	100 %	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

- Attendance is Compulsory. Every student is expected to attend the class regularly on time.
- Students may use calculators during the exam.
- Cheating will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials	5	10	10
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	15	15
Final Examination	1	15	15
Self Study	14	3	42
Total Workload			156
Total Workload/30(h)			5.19
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Electronics I
Course Unit Code	**EE 222**
Type of Course Unit	Compulsory
Level of Course Unit	2nd year BSc program
National Credits	4
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	2
Year of Study	2
Semester when the course unit is delivered	4
Course Coordinator	Mohammed KMAIL
Name of Lecturer (s)	Mohammed KMAIL
Name of Assistant (s)	Khalid Ahmed
Mode of Delivery	Face to Face, Laboratory.
Language of Instruction	English
Prerequisites	EE 201, EE 241
Recommended Optional Programme Components	Basic Electronic circuits knowledge

Course description:

Understanding the basics of semiconductor technology and elements. Identify and explain diodes and their applications, switching and rectification of AC signals. Understanding different clippers and clampers circuits. Understanding the theory of Bipolar Junction Transistor operation, CB, CE and CC configurations. Studying BJT bias circuits. FET operation and biasing. Applying small signal BJT and FET analysis using re- and h-parameters. Studying amplifier frequency response.

Objectives of the Course:

- Provide students with knowledge of semiconductors and their applications
- Explain the diodes and their applications
- Provide the knowledge of BJTs, their applications and analysis
- Explain the different applications and importance of BJT in electronics

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Explain the construction of semiconductors	1
2	Understand the structure of diode and its characteristics	1, 5
3	Analyze and design different diode circuits	1, 5
4	Understand the functions of transistors	1, 5
5	Analyze the transistors' circuits	1, 5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	3
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4

3	Ability to design electric and electronic devices and products.	5
4	Ability to work with multi-disciplinary engineering sciences.	2
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and product development.	3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	1	Introduction. Semiconductors	
2	2	Diode and its equivalent circuits	
3	3	Diode applications - clippers	
4	3	Diode applications - clampers	
5	4	Zener Diode	
6	5	Introduction to BJT and FET	
7			Midterm
8	5	BJT different configuration	
9	5	BJT and FET Models	
10	6	Biasing circuits of BJT and FET and DC analysis	
11	7	Small signal analysis of transistor circuits	
12	7	Small signal analysis of transistor circuits	
13	7	Small signal analysis of transistor circuits	
14	8	Frequency response of transistor circuits	
15			Final

Recommended Sources

Textbook:

Robert Boylestad, And Louis Nashelsky, Electronic devices and circuit theory, 7th edition

Supplementary Course Material

Assessment

Attendance	5%	
Assignment	10%	2 assignments
Laboratory	15%	
Midterm Exam	25%	Written Exam
Final Exam	45%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

- Attendance to the course is mandatory.
- Students may use calculators during the exam.
- Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials	8	2	16
Assignment	2	4	8
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	2	2	4
Midterm Examination	1	15	15
Final Examination	1	20	20
Self Study	14	3	42
Total Workload			169
Total Workload/30(h)			5.63
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Electrical Materials
Course Unit Code	**EE 241**
Type of Course Unit	Compulsory
Level of Course Unit	B.Sc.
National Credits	4
Number of ECTS Credits Allocated	4 ECTS
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	2
Semester when the course unit is delivered	1
Course Coordinator	Mr. Cemal KAVALCIOĞLU
Name of Lecturer (s)	Mr. Cemal KAVALCIOĞLU
Name of Assistant (s)	-
Mode of Delivery	Lecture
Language of Instruction	English
Prerequisites	CHEM 101
Recommended Optional Program Components	-

Course description: The course covers followings; introduction to quantum mechanics; crystal structures, energy levels in crystals; quantum physics of metals, electron transport in metals; semiconductors; impurities; carrier transport in semiconductors; generation and recombination of minority carriers, the p-n junction diode, light sensitive materials; photodiodes; light-emitting diodes, the bipolar junction and field effect transistors and characteristics of dielectric materials and devices; magnetic fields and characteristics of magnetic materials.

Objectives of the Course: The primary purpose of this course is to provide an introduction to the interrelation of the structure, properties and processing of electrical and electronic materials, with an emphasis on the first two.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Learn about the fundamentals of the physical and electronic properties of materials	1,2
2	Gain a fundamental understanding of the electron behavior in metals and semiconductors and the resulting electronic properties.	1,2,3
3	Learn the fundamentals of quantum mechanics.	1,2
4	Apply these results to the understanding of the electronic properties of semiconductors.	1,2
5	Gain insight into fundamental solid-state electronic devices.	1,2

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	3
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	1
3	Ability to design electric and electronic devices and products.	1
4	Ability to work with multi-disciplinary engineering sciences.	2

5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	3
8	Be able to use engineering techniques, skills, and tools for practice and product development.	3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Ass.
1	1	Course introduction; materials in EEE applications	
2	1	Atomic structure, bonding, single/poly-crystals, amorphous	
3	1	Crystal structure; crystalline defects	Assignment 1
4	2	Electrical and thermal conduction in solids,	
5	2	Matthiessen's rule, mixture rules	Assignment 2
6	3	Introduction to quantum mechanics; wave-particle duality; Uncertainty principle; probability density; wave function	
7	3	Schrodinger equation; free particle and potential well solutions, quantum mechanical reflection, transmission and tunneling	
8	4	Wave equations applied to crystals; Energy band diagrams; metals, semiconductors, insulators; direct and indirect bandgaps;	Project
9			Midterm
10	5	Effective mass, intrinsic and extrinsic semiconductors. Electrons and holes, density of states, Fermi level, occupancy.	
11	5	Electron and hole concentrations; n and p type semiconductors, temperature dependence	Assignment 3
12	5	Resistivity, conductivity, carrier mobility and drift current in semiconductors	
13	6	Semiconductor devices; diodes and transistors	Assignment 4
14		Characteristics of dielectric materials and devices; magnetic fields and characteristics of magnetic materials.	
15			Final

Recommended Sources

Textbook:

- S. O. Kasap, Principles of Electronic Materials and Devices, 3rd Edition, McGraw Hill, 2005.

Supplementary Course Material

- Lecture notes and handouts
- W. D., Jr. Callister. Materials Science and Engineering: An Introduction, 8th Ed. John Wiley & Sons, Inc., New York, NY, USA, 2010

Assessment

Attendance & Assignment	5%	

Project and Assignments	15%	
Midterm Exam	30%	
Final Exam	50%	
Total	%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

1. Attendance to the course is mandatory.
2. Late assignments will not be accepted unless an agreement is reached with the lecturer.
3. Students may use calculators during the exam.
4. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	4	60
Labs and Tutorials	-	-	-
Assignment	4	2	8
Project/Presentation/Report	1	10	10
E-learning activities	5	2	10
Quizzes	-	-	-
Midterm Examination	1	2	2
Final Examination	1	2	2
Self Study	15	2	30
Total Workload			122
Total Workload/30(h)			4.01
ECTS Credit of the Course			4

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Microprocessors		
Course Unit Code	**EE 302**		
Type of Course	Compulsory Departmental Course		
Level of Course Unit	Bachelor's Degree (First Cycle)		
University Credits	4		
ECTS Credits	6		
Theory (hours/week)	4		
Practice(hours/week)	-		
Laboratory (hours/week)	1		
Prerequisites and co-requisites	EE315 Logic Circuit Design		
Recommended Optional Programme Components	-		
Year of Study	3		
Semester	Spring		
Language of Instruction	English		
Mode of Delivery	Face to face		
Teaching Methods	Telling/Explaining, Questioning, Problem Solving, Lab Experiments		
Course Coordinator	Assist. Prof. Dr Kaan Uyar		
Lecturer (s)	Assist. Prof. Dr Kaan Uyar Office: 16H-19 e-mail: kaan.uyar@neu.edu.tr web: www.uyar.com		
Assistant (s)			
Course Description	Introduction to microprocessors. Architecture of microprocessors and instruction sets. Interrupts. Memories. Parallel and serial input/output programming. Microprocessor based system design. Microprocessors applications.		
Course Objectives	1	Teaching the microprocessor as a programmable digital system element	
	2	To illustrate some basic concepts of microprocessors through the use of assembly language programming	
	3	To give the principles of hardware design	
	4	To provide an understanding of a microprocessor based system as a combination of hardware and software subsystems and their interactions	
Learning Outcomes	When this course has been completed the student should be able to		Assesment Methods
	1	Describes the basic operation of a microprocessor	1
	2	To write programs for a microprocessor using assembly language	1, 2,5
	3	Design a microprocessor based system	1, 2, 5
	Assesment Methods: 1. Written Exam, 2. Assignment 3. Project/Report, 4.Presentation, 5 Lab Work		
Course's Contribution to Program	*#*	*Program Competencies*	*LC*
	1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	2

	2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	5
	3	Ability to design electric and electronic devices and products.	5
	4	Ability to work with multi-disciplinary engineering sciences.	
	5	Ability to identify and solve problems using technical literature for research tasks and system design.	5
	6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
	7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	3
	8	Be able to use engineering techniques, skills, and tools for practice and Product development.	4
	LC (Level of Contribution): 1.Very Low, 2.Low, 3.Moderate, 4.High, 5.Very High		

Recommended Sources	*Textbook*	Dogan Ibrahim and Kaan Uyar, The 8080 and 8085 Microprocessors and Peripherals, Bilesim Yayincilik, 2006, Turkey.
	Lab Manual	Dogan Ibrahim and Kaan Uyar, 8085 Microprocessor Experiments, Bilesim Yayincilik, 2006, Turkey.
	Web	www.uyar.com

Course Contents	*Week*	*Topic/Exam*
	1	Introduction
	2	The Intel 8080 Microprocessor Instruction Set
	3	The Intel 8080 Microprocessor Instruction Set
	4	Assembly language, program writing, examples
	5	Assembly language, program writing, examples
	6	Assembly language, program writing, examples
	7	Examples, Review
	8	Midterm Exam
	9	The Intel 8085 Microprocessor
	10	The Memory Interface
	11	Parallel Input/Output Interface
	12	Serial Input/Output Interface
	13	8080/8085 Clock Circuits, Some Special Peripherals
	14	8085 System Design
	15	Examples, Review of the Semester, Lab Exam
	16	Final Exam

Evaluation System	*Requirements*	*Quantity*	*Method*	*Percentage*
	Attendance/Participation	-	-	-
	Laboratory Experiments	10	Lab Attendance, Lab Performance, Written Lab exam	20
	Application	-	-	-
	Field Work	-	-	-
	Special Course Internship	-	-	-
	Quizzes/Studio Critics	-	-	-
	Homework Assignments	2	Written	5
	Presentation	-	-	-
	Project	-	-	-
	Seminar	-	-	-
	Midterms Exams/ Jury	1	Written Exam	25
	Final Exam/ Jury	1	Written Exam	50
	Total			100

Assessment Criteria	Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies	
Course Policies	1	Attendance to the course is necessary but not mandatory.
	2	Late assignments will not be accepted unless an agreement is reached with the leturer.
	3	Exams are open book. Students may use textbooks, notes, calculators, etc. Cellphones, tablets, notebooks and netbooks must be switched off during the exam.
	4	Cheating and plagiarism will not be tolerated.Cheating will be penalized accordingto the Near East UniversityGeneral Student Discipline Regulations
	5	Attacks performed against University/lecturer resources are expressly prohibited.

	Activities	*Number*	*Duration (Hours)*	*Total Workload*
ECTS Allocated Based on the Student Workload	Course Hours (Including Exam Weeks)	16	4	64
	Application	-	-	-
	Special Course Internship	-	-	-
	Field Work	-	-	-
	Study Hours Out of Class	14	4	56
	Presentation/Seminar Preparation	-	-	-
	Project	-	-	-
	Homework Assignments	2	4	8
	Quizzes	-	-	-
	Laboratory and Tutorials	10	1	10
	Laboratory Preparation	10	0,5	5
	Laboratory Exams	1	5	5
	Preparation of Midterm Exams/Jury	1	10	10
	Preparation of Final Exams/Jury	1	21	21
	Total Workload (h)			179
	Total Workload/30 (h)			5,97
	ECTS Credits of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Logic Circuit Design
Course Unit Code	**EE 315**
Type of Course Unit	Compulsory
Level of Course Unit	3rd year BSc program
National Credits	3
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	2
Year of Study	3
Semester when the course unit is delivered	5
Course Coordinator	-
Name of Lecturer (s)	Assist. Prof. Dr. Ali Serener
Name of Assistant (s)	Mehmet Yenen
Mode of Delivery	Face to Face, Laboratory
Language of Instruction	English
Prerequisites	EE 222
Recommended Optional Program Components	-

Course description:
Topics include number systems, Boolean algebra, truth table, minterms, maxterms, don't cares, Karnaugh maps, multi-level gate circuits, combinational circuit design, gate delays, timing diagrams, hazards, multiplexers, decoders, programmable logic devices, latches, flip-flops, registers, counters, analysis of clocked sequential circuits, Mealy machine, Moore machine, derivation of state graphs and tables.

Objectives of the Course:
This course introduces students to the fundamentals of digital logic and design and construction, testing and debugging of digital circuits.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	understand most important positional number systems needed for computer arithmetic.	1,5
2	understand digital logic and algebra and how they are used in digital circuits.	1,5
3	be able to construct and analyze digital logic circuits.	1,5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	3
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	4
4	Ability to work with multi-disciplinary engineering sciences.	5
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4

7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and product development.	3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	1	Number Systems	
2	2	Boolean Algebra	
3	3	Boolean Algebra (cont.)	
4	4	Minterm and Maxterms	
5	5	Karnaugh Maps	
6	7	Multi-Level Gate Circuits	
7			Midterm
8	8	Combinational Circ. Design	
9	9	Muxs, Decoders, PLDs	
10	11	Latches and Flip-flops	
11	11	Latches and Flip-flops	
12	12	Registers and Counters	
13	13	Clocked Sequential Circ.	
14	14	State Graphs and Tables	
15			Final

Recommended Sources

Textbook:

- Fundamentals of Logic Design, Charles H. Roth Jr. and Larry L. Kinney, Seventh Edition, 2013, Cengage Learning.

Supplementary Course Material

Assessment

Laboratory	20%	
Midterm Exam	35%	
Final Exam	45%	
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

- Attendance to the course is mandatory..

- Students may use calculators during the exam.
- Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	3	48
Labs and Tutorials	7	2	14
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	15	15
Final Examination	1	20	20
Self Study	14	5	70
Total Workload			167
Total Workload/30(h)			5.56
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Electronics II
Course Unit Code	**EE 321**
Type of Course Unit	Compulsory
Level of Course Unit	3rd year BSc program
National Credits	4
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	2
Year of Study	3
Semester when the course unit is delivered	5
Course Coordinator	Assist. Prof. Dr. Kamil Dimililer
Name of Lecturer (s)	Assist. Prof. Dr. Kamil Dimililer
Name of Assistant (s)	Khaled Ahmad
Mode of Delivery	Face to Face, Laboratory.
Language of Instruction	English
Prerequisites	EE 222 (Electronics I)
Recommended Optional Programme Components	

Course description:

This course is designed for electrical & electronics engineering undergraduate students. The purpose of this course is to provide amplifier and instrumentation background on technical aspects.

Objectives of the Course:

- To provide a general background of semiconductors to the students.
- To provide physical and electrical properties of basic electronic devices; diodes, transistors, operational amplifiers
- To provide the analysis of basic diode, transistor and operational amplifier circuits
- To provide the analysis of instrumentation amplifiers

Learning Outcomes

	At the end of the course the student should be able to	Assessment
1	Develop a thorough understanding on basics of amplifiers	1
2	Develop a thorough understanding on basics of amplifying measurements	1, 2, 3, 5
3	Develop a thorough understanding on basics of amplifiers logic	1, 2, 3, 5
4	Develop a thorough understanding on basics and applications of instrumentation amplifiers	1, 2, 3, 5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	3
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	4

4	Ability to work with multi-disciplinary engineering sciences.	5
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and product development.	3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Topics	Exams
1	Field Effect Transistors	
2	Multi Stage Amplifiers	
3	Methods of Coupling	
4	Differential Amplifiers	
5	Operational Amplifiers	
6	Voltage Comparators	
7	Summing Amplifiers	
8		Midterm
9	Integrators	
10	Differentiators	
11	Voltage Comparators	
12	Instrumentation Amplifiers	
13	Oscillators	
14	Active Filters	
15		Final

Recommended Sources

Textbook: R. Boylestad & L. Nashelsky, "Electronic Devices and Circuit Theory", 10th edition, Prentice Hall, 2008.

Supplementary Course Material: A. Sedra & K.C. Smith, "Microelectronic Circuits", 6th edition, Oxford University Press, 2010.

Assessment

Attendance	5%	Less than 25% class attendance results in NA grade
Assignments	10%	
Laboratory	15%	
Midterm Exam	30%	Written Exam
Final Exam	40%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

- Attendance to the course is mandatory.
- Late assignments will not be accepted unless an agreement is reached with the lecturer.
- Students may use calculators during the exam.
- Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	3	48
Labs and Tutorials	9	2	18
Assignment	5	2	10
Project/Presentation/Report	1	8	8
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	15	15
Final Examination	1	20	20
Self Study	14	4	56
Total Workload			175
Total Workload/30(h)			5.83
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course UnitTitle	Control System
Course UnitCode	**EE 324**
Typeof Course Unit	Compulsory
Levelof Course Unit	B.Sc.
NationalCredits	4
Number of ECTSCreditsAllocated	5 ECTS
Theoretical(hour/week)	4
Practice(hour/week)	-
Laboratory (hour/week)	-
Yearof Study	3
Semester whenthecourse unit isdelivered	2
Course Coordinator	-
Name of Lecturer(s)	Asst.Prof. Dr. Imanov E.
Name of Assistant(s)	-
Modeof Delivery	FacetoFace
Language of Instruction	English
Prerequisitesandco-requisites	MAT 112, MAT 201
RecommendedOptionalProgramme	-

Learning Outcomes

Develop a thorough understanding on basic of modern control systems engineering such as the fundamental concepts of a Control System, Laplace transfer to find input-output relationship of control systems. The mathematical modelling of the electrical, liquid-level and mechanical systems, transfer functions and block diagram of control systems, analysis of stability and errors of a control system.

Whenthiscourse hasbeencompletedthe studentshould be ableto		Assessment.
1	*Develop a thorough understanding on basic of modern control systems engineering*	1, 2
2	The fundamental concepts of a Control System	1, 2
3	Laplace transfer to find input-output relationship of control systems.	1, 2
4	Transfer functions and block diagram of control systems	1, 2
5	Analysis of stability and errors of a control system.	1, 2

AssessmentMethods:1. WrittenExam, 2.Assignment3. Project/Report, 4.Presentation, 5 Lab.Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	3
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	3
3	Ability to design electric and electronic devices and products.	4
4	Ability to work with multi-disciplinary engineering sciences.	2
5	Ability to identify and solve problems using technical literature for research tasks and system design.	4
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and product development.	2

CL:Contribution Level(1:VeryLow, 2: Low, 3:Moderate4:High,5:VeryHigh)

Course Contents

Week	**Chapter**		**Assessment**
1	1	Introduction to Control Systems and Basic Concepts	
2	2	Modelling of Electrical Systems.	Assignment 1
3	3	Transfer function, impulse an transient functions.	

4	4	Modelling of the liquid-level and Thermal systems	Assignment 2
5	5	Mechanical Systems.	
6	5	Modelling Mechanical Rotational systems	
7	5	Electromechanical systems	Assignment 3
8	6	Block Diagram. Signal flow Graphs.	
9			Mid-Term Exam.
10	7	Analysis of the Control Systems. Routh -Hurwitz criterion.	
11	7	Frequency Response Analysis	Assignment 4
12	7	Nyquist Stability Criterion.	
13	8	Steady-state Error Analysis	Assignment 5
14	8	Design of the control systems.	
15			Final Exam.

RecommendedSources

Textbook:

Control systems engineering Prof. Dr Fakhreddin Mamedov Nicosia

SupplementaryMaterial(s):

Control systems engineering Norman S. Nise California State Polytechnic University, Pomona 1995

Assessment

Attendance & Assignment	10%	
MidtermExam(Written)	30%	
Quiz (Written)	20%	
Final Exam(Written)	40%	
Total	100%	

ECTSAllocatedBased on theStudentWorkload

Activities	**Number**	**Duration (hour)**	**Total Workload (hour)**
Course durationinclass(includingthe Exam week)	15	4	60
Tutorials	-	-	-
Assignments	5	3	15
Project/Presentation/ReportWriting	-	-	-
E-learning Activities	3	2	6
Quizzes	2	2	4
MidtermExamination	1	2	2
FinalExamination	1	2	2
Self-Study	15	3	45
TotalWorkload			134
TotalWorkload/30 (h)			4.47
ECTS Creditof the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Electromechanical Energy Conversion I
Course Unit Code	**EE 331**
Type of Course Unit	Compulsory
Level of Course Unit	3rd year BSc program
National Credits	4
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	2
Year of Study	3
Semester when the course unit is delivered	5
Course Coordinator	-
Name of Lecturer (s)	Prof. Dr. Şenol Bektaş
Name of Assistant (s)	Mohammed Kmail
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	EE 202, EE 216
Recommended Optional Program Components	-

Course description:
Electromagnetic circuits; properties of ferromagnetic materials. Single-phase and three-phase transformers. Short and open circuit tests, Equivalent circuits of the transformers, Efficiency, Per Unit System. Principles of electromechanical energy conversion:. DC machines: Theory, generators, motors, speed control

Objectives of the Course:
Introduces students to the fundamentals of electrical machinery

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Know about electromagnetic circuits	1,5
2	Apply electromagnetic theory to transformers	1,5
3	Apply short and open circuit tests to form the equivalent electrical circuits of transformers	1,5
4	Learn per unit system	1,5
5	Electromechanical machine theory	1,5
6	Learn the generating and motor actions of Electromechanical machines	1,5
7		

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	5
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	3
4	Ability to work with multi-disciplinary engineering sciences.	4
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of	4

	engineering practice.	
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	3
8	Be able to use engineering techniques, skills, and tools for practice and product development.	5

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		Introduction to Electromagnetic circuits	
2		properties of ferromagnetic materials	
3		Single-phase transformers	End of Chapter assignment questions
4		three-phase transformers	End of Chapter assignment questions
5		Short and open circuit tests	Home Work
6		Equivalent circuits of the transformers, Efficiency	Quiz
7			Midterm Examination
8		Analysis methods	
9		Per Unit System	
10		Principles of electromechanical energy conversion:	End of Chapter assignment questions
11		DC machines	Quiz
12		generators, motors,	Home Work
13		speed control	End of Chapter assignment questions
14			Final Examination
15			

Recommended Sources

Textbook:
Electric Machinery Fundamentals, Guru &Hızıroglu, Oxford University Press

Supplementary Course Material

Assessment

Short Quizzes	15%	
Laboratory	15%	
Midterm Exam	30%	
Final Exam	40%	
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies			
ECTS allocated based on Student Workload			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	3	45
Labs and Tutorials	6	2	12
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	2	2	4
Midterm Examination	1	15	15
Final Examination	1	20	20
Self Study	14	4	56
Total Workload			152
Total Workload/30(h)			5.06
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Electromechanical Energy Conversion II
Course Unit Code	**EE 332**
Type of Course Unit	Compulsory
Level of Course Unit	3rd year BSc program
National Credits	4
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	2
Year of Study	3
Semester when the course unit is delivered	6
Course Coordinator	-
Name of Lecturer (s)	Prof. Dr. Şenol Bektaş
Name of Assistant (s)	Mohammed Kmail
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	EE 331
Recommended Optional Program Components	-

Course description:
Electromagnetic fields created by AC electric machine windings: pulsating and rotating magnetic fields, emf induced in a winding. Induction machines: equivalent circuit, steady-state analysis, speed control. Synchronous machines: equivalent circuit, steady-state analysis, stability. Single-phase induction machines. Special electrical machines.

Objectives of the Course:
Continues to introduce students the fundamentals of electrical machinery

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Know about electromagnetic fields and application to machines through windings	1,5
2	Apply magnetic field theory to rotating machines	1,5
3	Know the electromagnetic machine types	1,5
4	Do analysis on the operation of the rotating electromagnetic machines	1,5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	5
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	5
4	Ability to work with multi-disciplinary engineering sciences.	4
5	Ability to identify and solve problems using technical literature for research tasks and system design.	4

6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and product development.	5

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		Electromagnetic fields created by AC electric machine windings	
2		pulsating and rotating magnetic fields	
3		emf induced in a winding	End of Chapter assignment questions
4		Induction machines	
5		equivalent circuit	Home Work
6		steady-state analysis, speed control	Quiz
7			Mid Term Examination
8		Analysis methods	
9		Synchronous machines	
10		equivalent circuit	End of Chapter assignment questions
11		steady-state analysis, stability	Home Work
12		Single-phase induction machines	Quiz
13		Special electrical machines.	End of Chapter assignment questions
14			Final Examination
15			

Recommended Sources
Textbook:
Electric Machinery Fundamentals, Guru &Hızıroglu, Oxford University Press

Supplementary Course Material

Assessment

Short Quizzes	15%	
Laboratory	15%	
Midterm Exam	30%	
Final Exam	40%	
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

ECTS allocated based on Student Workload			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	3	45
Labs and Tutorials	5	2	10
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	2	2	4
Midterm Examination	1	15	15
Final Examination	1	20	20
Self Study	14	4	56
Total Workload			150
Total Workload/30(h)			5
ECTS Credit of the Course			5

BSc. program, Electrical & Electronic Engineering Department

Course Unit Title	Summer Training II
Course Unit Code	**EE 300**
Type of Course Unit	Compulsory
Level of Course Unit	3rd year BSc program
National Credits	-
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	-
Practice (hour/week)	40
Laboratory (hour/week)	-
Year of Study	3
Semester when the course unit is delivered	6
Course Coordinator	Mehmet Yenen
Name of Lecturer (s)	-
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	-
Recommended Optional Program Components	-

Course description: This course is the second of two summer practices that each student is required to complete.

Objectives of the Course: The goal of this course is to familiarize students with the daily work of Electrical and Electronic Engineers.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Provide vision to the student about the practical applications of electrical-electronics engineering knowledge	3

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	5
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	5
3	Ability to design electric and electronic devices and products.	5
4	Ability to work with multi-disciplinary engineering sciences.	4
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	5
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting	3
8	Be able to use engineering techniques, skills, and tools for practice and product development.	5

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		Summer Training	
2		Summer Training	
3		Summer Training	
4		Summer Training	

Recommended Sources
Textbook: None

Assessment

Final Report	100 %	

Assessment Criteria Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies Attendance to the course is mandatory.

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	4	40	160
Labs and Tutorials	-	-	-
Assignment	-	-	-
Project/Presentation/Report	1	10	10
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	-	-	-
Final Examination	-	-	-
Self Study	-	-	-
Total Workload			170
Total Workload/30(h)			5.57
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Signals and Systems
Course Unit Code	**EE 341**
Type of Course Unit	Compulsory
Level of Course Unit	3rd year BSc program
National Credits	4
Number of ECTS Credits Allocated	7
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	2
Year of Study	3
Semester when the course unit is delivered	5
Course Coordinator	-
Name of Lecturer (s)	Assist. Prof. Ali Serener
Name of Assistant (s)	Samuel Tackie
Mode of Delivery	Face to Face, Laboratory
Language of Instruction	English
Prerequisites	EE 202
Recommended Optional Program Components	-

Course description:
The following main topics are covered: Classifications of signals, basic operations on signals, elementary signals, properties of systems, impulse response, convolution, step response, systems described by differential and difference equations, frequency response, Fourier series and transform, Fourier analysis of discrete-time signals and systems, properties of Fourier representations, Fourier representations for mixed signal classes, sampling, reconstruction, z-Transform.

Objectives of the Course:
This course introduces students to the study and analysis of signals and systems.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	learn how to classify signals and systems.	1, 5
2	understand the concepts behind continuous-time and discrete-time signals and systems.	1, 5
3	get an understanding of time and frequency domain representation of signals.	1, 5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	3
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	4
4	Ability to work with multi-disciplinary engineering sciences.	5
5	Ability to identify and solve problems using technical literature for research tasks and system design.	4
6	Be able to understand professional, ethical responsibilities and standards of	4

	engineering practice.	
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and product development.	3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	1	Introduction, 1.1-1.3	
2	1	Introduction, 1.4-1.5	
3	1	Introduction, 1.6-1.8	
4	2	LTI Systems, 2.1-2.4	
5	2	LTI Systems, 2.5-2.8	
6	2	LTI Systems, 2.9-2.11	
7	3	Fourier Representations, 3.1-3.6	
8			Midterm
9	3	Fourier Representations, 3.7-3.12	
10	3	Fourier Representations, 3.13-3.18	
11	4	Mixed Signal Classes, 4.1-4.3	
12	4	Mixed Signal Classes, 4.4-4.6	
13	4	Mixed Signal Classes, 4.7-4.9	
14	7	Z-Transforms, 7.1-7.3	
15			Final

Recommended Sources

Textbook:

- Signals and Systems, Simon Haykin and Barry Van Veen, Second Edition, 2003, Wiley.

Assessment

Laboratory	20 %	
Midterm Exam	40 %	
Final Exam	40 %	
Total	100 %	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

- Attendance to the course is mandatory..

- Students may use calculators during the exam.
- Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	3	48
Labs and Tutorials	5	2	10
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	25	25
Final Examination	1	30	30
Self Study	14	6	84
Total Workload			197
Total Workload/30(h)			6.56
ECTS Credit of the Course			7

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Communication Systems
Course Unit Code	**EE 346**
Type of Course Unit	Compulsory
Level of Course Unit	3rd year BSc program
National Credits	4
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	2
Year of Study	3
Semester when the course unit is delivered	6
Course Coordinator	Assist. Prof. Ali Serener
Name of Lecturer (s)	Assist. Prof. Ali Serener
Name of Assistant (s)	Samuel Tackie
Mode of Delivery	Face to Face, Laboratory
Language of Instruction	English
Prerequisites	EE 341
Recommended Optional Program Components	-

Course description: Topics include Fourier representation of signals and systems, amplitude modulation, angle modulation, random signals and noise, and noise in analog communications.

Objectives of the Course:
This course is an introduction to the basic principles underlying the design and analysis of analog communication systems.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	have an understanding of the basics of analog communications.	1, 5
2	know in detail about various parts of analog transmission and reception.	1, 5
3	understand how the things students have learned are used in communication systems of today.	1, 5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	3
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	5
4	Ability to work with multi-disciplinary engineering sciences.	4
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and product development.	4

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)			
Course Contents			
Week	Chapter	Topics	Exam
1	2	Fourier Representation, 2.1-2.3	
2	2	Fourier Representation, 2.4-2.6	
3	2	Fourier Representation, 2.7-2.9	
4	3	Amplitude Modulation, 3.1-3.3	
5	3	Amplitude Modulation, 3.4-3.6	
6	3	Amplitude Modulation, 3.7-3.8	
7	4	Angle Modulation, 4.1-4.3	
8			Midterm
9	4	Angle Modulation, 4.4-4.6	
10	4	Angle Modulation, 4.7-4.8	
11	8	Random Signals, 8.1-8.4	
12	8	Random Signals, 8.5-8.7	
13	8	Random Signals, 8.8-8.11	
14	9	Noise in Analog Comm., 9.1-9.3	
15			Final

Recommended Sources

Textbook:

Introduction to Analog and Digital Communications, Simon Haykin and Michael Moher, Second Edition, 2007, Wiley

Assessment		
Laboratory	20 %	
Midterm Exam	35 %	
Final Exam	45 %	
Total	100 %	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

1. Attendance to the course is mandatory.
2. Students may use calculators during the exam.
3. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	3	48
Labs and Tutorials	4	2	8
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	20	20
Final Examination	1	20	20
Self Study	14	5	70
Total Workload			166
Total Workload/30(h)			5.53
ECTS Credit of the Course			6

BSc. program, Electrical & Electronic Engineering Department

Course Unit Title	Engineering Design I
Course Unit Code	**EE401**
Type of Course Unit	Compulsory
Level of Course Unit	4th year BSc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	4
Semester when the course unit is delivered	7
Course Coordinator	Assist. Prof. Dr. Ali Serener
Name of Lecturer (s)	Assist. Prof. Dr. Ali Serener
Name of Assistant (s)	-
Mode of Delivery	Face to Face.
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	

Course description:

This course is organizedto provide the fundamentals of project design, presentation and management. Also engineering economics, ethics and design experience through an engineering project is provided through the course.

Objectives of the Course:

- To provide design experience to the students through individual and teamwork and familiarize them with the project management methodology
- To provide the ability to understand and redefine a given engineering problem, and the ability to develop a conceptual design
- To provide students the ability to communicate effectively

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Develop a thorough understanding on basics of project report writing	3 4
2	Develop a thorough understanding on basics of timeline of a project	3 4
3	Develop a thorough understanding on basics of budget of a project	3 4
4	Develop a thorough understanding on basics of engineering ethics	4

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	2
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	1
3	Ability to design electric and electronic devices and products.	3

4	Ability to work with multi-disciplinary engineering sciences.	3
5	Ability to identify and solve problems using technical literature for research tasks and system design.	4
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	5
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	4
8	Be able to use engineering techniques, skills, and tools for practice and product development.	4
CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)		

Course Contents

Week	Topics	Exams
1	Contents of a Graduation Project Report, Writing the Abstract and Introduction Sections	
2	Writing the Background Theory and Literature Review	
3	Writing the System Model	
4	Writing the Work Done, Performance Evaluation/Demonstration, Conclusion Sections	
5	Presentation of the Graduation Project	
6	Poster Preparation of the Graduation Project	
7	Calculating the Budget of the Project	
8	-	
9	Engineering Ethics	
10	Writing a Graduation Project Proposal	
11	Writing a Graduation Project Proposal	
12	Writing a Graduation Project Proposal	
13	Writing a Graduation Project Proposal	
14	Writing a Graduation Project Proposal	
15		Project Proposal Submission

Recommended Sources

Textbook:G. Dieter& L. Schmidt, “Engineering Design”, 5th edition, McGraw Hill, 2011.

Supplementary Course Material: G. Pahl, W. Beitz, J. Feldhusen, K. H. Grote, K. Wallace&L. T. M. Blessing, “Engineering Design: A Systematic Approach”, 3rdedition, Springer, 2007.

Assessment

Attendance	-	
Assignments	100%	Project Proposal
Laboratory	-	
Midterm Exam	-	
Final Exam	-	
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

11. Attendance to the course is mandatory.
12. Late assignment will not be accepted unless an agreement is reached with the lecturer.
13. Assignment will be uploaded to a plagiarism detection system.
14. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	3	48
Labs and Tutorials	-	-	-
Assignment	-	-	-
Project/Presentation/Report	1	46	46
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	-	-	-
Final Examination	-	-	-
Self Study	14	4	56
Total Workload			150
Total Workload/30(h)			5
ECTS Credit of the Course			5

BSc. program, Electrical & Electronic Engineering Department

Course Unit Title	Engineering Design II
Course Unit Code	**EE402**
Type of Course Unit	Compulsory
Level of Course Unit	4th year BSc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	4
Semester when the course unit is delivered	8
Course Coordinator	Assist. Prof. Dr. Ali Serener
Name of Lecturer (s)	Assist. Prof. Dr. Ali Serener
Name of Assistant (s)	-
Mode of Delivery	Face to Face.
Language of Instruction	English
Prerequisites	EE401
Recommended Optional Programme Components	

Course description:

This course is a continuation of EE401 Engineering Design I with topics covering completion of an engineering project with a final report, oral presentation to a jury and poster presentation at an "Engineering Day" event.

Objectives of the Course:

- To provide design experience to the students through individual and teamwork and improve their knowledge on the project management methodology.
- To provide students with the experience of realization of a product from conceptual design to working model
- To provide students the ability to communicate effectively

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Develop a thorough understanding on basics of project design	3 4
2	Develop a thorough understanding on basics of following the timeline of a project	3 4
3	Develop a thorough understanding on basics of following the budget of a project	3 4
4	Develop a thorough understanding on basics of implementing engineering ethics	4

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	5
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	5

3	Ability to design electric and electronic devices and products.	5
4	Ability to work with multi-disciplinary engineering sciences.	3
5	Ability to identify and solve problems using technical literature for research tasks and system design.	5
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	5
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	3
8	Be able to use engineering techniques, skills, and tools for practice and product development.	5

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Topics	Exams
1	Design and validation of the Project	
2	Design and validation of the Project	
3	Design and validation of the Project	
4	Performance evaluation/demonstration of the Project and Redesigning	
5	Performance evaluation/demonstration of the Project and Redesigning	
6	Performance evaluation/demonstration of the Project and Redesigning	
7	Writing theFinal Project Report	
8	-	
9	Writing theFinal Project Report	
10	Writing theFinal Project Report	
11	Writing theFinal Project Report	
12	Writing theFinal Project Report	
13	Preparing the Final Project Presentation	Final Project Report Submission
14	Preparing the Final Project Poster	Project Presentation to a Jury
15		Project Poster Presentation

Recommended Sources

Textbook:G. Dieter& L. Schmidt, “Engineering Design”, 5th edition, McGraw Hill, 2011.

Supplementary Course Material: G. Pahl, W. Beitz, J. Feldhusen, K. H. Grote, K. Wallace&L. T. M. Blessing, “Engineering Design: A Systematic Approach”, 3rdedition, Springer, 2007.

Assessment

Attendance	-	
Assignments	100%	Final Project Report, Presentation and Poster
Laboratory	-	

Midterm Exam	-	
Final Exam	-	
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

15. Attendance to the course is mandatory.
16. Late assignment will not be accepted unless an agreement is reached with the lecturer.
17. Assignment will be uploaded to a plagiarism detection system.
18. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	3	48
Labs and Tutorials	-	-	-
Assignment	-	-	-
Project/Presentation/Report	1	46	46
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	-	-	-
Final Examination	-	-	-
Self Study	14	4	56
Total Workload			150
Total Workload/30(h)			5
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Telecommunications
Course Unit Code	**EE 411**
Type of Course Unit	Elective
Level of Course Unit	4rd year BSc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	2
Year of Study	4
Semester when the course unit is delivered	7
Course Coordinator	Assist. Prof. Ali Serener
Name of Lecturer (s)	Assist. Prof. Ali Serener
Name of Assistant (s)	Berk Dağman
Mode of Delivery	Face to Face, Laboratory
Language of Instruction	English
Prerequisites	EE 346
Recommended Optional Program Components	-

Course description: Introduction to digital communications. Pulse modulation. Baseband data transmission. Digital bandpass modulation techniques. Random signals. Noise.

Objectives of the Course:

1. To explain analog to digital conversion
2. To explain the details of digital transmission and reception
3. To teach the basics of effects of noise on digital communications

To describe various applications of digital communications

Learning Outcomes

	At the end of the course the student should be able to	Assessment
1	have an understanding of the basics of digital communications.	1, 5
2	know in detail about various parts of digital transmission and reception.	1, 5
3	understand how the things students have learned are used in communication systems of today.	1, 5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	3
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	5
4	Ability to work with multi-disciplinary engineering sciences.	4
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic,	2

	environmental, and societal setting.	
8	Be able to use engineering techniques, skills, and tools for practice and product development.	4

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	5	Introduction, Pulse Modulation, 5.1-5.3	
2	5	Pulse Modulation, 5.4-5.6	
3	5	Pulse Modulation, 5.7-5.9	
4	6	Baseband Trans., 6.1-6.3	
5	6	Baseband Trans., 6.4-6.6	
6	6	Baseband Trans., 6.7-6.8	
7	7	Digital Modulation, 7.1-7.3	
8			Midterm
9	7	Digital Modulation, 7.4-7.6	
10	7	Digital Modulation, 7.7-7.8	
11	8	Random Signals, 8.1-8.4	
12	8	Random Signals, 8.5-8.7	
13	8	Random Signals, 8.8-8.11	
14	10	Noise in Digital Comm., 10.1-10.3	
15			Final

Recommended Sources

Textbook:

Introduction to Analog and Digital Communications, Simon Haykin and Michael Moher, Second Edition, 2007, Wiley.

Assessment

Laboratory	20 %	
Midterm Exam	35 %	
Final Exam	45 %	
Total	100 %	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

1. Attendance to the course is mandatory.
2. Students may use calculators during the exam.
3. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near

East University General Student Discipline Regulations			
ECTS allocated based on Student Workload			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	3	48
Labs and Tutorials	4	2	8
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	15	15
Final Examination	1	20	20
Self Study	14	4	56
Total Workload			147
Total Workload/30(h)			4.9
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Computer Networking
Course Unit Code	**EE 416**
Type of Course Unit	Technical Elective
Level of Course Unit	4rd year BSc program
National Credits	3
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	4
Semester when the course unit is delivered	7
Course Coordinator	Assist. Prof. Dr. Hüseyin Hacı
Name of Lecturer (s)	Assist. Prof. Dr. Hüseyin Hacı
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	Basic computer programming skills

Course description:

This course is to provide students with an overview of the concepts and fundamentals of data communication and computer networks. Topics to be covered include: data communication concepts and techniques in a layered network architecture, communications switching and routing, types of communication, network congestion, network topologies, network configuration and management, network model components, layered network models (OSI reference model, TCP/IP networking architecture) and their protocols, various types of networks (LAN, MAN, WAN and Wireless networks) and their protocols.

Objectives of the Course:

At the end of the course, the students will be able to:

1. Build an understanding of the fundamental concepts of computer networking.

2. Familiarize the student with the basic taxonomy and terminology of the computer

Networking area.

3. Introduce the student to advanced networking concepts, preparing the student for

Entry Advanced courses in computer networking.

4. Allow the student to gain expertise in some specific areas of networking such as the

design and maintenance of individual networks.

Learning Outcomes		
At the end of the course the student should be able to		Assessment
1	Independently understand basic computer network technology.	1
2	Understand and explain Data Communications System and its components.	1, 3
3	Identify the different types of network topologies and protocols.	1, 3
4	Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer.	1, 3
5	Identify the different types of network devices and their functions within a network	1, 3
6	Understand and building the skills of subletting and routing mechanisms.	1
7	Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation.	1
Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work		

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	4
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	5
3	Ability to design electric and electronic devices and products.	3
4	Ability to work with multi-disciplinary engineering sciences.	5
5	Ability to identify and solve problems using technical literature for research tasks and system design.	4
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	3
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	3
8	Be able to use engineering techniques, skills, and tools for practice and Product development.	4

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		Introduction to Communications- Connected Anywhare	
2		Introduction to Communications-LAN,WAN, and Internet	
3		Introduction to Communications- New Generation of Communications	
4		Network Access- Physical Layer Protocols	
5		Network Access- Link Layer Protocols	
6		Network Access-Multiple Access Protocols	
7		Introduction to Ethernet- Ethernet Protocol	
8		Midterm Exam	
9		Introduction to Ethernet- Address Resolution Protocol	
10		Introduction to Ethernet- LAN Switches	
11		Network Layer-Network Layer Protocols	
12		Network Layer-Routing	

13		Network Layer-Routers	
14		Transport Layer-Transport Layer Protocols	
15		Transport Layer-TCP and UDP	
			Final

TEXTBOOK(S):

- Computer Networks, Andrew S. Tanembaum and David J. Wetherall, Fifth Edition, 2011, Pearson

Assessment

Attendance	-	
Project/Presentation/Report	30%	
Midterm Exam	30%	
Final Exam	40%	
Lab Work	-	
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials			
Assignment			
Project/Presentation/Report	2	3	6
E-learning activities	-	-	-
Quizzes			
Midterm Examination	1	20	20
Final Examination	1	20	20
Self Study	14	5	70
Total Workload			180
Total Workload/30(h)			6
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Neural Networks
Course Unit Code	**EE 420**
Type of Course Unit	Elective Course
Level of Course Unit	First Cycle
National Credits	3
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	1
Year of Study	4
Semester when the course unit is delivered	Fall/Spring
Course Coordinator	Assist. Prof. Dr. Kamil Dimililer
Name of Lecturer (s)	Assist. Prof. Dr. Kamil Dimililer
Name of Assistant (s)	Çağrı Özkan
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	EE 210
Recommended Optional Programme Components	

Course description:

The Neural network paradigm and fundamentals. Training by error minimization. Back propagation algorithms. Feedback and recurrent networks. Hopfield network, Genetic algorithms. Probability and neural networks. Optimizations and constraint.

Objectives of the Course:

- Teaching the basics of neural networks
- To illustrate the basic applications of neural networks using Matlab.
- To give the principles of neural networks approaches

At the end of the course the student should be able to		Assessment
1	Analyze theoretical and practical basics of neural networks	1
2	To write programs for neural networks applications using Matlab	2,5
3	Develop real life applications of neural networks	2,5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	2
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	1

4	Ability to work with multi-disciplinary engineering sciences.	3
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	2
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and Product development.	2

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		Introduction	
2		Fundamentals of Neural Networks	
3		Fundamentals of Neural Networks	
4		Supervised / Unsupervised Learning Algorithms	
5		Supervised / Unsupervised Learning Algorithms	
6		Introduction to Back Propagation Algorithm	
7		Applications of Back Propagation Algorithm	
8			Midterm
9		XOR Problem	
10		Introduction to ADALINE	
11		Practical Application of ADALINE	
12		Hopfield Algorithm	
13		Application of Hopfield Algorithm	
14		Examples, Review of the Semester	
15		Examples, Review of the Semester	
16			Final

Recommended Sources
Textbook:
Fundamentals of Artificial Neural Networks, by Mohamad Hassoun
Lab Manual:
-
Supplementary Course Material
-

Assessment

Attendance	-	
Assignments	5%	
Lab	20%	Lab Attendance, Lab Performance, Assignments
Midterm Exam	25%	Written Exam
Final Exam	50%	Written Exam
Total	100%	

Assessment Criteria
Final grades are determined according to the Near East University Academic Regulations for

Undergraduate Studies			
Course Policies 1. Attendance to the course is necessary but not mandatory. 2. Late assignments will not be accepted unless an agreement is reached with the lecturer. 3. Cell phones and computers must be switched off during the exam. 4. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations. 5. Attacks performed against University/lecturer resources are expressly prohibited.			
ECTS allocated based on Student Workload			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials	20	1	20
Assignment	2	4	8
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination Study	1	10	10
Final Examination Study	1	21	21
Self Study	14	4	56
Total Workload			179
Total Workload/30(h)			5.97
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Satellite Communication Systems
Course Unit Code	**EE 425**
Type of Course Unit	Elective
Level of Course Unit	4rd year BSc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	2
Year of Study	4
Semester when the course unit is delivered	8
Course Coordinator	Assist. Prof. Dr. Ali Serener
Name of Lecturer (s)	Assist. Prof. Ali Serener
Name of Assistant (s)	Berk Dağman
Mode of Delivery	Face to Face, Laboratory
Language of Instruction	English
Prerequisites	EE 346
Recommended Optional Program Components	-

Course description: Topics include orbits and trajectories, characteristics of satellites, frequency spectrum allocations, flexibility, reliability and quality issues, transmitting and receiving stations, link budget analysis, modulation and multiple access, transmission distortion and impairments.

Objectives of the Course:
This course covers the basic techniques for the design and analysis of satellite communication systems.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	understand the basics of the satellite microwave link and fundamentals of satellite networks.	1, 5
2	understand modulation techniques, coding and access schemes in satellite communications.	1, 5
3	have the engineering skills needed in the field of satellite communication systems	1, 5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	3
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	5
4	Ability to work with multi-disciplinary engineering sciences.	4
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and product development.	4

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)			
Course Contents			
Week	Chapter	Topics	Exam
1	2	Satellite Orbits and Traj., 2.1-2.2	
2	2	Satellite Orbits and Traj., 2.3-2.4	
3	2	Satellite Orbits and Traj., 2,5	
4	3	Satellite Launch, 3.1-3.2	
5	3	Satellite Launch, 3.3-3.4	
6	3	Satellite Launch, 3.5-3.6	
7	4	Satellite Hardware, 4.1-4.3	
8			Midterm
9	4	Satellite Hardware, 4.4-4.6	
10	4	Satellite Hardware, 4.7-4.9	
11	7	Satellite Link Design, 7.1-7.3	
12	7	Satellite Link Design, 7.4-7.6	
13	7	Satellite Link Design, 7.7-7.8	
14	8	Communication Satellites, 8.1-8.3	
15			Final

Recommended Sources

Textbook:

Satellite Technology: Principles and Applications, Anil K. Maini, Varsha Agrawal, 2013, Wiley.

Assessment		
Laboratory	20 %	
Midterm Exam	35 %	
Final Exam	45 %	
Total	100 %	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

1. Attendance to the course is mandatory.
2. Students may use calculators during the exam.
3. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)

Course duration in class (including Exam weeks)	16	3	48
Labs and Tutorials	4	2	8
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	15	15
Final Examination	1	20	20
Self Study	14	4	56
Total Workload			147
Total Workload/30(h)			4.9
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Information Theory and Coding
Course Unit Code	**EE 427**
Type of Course Unit	Elective
Level of Course Unit	4rd year BSc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	4
Semester when the course unit is delivered	8
Course Coordinator	Assist. Prof. Dr. Ali Serener
Name of Lecturer (s)	Assist. Prof. Dr. Ali Serener
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	EE 341, MAT 350
Recommended Optional Program Components	-

Course description: Topics include entropy and information, information channels, source coding, fundamentals of channel coding, cyclic codes and convolutional codes.

Objectives of the Course:

1. To provide students a basic understanding of entropy and information
2. To teach students basics of coding theory
3. To give an inside into the fundamentals and applications of modern error-correcting codes

Learning Outcomes

	At the end of the course the student should be able to	Assessment
1	have a better understanding of how information sources and channels are modeled.	1
2	learn about error correcting codes that are being adopted for use by communication systems of today.	1

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	4
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	3
3	Ability to design electric and electronic devices and products.	3
4	Ability to work with multi-disciplinary engineering sciences.	4
5	Ability to identify and solve problems using technical literature for research tasks and system design.	4
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic,	2

	environmental, and societal setting.	
8	Be able to use engineering techniques, skills, and tools for practice and product development.	4

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	1	Entropy and Information Togneri 1.1-1.10	
2	1	Entropy and Information Togneri 1.11-1.21	
3	2	Information Channels Togneri 2.1-2.5	
4	2	Information Channels Togneri 2.6-2.10	
5	3	Source Coding Togneri 3.1-3.3	
6	3	Source Coding Togneri 3.4-3.6	
7	3	Source Coding Togneri 3.7-3.10	
8			Midterm
9	5	Fundamentals of Channel Coding Togneri 5.1-5.3	
10	5	Fundamentals of Channel Coding Togneri 5.4-5.7	
11	6	Error-Correcting Codes Togneri 6.1-6.4	
12	6	Error-Correcting Codes Togneri 6.5-6.8	
13	7	Cyclic Codes Togneri 7.1-7.4	
14	7	Cyclic Codes Togneri 7.5-7.9	
15			Final

Recommended Sources

Textbook:
Fundamentals of Information Theory and Coding Design, R. Togneri and C. J.S. deSilva, CRC Press.

Assessment

Midterm Exam	45 %	
Final Exam	55 %	
Total	100 %	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

1. Attendance to the course is mandatory.
2. Students may use calculators during the exam.
3. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	3	48

Labs and Tutorials	-	-	-
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	15	15
Final Examination	1	20	20
Self Study	14	4	56
Total Workload			139
Total Workload/30(h)			4.6
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Power Electronics
Course Unit Code	**EE 433**
Type of Course Unit	Elective
Level of Course Unit	4rd year BSc program
National Credits	3
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	0
Year of Study	4
Semester when the course unit is delivered	8
Course Coordinator	Assoc. Prof. Dr. Timur Aydemir
Name of Lecturer (s)	Assoc. Prof. Dr. Timur Aydemir
Name of Assistant (s)	Mohammed Kmail
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	None
Recommended Optional Program Components	-

Course description:
Power semiconductor devices: power diodes and transistors, thyristors, GTOs, power MOSFETs, IGBTs. Drive circuits and switching characteristics. AC-DC Converters: single-phase half-wave converters, two-phase mid-point converters, single- and three-phase bridge converters, three-phase mid-point converters. Line-current harmonics. Triggering control of rectifiers. DC choppers: single- and two-thyristor choppers. Inverters: single- and three-phase square-wave inverters, voltage control of inverters, PWM inverters.

Objectives of the Course:
Introducing electronic applications for the transformation and control of electrical power. Teaching the operational principles and analysis of various power converters.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Students understand the concept of power control through switching.	1
2	Students can identify and analyze basic power converter topologies.	1
3	Students can identify basic protection and limitation circuits used in power electronics and can perform their basic claculations.	1

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	4
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	2
3	Ability to design electric and electronic devices and products.	3
4	Ability to work with multi-disciplinary engineering sciences.	1
5	Ability to identify and solve problems using technical literature for research tasks and system design.	1
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	2
7	Be able to understand the effect of engineering in a global, economic,	3

	environmental, and societal setting.	
8	Be able to use engineering techniques, skills, and tools for practice and product development.	2

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		Application areas of power electronics and introduction basic principles	
2		Operation principles and characteristics of diodes and thyristors	
3		Analysis of basic rectifier circuits, definition and calculation of performance parameters.	
4		Analysis of single phase rectifiers	
5		Analysis of three phase rectifiers	
6		Basic principles of DC-DC conversion	
7		Buck type dc-dc converter: Operation principles and filter design	
8		Boost, Buck-Boost and Cuk DC-DC Converters	
9		Pulse Width Modulation concept and its application	
10		Continuous and Discontinuous operation limits of dc-dc converters	
11		A general look at the isolated dc-dc converter topologies	
12		Forward DC-DC Converter	
13		Flyback dc-dc converter	
14		Half and Full bridge dc-dc converters, Snubbers and heat Sinks	
15		Single Phase Inverters	

Recommended Sources

Textbook:

1. Power Electronics Circuits, Devices and Applications, Muhammad Rashid, Prentice Hall International, Third Edition
2. Power Electronics , Converters Applications and Design, Mohan, Undeland, Robins, Wiley

Supplementary Course Material

1. Power Electronics, Joseph Vithayathil, Mc Graw Hill
2. Modern Power Electronics and AC Drives, Bimal K. Bose, Prentice Hall International

Assessment

Short Quizzes	-	
Laboratory	-	
Midterm Exam	%50	
Final Exam	%50	
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

ECTS allocated based on Student Workload			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials			
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes			
Midterm Examination	1	16	16
Final Examination	1	30	30
Self Study	15	4	60
Total Workload			170
Total Workload/30(h)			5.66
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Digital Signal Processing
Course Unit Code	**EE 461**
Type of Course Unit	Elective
Level of Course Unit	4rd year BSc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	4
Semester when the course unit is delivered	7
Course Coordinator	-
Name of Lecturer (s)	Dr. Umar Özgünalp
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	EE 341
Recommended Optional Program Components	-

Course description:
Discrete-time signals and systems. Realization of discrete-time systems. Analog I/O interface for real time DSP systems. Discrete transforms. FIR and IIR filters. Synthesis of filters.

Objectives of the Course:
Introduces students to the fundamentals of electrical machinery

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Know properties of discrete time signals and systems	1
2	Know about Sampling, Nyquist rate, ADC and DAC	1
3	Know about key DSP operations	1
4	Know Discrete transforms (i.e. DFT,IDFT, FFT, IFFT)	1
5	apply Z-transforms and inverse Z-transforms	1
6	Know about FIR and IIR filters	1

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	5
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	3
4	Ability to work with multi-disciplinary engineering sciences.	4
5	Ability to identify and solve problems using technical literature for research tasks and system design.	4
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and product	5

	development.		

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		Introduction to Digital Signal Processing and Digital Signal Processors	
2		Discrete-time signals and systems	
3		Analog I/O interface for real time DSP systems	
4		Discrete transforms	
5		z-transform	
6		Z-transform applications in signal processing	
7		Revision	Midterm Examination
8		Mathematical description of the process of sampling	
9		Correlation and Convolution (implementations and applications)	
10		Introduction to digital filters	
11		Filter design steps	
12		Finite impulse response (FIR) digital filter	
13		Infinite impulse response (IIR) digital filter	
14		Revision	Final Examination
15			

Recommended Sources

Textbook:
Emmanuel C. Ifeachor, Barrie W. Jervis, "Digital Signal Processing A Practical Approach", second edition, 2002

Supplementary Course Material

Assessment

Projects	10%	
Homeworks	20%	
Midterm Exam	30%	
Final Exam	40%	
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)

Course duration in class (including Exam weeks)	14	4	56
Labs and Tutorials	-	-	-
Assignment	3	3	9
Project/Presentation/Report	1	20	20
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	17	17
Final Examination	1	23	23
Self Study	14	2	28
Total Workload			153
Total Workload/30(h)			5.1
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Image Processing
Course Unit Code	**EE 463**
Type of Course Unit	Elective Course
Level of Course Unit	First Cycle
National Credits	3
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	1
Year of Study	4
Semester when the course unit is delivered	Fall/Spring
Course Coordinator	Assist. Prof. Dr. Kamil Dimililer
Name of Lecturer (s)	Assist. Prof. Dr. Kamil Dimililer
Name of Assistant (s)	Çağrı Özkan
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	EE 341
Recommended Optional Programme Components	

Course description:

Discrete-time signals and systems. Realization of discrete-time systems. Discrete Fourier transform. FIR and IIR filters. Cyclic limit. Synthesis of filters. Bilateral transform. Windowing. Image processing techniques. Image recognition. Noise sensitivity and scaling. Edge detection.

Objectives of the Course:

- Teaching the basics of image processing
- To illustrate the basic applications of image processing using Matlab.
- To give the principles of image enhancement approaches

At the end of the course the student should be able to		Assessment
1	Analyze theoretical and practical basics of image processing	1
2	To write programs for image processing applications using Matlab	2,5
3	Develop real life applications of image processing	2,5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	4
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	5
3	Ability to design electric and electronic devices and products.	1

4	Ability to work with multi-disciplinary engineering sciences.	2
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	3
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and Product development.	4

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		Introduction	
2		Discrete-time signals and systems	
3		Discrete-time signals and systems	
4		Image Acquisition, Image Sampling and Quantization	
5		Point, Local and Global Operations	
6		Introduction to Image Enhancement	
7		Image Enhancement Applications	
8			Midterm
9		Image Enhancement Applications	
10		Basics of Image Binarization	
11		Applications of Image Binarization	
12		Introduction to Morphological Image Processing	
13		Introduction to Morphological Image Processing	
14		Examples, Review of the Semester	
15		Examples, Review of the Semester	
16			Final

Recommended Sources

Textbook:

Digital Image Processing by Gonzalez and Woods, A Simplified Approach to Image Processing by Randy Crane.

Lab Manual:

-

Supplementary Course Material

Assessment

Attendance	-	
Assignments	5%	
Lab	20%	Lab Attendance, Lab Performance, Assignments
Midterm Exam	25%	Written Exam
Final Exam	50%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for

Undergraduate Studies			
Course Policies • Attendance to the course is necessary but not mandatory. • Late assignments will not be accepted unless an agreement is reached with the lecturer. • Cell phones and computers must be switched off during the exam. • Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations. • Attacks performed against University/lecturer resources are expressly prohibited.			
ECTS allocated based on Student Workload			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials	20	1	20
Assignment	2	4	8
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination Study	1	10	10
Final Examination Study	1	21	21
Self Study	14	4	56
Total Workload			179
Total Workload/30(h)			5.97
ECTS Credit of the Course			6

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Programmable Logic Controllers
Course Unit Code	**EE 470**
Type of Course Unit	Elective
Level of Course Unit	4 th year B.Sc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	4
Semester when the course unit is delivered	8
Course Coordinator	Assoc. Prof. Dr. Özgür Cemal Özerdem
Name of Lecturer (s)	Assoc. Prof. Dr. Özgür Cemal Özerdem
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	EE 315, EE 331
Recommended Optional Program Components	-

Course description:
Conventional relay system, contact logic, PLC Structure, operating system, Ladder and Statement list programming \ releasing basic logic functions by PLC, PLC communication, applications.

Objectives of the Course:
Introduction to programmable logic controllers

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Having idea about the PLC programming	1,5
2	Use of PLC in automation	1,5
3	Able to write automation programs for industry	1,5
4	Model any industrial place and machinery control	1,5

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	4
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	5
3	Ability to design electric and electronic devices and products.	5
4	Ability to work with multi-disciplinary engineering sciences.	4
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	3
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2

8	Be able to use engineering techniques, skills, and tools for practice and product development.	5

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		Conventional relay system	
2		Contact logic	
3		PLC Structure	
4		operating system	
5		Ladder	
6		Statement list programming	Quiz
7			Midterm Examination
8		releasing basic logic functions by PLC	Assignment of projects
9		PLC communication	
10		applications	
11		Computer lab implementations	Quiz
12		Computer lab implementations	
13		Presentations	
14			Final Examination
15			

Recommended Sources

Textbook:

Programmable Logic Controllers, Principles and Applications, John. W. Webb, Ronald A. Reis, Prentice Hall International

Supplementary Course Material

Programmable Logic Controllers, J. R. Hackworth, F. D. Hackworth, Prentice Hall International

Assessment

Short Quizzes	15%	
Laboratory	15%	
Midterm Exam	30%	
Final Exam	40%	
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	3	45
Labs and Tutorials	6	2	12
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	2	2	4
Midterm Examination	1	15	15
Final Examination	1	20	20
Self Study	14	4	56
Total Workload			152
Total Workload/30(h)			5.06
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Power System Analysis I
Course Unit Code	**EE471**
Type of Course Unit	Elective
Level of Course Unit	4rd year BSc program
National Credits	3
Number of ECTS Credits Allocated	4
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	4
Semester when the course unit is delivered	7
Course Coordinator	-
Name of Lecturer (s)	Assoc. Prof. Dr. Timur Aydemir
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	EE 331
Recommended Optional Program Components	-

Course description:
Introduction to power systems line parametres; inductance and capacitance of transmission lines.Short, medium and long length lines; current and voltage relations.Electrical characteristics of transformers and generators.Per-unit quantities.System modelling. Symmetrical three-phase faults. Selection of circuit breakers.

Objectives of the Course:
Introduction to transmission lines and power system modeling

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Understanding the calculation of line parameters and representation of transmission lines	1
2	Learning current and voltage relations on a transmission line	1
3	Understanding basic concepts of system modelling of power systems and symmetrical fault analysis methods.	1

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	3
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	4
4	Ability to work with multi-disciplinary engineering sciences.	5
5	Ability to identify and solve problems using technical literature for research tasks and system design.	3

6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and product development.	3

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		Introduction to power systems line parametres	
2		inductance of transmission lines.	
3		capacitance of transmission lines.	End of Chapter assignment questions
4		Short, medium length lines	End of Chapter assignment questions
5		long length lines	End of Chapter assignment questions
6		current and voltage relations	Quiz
7			Mid Term Examination
8		Electrical characteristics of transformers and generators	
9		Per-unit quantities	
10		System modelling.	End of Chapter assignment questions
11		Symmetrical three-phase faults	Quiz
12		Symmetrical three-phase faults	End of Chapter assignment questions
13		Selection of circuit breakers	End of Chapter assignment questions
14			Final Examination
15			

Recommended Sources

Textbook:

1- Power System Analysis and Design, Glover, Sarma,Overbye, Cengage Learning
2- Elements of power system analysis: William D. Stevenson, J .McGraw-Hill, ISBN: 0-07-061278-1
3- Power System Analysis: John J. Grainger and William D. Stevenson, J. R. McGraw-Hill, ISBN: 0-07-061293-5

Supplementary Course Material

Assessment

Short Quizzes	20%	

Midterm Exam	35%	
Final Exam	45%	
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	3	45
Labs and Tutorials	-	-	-
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	1	4	4
Midterm Examination	1	10	10
Final Examination	1	15	15
Self Study	14	4	56
Total Workload			130
Total Workload/30(h)			4.33
ECTS Credit of the Course			4

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Power System Analysis II
Course Unit Code	**EE 472**
Type of Course Unit	Elective
Level of Course Unit	4 th year B.Sc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	4
Semester when the course unit is delivered	8
Course Coordinator	Prof. Dr. M. Sezai Dinçer
Name of Lecturer (s)	Prof. Dr. M. Sezai Dinçer
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	EE 471
Recommended Optional Program Components	Power engineering courses

Course description: Symmetrical components. Positive, negative and zero-sequence networks of power systems. Unsymmetrical faults on power systems; single line to ground, double line to ground and line to line fault analysis. Faults through impedances . Faulty operation of Circuit Breakers. Basic Load Flow Equations. Load flow analysis.

Objectives of the Course:

- To teach Symmetrical Components for analyzing unbalanced voltage and currentphasors
- To analyze Unbalanced Faults on Unloaded Generators
- To teach Unsymmetrical Fault Analysis on Power Systems.
- To study Load Flow on Power Systems.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Understand basic concepts of symmetrical components	1
2	Learn the Sequence Networks of Power Systems	1
3	Analyze Unsymmetrical Faults on Power Systems	1
4	Learn Basic Load Flow Equations and Load Flow Analysis	1
5		
6		
7		

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	4
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	3
3	Ability to design electric and electronic devices and products.	3

4	Ability to work with multi-disciplinary engineering sciences.	4
5	Ability to identify and solve problems using technical literature for research tasks and system design.	5
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	2
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and product development.	4

COURSE PLAN

Week	***Topics***
1	REVIEW OF POWER SYSTEM MODELLING ; Power System Elements, One Line Diagram, Reactance Diagrams
2	INTRODUCTION TO SYMMETRICAL COMPONENTS; Synthesis of unsymmetrical phasors , symmetrical components of unsymmetrical phasors, Phase shift of symmetrical components in Y-Δ Transformers. Power in terms of symmetrical components.
3	SEQUENCE IMPEDANCES AND SEQUENCE NETWORKS; Series impedances, sequence impedances of circuit elements, sequence networks of unloaded generator, Positive, negative zero-sequence networks.
4	INTRODUCTION TO UNSYMMETRICAL FAULTS; Single line to ground fault on an unloaded generator, line to line fault on an unloaded generator, Double line to ground fault on an unloade generator.
5	UNSYMMETRICAL FAULTS ON UNLOADED GENERATORS: Tutorial Problems
6	UNSYMMETRICAL FAULTS ON POWER SYSTEMS ; Positive , negative and zero sequence networks of power systems.
7	UNSYMMETRICAL FAULTS ON POWER SYSTEMS; Single line to ground , Double line to to ground and line to line faults
8	MIDTERM 1. (can be conducted during the midterm week)
9	FAULT CALCULATIONS OF POWER SYSTEMS; Tutorial Problems
10	FAULTY OPERATION OF CIRCUIT BREAKERS AND FAULTS THROUGH IMPEDANCES ; One-One phase, two-phase breaking, unsymmetrical faults through impedances
11	INTRODUCTION TO LOAD FLOW; Introduction, Power flow equations and the power flow problem.
12	LOAD FLOW ANALYSIS; Iteration schemes, accelerated Gauss-Seidel
13	LOAD FLOW ANALYSIS; Newton-Raphson Methods and applications
14	MIDTERM 2 , Course Review.

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

15 FINAL EXAM

Recommended Sources

Textbook:

- Power System Analysis: John J. Grainger and William D. Stevenson, J. R. McGraw-Hill, 1994 ISBN: 0-07-061293-5
- Power System Analysis and Design : JD Glover ,MS Sarma ,TJ Overbye Cengage Learning, 2012 ISBN-13-978-1-111-42579-1

Assessment

Attendance	%-	Strongly recommended
Assignment	%-	Tutorials are given
Midterm Exam	% 60	
Final Exam	%40	
Total	% 100	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	3	45
Labs and Tutorials	4	2	8
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	
Midterm Examination	2	15	30
Final Examination	1	15	15
Self Study	15	3	45
Total Workload			143
Total Workload/30(h)			143/30
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Power System Protection
Course Unit Code	**EE 473**
Type of Course Unit	Elective
Level of Course Unit	4 th year B.Sc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	4
Semester when the course unit is delivered	7
Course Coordinator	Prof. Dr. M. Sezai Dinçer
Name of Lecturer (s)	Prof. Dr. M. Sezai Dinçer
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	EE 471 recommended
Recommended Optional Program Components	Power engineering courses

Course description: Basic Concepts of Power System Protection Systems are studied. Topics are : Principles of Power System Protection. Current and Voltage Transformers. Over-current , differential and impedance protection systems. Transformer, generator and line protections

Objectives of the Course:

- To teach Basic concepts of protection for power systems
- To give information on Over-current, differential and impedance protection systems
- To study Generator , Transformer and Line Protection

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Understand basic concepts of power system protection	1
2	Learn Voltage and Current Transformers	1
3	Learn Over-Current, Differential and Distance Protection	1
4	Apply the protection systems to Generators , Transformers and Lines	1
5		
6		
7		

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	4
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	3
3	Ability to design electric and electronic devices and products.	4
4	Ability to work with multi-disciplinary engineering sciences.	3
5	Ability to identify and solve problems using technical literature for research tasks	5

	and system design.	
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	2
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and product development.	5

COURSE PLAN

Week	***Topics***	
1	INTRODUCTION TO POWER SYSTEMS PROTECTION; Faults and Abnormal Conditons on Power Systems. Basic Components of Protection Systems. Basic Requirements of Protection.	
2	POWER SYSTEM REPRESENTATION ; One Line Diagram of a Power System and the Reactance Diagram. Power System Elements and Zones of Protection.	
3	SHORT CIRCUIT CALCULATIONS; Symmetrical Faults and Short Circuit Currents. Calculation of short circuit MVA	
4	CIRCUIT BREAKERS; Types of Circuit Breakers. Momentary and Interrupting Currents . Selectio of Circuit Breakers.	
5	CURRENT TRANSFORMERS: Error calculation methods. Ratio and Phase Angle Errors . Protective Current Transformers and Composite Errors.	
6	VOLTAGE TRANSFORMERS; Electromagnetic type and Capacitive type voltage transformers. Accuracy o Voltage Transformers.	
7	OVER CURRENT PROTECTION; Introduction to Over Current protection and basic concepts	
8	MIDTERM 1. (can be conducted during the midterm week)	
9	OVER CURRENT PROTECTON; Inverse Time Characteristics, Time Grading and Back –up Protection.	
10	DIFFERENTIAL PROTECTION; Basic Concepts. Stability of Protection. Biased Differential Protection	
11	DISTANCE PROTECTION; Distance Protection Concepts, Reactance Relays. Directional Relays. Reaches of Protection for different zones and Line Protection.	v
12	GENERATOR PROTECTION; Application of Differential Protection. Detection of Earth Faults. Tur to Turn Fault detection of the stator winding. Protection against unbalanced loading due t one phase or two phase breaking.	
13	TRANSFORMER PROTECTION; Application of Differential Protection Systems. Earth Fault Protection. Protection against faults within the transformer tank.	
14	MIDTERM 2, Course Review.	

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

15 FINAL EXAM

Recommended Sources

- Protective Relaying Principles and applications: J. L. Blackburn, Marcel Dekker, New York, 1984
- Protection of Industrial Power Systems: T. Davies, Pergamon Press, 1988 ISBN: 0-08-029321-2
- Practical Power System Protection :L.G. Hewitson , M. Brown and R. Balakrishnan, Newnes , 2006 ISBN-13 978-0-7506-6397-7

Assessment

Attendance	%-	Strongly recommended
Assignment	%-	Tutorials are given
Midterm Exam	% 60	
Final Exam	%40	
Total	% 100	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

19.

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	3	45
Labs and Tutorials	4	2	8
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	
Midterm Examination	2	15	30
Final Examination	1	15	15
Self Study	15	3	45
Total Workload			143
Total Workload/30(h)			143/30
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	High Voltage Techniques I
Course Unit Code	**EE 475**
Type of Course Unit	Elective
Level of Course Unit	4 th year B.Sc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	4
Semester when the course unit is delivered	7
Course Coordinator	Prof. Dr. M. Sezai Dinçer
Name of Lecturer (s)	Prof. Dr. M. Sezai Dinçer
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	Consent of the instructor/advisor
Recommended Optional Program Components	Power engineering courses

Course description: Breakdown mechanisms in insulating materials are studied. Topics are;I-V characteristics of gases. Electron emission processes. Ionization and deionization. Townsend and Streamer breakdown mechanisms. Breakdown in electronegative gases. Corona discharges and loses. Breakdown mechanisms in solid and liquid insulations

Objectives of the Course:

- To teach the basic concepts of breakdown mechanisms in insulating materials
- To investigate pre-breakdown phenomena in gaseous insulation and partial discharges
- To teach Townsends and Streamer breakdown mechanisms
- To study breakdown in solid and liquid insulation.

Learning Outcomes

	At the end of the course the student should be able to	Assessment
1	Understand basic concepts of pre-breakdown and breakdown mechanisms in gaseous , liquid and solid insulation.	1
2	Learn the insulation systems used in practice	1
3	Design insulation systems for high voltage apparatus	1
4	Apply techniques to optimize an insulation system.	1
5		
6		
7		

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	4
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	4
4	Ability to work with multi-disciplinary engineering sciences.	4

5	Ability to identify and solve problems using technical literature for research tasks and system design.	4
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	2
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and product development.	4

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

COURSE PLAN

Week	***Topics***
1	GENERAL OVERVIEW OF HIGH VOLTAGE TECHNIQUES; Electrical Field Stresses , Gas and vacuum insulators. Liquid and Solid Insulators.
2	ELECTRON EMISSION MECHANISMS ; Photo-Electric emission , Field Emission , Thermionic Emissions
3	INTRODUCTION TO KINETIC THEORY OF GASES; Collision cross sections, free path and mean free path of particles. Distribution of Free Paths
4	IONIZATION; I – V characteristics, Ionization by electron collision, Townsend's first ionization coefficient, Secondary ionization coefficients.
5	TOWNSEND DISCHARGES; Breakdown Criteria and Pashen's Law. Calculation of Breakdown voltages.
6	ELECTRONEGATIVE GASES; Attachment processes and electron attachment coefficient. Ionization growth currents in electronegative gases.
7	BREAKDOWN MECHANISM IN ELECTRONEGATIVE GASES ; Limiting Pressure Reduced Fields. Ionization growth at the limiting electrical field. Breakdown voltage calculations.
8	MIDTERM 1. (can be conducted during the midterm week)
9	STREAMER BREAKDOWN; Space Charge Fields, Transition from Townsend to Streamer Breakdown mechanism. Lightning discharges.
10	CORONA DISCHARGES; Critical Corona Gradient, Positive and Negative Polarity Discharges. A.C Corona analysis.
11	SOLID DIELECTRICS; Intrinsic Breakdown Mechanisms. Electromechanical and Therma Breakdown. Breakdown of Solid Dielectrics in Practice. Cavity breakdown.
12	LIQUID INSULATION; Conduction and Breakdown in Liquid Dielectrics. Suspended Particle, Bubble Breakdown Mechanisms.
13	LIQUID INSULATION; Dielectric Properties of some Commercial Liquids. Purification of liquids and Breakdown Tests
14	MIDTERM 2, Course Review.
15	**FINAL EXAM**

Recommended Sources

Textbook:

- *High Voltage Engineering Fundamentals*, E. Kuffel and W.S. Zaengl Pergamon Press, 1984 ISBN: 0-08-024212-x 2.
- *High Voltage Engineering Fundamentals*: E. Kuffel , WS Zaengle and J. Kuffel .Elsevier ,2006, ISBN 0 7506 36343

Assessment

Attendance	%-	Strongly recommended
Assignment	%-	Tutorials are given
Midterm Exam	% 60	
Final Exam	%40	
Total	% 100	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

20.

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	3	45
Labs and Tutorials	4	2	8
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	
Midterm Examination	2	15	30
Final Examination	1	15	15
Self Study	15	3	45
Total Workload			143
Total Workload/30(h)			143/30
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	High Voltage Techniques II
Course Unit Code	**EE 476**
Type of Course Unit	Elective
Level of Course Unit	4 th year B.Sc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	Lab Demo (4 hours)
Year of Study	4
Semester when the course unit is delivered	8
Course Coordinator	Prof. Dr. M. Sezai Dinçer
Name of Lecturer (s)	Prof. Dr. M. Sezai Dinçer
Name of Assistant (s)	-
Mode of Delivery	Face to Face with tutorials and lab demo
Language of Instruction	English
Prerequisites	Consent of the instructor/advisor
Recommended Optional Program Components	Power engineering courses

Course description: Insulation overvoltage-tests are studied . Topics include: generation of high, direct, alternating, and impulse voltages. Voltage multiplier circuits.
Resistive, capacitive and mixed high-voltage dividers. Sphere gaps and high voltage measurement techniques.

Objectives of the Course:

- To give the basic information on internal and external over-voltages developed on the power system.
- To teach High A.C ,DC and Impulse voltage generation techniques
- To teach measurements of high voltages
- To give information on high voltage insulation tests required in practice

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Understand basic concepts of high voltage generation techniques	1
2	Learn the measurement methods for high voltages	1
3	Understand the development of over-voltages on practical systems	1
4	Learn insulation testing methods for a high voltage apparatus.	1
5		
6		
7		

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	4
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	4
3	Ability to design electric and electronic devices and products.	5

4	Ability to work with multi-disciplinary engineering sciences.	4
5	Ability to identify and solve problems using technical literature for research tasks and system design.	4
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	2
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and product development.	5

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

COURSE PLAN

Week	***Topics***
1	GENERAL OVERVIEW OF HIGH VOLTAGE TECHNIQUS ; A.C and D.C Power Systems, Power System Elements and Insulation Tests. Maximum System Voltages and A.C Withstand and Impulse Voltage Tests.
2	OVER VOLTAGES ON POWER SYSTEMS; Over voltages due to internal and external causes. Impuls and Switching over voltages produced on the transmission system.
3	GENERATON OF HIGH D.C VOLTAGES; High voltage rectifier circuits and charge generation, transportation and charge collection systems for D.C High Voltage generation.
4	COCKROFT -WALTON MULTIPLIER; Design of a Multistage Voltage multiplier. Ripple, Voltage Regulation and High Voltage Output calculations.
5	ELECTROSTATIC GENERATORS;
6	GENERATION OF HIGH A.C VOLTAGES ; A.C High Voltage Test Transformers, Cascaded Transformer Units for High A.C Voltage generation
7	GENERATION OF IMPULSE VOLTAGES; Single Stage Impulse Voltage Generator, Equivalent Circuit of an Impulse Generator. Multistage Impulse Generators. Impulse Generator Firing Systems.
8	MIDTERM 1. (can be conducted during the midterm week)
9	HIGH VOLTAGE DIVIDERS ; Resistive, Capacitive and Mixed High Voltage Dividers
10	MEASUREMENTS OF HIGH IMPULSE, AC AND D.C VOLTAGES; Sphere Gap Characteristics, Impulse Peak and Electrostatic Voltmeters.
11	HIGH VOLTAGE LAB EXPERIMENTS
12	HIGH VOLTAGE LAB EXPERIMENTS
13	INTRODUCTION TO INSULATION COORDINATION; Characteristics of External Insulation and Long Gaps, Travelling over voltage waves, Switching Surges and lightning over voltage waves.
14	MIDTERM 2, Course Review.
15	**FINAL EXAM**

Recommended Sources

Textbook:

- *High Voltage Engineering Fundamentals*, E. Kuffel and W.S. Zaengl Pergamon Press, 1984 ISBN: 0-08-024212-x 2.
- *High Voltage Engineering Fundamentals*: E. Kuffel , WS Zaengle and J. Kuffel .Elsevier, 2006, ISBN 0 7506 36343

Assessment

Attendance	%-	Strongly recommended(Lab demo should be attended)
Assignment	%-	Tutorials are given
Midterm Exam	% 60	
Final Exam	%40	
Total	% 100	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	3	45
Labs and Tutorials	4	2	8
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	
Midterm Examination	2	15	30
Final Examination	1	15	15
Self Study	15	3	45
Total Workload			143
Total Workload/30(h)			143/30
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Illumination Engineering
Course Unit Code	**EE 492**
Type of Course Unit	Elective
Level of Course Unit	4rd year BSc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	4
Semester when the course unit is delivered	7
Course Coordinator	-
Name of Lecturer (s)	Assoc. Prof. Dr. Özgür Cemal Özerdem
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	EE 331
Recommended Optional Program Components	-

Course description:
Basic concepts and laws of illumination, types of lamps, interior and external illumination calculations, installation calculations for cable cross sections and the voltage drop, calculating the circuit breaker values and designing the electrical board, symbols and planning.

Objectives of the Course:
Concepts of illumination engineering

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Know about the system of units, charge, current, voltage and power	1,5
2	Apply Kirchhoff's current and voltage laws and Ohm's law to circuit	1,5
3	Simplify circuits using series and parallel equivalents and using Thevenin and Norton equivalents	1,5
4	Perform node and loop analyses	1,5
5	Identify*andmodel* first and second order electric systems involving capacitors and inductors	1,5
6	Prove the theorems and laws studied, in the laboratories and improve the practical abilities	1,5
7		

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	4
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	5
3	Ability to design electric and electronic devices and products.	5

4	Ability to work with multi-disciplinary engineering sciences.	5
5	Ability to identify and solve problems using technical literature for research tasks and system design.	2
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	4
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and product development.	5

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		Basic concepts and laws of illumination	
2		Basic concepts and laws of illumination	
3		Types of lamps	
4		interior and external illumination calculations	
5		interior and external illumination calculations	Assignment of project
6		Analysis methods	
7			Mid Term Examination
8		installation calculations for cable cross sections	Home Work
9		installation calculations for cable cross voltage drop	
10		AUTOCAD introduction in computer lab	
11		calculating the circuit breaker values	Quiz
12		designing the electrical board	Home Work Assignment
13		symbols and planning	
14		symbols and planning	
15			Final Examination

Recommended Sources
Textbook:
Lecture Notes

Supplementary Course Material

Assessment

Project	10%	
Laboratories	0%	
Short Quizzes	10%	
Midterm Exam	35%	
Final Exam	45%	
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for

Undergraduate Studies			
Course Policies			
ECTS allocated based on Student Workload			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	15	3	45
Labs and Tutorials	2	2	4
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	15	15
Final Examination	1	20	20
Self Study	14	4	56
Total Workload			140
Total Workload/30(h)			4.67
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Management for Engineers
Course Unit Code	**MAN 402**
Type of Course Unit	Free Elective
Level of Course Unit	4rd year BSc program
National Credits	3
Number of ECTS Credits Allocated	5
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	3
Semester when the course unit is delivered	5
Course Coordinator	Assist. Prof. Dr. Besime Erin
Name of Lecturer (s)	Assist. Prof. Dr. Besime Erin
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	
Recommended Optional Programme Components	Basic management skills

Course description:
Principles of management. Functions of managers. Organization and the environment. Marketing management. Production management. Personnel management. Managerial control. Accounting and financial reports. Budgeting and overall control.

Objectives of the Course:

- Discuss principles of management
- Discuss functions of managers
- Discuss organization and environment
- Discuss marketing, production and personnel management
- Discuss marketing control
- Discuss accounting and financial reports
- Discuss budgeting and overall control

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Develop a thorough understanding on management principles	1
2	Develop a thorough understanding on budgeting principle	1
3	Developing presentation skills	3,4

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5.Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand electrical engineering related events	3
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	1
3	Ability to design electric and electronic devices and products.	1
4	Ability to work with multi-disciplinary engineering sciences.	3
5	Ability to identify and solve problems using technical literature for research tasks and system design.	1
6	Be able to understand professional, ethical responsibilities and standards of	1

	engineering practice.	
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	1
8	Be able to use engineering techniques, skills, and tools for practice and product development.	1

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1		Principles of management	
2		Functions of managers	
3		Organisation and Environment	
4		Marketing management	
5		Production Management	
6		Personnel management	Midterm
7		Managerial control	
8		Accounting and Financial reports	
9		Budgeting and overall control	
10		PRESENTATIONS	Final

Recommended Sources

Textbook:
Management: Concepts, Practices and Skills R.Wayne Mondy, Shane R.Premeaux

Supplementary Course Material

- Managing Engineering and Technology, Daniel L. Babcock

Assessment

Attendance	10%	Less than 25% class attendance results in NA grade
Project Presentation	20%	
Midterm Exam	30%	Written Exam
Final Exam	40%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

- Attendance to the course is mandatory.
- Late assignments will not be accepted unless an agreement is reached with the lecturer.
- Students may use calculators during the exam.
- Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials	-	-	-
Assignment	-	-	-
Project/Presentation/Report	1	2	2
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	15	15
Final Examination	1	15	15
Self Study	14	3	42
Total Workload			138
Total Workload/30(h)			4,6
ECTS Credit of the Course			5

BSc. program, Electrical and Electronic Engineering Department

Course Unit Title	Engineering Economy
Course Unit Code	**ECON 431**
Type of Course Unit	Compulsory
Level of Course Unit	4th year BSc program
National Credits	3
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	4
Semester when the course unit is delivered	5
Course Coordinator	Assist. Prof. Dr. Besime Erin
Name of Lecturer (s)	Assist. Prof. Dr. Besime Erin
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	None
Recommended Optional Programme Components	Basic engineering economy

Course description:
Principles and economic analysis of engineering decision making. Cost concept. Economic environment. Price and demand relations. Competition. Make-versus-purchase studies.
Principles and applications of money-time relationships. Depreciation. Money and banking. Price changes and inflation. Business and company finance

Objectives of the Course:

- Discuss principles and economic analysis of decision making
- Discuss cost concepts, make-versus-purchase studies
- Analyze principles of money-time relationships
- Work on cash flow analysis
- Analyze application of money-time relations
- Analyze supply and demand relations
- Analyze price and demand relations
- Analyze breakeven point analysis and effects of inflation on money-time relationships

Learning Outcomes

	At the end of the course the student should be able to	Assessment
1	Develop a thorough understanding on engineering decision making	1
2	Understand the principles of economic analysis of design process	1
3	Understand the different costs(fixed cost, variable cost, direct cost, indirect cost, standard cost and opportunity cost)	1
4	Realize the money-time relationships	1
5	Realize applications of money time relationships	1
6	Understand price changes and inflation	1
7	Understand price and relations using graphical approach	1

Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work

Course's Contribution to Program

		CL
1	Ability to apply mathematics, science, and engineering knowledge to understand	2

	electrical engineering related events	
2	Ability to design and conduct experiments, and computer simulations, and be able to analyze data.	1
3	Ability to design electric and electronic devices and products.	1
4	Ability to work with multi-disciplinary engineering sciences.	2
5	Ability to identify and solve problems using technical literature for research tasks and system design.	1
6	Be able to understand professional, ethical responsibilities and standards of engineering practice.	2
7	Be able to understand the effect of engineering in a global, economic, environmental, and societal setting.	2
8	Be able to use engineering techniques, skills, and tools for practice and product development.	1

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Exam
1	1	Foundations of Engineering Economy	
2	2	Factors: How time and Interest Affect Money	
3	4	Nominal and Effective Interest rates	
4	5	Present-worth Analysis	
5	6	Annual-worth Analysis	
6	6	Future-worth Analysis	
7			Midterm
8	13	Breakeven Analysis	
9	14	Effects of inflation	
15			Final

Recommended Sources

Textbook:

Leland Blank, Anthony Tarquin, Engineering Economy, 6th edition, McGrawHill.

Assessment

Attendance	10%	Less than 25% class attendance results in NA grade
Midterm Exam	40%	Written Exam
Final Exam	50%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

5. Attendance to the course is mandatory.
6. Late assignments will not be accepted unless an agreement is reached with the lecturer.
7. Students may use calculators during the exam.
8. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials	-	-	-
Assignment	1	4	20
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	15	15
Final Examination	1	15	15
Self Study	14	3	42
Total Workload			156
Total Workload/30(h)			5.2
ECTS Credit of the Course			6