NEAR EAST UNIVERSITY

DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING

POSTGRADUATE

MODULE HANDBOOK

Version:07.10.2016

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Faculty of Engineering Department of Electrical & Electronic Engineering Study Plan (MSc.)

First Year

First Year, Fall Semester (9/9 credits, 30/30 ECTS)				
Course Code	**Course Name**	**Credit**	**ECTS**	**Prerequisite**
EE 5xx	Elective Course	3	10	Graduate Standing
EE 5xx	Elective Course	3	10	Graduate Standing
EE 5xx	Elective Course	3	10	Graduate Standing

First Year, Spring Semester (9/18 credits, 30/60 ECTS)				
Course Code	**Course Name**	**Credit**	**ECTS**	**Prerequisite**
EE 5xx	Elective Course	3	10	Graduate Standing
EE 5xx	Elective Course	3	10	Graduate Standing
EE 5xx	Elective Course	3	10	Graduate Standing

Second Year

Second Year, Fall Semester (3/21 credits, 35/95 ECTS)				
Course Code	**Course Name**	**Credit**	**ECTS**	**Prerequisite**
EE 5xx	Elective Course	3	10	Graduate Standing
EE 500	Master's Thesis	-	25	-

Second Year, Spring Semester (0/21 credits, 56/126 ECTS)				
Course Code	**Course Name**	**Credit**	**ECTS**	**Prerequisite**
EE 500	Master's Thesis	-	25	-
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Academic Regulations For Graduate Studies

Article 1 – The purpose of these regulations is to govern graduate studies at Near East University.

Article 2: Definitions– The terms and abbreviations used in these regulations are as follows:

a) Graduate School: Graduate School of Educational Sciences, Graduate School of Social Sciences, Graduate School of Natural Sciences, and Graduate School of Health Sciences at Near East University.

b) Graduate School Board: The board chaired by the Graduate School Director and comprised of the Graduate School Assistant Director and Department Chairpersons.
c) Graduate School Administrative Board: The board chaired by the Graduate School Director and comprised of the Graduate School Assistant Director and three members of the faculty elected by the Graduate School Board for a three years term.

ç) Department: The academic units having graduate programs affiliated with the Graduate School.

d) Department Chairperson: The head of the academic unit mentioned in the Clause (d).

e) Department Academic Board: The board comprised of the tenured full or associate professors, assistant professors and instructors in the graduate program of the Department.

f) Supervisor: The member of the faculty appointed by the Graduate Administrative Board in order to act as a guide to students enrolled in the Graduate School.

g) Co-supervisor: The member of the faculty at Near East University or other institutions of higher education appointed by the Graduate Administrative Board in order to co-supervise a

student of Graduate School whose thesis subject requires more than one supervisor; an instructor in a graduate program or an expert practitioner prominent in his/her area.

ğ) Semester: A period of study lasting at least 70 (seventy) working days (except Sundays, official holidays and exam days), the start and end of which is determined each academic year by the Graduate School Board. Refers to fall and spring semesters.

h) Student: Holders of bachelor's or master's degree enrolled in the Graduate School.

ı) Graduate Study: Master's program with thesis, master's program without thesis and doctoral study.

i) Thesis: A scientific study required to obtain master's or doctoral degree.

j) Term Project: A report containing the results of a research/study on a specific topic prepared by a candidate for master's degree without thesis.

k) Seminar: A written work on a specific topic prepared and orally presented by graduate students and assessed by the course instructor.

l) Academic Calendar: A schedule of events and deadlines for each academic year.

m) Credit System: The National credit system in which one hour of theoretical course or two hours of practicum is equal to one credit or the system of awarding credits for courses, practicums and other educational activities according to the European Credit Transfer System (ECTS) scale. Credit system is regulated by directive.

n) Qualifying Examination: The examination that assesses doctoral students' competency in scientific reasoning, scientific methods, and independent research.

o) Thesis Monitoring Committee: The Committee comprised of at least three faculty members, including the thesis supervisor, in charge of guiding and supervising doctoral student's thesis study.

Article 3: Admission of Students – Admission to graduate programs is based on applicants' academic success in the undergraduate and/or master's program and their Academic Personnel and Graduate Study Entrance Examination (ALES) score. Also, all applicants, with the exception of applicants for master's programs without thesis, must provide proof of foreign language proficiency.

The required ALES scores and score categories are decided by the Graduate School Administrative Board upon the recommendation of the Department Academic Board.

Bachelor's and master's degrees required to be eligible for admission to master's and doctoral programs are decided by the Senate upon the recommendation of the Graduate School Administrative Board.

a) Applicants to the master's programs with or without thesis must meet the following requirements:

Degree and cumulative grade point average: Applicants must have a bachelor's degree with a cumulative grade point average above the limit set by the Department.

ALES score: Applicants must have a minimum ALES score of 55 (fifty five) in the category determined by the department. ALES score may not be required of applicants from countries other than Turkey, including the Turkish Republic of Northern Cyprus or other countries.

Foreign Language Proficiency Examination: Applicants must earn a minimum score of 60 (sixty) out of 100 (one hundred) on the language proficiency examination for graduate students conducted by theDepartment of English Language Teaching at NEU. Foreign Language Proficiency Examination is not required for admission to master's programs without thesis unless decided otherwise by the Graduate School Administrative Board or Graduate School Board upon the recommendation of the Department Academic Board.

In case it is required, candidates may be exempt from the foreign language (English) proficiency examination according to the Clause (b) of the Article 7.

Assessment: The assessment of applications for master's programs is based on the ALES score, the undergraduate cumulative grade point average, and the written examination and interview conducted by the Department.

The breakdown of percentages will be as follows: 40% for the ALES score, 10 % for the undergraduate cumulative grade point average, and 50% for the written examination and interview. Applicants who obtain a minimum score of 55 will be ranked in order by the decision of the Graduate School Administrative Board upon the recommendation of the Department Chairperson.

Interview consists of an oral evaluation, taking into consideration the letter of recommendation and the letter of intent submitted by the applicant.

b) Applicants to the doctoral programs must meet the following requirements: Degree and cumulative grade point average: Applicants must have a bachelor's or master's degree. Graduates of master's programs with thesis must have a minimum cumulative grade point average of 80 (eighty) over 100 (one hundred) or 3.00 over 4.00. Foreign Language Proficiency Examination: Applicants to doctoral programs must earn a minimum score of 70 (seventy) out of 100 (one hundred) on the language proficiency examination for graduate students conducted by the Department of English Language Teaching at NEU. Applicants may be exempt from the foreign language proficiency examination according to the Clause (b) of the Article 7.

Assessment: The assessment of applications for doctoral programs is based on the ALES score, the undergraduate and/or graduate cumulative grade point average, and the interview result. Interview consists of an oral evaluation, taking into consideration the letter of recommendation and the letter of intent submitted by the applicant.

c) Graduates of master's programs without thesis are eligible to apply for doctoral programs on condition that they have obtained a minimum graduate cumulative grade point average of

85 (eighty five) over 100 (one hundred) and have met the requirements for admission to master's program with thesis. They will first be admitted to a master's program with thesis and will be required to have completed their thesis study.

d) The President's Office at Near East University will announce through newspaper advertisements the names of the graduate programs accepting applications, the documents required for application, the deadline, etc. The announcement calling for applications will be made at the beginning of each semester.

Article 4: Admission to the Academic Preparation Program – a) The Academic Preparation Program may be applied to compensate for the deficiencies of the following categories of applicants to the master's and doctoral programs:
i. Applicants who hold a bachelor's degree from a field other than that of the master's or doctoral program applied to,

ii. Applicants for a master's program who hold a bachelor's degree from an institution of higher education other than Near East University,

iii. Applicants for a doctoral program who hold a bachelor's or master's degree from an institution of higher education other than Near East University,

iv. Applicants for a doctoral program who hold a bachelor's or master's degree from a field other than that of the doctoral program applied to.

b) Students are admitted to the Academic Preparation Program in accordance with the conditions stipulated in the Clauses (a) and (b) of the Article 3.

c) Compulsory courses in the Academic Preparation Program cannot be substituted for the courses necessary for completion of the concerned graduate program. However, students attending the Academic Preparation Program can take graduate courses besides academic preparation courses upon the recommendation of the Department Chairperson and approval of the Administrative Committee of the Graduate School.

ç) Students attending the Academic Preparation Program are subject to the regulations of the program where they take courses in terms of attendance, examinations, grades, requirements for passing courses, repeating courses, withdrawal, etc. Students enrolled in Academic Preparation Program must have earned a cumulative grade point average which is foreseen by the related department

Article 5: Admission of Special Students– Graduates or students of an institution of higher education who want to develop their knowledge of a particular subject may be allowed to take graduate courses as special students upon the recommendation of the Department Chairperson and approval of the Graduate School Administrative Board. Special students cannot enjoy the rights and privileges granted to regular students. No minimum cumulative grade point average or entrance examination is required for admission of special students. Special students must fulfil their obligations to the University and meet all the requirements of the courses they take just like regular students.

Should a special student be admitted into a graduate program, a maximum of one-fourth of the total credits earned from the courses taken in the last four semesters and related to the Department or field of study may count toward the program, depending upon the recommendation of the Department Chairperson and approval of the Graduate School Administrative Board.

Article 6: Admission through Transfer– Students who have successfully completed at least one semester in a graduate program at the University or at any other institution of higher education may apply for transfer to another graduate program. The decision about applications for transfer meeting the admission requirements set by the Senate is made by the Graduate School Administrative Board upon the positive and reasoned recommendation of the Department. A maximum of 2/3 of the courses taken at the previous institution can be transferred. Students who are at the stage of writing their master's thesis or who have already passed the doctoral qualifying examination cannot apply for transfer.

Article 7: Application to Graduate Programs– Candidates will apply to the Graduate School director within the application deadline, specifying the program applied to and submitting the ALES score, foreign language certificate and other documents required by the

Graduate School. Besides the application form, applicants to master's programs must attach their bachelor's diploma and applicants to doctoral programs their master's and bachelor's diplomas and their transcripts. Master's degree transcripts should state whether the program is with or without thesis. A certificate of equivalence issued by the YÖK or YÖDAK may be required for degrees earned in foreign countries.

Applicants to graduate programs may also be required to attach to the application form other documents and notices such as letters of recommendation and letter of intent.

Article 8: Exemptions– a) ALES score: Applicants who have a minimum score of 950 total points on the quantitative and verbal sections, and a minimum score of 3.5 on the analytical writing section, of "Graduate Record Examination" (GRE) or who have a minimum score of 450 points on "Graduate Management Admission Test" (GMAT) may be exempt from the ALES. The ALES equivalent of above-mentioned scores will be determined by the Senate upon the recommendation of the Graduate School.

b) Foreign Language: Applicants who fulfil one of the following conditions will be exempt from the foreign language (English) proficiency examination required by the Graduate School for applications:

1. Applicants who have obtained a minimum score of 60 (sixty) on the language (English) proficiency examination for graduate students conducted by the Department of English Language Teaching at NEU within the last two years,

2- Applicants who have a minimum score of 50 (fifty) on the Inter-university Board Foreign Language Examination (ÜDS) or on the Foreign Language Proficiency Examination for State Employees (KPDS) or an equivalent score on any other English Proficiency Examination recognized internationally.

3. In the case of the departments where the language of instruction is Turkish, applicants who are able to prove their proficiency in an internationally recognized foreign language.

Article 9: Assessment of Applications– The Graduate School Administrative Board sets up an examining committee with a minimum of three members from among the faculty members recommended by the Department Chairperson in order to assess the applications for graduate programs and to interview the candidates. The examining committee will rank the candidates in order according to the criteria specified in the Clauses (a), (b), and (c) of the Article 3, and will submit the list of candidates selected for admission to the Graduate School in accordance with the quota. Admission will be finalized by the Graduate School Administrative Board. The result of the assessment will be announced by the Graduate School Director.

Article 10: Final Registration– Final registration: Applicants who are admitted to graduate programs must complete their registration process by submitting the following documents within the time period announced by the Graduate School. All the documents should be original or attested copies. When it has been determined that applicant has submitted forged or altered documents or cheated on the entrance examinations, his/her registration will be cancelled.

a) A certificate of equivalence issued by the YÖK or YÖDAK for degrees earned in foreign countries,

b) A copy of the ALES score or its equivalent,

c) A certified copy of the student's educational record including the cumulative grade point average (transcript),

ç) A copy of the score on the foreign language (English) proficiency examination for graduate students conducted by NEU or of its equivalent,

d) A certified copy of the identity card,

e) Residence permit,

f) 6 recently taken, passport sized photographs (no colour glasses, headscarves or beards allowed),

g) A certificate of status for research assistants at NEU or other universities.

Article 11: Registration Renewal – Graduate students must renew their registrations with the Graduate School at the beginning of fall and spring semesters within the time periods announced in the academic calendar.

Students who have not paid tuition fees cannot renew their registrations nor can they obtain such documents as transcript, certificate of status, internship letter and military service record.

Students who fail to renew their registrations for a particular semester without an excuse reasonable and valid according to the rules set by the Senate will be deemed to have failed all the courses of that semester. If they are at the thesis stage, they will be considered to have failed that semester by the supervisor/Thesis Monitoring Committee. The semester for which such a student is not registered is included in the calculation of maximum period of study. Students who have not renewed their registrations will be subject to the Clause (k) of the Article 16.

Article 12: Examinations and Assessment– The credit value of a graduate course is the sum of the weekly theoretical course hours plus half of the weekly laboratory and practicum hours.

Policies regarding the use of such credit systems as the European Credit Transfer System (ECTS) in the assessment of graduate courses, practicums and other educational activities are made by the Graduate School Administrative Board.

To be able to take examinations, students must have successfully attended 70% of the theoretical courses and 80% of the practicums and/or other educational activities. A satisfactory score on midterm examinations may also be required by the decision of the Graduate School Administrative Board.

Article 13: Academic Assessment and Grades– Mid-term examinations and other semester works for graduate courses and their percentage towards the final grade will be determined by the Department Academic Board. They will be announced to the students at the beginning of each semester; and the scores earned will be included in the final grade.

Final examinations of graduate courses will be assessed over 100 (one hundred) full points by the faculty member(s) carrying out the exam. In order to pass the final exam, master's students must earn a minimum score of 70 (seventy), and doctoral students a minimum score of 80 (eighty) out of 100 (one hundred) points.

Cumulative grade point average must be 80 (eighty) over 100 (one hundred) or 3.00 (three) over 4.00 (four) to earn a master's or doctoral degree.

Re-sit examination will not be offered for a failed graduate course. Students may repeat a failed course or replace it with another course equal in credit value within the maximum period allowed for taking courses. They may also be allowed to repeat a passed course in order to increase their cumulative grade point average by the decision of the Graduate School Administrative Board.

The letter grades, coefficients and percentage equivalents are given below.

Percentage	Course Grade	Coefficient
90-100	AA	4.0
85-89	BA	3.5
80-84	BB	3.0
75-79	CB	2.5
70-74	CC	2.0
65-69	DC	1.5
60-64	DD	1.0
50-59	FD	0.5
49 and below	FF	0

The table drawn by the Graduate School Administrative Board will be used in grading according to the European Credit Transfer System (ECTS) scale.

The grade DZ (Not Attended) is issued by the instructor when students fail to satisfy the requirements of attendance and course practices. The grade (DZ) is computed as equivalent to (FF) in calculating the grade point average.

The grade Satisfactory (BŞ) is given to students who successfully continue their thesis study; and the grade Unsatisfactory (BŞZ) is given to students who fail to continue their thesis study. The assessment of students' progress will be based on the report of the Thesis Monitoring Committee in doctoral programs; and on the opinion of the thesis supervisor in master's programs. Also, the special study courses are graded Satisfactory (BŞ) or Unsatisfactory (BŞZ).

The letter grades DZ and BŞ are not included in the cumulative grade point average. In the transcripts prepared in English, they will be coded as DZ (Not Attended) and S (Satisfactory) respectively.

Article 14: Grade Point Average– A student's academic standing is determined by calculating the general grade point average at the end of each semester. 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 is based on all courses taken since admission to the graduate program to meet the minimum course load stipulated by the regulations. The most recent grade earned in a repeated course is used in computing the cumulative grade point average. All grades are shown on the student's transcript. Students whose cumulative grade point average is higher than 3.50 are listed as high honour students.

Article 15: Course Substitution– Policies regarding the substitution of courses and the transfer of credits obtained in the Summer School, special student program or a previous graduate program are determined by the Graduate School Board.

Article 16: Dismissal– Graduate students are dismissed from their programs for the following reasons:

a) If a student's cumulative grade point average is less than 2.00 at the end of the second or any of the following semesters,

b) If the minimum required course load specified by the Department is not completed within 4 (four) semesters by students in a master's program with thesis, within 6 (six) semesters by students in a master's program without thesis, and 4 (four) semesters by or doctoral students

c) If a doctoral student does not succeed in the KPDS, ÜDS, or any other relevant foreign language proficiency exam and/or is not able to meet the publication condition within the period stipulated by these regulations,

ç) If a doctoral student fails the doctoral qualifying examination twice,

d) If a doctoral student's thesis proposal is rejected three times,

e) If a student receives the letter grade "BŞZ" (unsatisfactory) for master's or doctoral thesis in two consecutive semesters or three non-consecutive semesters.

f) If a student's thesis is rejected by the examining committee,

g) If a student's corrected thesis is rejected by the examining committee,

h) If a student fails to complete the program in the specified time period,

ı) If a student is graded "BŞZ" (unsatisfactory) by the Thesis Monitoring Committee in two consecutive semesters or three non-consecutive semesters,

i) If a student fail to register for semesters twice without an excuse reasonable and valid according to the rules set by the Senate,

j) If a doctoral student who is admitted to the program with a master's degree and who has completed other requirements does not take the qualifying examination by the end of the eighth semester.

Article 17: MASTER'S PROGRAMSa) Master's program may be held in two ways: those requiring a thesis, and those not requiring a thesis. The Departments in which these programs will be offered are determined upon the recommendation of the Department Chairperson, the decision of the Graduate School Administrative Board, and the approval of the Senate. b) Transfers between master's program with thesis and master's program without thesis are allowed by the Graduate School Board upon the recommendation of the Department. Transfer from a master's program with thesis to the one without thesis requires the completion of additional credits, whereas the reverse requires the proof of foreign language proficiency. In both cases, students are granted an extension of a maximum of 2 (two) semesters to complete the requirements of the program they transferred to. A threshold grade point average for transfer may be required upon the approval of the Graduate School Administrative Board. Students must apply for transfer before the end of their fourth semester, and can transfer only once.

I. MASTER'S PROGRAM WITH THESIS

Article 18: Aim and Scope-The aim of the master's program with thesis is to enable students to acquire the ability to conduct scientific research leading to the acquisition, evaluation and interpretation of knowledge. A master's program with thesis is comprised of a minimum of seven courses, not being less than 21 credits, one seminar course, other educational activities and thesis study. The seminar course and thesis study are compulsory.

Students may take a maximum of two undergraduate courses on the condition that the courses have not been taken during the undergraduate program. Students may also take courses from other institutions of higher education upon the recommendation of the Department Chairperson and approval of the Graduate School Administrative Board.

The Graduate School Board may decide to offer compulsory or optional integrated courses of an interdisciplinary nature.

Article 19: Period of Study– The master's program with thesis must be completed within a minimum of three and a maximum of six semesters. However, students who have started thesis work at the third semester, may complete the master with thesis program in a shorter period of time.

Students who have completed the credit courses and the seminar course in three semesters but have not submitted their thesis and hence, have been unable to apply for their thesis defence by the end of their sixth semester may be granted an extension of a maximum of two semesters for the thesis defence upon the recommendation of the Department Chairperson and approval of the Graduate School Administrative Board.

Article 20: Appointment of Thesis Supervisor– The department proposes a thesis topic and supervisor to the Graduate School for each student of a master's program with thesis no later than the end of the student's second semester, taking into consideration his/her previous academic studies, area of interest and preferred supervisor. Thesis supervisor is proposed from among the members of the Department, other Departments or other institutions of higher education. The appointment of the thesis supervisor requires the approval of the Graduate School Administrative Board. If the student's thesis subject requires more than one supervisor, a co-supervisor may also be appointed.
The number of graduate students per supervisor is determined by the Graduate School Board, taking into account the nature of the Department.

In addition to all other academic and administrative tasks and workload, the thesis supervisor may offer a "Special Study Course" every semester following the one in which the thesis project is approved by the Graduate School Administrative Board. All Students must register for the Special Study course. Policies regarding the course are made by the Graduate School Board and applied by the Graduate School Administrative Board.

Article 21: Completing the Master's Thesis– A student enrolled in a master's program with thesis must submit his/her thesis in the format specified by the Graduate School Board and to defend it orally before an examining committee.

The thesis examining committee is appointed upon the recommendations of the Department Chairperson and approval of the Graduate School Administrative Committee. The examining committee consists of either three or five members, including the thesis supervisor and at least one member from a different department or from a different institution of higher education. In case it consists of three members, the co-supervisor cannot be a member of the committee. Having prepared their individual reports, the committee members conduct the thesis examination within one month after the thesis has been submitted. The thesis examination consists of a presentation of the thesis study, followed by a question and answer period. It takes 45 to 90 minutes and is open to the public.

Following the thesis defence, the examining committee decides by absolute majority to accept, reject, or require a revision of the thesis. The decision is submitted in written form by the Department Chairperson to the Graduate School within three days after the thesis examination. If the committee rejects the thesis, the student will be dismissed from the program. If the committee requires the student to revise the thesis, the student, after having made the necessary corrections, will defend the thesis again before the same committee within a maximum of three months. If the committee rejects the thesis after the second defence, the student will be dismissed from the program.

Article 22: Master's Degree Diploma– A student who has passed the thesis examination, completed all other requirements, and submitted at least four bound copies of the thesis to the Graduate School within one month after taking the thesis examination will be conferred the Master's Degree Diploma on condition that the thesis meets the format requirements.

The Master's Degree Diploma will bear the official name of the program completed and the title awarded (if applicable).

II. MASTER'S PROGRAM WITHOUT THESIS

Article 23: Aim and Scope– The aim of the master's program without thesis is to provide students with in-depth knowledge in a professional field and to show them how to use in practice the existing knowledge. The program consists of a minimum of ten courses, not being less than 30 credits in total, and a non-credit term project. The scope and conditions of the term project is determined by the Graduate School Board. The term project will be graded on a satisfactory/unsatisfactory basis. Students must register for the semester in which they take the term project and must submit a written report at end of that semester. Students enrolled in master's programs without thesis may be required to take a qualifying examination by the decision of the Graduate School Administrative Board upon the recommendation of the Department.

Students may take a maximum of three undergraduate courses on the condition that the courses have not been taken during the undergraduate program.

For admission to the master's program without thesis, special conditions may be required upon the recommendation of the Department and the decision of the Graduate School Administrative Board.

Article 24: Period of Study – The maximum period to complete the master's program without thesis is eight semesters. Students whose performance is considered to be unsatisfactory as determined by the regulations can be dismissed prior to the completion of this period.

Article 25: Appointment of Supervisor– The department proposes a supervisor for each student to assist in the selection of courses and to supervise the term project no later than the end of the student's first semester. The appointment of supervisor is finalized with the approval of the Administrative Board of the Graduate School.

The number of graduate students per supervisor is determined by the Graduate School Board, taking into account the nature of the Department.

Article 26: Master's Degree (without Thesis) Diploma– A student who has completed all credit courses and the term project satisfactorily will be awarded the Master's Degree (without Thesis) Diploma.The Master's Degree (without Thesis) Diploma will bear the official name of the program completed and the title awarded (if applicable).

III DOCTORAL PROGRAM

Article 27: Aim and Scope– The aim of the doctoral program is to enable students to acquire the ability to conduct independent research, to examine and interpret phenomena from a wide and in-depth perspective, and to determine the necessary steps to reach new syntheses.

The dissertation to be prepared at the end of the doctoral program must meet one of the following criteria:

a) Introducing an innovation in a scientific field,

b) Developing a new scientific method,

c) Applying an already-known method to a new area.

A doctoral program, for students who hold a master's Degree, consists of a minimum of seven courses, not being less than 21 credits in total, a doctoral qualifying examination, a thesis proposal and a thesis.

Graduate courses may also be chosen from those offered at other institutions of higher education upon the recommendation of the Department Chairperson and approval of the Graduate School Administrative Board. The Graduate School Board may decide to offer compulsory or optional integrated courses of an interdisciplinary nature. Courses may be added, dropped or withdrawn within the first two weeks of the semester.

Undergraduate courses do not count toward the doctoral course load or credits. The University may offer joint doctoral programs in cooperation with other universities home and abroad. The rules and procedures of these programs will be determined by the University Senate.

Article 28: Period of Study – a) Doctoral program must be completed within 8 semesters.

b) The maximum period to complete credit courses required for a doctoral program is four semesters. Students who have not passed all credit courses by the end of the fourth semester or whose cumulative grade point average is below the minimum requirement specified in these regulations will be dismissed from the Graduate School.

c) If a student who has completed the required course work, passed the doctoral qualifying examination and whose thesis proposal has been accepted is unable to complete the thesis work and take the thesis examination by the end of the eighth semester, he/she may be given an extension of a maximum of four semesters for the thesis defence upon the recommendation of the Department Chairperson and approval of the Graduate School Administrative Board.

Article 29: Appointment of Thesis Supervisor– The department Chairperson proposes a thesis supervisor to the Graduate School for each student, taking into consideration his/her previous academic studies, area of interest and preferred supervisor. The appointment of a thesis supervisor requires the approval of the Graduate School Administrative Board and is made no later than the end of the student's third semester. If the student's thesis subject requires more than one supervisor, a co-supervisor may also be appointed.

The number of graduate students per supervisor is determined by the Graduate School Board, taking into account the nature of the Department.

Thesis Supervisors will be selected from among the faculty members teaching in graduate programs at Near East University unless exceptional conditions exist.

Article 30: Qualifying Examination– The aim of the qualifying examination is to determine whether the student has an in-depth knowledge of fundamental concepts and of concepts related to his doctoral study. This examination is held twice a year during the periods specified in the academic calendar. The date and time of the exam scheduled by the Department is announced by the Graduate School Director.

Students, who have completed credit courses and seminar course(s) and have met the requirements for foreign language proficiency and for publication or presentation of papers in scientific meetings as well as other requirements set by the Graduate School Board, may take

the qualifying examination. Students admitted to a doctoral program must take the examination no later than the end of their eighth semester.

The qualifying examinations will be organized and administered by a five-member Doctoral Qualifying Committee recommended by the Department Chairperson and approved by the Graduate School Administrative Board. The Committee serves one year. It may establish examining committees that will prepare, administer and evaluate examinations in various academic fields.

In order to take the qualifying examination, students must have a minimum score of 60 (sixty) over 100 (one hundred) on the Inter-university Board Foreign Language Examination (ÜDS) or on the Foreign Language Proficiency Examination for State Employees (KPDS). The equivalent scores on the TOEFL; (computer-based test: 170 and/or paper-based test: 527), and the IELTS (6) will also be accepted.

Doctoral students who fail to pass the aforementioned foreign language proficiency examinations will be allowed a maximum of one calendar year. Those students who are unable to pass the examination by the end of this period will be dismissed from the doctoral program.

The doctoral qualifying examination consists of two parts: written and oral. The Doctoral Qualifying Committee decides by absolute majority whether a student has passed or failed the examination, taking into account the report of the examining committee and the student's performance on the written and oral sections of the examination. The decision is submitted in written form by the Department Chairperson to the Graduate School within three days after the qualifying examination. The Graduate School Board may determine the rules and procedures of the qualifying examination.

Students who fail the qualifying examination will retake it the following semester. Students failing the examination twice will be dismissed from the doctoral program.

Article 31: Thesis Monitoring Committee– A Thesis Monitoring Committee will be appointed upon the recommendation of the Department Chairperson and approval of the

Graduate School Administrative Board within two months after the student passes the qualifying examination.

The Thesis Monitoring Committee will be comprised of three faculty members. In addition to the thesis supervisor, one member will be from within and one from outside the department. Special attention will be paid to include the faculty members of related disciplines especially in the case of a thesis study of an interdisciplinary nature. The co-supervisor, if there is one, may also attend the Committee meetings.

In subsequent semesters, changes in the membership of the Thesis Monitoring Committee may be made upon the recommendation of the Department Chairperson and approval of the Graduate School Administrative Board.

Article 32: Doctoral Thesis Study – A student who has passed the doctoral qualifying examination will have a maximum of six months to orally defend before the thesis monitoring committee his/her thesis proposal comprising the aim, method, and plan of research. The student should hand out a written report concerning the thesis proposal to the committee members at least fifteen days before the oral defence.

Thesis proposal defence is open to the public; and the audience may contribute to the thesis proposal.

The thesis monitoring committee decides by absolute majority to accept or reject the thesis proposal. The decision is submitted in written form by the Department Chairperson to the Graduate School within three days after the thesis proposal defence.

A student whose thesis proposal is rejected will have the right to select a new thesis supervisor and a new thesis subject. In such cases, a new thesis monitoring committee may also be appointed. Students who want to continue with the same supervisor will be required to defend their thesis proposal within three months and students whose supervisor and thesis subject have been changed within six months.

The thesis monitoring committee, for the students whose thesis proposal has been accepted, will meet at least twice a year; once between January and June and once between July and

December. The student will submit a written report to the Committee members at least one month before the meeting. The report will include a summary of the work so far completed and a study plan for the next semester. The committee will decide whether the work completed is satisfactory or unsatisfactory.

A doctoral student who has published, or submitted a written confirmation of publication for, a scientific article in a journal covered by SCI (Science Citation Index), SSCI (Social Sciences Citation Index) or AHCI (Arts and Humanities Citation Index) will be entitled to take the thesis examination. In place of this requirement, students of the doctoral programs in which the language of instruction is Turkish, are required to have published a minimum of two articles on their thesis field in journals specified by the Inter-University Board of Academic Coordination with consideration of similar policies adopted in Turkey.

Article 33: Completing the Doctoral Thesis– A student enrolled in a doctoral program must submit his/her thesis in the format specified by the Graduate School and defend it orally before an examining committee.

The thesis examining committee will be appointed upon the recommendation of the Department Chairperson and approval of the Graduate School Administrative Board. It will consist of five members, including the three members of the thesis monitoring committee and two faculty members from other institutions of higher education.

Within one month after the thesis has been submitted to them, the committee members will send their individual reports to the Graduate School Director; and the committee, summoned by the Graduate School Director, will conduct the thesis examination. The thesis examination consists of an oral presentation of the thesis study, followed by a question and answer period. It takes 60 to 120 minutes and is open to the public.

The committee members must be attired in academic regalia during the thesis examination. Following the thesis defence, the examining committee meets in private to decide by absolute majority to “accept”, “reject”, or “require a revision” of the thesis. The decision is submitted in written form by the Department Chairperson to the Graduate School within three days after the thesis examination. If the committee rejects the thesis, the student will be dismissed from

the program. If the committee requires the student to revise the thesis, the student, after having made the necessary corrections, will defend the thesis again before the same committee (if possible) within a maximum of one year. If the committee rejects the thesis after the second defence, the student will dismissed from the program.
A student who has passed the thesis examination will be dressed by the committee chair in academic regalia of the department.

Article 34: Doctoral Degree Diploma– A student who has passed the thesis examination, completed all other requirements, and submitted at least four bound copies of the doctoral thesis to the Graduate School within one month after taking the thesis examination will be conferred the Doctoral Degree Diploma on condition that the thesis meets the format requirements.

The Doctoral Degree Diploma will bear the official name of the program completed.

Article 35: DOCTORAL (PROFICIENCY) PROGRAM IN ART– Proficiency in Art is a graduate program equivalent to doctoral study, consisting of a minimum of six semesters for students with a bachelor's degree and a minimum of four semesters for students with a master's degree. It aims at the creation of an original work of art, or, in the case of music and the performing arts, a superior creative production or performance.

Article 36: Admission to the Doctoral (Proficiency) Program in Art– For admission to the doctoral (proficiency) program in art, applicants must hold a master's or bachelor's degree. Students are admitted to the doctoral (proficiency) program in art through interview/aptitude test/portfolio assessment and within the framework of rules specified in the Article 3.

Article 37: Aim and Scope – a) The doctoral (proficiency) program in art is a graduate program that aims at the creation of an original work of art, or, in the case of music and the performing arts, a superior creative production or performance.

b) For students with a master's degree, the doctoral (proficiency) program in art consists of a minimum of seven courses, not being less than 21 credits in total, a seminar course, practicums, and a thesis study or an exhibition, project, recital, concert, or stage performance work. For students with a bachelor's degree, it consists of a minimum of fourteen courses, not being less than 42 credits in total, a seminar course, practicums, and a thesis study or an exhibition, project, recital, concert, or stage performance work. Graduate courses may also be chosen from those offered at other institutions of higher education upon the recommendation of the Department Chairperson and approval of the Graduate School Administrative Board.

Article 38: Period of Study– a) The maximum period to complete the doctoral (proficiency) program in art is eight semesters for students who are admitted to the program with a master's degree and ten semesters for students who are admitted to the program with a bachelor's degree. However, students with a master's degree can take the proficiency in art examination at the end of their sixth semester at the earliest and students with a bachelor's degree at the end of their eighth semester at the earliest. (The examination covers the defence of thesis study or of exhibition, project, recital, concert, or stage performance work.) Students who fail to complete the requirements stipulated by the regulations may be dismissed from the Graduate School before the end of this period by a decision of the Graduate School Administrative Board.

b) The maximum period to complete the credit courses and seminar course required by the doctoral (proficiency) program in art is four semesters for students who are admitted to the program with a master's degree and six semesters for students who are admitted to the program with a bachelor's degree. Students who fail to complete all of their credit courses within this time period or whose cumulative grade point average is below 3.0 will be dismissed from the Graduate School. The required minimum cumulative grade point average may be revised by the University Senate.

c) If students who have successfully completed all of their credit courses and whose thesis project, exhibition, or project work has been accepted are unable to present their thesis, exhibition, or project by the end of their eighth semester (for students with a bachelor's degree, by the end of their tenth semester) as stipulated by the Clause (a) of this Article, they may be granted an extension of a maximum of four semesters for the defence of their thesis, exhibition or project work upon the recommendation of the Department and approval of the Graduate School Administrative Board.

Article 39: Appointment of Supervisor– A supervisor for each student of the doctoral (proficiency) program in art will be appointed upon the recommendation of the Department and approval of the Graduate School Administrative Board, taking into consideration the preferences of both the student and the nominated faculty member.

The qualifications required for supervising faculty members are determined by the Senate.

Article 40: Completing the Doctoral (Proficiency) Program– In order to take the proficiency in art examination, students must have a minimum score of 60 (sixty) over 100 (one hundred) on the Foreign Language Proficiency Examination for State Employees (KPDS) or on the Inter-University Board Foreign Language Examination (ÜDS) or an equivalent score on the foreign language proficiency examinations recognized by the Higher Education Council or the Inter-University Board. Students must satisfy this requirement prior to the proficiency in art examination. Students who fail will be granted an extension of one calendar year which will not be counted as part of the study period. Students who fail to meet the foreign language requirement will be dismissed from the program. The required foreign languages are English, French, German or other languages determined by the Senate.

Foreign National Students whose mother tongue is the same with the required second language will take the exam in a language other than their mother tongue. This examination will be administered by an examining committee (with a minimum of one member from a related discipline) appointed by the University Administrative Board.

Students must submit their thesis, or a written text documenting and explaining their exhibition or project work in the format specified by the Senate, and must defend it orally before an examining committee.

The examining committee is appointed upon the recommendation of the Department and approval of the Graduate School Administrative Committee; and it is comprised of five members, including the supervisor and at least two members from other institutions of higher education.

The committee members will meet and conduct the examination within a maximum of one month after the thesis or text has been submitted to them. The exam consists of the presentation of the thesis study or work, followed by a question and answer period.

Following the examination, the examining committee will meet in private to decide by absolute majority to "accept", "reject", or "require a revision" of the thesis study or of exhibition, project, recital, concert, or stage performance work. The decision is submitted in written form by the Department Chairperson to the Graduate School within three days after the examination. If the committee rejects the thesis or work, the student will be dismissed from the program. If the committee requires the student to revise it, the student, after having made the necessary corrections, will defend the thesis or exhibition or project work again before the same committee within a maximum of three months. If the committee rejects the thesis or work after the second defence, the student will be dismissed from the Graduate School.

Article 41: Doctoral (Proficiency) Degree in Art– Students who have successfully completed their doctoral (proficiency) thesis or work and satisfied all other requirements are granted the "Doctoral (Proficiency) Degree in Art" that will bear the name of the program depending upon the area of the arts in concern.

Provisional Article 1 – Students who have started their doctoral study before the 2007-2008 academic year but not yet taken the qualifying examination are subject to the provisions of these Regulations. The provisions of the Article 8 are not applicable to these students. Doctoral students who have passed the qualifying examination during the 2006-2007

academic year will be adapted to the new regulations by the decision of the Graduate School Administrative Board upon the recommendation of the Department Chairperson.

VALIDITY

Article 42 – These Regulations will be effective from the 2007-2008 academic year onward.

IMPLEMENTION OF THE REGULATIONS

Article 43 – These regulations are implemented by the President of Near East University.

EE MODULES HANDBOOK (MSc)

MSc program, Electrical & Electronic Engineering Department

Course Unit Title	Advanced Digital Signal Processing
Course Unit Code	**EE 503**
Type of Course Unit	Elective
Level of Course Unit	MSc program
National Credits	3
Number of ECTS Credits Allocated	10
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	-
Semester when the course unit is delivered	-
Course Coordinator	Prof. Dr. FakhreddinMamedov
Name of Lecturer (s)	Prof. Dr. FakhreddinMamedov
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	

Course description:

This course covers digital processing of the continuous time signals. Discrete Fourier transforms. Fast-Fourier transform. FIR and IIR filters design. Limit cycles. Adaptive filtering. Adaptive digital filters in communication. Adaptive line enhancement and equalization. Adaptive delta and differential pulse code modulations. Problems using Matlab.

Objectives of the Course:

- Study advanced Digital Processing of the continuous time signals.

Learning Outcomes

After completing the course the student will be able to		Assessment
1	• have a better understanding of digital processing of signals.	1,2
2	• have a better understanding of FIR and IIR filters design.	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.	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.	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	Topics	Exam
1	Digital processing of the continuous time signals.	HW #1
2	Discrete Fourier transforms.	
3	Fast-Fourier transform.	
4	FIR and IIR filters design.	
5	Limit cycles.	
6	Adaptive filtering.	Midterm
7	Adaptive digital filters in communication.	
8	Adaptive line enhancement and equalization.	
9	Adaptive delta and differential pulse code modulations.	
10	Problems using Matlab.	Final

Recommended Sources

- Sanjit K. Mitra. Digital Signal Processing. A computer based approach. McGraw-Hill, 1998

Assessment

Assignments&Quizes	25%	Programming and Research
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. 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)	15	3	45
Labs and Tutorials	-	-	-
Assignment	2	25	50

Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	2	10	20
Midterm Examination	1	30	30
Final Examination	1	30	30
Self Study	14	8	112
Total Workload			287
Total Workload/30(h)			9.56
ECTS Credit of the Course			10

MSc program, Electrical & Electronic Engineering Department

Course Unit Title	Wireless & Personal Communication Systems
Course Unit Code	**EE 504**
Type of Course Unit	Elective
Level of Course Unit	MSc program
National Credits	3
Number of ECTS Credits Allocated	10
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	-
Semester when the course unit is delivered	-
Course Coordinator	Prof. Dr. FakhreddinMamedov
Name of Lecturer (s)	Prof. Dr. FakhreddinMamedov
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	

Course description:

This course covers Cellular communication concepts. Roaming. Cells splitting. Access technology. FDMA, TDMA and CDMA. Radio interface. Spread spectrum techniques. Up-link and down-link. Architecture of mobile switching center. Mobile and base stations call processing. Authentication. Encryption and information security. North American, Japanese and European cellular systems. Iridium-66 and globstar-48 systems. Laboratory experiments

Objectives of the Course:

- Study Cellular communication concepts.

Learning Outcomes

After completing the course the student will be able to		Assessment
1	• have a better understanding of Cellular Communication systems.	1,2
2	• have a better understanding of Wireless Communication concept.	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.	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.	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.	3

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

Course Contents

Week	Topics	Exam
1	Cellular communication concepts.	HW #1
2	Roaming.	
3	Cells splitting.	
4	Access technology. FDMA, TDMA and CDMA.	
5	Radio interface. Spread spectrum techniques. Up-link and down-link.	
6	Architecture of mobile switching center. Mobile and base stations call processing.	Midterm
7	Authentication. Encryption and information security.	
8	North American, Japanese and European cellular systems. Iridium-66 and globstar-48 systems.	Final

Recommended Sources

- Thedores S. Rapparot. Wireless Communication. Principle and Practice. Printice-Hall, NJ, 2000
- Carg V. K. & Wilkes J. E. Wireless and Personal Communication Systems. PrinticeHall, NJ, 1996
- Simon Haykin, Michael Moher. Modern Wireless Communications. Printice-Hall, NJ, 2003

Assessment

Assignments&Quizes	25%	Programming and Research
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

4. Attendance to the course is mandatory.
5. Students may use calculators during the exam.
6. 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	2	25	50
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	2	10	20
Midterm Examination	1	30	30
Final Examination	1	30	30
Self Study	14	8	112
Total Workload			287
Total Workload/30(h)			9.56
ECTS Credit of the Course			10

MSc program, Electrical & Electronic Engineering Department

Course Unit Title	Information Theory and Coding
Course Unit Code	**EE 505**
Type of Course Unit	Elective
Level of Course Unit	MSc program
National Credits	3
Number of ECTS Credits Allocated	10
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	-
Semester when the course unit is delivered	-
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 covers intermediate to advanced information theory and channel coding topics. Topics covered include fundamentals of channel coding as well as powerful error-correcting codes such as low-density parity-check codes and turbo codes.

Objectives of the Course:
- Study advanced information theory and modern error-correcting codes

Learning Outcomes

After completing the course the student will be able to		Assessment
1	• have a better understanding of information sources	1,2
2	• have a better understanding of how channels are modeled.	1,2
3	• understand advanced error correcting codes and their applications.	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.	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.	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.	3

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

Course Contents

Week	Topics	Exam
1	Entropy and Information, 1.1-1.10	HW #1
2	Entropy and Information, 1.11-1.21	
3	Information Channels, 2.1-2.5	
4	Information Channels, 2.6-2.10	Quiz #1
5	Source Coding, 3.1-3.3	
6	Source Coding, 3.4-3.6	
7	Fundamentals of Channel Coding, 5.1-5.3	
8		Midterm
9	Fundamentals of Channel Coding, 5.4-5.7	HW #2
10	Error-Correcting Codes, 6.1-6.4	
11	Low Density Parity Check Codes, Lecture Notes	
12	Convolutional Codes, Lecture Notes	Quiz #2
13	Convolutional Codes, Lecture Notes	
14	Turbo Codes, Lecture Notes	
15		Final

Recommended Sources

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

Assessment

Assignments&Quizes	25%	Programming and Research
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

7. Attendance to the course is mandatory.
8. Students may use calculators during the exam.
9. 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	2	25	50
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	2	10	20
Midterm Examination	1	30	30
Final Examination	1	30	30
Self Study	14	8	112
Total Workload			287
Total Workload/30(h)			9.56
ECTS Credit of the Course			10

MSc Program, Electrical & Electronic Engineering Department

Course Unit Title	Artificial Neural Networks
Course Unit Code	**EE 508**
Type of Course Unit	Elective
Level of Course Unit	MSc program
National Credits	3
Number of ECTS Credits Allocated	10
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	-
Semester when the course unit is delivered	-
Course Coordinator	Assist. Prof. Dr. KamilDimililer
Name of Lecturer (s)	Assist. Prof. Dr. KamilDimililer
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	Computer programming skills

Course description:

This course explores the organization of synaptic connectivity as the basis of neural computation and learning. Perceptrons and dynamical theories of recurrent networks including amplifiers, attractors, and hybrid computation are covered. Additional topics include backpropagation and Hebbian learning, as well as models of perception, motor control, memory, and neural development.

Objectives of the Course:

- To give the students an opportunity to study and learn some concepts of Artificial Neural Networks
- To gain an appreciation of the principal components of Computational Intelligence
- To evaluate and implement Neural Networks for solving synthetic and real-world problems

Learning Outcomes

After completing the course the student will be able to		Assessment
1	Explain the principles underlying Neural Networks	1
2	Understand the theoretical foundation of Neural Networks	1
3	Apply Neural Networks to find solutions to complex problems	1
4	Analyze parameter choices in the use of Neural Networks	1
5	Summarize current research in Neural Networks	1

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

Course's Contribution to Program

		CL
1	An ability to understand and apply extensive advanced knowledge of mathematic-scientific and engineering principles	3
2	An ability to analyse and solve problems scientifically	4
3	An ability to apply innovative computational methods to problem-solving	5
4	An ability to design and conduct advanced software projects	3
5	An ability to assess applicable methods and their limits	5
6	An ability to identify, find and procure necessary information	4

7	An ability to plan and carry out analytic, model and experimental investigations	4
8	An understanding of the role of engineers in society	2

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

Course Contents

Week	Topics	Exam
1	Introduction to Neural Networks	
2	Neural Computing	
3	Biological Neuron	
4	Definition of ANN	
5	Intelligent Computing	
6	Intelligent Computing	
7		Midterm
8	Traditional vs Neural Computing	
9	Hebbian Rule	
10	Classification on ANN	
11	Parameters of ANN	
12	XOR Problem	
13	Adaline Networks	
14	Recurrent Networks	
15	Hopfield Networks	
16		Final

Recommended Sources

- Simon Haykin, Neural Networks, 1994.
- Tom M. Mitchell, Machine Learning, 1997

Assessment

Assignments	30%	Research & Coding
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.
- 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	3	20	60
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	30	30
Final Examination	1	30	30
Self Study	14	8	112
Total Workload			296
Total Workload/30(h)			9.86
ECTS Credit of the Course			10

MSc Program, Electrical & Electronic Engineering Department

Course Unit Title	Advanced Image Processing
Course Unit Code	**EE 510**
Type of Course Unit	Elective
Level of Course Unit	MSc program
National Credits	3
Number of ECTS Credits Allocated	10
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	-
Semester when the course unit is delivered	-
Course Coordinator	Assist.Prof.Dr. BoranŞekeroğlu
Name of Lecturer (s)	Assist.Prof.Dr. BoranŞekeroğlu
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	Computer programming skills

Course description:

Objectives of the Course:

- To give the students an opportunity to study and learn advanced concepts of Image Processing.
- To implement advanced image processing methods and algorithms to solve real-life problems.

Learning Outcomes

After completing the course the student will be able to		Assessment
1	Implement advance image processing techniques	2
2	Understand the theoretical aspects of image processing	1
3	Analyze and compare image processing methods	2
4	Summarize current researches in real life applications of Image Processing	2

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

Course's Contribution to Program

		CL
1	An ability to understand and apply extensive advanced knowledge of mathematic-scientific and engineering principles	3
2	An ability to analyse and solve problems scientifically	5
3	An ability to apply innovative computational methods to problem-solving	5
4	An ability to design and conduct advanced software projects	2
5	An ability to assess applicable methods and their limits	4
6	An ability to identify, find and procure necessary information	5
7	An ability to plan and carry out analytic, model and experimental investigations	4
8	An understanding of the role of engineers in society	2

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

Course Contents

Week	Topics	Exam
1	Introduction to Image Processing	
2	Fundamentals of Digital Imaging	
3	Image Enhancement in Spatial Domain	
4	Image Enhancement in Spatial Domain	
5	Image Enhancement in Frequency Domain	
6	Image Enhancement in Frequency Domain	
7		Midterm
8	Morphological Image Processing	
9	Morphological Image Processing	
10	Image Segmentation	
11	Image Restoration	
12	Object Recognition	
13	Review	
14	Review	
15		
16		Final

Recommended Sources

- Gonzalez and Woods "Digital Image processing"
- Gonzalez, Woods "Digital Image processing using Matlab"

Assessment

Assignments	30%	Programming and Research
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	-	-	-
Assignment	2	30	60
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	30	30
Final Examination	1	30	30
Self Study	14	8	112
Total Workload			296
Total Workload/30(h)			9.86
ECTS Credit of the Course			10

MSc Program, Electrical & Electronic Engineering Department

Course Unit Title	Electromagnetic Wave Propagation
Course Unit Code	**EE 512**
Type of Course Unit	
Level of Course Unit	MSc program
National Credits	3
Number of ECTS Credits Allocated	10
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	
Semester when the course unit is delivered	
Course Coordinator	Assist.Prof. Dr. RefetRamiz
Name of Lecturer (s)	Assist.Prof. Dr. RefetRamiz
Name of Assistant (s)	-
Mode of Delivery	Face to Face,
Language of Instruction	English
Prerequisites	
Recommended Optional Programme Components	Mathematic skills

Course description:

Fundamental Concepts and Theorems; Maxwell Equations; Electromagnetic Waves;Classifications of Waves; Guided Waves;Ground wave propagation;-Plane-earth reflection,-Plane-earth reflection,-Space wave,-Surface wave,-Elevated dipole antenna above a plane earth,-Wave tilt of the surface wave,-Spherical earth propagation,-Tropospheric waves,Ionospheric Propagation;-The ionosphere,-Effective permittivity and conductivity of an ionised gas,-Reflection and refraction waves by the ionosphere,-Attenuation factor for ionospheric propagtion,-Sky-wave trnasmission calculations,-Effect of the earth's magnetic field,-Wave propoagtion in the ionosphere,

Objectives of the Course:

- To provide a student with the necessary tools for the critical evaluation of existing and future electromagnetic wave phenomena
- To teach the concepts and principles of constructions of electromagnetic waves
- To enable a student to evaluate and choose an 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 electromagnetic waves	1, 2
2	Demonstrate and reconstruct a specific electromagnetic wave problems	1, 2
3	Apply electromagnetic wave propagation principles for verification of the problems	1, 2
4	Analyze variables of electromagnetic waves problems	1, 2
5	Examine different concepts implemented in electromagnetic wave propagation problems	1, 2

6	Compare electromagnetic waves and propagation problems	1, 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 understand and apply knowledge of mathematics, science, and engineering	4
2	An ability to analyze a problem, identify and define the computing requirements appropriate to its solution	3
3	Ability to design a product within realistic constraints	3
4	Ability to work with multi-disciplinary teams	4
5	Planning and carrying out experiments, as well as to analyze and interpret data	3
6	Be able to understand professional and ethical responsibilities.	3
7	Be able to understand the effect of engineering in a global, economic, environmental, and social setting.	3
8	Ability to use the techniques, skills and modern engineering tools necessary for engineering practice	3

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

Course Contents

Week	Chapter	Topics	Exam
1		Fundamental Concepts and Theorems.	
2		Maxwell Equations	
3		Electromagnetic Waves Classifications of Waves. Guided Waves.	
4		Ground wave propagation. -Plane-earth reflection	
5		-Plane-earth reflection	
6		-Space wave -Surface wave	
7			Midterm
8		-Elevated dipole antenna above a plane earth -Wave tilt of the surface wave	
9		-Spherical earth propoagtion -Tropospheric waves	
10		Ionospheric Propagation -The ionosphere	
11		-Effective permittivity and conductivity of an ionised gas	
12		-Reflection and refraction waves by the ionosphere	
13		-Attenuation factor for ionospheric propagtion -Sky-wave trnasmission calculations	
14		-Effect of the earth's magnetic field -Wave propagation in the ionosphere	
15			Final

Recommended Sources
Textbook:
Supplementary Course Material

- EdwardC. Jordan, Keith G. Balmain, ELECTROMAGNETIC WAVE AND RADIATING

SYSTEMS.

Assessment

Attendance	10 %	
Assignment/Project	15 %	
Midterm Exam	35 %	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)	15	3	45
Labs and Tutorials	-	-	-
Assignment	5	12	60
Project/Presentation/Report	1	10	10
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	30	30
Final Examination	1	35	35
Self Study	14	8	112
Total Workload			292
Total Workload/30(h)			9.73
ECTS Credit of the Course			10

MSc program, Electrical & Electronic Engineering Department

Course Unit Title	Advanced Static Power Conversion
Course Unit Code	**EE 524**
Type of Course Unit	Elective
Level of Course Unit	MSc program
National Credits	3
Number of ECTS Credits Allocated	10
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	-
Semester when the course unit is delivered	-
Course Coordinator	Assoc. Prof. Dr. ÖzgürCemalÖzerdem
Name of Lecturer (s)	Assoc. Prof. Dr. ÖzgürCemalÖzerdem
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	-

Course description:

Overloaded modes of operation of rectifiers, characteristics. Reactive power and harmonics in ac-dc converters, cascade use of converters. Commutation techniques in inverters; McMurray circuit and its modified forms. Voltage control and harmonic elimination. ASCII inverters. Chopper structures. Improving the performance and optimization of circuit elements.

Objectives of the Course:

- To give the students an opportunity to study and learn some concepts of Static Power Conversion
- To gain an appreciation of the principal components of Converters and Inverters
- To evaluate and implement Voltage Control and Harmonic elimination

Learning Outcomes

After completing the course the student will be able to		Assessment
1	Explain the principles underlying Static Power Conversion	1
2	Understand the theoretical foundation of Reactive power	1
3	Apply Power Conversion to find solutions to complex problems	1
4	Analyze parameter choices in the use of converters and inverters	1
5	Summarize current research in Static Power Conversion	1

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

Course's Contribution to Program

		CL
1	An ability to understand and apply extensive advanced knowledge of mathematic-scientific and engineering principles	3
2	An ability to analyse and solve problems scientifically	4
3	An ability to apply innovative computational methods to problem-solving	5
4	An ability to design and conduct advanced software projects	3

5	An ability to assess applicable methods and their limits	5
6	An ability to identify, find and procure necessary information	4
7	An ability to plan and carry out analytic, model and experimental investigations	4
8	An understanding of the role of engineers in society	2

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

Course Contents

Week	Topics	Exam
1	Overloaded modes of operation of rectifiers	
2	Overloaded modes of operation of rectifiers	
3	Reactive power and harmonics in ac-dc converters	
4	cascade use of converters	
5	cascade use of converters	
6	Commutation techniques in inverters	
7		Midterm
8	Analysis methods	
9	McMurray circuit and its modified forms	
10	Voltage control and harmonic elimination	
11	ASCII inverters	
12	Chopper structures	
13	Improving the performance and optimization of circuit elements.	
14	Applications	
15	Applications	
16		Final

Recommended Sources

- Various research papers from literature

Assessment

Presentation	15%	Project Presentation
Project	10%	
Midterm Exam	35%	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

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	4	64
Labs and Tutorials	-	-	-
Assignment	-	-	-
Project/Presentation/Report	2	35	70
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	30	30
Final Examination	1	30	30
Self Study	14	8	112
Total Workload			306
Total Workload/30(h)			10.02
ECTS Credit of the Course			10

MSc program, Electrical & Electronic Engineering Department

Course Unit Title	Power Electronics
Course Unit Code	**EE 526**
Type of Course Unit	Elective
Level of Course Unit	MSc program
National Credits	3
Number of ECTS Credits Allocated	10
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	-
Semester when the course unit is delivered	-
Course Coordinator	Assoc. Prof. Dr. ÖzgürCemalÖzerdem
Name of Lecturer (s)	Assoc. Prof. Dr. ÖzgürCemalÖzerdem
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	-

Course description:

Advanced power electronic converters, techniques for modeling switching circuits, resonant and multi-level converters, Pulse-Width-Modulation (PWM) techniques, soft switching methods, low-voltage high-current design, Multi-phase, controlled and uncontrolled rectifiers and inverters with various operating techniques and their design and control, Includes extensive computer-aided circuit simulation and power supply control.

Objectives of the Course:

- To give the students an opportunity to study and learn some concepts of Power Electronics
- To gain an appreciation of the principal components of Modulation Techniques
- To evaluate and implement Rectifiers and Inverters with various operation techniques.

Learning Outcomes

After completing the course the student will be able to		Assessment
1	Explain the principles underlying Power Electronics	1
2	Understand the theoretical foundation of switching circuits	1
3	Apply Power Electronics to find solutions to complex problems	1
4	Analyze parameter choices in the use of rectifiers and inverters	1
5	Summarize current research in Power Electronics	1

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

Course's Contribution to Program

		CL
1	An ability to understand and apply extensive advanced knowledge of mathematic-scientific and engineering principles	3
2	An ability to analyse and solve problems scientifically	4
3	An ability to apply innovative computational methods to problem-solving	5

4	An ability to design and conduct advanced software projects	3
5	An ability to assess applicable methods and their limits	5
6	An ability to identify, find and procure necessary information	4
7	An ability to plan and carry out analytic, model and experimental investigations	4
8	An understanding of the role of engineers in society	2

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

Course Contents

Week	Topics	Exam
1	Advanced power electronic converters	
2	techniques for modeling switching circuits	
3	resonant and multi-level converters	
4	Pulse-Width-Modulation (PWM) techniques	
5	soft switching methods	
6	low-voltage high-current design	
7		Midterm
8	Multi-phase, controlled and uncontrolled rectifiers	
9	inverters with various operating techniques and their design and control	
10	computer-aided circuit simulation and power supply control.	
11	Problem solving techniques	
12	Applications	
13	Applications	
14	Presentations	
15	Presentations	
16		Final

Recommended Sources

1. Mohan, Undeland, Robins, 'Power Electronics Converter Applications and Design', Third Edition, John Wiley and Sons, 2003
2. M. H. Rashid, 'Power Electronics Circuits Devices and Applications' Third Edition, 2004, Prentice Hall.
3. B. K.Bose, 'Modern Power Electronics and AC drives' Prentice Hall International, 2002
4. L. Gyugi, 'Power Transmission Control', IEE power and Energy Series 30

Assessment

Presentation	15%	Project Presentation
Project	10%	
Midterm Exam	35%	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

4. Attendance to the course is mandatory.
5. Students may use calculators during the exam.
6. 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	2	35	70
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	30	30
Final Examination	1	30	30
Self Study	14	8	112
Total Workload			306
Total Workload/30(h)			10.02
ECTS Credit of the Course			10

MSc program, Electrical & Electronic Engineering Department

Course Unit Title	Flexible AC Transmission Systems
Course Unit Code	**EE 531**
Type of Course Unit	Elective
Level of Course Unit	MSc program
National Credits	3
Number of ECTS Credits Allocated	10
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	-
Semester when the course unit is delivered	-
Course Coordinator	Assoc. Prof. Dr. ÖzgürCemalÖzerdem
Name of Lecturer (s)	Assoc. Prof. Dr. ÖzgürCemalÖzerdem
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	-

Course description:

Flow of power in AC systems.Transmission problems and the emergence of FACTS. FACTS controllers; definitions and description of basic controllers.Objectives of shunt compensation. Methods of controllable Var Generation. Static Var Compensators; SVC and STATCOM. Comparison between STATCOM and SVC.Objectives of series compensation. Variable impedance and Switching converter type series compensators; GCSC, TCSC, TSSC, SSSC. Unified Power Flow controllers (UPFC), Interline Power Flow Controllers (IPFC) Application of power electronics equipment for power system performance enhancement. Modellingof FACTS equipment. Application examples

Objectives of the Course:

- To give the students an opportunity to study and learn some concepts of FACTS Systems
- To gain an appreciation of the principal components of Power Quality improvement
- To evaluate and use Power flow Controllers.

Learning Outcomes

After completing the course the student will be able to		Assessment
1	Explain the principles underlying FACTS	1
2	Understand the theoretical foundation of power flow in AC Transmission Systems	1
3	Apply FACTS Controllers to find solutions to complex problems	1
4	Analyze parameter choices in the use of FACTS Equipments	1
5	Summarize current research in FACTS	1

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

Course's Contribution to Program

		CL
1	An ability to understand and apply extensive advanced knowledge of	3

	mathematic-scientific and engineering principles	
2	An ability to analyse and solve problems scientifically	4
3	An ability to apply innovative computational methods to problem-solving	5
4	An ability to design and conduct advanced software projects	3
5	An ability to assess applicable methods and their limits	5
6	An ability to identify, find and procure necessary information	4
7	An ability to plan and carry out analytic, model and experimental investigations	4
8	An understanding of the role of engineers in society	2

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

Course Contents

Week	Topics	Exam
1	Flow of power in AC systems	
2	Transmission problems and the emergence of FACTS. FACTS controllers; definitions and description of basic controllers	
3	Objectives of shunt compensation.	
4	Methods of controllable Var Generation. Static Var Compensators; SVC and STATCOM.	
5	Comparison between STATCOM and SVC	
6	Objectives of series compensation	
7		Midterm
8	Variable impedance and Switching converter type series compensators; GCSC, TCSC,	
9	Variable impedance and Switching converter type series compensators TSSC, SSSC	
10	Interline Power Flow Controllers(IPFC)	
11	Problem solving techniques	
12	Application of power electronics equipment for power system performance enhancement	
13	The natural and forced response of the second-order circuits.	
14	Modelling of FACTS equipment	
15	Application examples.	
16		Final

Recommended Sources

1. Understanding FACTS: Concepts and Technology of Flexible AC Transmssion Systems Narain G. Hingorani, Laszio Gyugyi, IEEE Press (IEEE Power Engineering Society Sponsored) ISBN:0-7803-3455-8

2.Flexible AC Transmision Systems (FACTS), Edited By: Yong Hua Song and Allan T. Johns, Published by IEE ISBN: 0-85296-771-3

3.IEEE Power Engineering Series-6

Assessment

Presentation	15%	Project Presentation
Project	10%	
Midterm Exam	35%	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

7. Attendance to the course is mandatory.
8. Students may use calculators during the exam.
9. 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	2	35	70
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	30	30
Final Examination	1	30	30
Self Study	14	8	112
Total Workload			306
Total Workload/30(h)			10.02
ECTS Credit of the Course			10

MSc Program, Electrical & Electronic Engineering Department

Course Unit Title	Pattern Recognition
Course Unit Code	**EE 532**
Type of Course Unit	Elective
Level of Course Unit	MSc program
National Credits	3
Number of ECTS Credits Allocated	10
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	-
Semester when the course unit is delivered	-
Course Coordinator	Assist. Prof. Dr. KamilDimililer
Name of Lecturer (s)	Assist. Prof. Dr. KamilDimililer
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	Computer programming skills

Course description:

This class deals with the fundamentals of characterizing and recognizing patterns and features of interest in numerical data. We discuss the basic tools and theory for signal understanding problems with applications to user modeling, affect recognition, speech recognition and understanding, computer vision, physiological analysis, and more. We also cover decision theory, statistical classification, maximum likelihood and Bayesian estimation, nonparametric methods, unsupervised learning and clustering. Additional topics on machine and human learning from active research are also talked about in the class.

Objectives of the Course:

- To give the students an opportunity to study and learn some concepts of Pattern Recognition
- To gain an appreciation of the principal components of Intelligent Systems
- To evaluate and implement Pattern Recognition System for solving synthetic and real-world problems

Learning Outcomes

After completing the course the student will be able to		Assessment
1	Explain the principles underlying Pattern Recognition	1
2	Understand the theoretical foundation of Pattern Recognition	1
3	Apply Pattern Recognition to find solutions to complex problems	1
4	Analyze parameter choices in the use of Pattern Recognition	1
5	Summarize current research in Pattern Recognition	1

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

Course's Contribution to Program

		CL
1	An ability to understand and apply extensive advanced knowledge of mathematic-	3

	scientific and engineering principles	
2	An ability to analyse and solve problems scientifically	4
3	An ability to apply innovative computational methods to problem-solving	5
4	An ability to design and conduct advanced software projects	3
5	An ability to assess applicable methods and their limits	5
6	An ability to identify, find and procure necessary information	4
7	An ability to plan and carry out analytic, model and experimental investigations	4
8	An understanding of the role of engineers in society	2

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

Course Contents

Week	Topics	Exam
1	Introduction to Pattern Recognition	
2	Probability Distributions	
3	Linear Models for Regression	
4	Linear Models for Classification	
5	Neural Networks and Intelligent Computing	
6	Speech Recognition	
7		Midterm
8	Kernel Methods	
9	Machine and Human Learning	
10	Review	
11	Supervised and Unsupervised Learning	
12	Graphical Models	
13	Review	
14	Combining Models	
15	Review	
16		Final

Recommended Sources

- Pattern Classification, Richard Duda, Peter Hart, David G. Stork, 2000
- Pattern Recognition and Machine Learning (Information Science and Statistics), Christopher M. Bishop, 2007
- The Elements of Statistical Learning: Data Mining, Inference, and Prediction, Second Edition Trevor Hastie, 2013

Assessment

Project/Presentation/Report	30%	Less than 25% class attendance results in NA grade
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.
- 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	2	30	60
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	30	30
Final Examination	1	30	30
Self Study	14	8	112
Total Workload			296
Total Workload/30(h)			9.86
ECTS Credit of the Course			10

MSc program, Electrical & Electronic Engineering Department

Course Unit Title	Telecommunication Networks
Course Unit Code	**EE 538**
Type of Course Unit	Elective
Level of Course Unit	MSc program
National Credits	3
Number of ECTS Credits Allocated	10
Theoretical (hour/week)	4
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	-
Semester when the course unit is delivered	-
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:
Proper design and operation of efficient communication networks is becoming more important as the digital telecommunication services of today are constantly growing. This course provides an introduction to communication networks. Specific topics to be covered include layered network architectures, error recovery and retransmission (ARQ), medium access control, routing and addressing, resource allocation and quality of service (QoS).

Objectives of the Course:

- Study the theory behind advanced communication networks

Learning Outcomes

After completing the course the student will be able to		Assessment
1	• have a better understanding of communication networks	1
2	• have a better understanding of network architectures	1
3	• understand medium access control, routing and addressing, resource allocation and quality of service (QoS)	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.	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	5

	and system design.	
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.	3

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

Course Contents

Week	Topics	Exam
1	Overview of Telecommunication Networks and Services	
2	Layered Architectures	
3	Layered Architectures	
4	Circuit Switching Networks	
5	Circuit Switching Networks	
6	Peer-to-Peer Protocols and Data Link Layer	
7	Peer-to-Peer Protocols and Data Link Layer	
8		Midterm
9	Medium Access Control Protocols and Local Area Networks	
10	Medium Access Control Protocols and Local Area Networks	
11	Packet-Switching Networks	
12	Packet-Switching Networks	
13	TCP/IP and ATM Networks	
14	TCP/IP and ATM Networks	
15		Final

Recommended Sources

- Communication Networks, A. Leon-Garcia, I. Widjaja, McGraw-Hill.
- Data Communication and Networking, B. A. Forouzan,McGraw-Hill.

Assessment

Laboratory&Quizes	20%	
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

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	4	64
Labs and Tutorials	4	10	40
Assignment	-	-	-
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	1	10	10
Midterm Examination	1	30	30
Final Examination	1	30	30
Self Study	14	8	112
Total Workload			286
Total Workload/30(h)			9.53
ECTS Credit of the Course			10

MSc program, Electrical & Electronic Engineering Department

Course Unit Title	Speed Control of Electric Motors
Course Unit Code	**EE 534**
Type of Course Unit	Elective
Level of Course Unit	MSc program
National Credits	3
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	3
Practice (hour/week)	-
Laboratory (hour/week)	0
Year of Study	
Semester when the course unit is delivered	
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:
Speed control principles of DC Motors; Dynamic analysis and controller design for DC motor; Speed control principles of Induction Motors; Balanced and unbalanced operation of Induction Motors; Speed control principles of Permanent Magnet Synchronous Motors; Power Electronic Converters for Electric Drives; Principles of adjustable speed and adjustable torque drives. Principles of vector control.

Objectives of the Course:
Teaching the principles of speed control of dc motors, induction motors and synchronous motors through equivalent circuits.
Introducing the power converters used for speed control of motors.

Learning Outcomes

At the end of the course the student should be able to		Assessment
1	Students understand the speed control principles of DC motors.	1
2	Students understand the speed control principles of induction motors.	1
3	Students understand the speed control principles of synchronous motors.	1
4	Students can perform dynamic analysis of DC motors	3
5	Students can perform sinusoidal steady state analysis of induction motor through equivalent circuit	1
6	Students can use the harmonic equivalent circuit of induction motors	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.	3
3	Ability to design electric and electronic devices and products.	2
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.	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		DC motor operation principles	
2		DC motor speed control principles	
3		Closed loop controller design for dc motors	
4		Induction motor operation principles	
5		Speed control by voltage and frequency	
6		Harmonic equivalent circuits	
7		Midterm	
8		Unbalanced operation of induction motors	
9		Synchronous motor operation principles	
10		Power converters for dc motor control	
11		Power converters for induction motor control	
12		Power converters for sycnhronous motor control	
13		Principles of vector control	
14		Indirect vector control	
15		Direct vector control	

Recommended Sources

Textbook:

1. **N. Mohan**, Electric Drives: An Integrative Approach, University of Minnesota Press.
2. **R. Krishnan**, Electric Motor Drives, Prentice Hall

Supplementary Course Material

3. **Novotny, D.W**.; Electromechanical Systems, Unpublished class notes, University of Wisconsin-Madison
4. **Fitzgerald, A.E., et.al**., Electric Machinery, McGraw Hill
5. **Leonhard, W**., Control of Electrical Drives, Springer Verlag

Assessment

Short Quizzes	-	
Laboratory	-	
Term Project	30%	
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)	16	4	64
Labs and Tutorials			0
Assignment	6	6	36
Project/Presentation/Report	1	30	30
E-learning activities	-	-	0
Quizzes	-	-	0
Midterm Examination	1	40	40
Final Examination	1	45	45
Self-Study	16	6	96
Total Workload			311
Total Workload/30(h)			10.36
ECTS Credit of the Course			10

MSc program, Electrical & Electronic Engineering Department

Course Unit Title	Master's Seminar
Course Unit Code	**EE 535**
Type of Course Unit	Compulsory
Level of Course Unit	MSc program
National Credits	-
Number of ECTS Credits Allocated	6
Theoretical (hour/week)	-
Practice (hour/week)	-
Laboratory (hour/week)	-
Year of Study	2
Semester when the course unit is delivered	4
Course Coordinator	Assist. Prof. Dr. Ali Serener
Name of Lecturer (s)	-
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	

Course description:
Each master's student is required to present his/her research findings to students and instructors.

Objectives of the Course:
Conducting a scientific study in a field of Electrical and Electronic Engineering, and presenting this according to the scientific standards.

Learning Outcomes

After completing the course the student will be able to		Assessment
1	Carry out an independent study requiring expertise in Electrical and Electronic Engineering	3,4
2	Present current developments and research work to other students and instructors, supporting this work with qualitative and quantitative data.	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 fundamental knowledge of science and Electrical Engineering.	5
2	Ability to identify, formulate and solve complex electrical engineering problems.	5
3	Ability to design and conduct experiments related to Electrical Engineering, as well as to analyse and interpret data.	5
4	Be able to design a complex system, component, or process to meet desired needs within realistic constraints.	4
5	Be able to develop solutions that meet the desired needs within the economic, manufacturing and sustainability borders.	2
6	Be able to use the techniques, skills, and modern engineering tools necessary for electrical engineering practice and research.	5
7	Be able to function and communicate effectively in multidisciplinary teams.	2

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

Course Contents		
Week	Topics	Exam
1-32	Conducting research	
Recommended Sources Books, articles and other scientific documents related to the field		
Assessment Research presentation 100%		
Assessment Criteria Final grades are determined according to the Near East University Academic Regulations for Graduate Education		
Course Policies Governed by Graduate Education Regulations		

ECTS allocated based on Student Workload			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	-	-	-
Labs and Tutorials	-	-	-
Assignment	-	-	-
Project/Presentation/Report	1	0.5	0.5
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	-	-	-
Final Examination	-	-	-
Self-Study	32	5	160
Total Workload			160.5
Total Workload/30(h)			5.35
ECTS Credit of the Course			6

MSc program, Electrical & Electronic Engineering Department

Course Unit Title	Master's Thesis
Course Unit Code	**EE 500**
Type of Course Unit	Compulsory
Level of Course Unit	MSc program
National Credits	-
Number of ECTS Credits Allocated	50
Theoretical (hour/week)	Varies
Practice (hour/week)	Varies
Laboratory (hour/week)	Varies
Year of Study	2
Semester when the course unit is delivered	3 and 4
Course Coordinator	Assist. Prof. Dr. Ali Serener
Name of Lecturer (s)	Varies
Name of Assistant (s)	-
Mode of Delivery	Face to Face
Language of Instruction	English
Prerequisites	-
Recommended Optional Programme Components	

Course description:
Each master's student is to conduct research in the form of Master's thesis.

Objectives of the Course:
Collecting, interpreting, applying, and disseminating related data by taking social, scientific, cultural and ethical values into account.

Learning Outcomes

After completing the course the student will be able to		Assessment
1	develop and deepen the knowledge achieved.	2,3,4,5
2	interpret and integrate knowledge from different disciplines and generate and analyze new information.	2,3,4,5

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 fundamental knowledge of science and Electrical Engineering.	5
2	Ability to identify, formulate and solve complex electrical engineering problems.	5
3	Ability to design and conduct experiments related to Electrical Engineering, as well as to analyse and interpret data.	5
4	Be able to design a complex system, component, or process to meet desired needs within realistic constraints.	5
5	Be able to develop solutions that meet the desired needs within the economic, manufacturing and sustainability borders.	4
6	Be able to use the techniques, skills, and modern engineering tools necessary for electrical engineering practice and research.	5
7	Be able to function and communicate effectively in multidisciplinary teams.	2

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

Course Contents

Week	Topics	Exam

1-30	Conducting research	

Recommended Sources
Books, articles and other scientific documents related to the field

Assessment
Thesis defense 100%

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

Course Policies
Governed by Graduate Education Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	32	1	32
Labs and Tutorials	-	-	-
Assignment	-	-	-
Project/Presentation/Report	60	3	180
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	-	-	-
Final Examination	-	-	-
Self-Study	320	4	1280
Total Workload			1492
Total Workload/30(h)			49.73
ECTS Credit of the Course			50