MIDDLE EAST TECHNICAL UNIVERSITY
NORTHERN CYPRUS CAMPUS

GENERAL CATALOG
2015 - 2017

METU NORTHERN CYPRUS CAMPUS

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ÖZKAN, Türker **(Member) (Acting Secretary General of METU);** Assoc. Prof. Dr. : B.S., M.S., METU; Ph.D. University of Helsinki
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CAMPUS ADMINISTRATION

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Vice President of the Campus: KARAKAŞ, Gürkan Prof. Dr., B.S., M.S., Ph.D., METU (*From METU-Ankara*)
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Assistant to the President: ESAT Volkan, Assoc. Prof. Dr., B.S., Gazi University, M.S., METU, Ph.D., Loughborough University
Assistant to the President: SABAH Cumali, Assoc. Prof. Dr., B.S., M.S., Ph.D., Gaziantep University
Assistant to the President: SHIKAKHWA Mohammad, Assoc. Prof. Dr., B.S., University of Jordan; M.S., Ph.D., METU
Assistant to the President: SOLYALI Oğuz, Assoc. Prof. Dr., B.S., M.S., Ph.D., METU
Director of School of Foreign Languages: IŞIK TAŞ Eda, B.A., M.A., Ph.D., METU
Secretary General of the Campus: KÜPELİ Levent, B.S., Gazi University

ADMINISTRATIVE OFFICERS

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Mustafa Ozan UÇAR	:	Director of Construction and Technical Services
Servet Sadık HIRKA	:	Director of Financial Affairs
Dr. Sıdıka KAYIMBAŞIOĞLU	:	Director of Health Center
Aysel Arifoğlu GÜNSEL	:	Director of Human Resources
Doruk NEZİR	:	Director of Information and Communication Technologies
Barış Sezen	:	Acting Director of Institutional Information Management
Habibe MUHTAROĞLU	:	Director of Institutional Relations and Communication
Zuhal TOPALOĞLU	:	Director of Library and Documentation
Ebru Yeltekin ERAS	:	Director of Procurement and Movable Property Office
Nazile KÜPELİ	:	Director of Social and Cultural Affairs

Metin GEZGİN	:	Director of Sports and Recreation
Dr. Özcan KASAL	:	Director of Student Affairs
Dr. Eda Sun SELIŞIK	:	Director of Student Development and Counseling Center

GENERAL INFORMATION

Middle East Technical University Northern Cyprus Campus (METU NCC) was established as a result of an invitation conveyed to METU in the year 2000 by the Governments of Republic of Turkey and Turkish Republic of Northern Cyprus (TRNC), with the mission of carrying METU's educational standards to Northern Cyprus. It is a major higher education project financed by the Republic of Turkey and serves not only the Turkish students but also the international community. METU Northern Cyprus Campus is built on an area of 339 hectares (137 acres), approximately 50 km west of Lefkoşa (Nicosia) and 6 km north of Güzelyurt (Morphou) a town with a population of 19,000. The campus with modern education buildings, laboratories, student dormitories, staff housing and wide range of social, cultural and sports facilities and recreational areas has been completed to accomodate around 3000 students.

METU NCC started admitting students to undergraduate programs in Ankara Campus in 2003-2004, and has been carrying out education and research activities since the 2005-2006 academic year in the campus facilities established in Güzelyurt, TRNC. METU NCC commenced the 2015 – 2016 academic year with 15 undergraduate and 3 graduate programs in engineering and social sciences.

METU NCC is attached to the main campus in Ankara in all academic and administrative affairs. All degree programs of METU NCC are approved by the METU Senate, and provide the same quality standards of the main campus in Ankara. The METU NCC academic staff are recruited and promoted in accordance with the criteria set forth by METU Senate and Administrative Board.

METU NORTHERN CYPRUS CAMPUS
SCHOOL OF FOREIGN LANGUAGES

Academic Staff
(2015-2016 Academic Year)

Full-Time Academic Staff

AKGÜNAY, Ayşe Zeynep, B.S., METU
BALCI Büşra, B.A.,M.A., Bilkent University
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BAŞER Pınar, B.A., İstanbul University
BECKHAM,Aubry, B.A., Lynn University
CABA, Ozan Sinan, B.S., Dokuz Eylül University; M.S., University of Edinburgh
COŞAN, Pervin, B.A.,METU NCC; M.A., Durham University
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ÇERKEZ Tanyel, B.A. Eastern Mediterranean University
ÇINAR SHIKAKHWA Meral, B.A., METU NCC
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DİNÇER Ahu, B.A., Boğaziçi University
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DURMAZ GÜRAN Semra, B.A., METU; M.A. Bilkent University
GÖK Gökçen, B.A., Yıldız Technical University; M.A, METU NCC
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KARANFİL Talip, B.A., Hacettepe University; M.A., European University of Lefke
KILINÇARSLAN Nuran, B.A., Atatürk University; MATEFL, Bilkent University
KIR, Furkan Şevket, B.A., METU
KOCAMAN Ceren, B.A. Hacettepe University
KORKMAZ Filiz, B.A., METU
MİRELİ, Melis, B.A, METU NCC
MİRİLLO Hüran, B.A., Hacettepe University; M.Ed., University of Manchester
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ÖNCÜL, Gamze, B.A., Ankara Univerity; M.A., Ph.D., Hacettepe University
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ÖZBAY Esra, B.A., Hacettepe University; M.A., METU NCC
ÖZDİL, Büşra Müge, B.A., METU

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ŞAHİN Pınar, B.A., METU
ŞENOL Burçin, B.A., M.A, Eastern Mediterranean University
ŞENOL MERT, Rana, B.A., University of Pittsburgh; M.A., Palmer School, M.A., The New School
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TURGUT, Zeynep Beril, *Spanish*; B.A., Ankara University
TÜM Danyal Öztaş, B.A., Eastern Mediterranean University; M.A., University of Texas at Austin; Ph.D., University of London
ULUÇ, Sinan, B.A., Ege University
ÜNLÜSOY Mehmet, *German;* B.A., M.A., Ph.D., İstanbul University
WEBB, Rhian, B.A., University of Westminster; M.A., The Open University
YER, Fatma, B.A., Hacettepe University; M.A. (in progress) METU
YILMAZ Songül, B.A., METU NCC
YÜKSEK Süleyman Sercan, B.A., M.A., Çağ University

Part-Time Academic Staff

DRURY Dorinda Jane, R.S.A. Diploma TEFLA, Beet Language Center Bournemouth, R.S.A. Certificate TEFLA, ITTC Bournemouth
EKİCİ Şeray, *French*; B.A., Dokuz Eylül University; M.A., Blaise Pascal University

DESCRIPTION OF COURSES

ENGL 011 Beginner's Level
The initial 270 hours of this 480 hour course is designed to equip students with the basic language and vocabulary required to practice academic skills. Practice in listening, speaking, reading and writing is provided for language reinforcement purposes. The remaining contact hours are dedicated to introducing students to reading, listening, writing and speaking for academic purposes.

ENGL 012 Pre-Intermediate Level
This second-semester 480-hour course, which is designed as the continuation of the 011 course, aims to bring students to a level that will enable them to fulfill the requirements of their first-year courses. The focus is on practicing academic skills, namely reading, listening, writing and speaking, to complete a given task. Further language and vocabulary reinforcement is provided through exposure to academic texts, both written and spoken.

ENGL 021 Elementary Level
This 320-hour course is designed so as to provide students with 100 hours of initial language and vocabulary input during which practice in listening, speaking, reading and writing is provided for language reinforcement purposes. This initial stage is followed by practice in reading, listening, writing and speaking for academic purposes.

ENGL 022 Intermediate Level
This 320-hour second-semester course is a follow-up to the 021 course. The aim is to provide students with further language practice through exposure to upper-intermediate-level spoken and written texts. The course is designed to include ample opportunity for the students to further practice the academic skills that they will need in order to fulfill the requirements of their first-year courses.

ENGL 031 Intermediate Level
In this 320-hour course, the students are introduced to the academic skills required in their first-year courses. These skills include reading for academic purposes, listening and note-taking, writing short texts based on information from their readings and listening input as well as speaking. While practicing these skills, students are also provided with the opportunity to expand their knowledge of language use and vocabulary.

ENGL 032 Upper-Intermediate Level
This 320-hour course, which is the continuation of the 031 course, aims at bringing the students to a proficiency level required by their departments. The primary objective of this course is to enable students to purposefully use language through skills integration. Language and vocabulary are treated as a vehicle to extract meaning and facilitate task completion.

ENGL 041 Upper-Intermediate Level
This 320-hour course is designed to cater for the needs of upper-intermediate level students whose proficiency level is only slightly below the level required by the University. The aim of this course is to provide students with meaningful language practice through the use of tasks which require them to put into practice the academic skills that they will need to use during their freshman year

ENGL 042 English Towards Proficiency
This 320-hour course aims to provide students who have have obtained a score of 49.5-59 in METU English Proficiency Exam (EPE) with further input and practice in language skills. While the course content is mostly based on course books, ample practice aimed at EPE type tasks is given during the latter stages of the course.

ENGL 101 Development of Reading and Writing Skills I (4-0)4
The course reinforces academic reading skills (finding the main idea, skimming, scanning, inferring information, guessing vocabulary from context, etc.) through reading selections on a variety of topics. It also aims at developing critical thinking, which enables students to respond to the ideas in a well-organized written format. Other reading related writing skills such as paraphrasing and summarizing are also dealt with in this course.

ENGL 102 Development of Reading and Writing Skills II (4-0)4
The course reinforces academic writing skills. In this course students write different types of essays based on the ideas they are exposed to in the reading selections. The emphasis is on the writing process in which students go through many stages from brainstorming and outlining to producing a complete documented piece of writing.*Prerequisite: ENGL101*

ENGL 211 Academic Oral Presentation Skills (3-0)3
The course aims at developing oral presentation skills. To this end, students are engaged in classroom discussions following advanced reading texts on a variety of topics. In this course students study effective presentation techniques, do extensive reading and carry out research to give presentations

of different functions with mature content and topical vocabulary.
Prerequisites: ENGL101, and ENGL102.

ENGL 311 Advanced Communication Skills (3-0)3
This is a course designed to develop communication skills in a business context. The course is divided into two parts, namely job-seeking skills (CV and application letter writing, interview skills, etc.) and on-the-job skills. Emphasis is given to accuracy, fluency and effectiveness of students in certain business tasks such as socializing, telephoning, presenting information, and holding meetings.
Prerequisites: ENGL101, ENGL102, and ENGL211.

FRENCH

FRN 201 Beginning French I (4-0)4
French 201 is a class for students with no experience in the language. Basic conversation, reading, listening and writing skills are taught at the 201 level. Students learn regular verbs ending in "er" and some irregular verbs: to be, to have, to do, to go, etc. Present tenses, basic negations, questions, adjectives, pronouns usage are also part of the 201 core. Main conversation topics include: introducing oneself, talking about food, clothes, family, telling time, and different actions in the present tenses.
Prerequisites: ENGL101,ENGL102 and consent of the instructor.

FRN 202 Beginning French II (4-0)4
French 202 is a continuation of FRN 201. Students who desire to enter the 202 level without taking 201 should acquire the textbook used in the 201 level and review the chapters covered in that class. More of the basic conversation, reading, listening and writing skills are taught at the 202 level. Students learn more regular and irregular verbs. Future, subjunctive and more past tenses are introduced as well as grammar items such as question formation and pronoun usage. Main conversation topics include: talking about memories, hobbies, future plans and cultural aspects of the French speaking world.
Prerequisite: ENGL101,ENGL102, FRN 201 and consent of the instructor.

FRN 203 Intermediate French I (4-0)4
French 203 is foremost a review of some of the basic grammar items covered in previous courses with an emphasis on exceptions to rules and new vocabulary items to improve conversation skills. Conversation, reading and writing skills are taught in order for students to improve their knowledge and usage of the language. French 203 reviews and improves usage of regular verbs (like "parler" "finir" "repondre") and some of the irregular verbs (using all the tenses).
Prerequisites: ENGL101,ENGL102, FRN 202 and consent of the instructor.

FRN 204 Intermediate French II (4-0)4
French 204 is a continuation of FRN 203. Students need to understand that entering a 204 level requires a good understanding of spoken French as well as the ability to write and express oneself in the language. Students entering this specific level will join a group of their peers who have used and reviewed the language at the 203 level with exercises in conversation, reading, listening and writing skills. French 204 reviews and improves the use of subjunctive, conditional and future tenses. Complex sentences, questions and prepositions use are also part of the curriculum.
Prerequisites: ENGL101,ENGL102, FRN 203 and consent of the instructor.

GERMAN

GRM 201 Basic German I (4-0)4
German 101 begins with an introduction to basic vocabulary, from numbers and greetings through foods and furniture to travel topics. Class time is used to practice speaking and listening skills, where you can expect to respond to questions, do numerous pair exercises and participate in role playing. Students learn about the gender of nouns and pronouns, the nominative, accusative and dative cases and the use of prepositions. Regular and irregular verbs in both the present and present perfect tenses are taught as well as modal auxiliary verbs. Among others, the basic functions of asking and giving personal information, making a purchase, ordering in a restaurant, and giving directions are stressed in written homework as well as in oral work in class. The reading assignments and supplements to the book provide interesting cultural information about the German-speaking countries.
Prerequisites: ENGL101,ENGL102 and consent of the instructor.

GRM 202 Basic German II (4-0)4
German 202 reviews the students' basic knowledge of the nominative, accusative and dative cases and introduces the genitive. Students will be taught how to tell stories in the simple past tense, use attributive adjectives, make comparisons, use the future tense, form sentences in passive voice, and to use the subjunctive to indicate conjecture. Discussion topics include sports and leisure, overnight lodging, entertainment, the German school system, fairy tales and German history. Written practice comes mainly in the form of homework, and time in class

concentrates on practicing speaking and listening.*Prerequisites: ENGL101,ENGL102, GRM 201 and consent of the instructor.*

GRM 203 Intermediate German I (4-0)4
This first level of the intermediate sequence reviews the basic skills which students acquired in their elementary language study and expands upon them. Although a thorough review of all grammar is given, special attention is paid to the following difficult areas of grammar: adjective endings, past tenses, relative pronouns. The exercises are designed to increase your ability to read, write, speak and understand German. You will be given a selection of authentic reading assignments which are appropriate for your level, and which deal with topics of German-speaking culture and life in Europe. Role play, pair work and writing assignments ask for your personal, creative reaction to the readings. Real life situations such as dialogues in restaurants and at the train station are imitated in classroom pair work. All class discussions, readings and written assignments are in German, but do not require an advanced level of language ability.
Prerequisites: ENGL101,ENGL102, GRM 202 and consent of the instructor.

GRM 204 Intermediate German II (4-0)4
German 204 is a continuation of the intermediate level and builds upon the skills practiced in 203 including further work on passive voice, subjunctive and relative pronouns. GER 203 is the prerequisite for advanced level German language classes. Classroom discussions and written assignments center on authentic short literary and cultural texts and one novella of moderate length. The course is taught in German. Class work provides listening and speaking practice while homework affords the chance to sharpen writing skills.
Prerequisites: ENGL101,ENGL102, GRM 203 and consent of the instructor.

SPANISH

SPN 201 Beginning Spanish I (4-0)4
This course is designed for students with no previous knowledge of Spanish. Students will learn basic grammar in an oral/aural context in each class. Students of Spanish 201 are expected to develop the four language skills of speaking, listening, basic reading and writing as well as an appreciation of Hispanic culture. Students will be exposed to native speakers of Spanish in an interactive CD ROM and videos on Spain.
Prerequisites: ENGL101,ENGL102and consent of the instructor.

SPN 202 Basic Spanish II (4-0)4
Students of Spanish 202 are expected to enhance the four language skills of speaking listening, reading, and writing. This class will introduce the past tenses, compound tenses, prepositions, and basic conversational skills. Speaking the language is greatly stressed at this level. Students will be exposed to native speakers of Spanish in an interactive CD ROM and videos on Spain. Moreover, they will improve their writing skills.
Prerequisites: ENGL101,ENGL102, SPN 201 and consent of the instructor.

SPN 203 Intermediate Spanish I (4-0)4
One purpose of this class is to review what the student already learned and to expand on her/his first year of Spanish. Students will learn how to use three different past tenses, future tense, and imperatives. All skills (reading, writing, listening, and speaking), as well as the three basic fields (grammar, literature, and culture) will be emphasized during the course.*Prerequisites: ENGL101,ENGL102, SPN 202 and consent of the instructor.*

SPN 204 Intermediate Spanish II (4-0)4
This course is a continuation and completion of the intermediate level: an expansion of Spanish language skills developed with exercises in conversation, oral comprehension, composition based on cultural and literary readings.
Prerequisites: ENGL101,ENGL102, SPN 203 and consent of the instructor.

NORTHERN CYPRUS CAMPUS
DEGREE PROGRAMS UNDER ACADEMIC BOARD OF SOCIAL SCIENCES

Academic Staff
(2015-2016 Academic Year)

Full-Time Academic Staff

AKGÜNAY Merih Rafet, Instr. Dr., *Political Science and International Relations;* B.A., METU; B.A., Fletcher School of Law and Diplomacy; Ph.D., METU

AQUILI, Luca, Assist. Prof. Dr., *Psychology*, B.S., Northumbria University; M.S., King's College London; Ph.D., University of St Andrews

AYDIN Zülküf, Prof. Dr., ***Coordinator of Political Science and International Relations Program****;* B.A., Ankara University; Ph.D., Durham University

BARACCO Luciano Itario, Assist. Prof. Dr., *Political Science and International Relations*; B.A, University of York; M.A., University of Leeds; Ph.D., University of Bradford

BOYD Scott, Assist. Prof. Dr., *Teaching English as a Foreign Language;* B.A., M.A., University of South Florida; Ph.D., Ohio University

BOZTEMUR Recep, Prof. Dr., ***Head of Academic Board of Social Sciences***, *History;* B.A., Ankara University; M.A., METU; Ph.D., University of Utah (*From METU-Ankara*)

BUGAY TUNA, Aslı, Assoc. Prof. Dr., ***Coordinator of Guidance & Psychological Counseling Program***, B.S., Ankara University; Ph.D., METU

ÇELİK İlknur, Instr. Dr., ***Co-Coordinator of Computer Education and Instructional Technology Program****;* B.S., Eastern Mediterranean University; Ph.D., University of Nottingham

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ALPER Sinan, Instr., *Psychology*; B.S., METU, M.A., London School of Economics and Political Science

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BEİDOĞLU Müge, Assist. Prof. Dr., *Guidance & Psychological Counseling*, B.S., İstanbul University; M.Ed., University of Southern California; Ph.D., METU

CANKOY, Osman, Assoc. Prof. Dr., *Computer Education and Instructional Technology*, B.S., M.S., Ph.D., METU

CEYLANDAĞ Rana, Instr. Dr., *Guidance & Psychological Counseling*, B.S., Boğaziçi University; M.S., Ph.D. METU

ÇIRAKMAN Elif, Assoc. Prof. Dr., *Philosophy*; B.S., METU; M.A., University of Warwick, England; Ph.D., METU (*From METU-Ankara*)

DELİALİOĞLU, Ömer, Assist. Prof. Dr., *Computer Education and Instructional Technology*; B.A., M.A., Ph.D., METU (*From METU-Ankara*)

EMİL Serap, Assist. Prof. Dr., *Psychology*, B.S., M.S., METU; Ph.D., Portland State University *(From METU-Ankara)*

ERDUR BAKER, Özgür, Prof. Dr., *Guidance & Psychological Counceling*, B.S., Ankara University; M.A.,Ph.D.,University of Texas at Austin *(From METU-Ankara)*

EROL Süleyman, Instr. Dr., *Business Administration;* B.S., METU; M.S., University of Illinois at UC; Ph.D., Marmara University

GÜRE Pınar Derin, Assist. Prof. Dr., *Economics*, B.S., M.S., METU; Ph.D. Boston University *(From METU-Ankara)*

GÜRSEL, Mayda, Assoc. Prof. Dr., *Biology*, B.S., M.S., METU; Ph.D., University of London *(From METU-Ankara)*

KAPLAN AKILLI, Göknur, Instr. Dr., *Computer Education and Instructional Technology*, B.S., Hacettepe University; M.S., METU; Ph.D., Penn State University *(From METU-Ankara)*

KARAASLAN, Hasan, Instr. Dr., *Computer Education and Instructional Technology*, B.S., M.S., Ph.D., METU *(From METU-Ankara)*

KENTEL SAGUN Aysu, Instr. Dr., *Architecture*; B.A., M.A., Ph.D., Bilkent University

KILINÇOĞLU ÇAKIR Sevil, Instr., *Political Science and International Relations*; B.S., Hacettepe University; M.A., METU, Ph.D., Leiden University (in progress)

KORKUT OWEN Fidan, Prof. Dr., *Guidance & Psychological Counseling*, B.A., M..A., Ph.D; Hacettepe University

KÜÇÜKKAYA Engin, Assoc. Prof. Dr., *Business Administration;* B.S., M.S., METU; Ph.D. University of South Florida, COBA (*From METU-Ankara)*

ÖZDEMİR Ali Murat, Prof. Dr., *Political Science and International Relations*; B.S., Ankara University; M.S., University of Sussex; Ph.D. METU

ÖZEKE KOCABAŞ Ezgi, Assoc. Prof. Dr., *Guidance & Psychological Counseling*, B.S., M.S., Ph.D., METU

POLAT Filiz, Prof. Dr., *Guidance & Psychological Counseling Program;* B.S., M.S., METU; Ph.D., University of Manchester

SOL Ayhan, Prof. Dr., *Philosophy;* B.S., İstanbul University, M.S., Florida University; Ph.D., METU (*From METU-Ankara*)

SÜMER Zeynep, Assoc. Prof. Dr., *Guidance & Psychological Counceling*, B.S.,M.S.,Ph.D., METU *(From METU-Ankara)*

TOKEL Tuğba, Assist. Prof. Dr., *Computer Education and Instructional Technology*; B.S., M.S., METU; Ph.D., Texas University (*From METU-Ankara*)

TOPAL Aylin, Assist. Prof. Dr., *Political Science and International Relations*, B.S., METU; M.S., Bilkent University; Ph.D., New School for Social Research *(From METU-Ankara)*

TOROS Emete, Instr. Dr., *Business Administration;* B.S., İstanbul University, M.B.A., University of West Georgia; Ph.D., Salford University, UK

NORTHERN CYPRUS CAMPUS
BUSINESS ADMINISTRATION PROGRAM

GENERAL INFORMATION: The program prepares its students to careers in management by giving them a very wide ranging education. The curriculum has been designed to ensure that students are provided solid foundations in all of the functional areas of Business Administration, as well as, the basics of other economic and administrative sciences. Furthermore, a large number of electives allow students to deepen their knowledge in a number of areas that they choose. As a result, graduates of this program will be well equipped to tackle a wide range of issues they will encounter in their future as successful managers.

CAREER OPPORTUNITIES: Graduates of this program will be excellent candidates to work as managers with a strong background in business administration and solid foundations in all economic and administrative sciences. This will give them a broad vision and strengthen their ability to understand the rapidly changing world around them. They will be prime candidates for upwardly-mobile management positions in companies.

UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester				Second Semester			
BUS	111	Fundamentals of Business	(3-0)3	BUS	142	Financial Accounting	(3-0)3
ECO	101	Microeconomics	(4-0)4	BUS	152	Statistics for Social Sciences	(3-0)3
ENGL	101	Development of Reading and Writing Skills I	(4-0)4	CNG	100	Introduction to Information Technologies and Appl.	(2-0)NC
GPC	100	First Year on Campus Seminar	(0-2)1	ECO	102	Macroeconomics	(4-0)4
MAT	119[a]	Calculus with Analytic Geometry	(4-2)5	ENGL	102	Development of Reading and Writing Skills II	(4-0)4
PSIR	101	Intro. to Sociol. and Politics	(3-0)3	PSIR	108	Introduction to Global Politics	(3-0)3
TUR	101[b]	Turkish I	(2-0)NC	TUR	102[b]	Turkish II	(2-0)NC

SECOND YEAR

Third Semester				Fourth Semester			
BUS	221	Org. Beh. and Soc. Psychol.	(3-0)3	BUS	222	Organization Theory	(3-0)3
BUS	271	Principles of Marketing	(3-0)3	BUS	232	Info. Sys. and Prog.	(3-0)3
BUS	281	Principles of Finance	(3-0)3	BUS	242	Managerial Accounting	(3-0)3
PSIR	237	Principles of Law	(3-0)3	ENGL	211	Acad. Oral Pres. Skills	(3-0)3
XXX	xxx	Elective	(-)3	XXX	xxx	Elective	(-)3
HST	201[c]	Principles of Kemal Atatürk I	(2-0)NC	HST	202[c]	Principles of Kemal Atatürk II	(2-0)NC

THIRD YEAR

Fifth Semester				Sixth Semester			
BUS	321	Human Resource Manag.	(3-0)3	BUS	312	Business Law	(3-0)3
BUS	361	Operations Management	(3-0)3	BUS	352	Management Science	(3-0)3
ENGL	311	Advan. Communic. Skills	(3-0)3	XXX	xxx	Elective	(-)3
XXX	xxx	Elective	(-)3	XXX	xxx	Elective	(-)3
XXX	xxx	Elective	(-)3	XXX	xxx	Elective	(-)3

FOURTH YEAR

Seventh Semester				Eighth Semester			
BUS	431	Information Systems	(3-0)3	BUS	400	Graduation Project	(0-6)3
XXX	xxx	Elective	(-)3	BUS	412	Strategic Processes and Management	(3-0)3
XXX	xxx	Elective	(-)3	XXX	xxx	Elective	(-)3
XXX	xxx	Elective	(-)3	XXX	xxx	Elective	(-)3
XXX	xxx	Elective	(-)3	XXX	xxx	Elective	(-)3

[a] Students who are unable to achieve the minimum required passing grade in the Mathematics Proficiency Exam are required to take MAT 100 before MAT 119

[b] International students will take TUR 201 and TUR 202, which may be taken in the first year by the consent of the advisor.

[c] International students will take HST 205 and HST 206 instead of HST 201 and HST 202.

ELECTIVE COURSES

The curriculum has 14 elective courses, seven of which should be taken from the BUS program. At most three "free electives" can be taken. The remaining courses can be BUS (elective), ECO, PSIR courses (2nd year or higher level with at least 3 credits).

The list below shows *some* of the Business courses that may be offered as electives.

- BUS 362 Quality Management
- BUS 381 Financial Institutions and Markets
- BUS 413 Leadership Theory and Application
- BUS 415 Business Ethics
- BUS 416 Organization, Work and Society
- BUS 418 Project Management
- BUS 421 Organizational Influence Processes
- BUS 424 Current Issues of Industrial Relations
- BUS 427 Cases in HR Appraisal and Management
- BUS 436 Cases in Quality Management
- BUS 451 Business Forecasting
- BUS 457 Decision Analysis: Tools and Methods
- BUS 461 Supply Chain Management
- BUS 463 Production Planning and Control
- BUS 466 Services Management
- BUS 471 Marketing Research
- BUS 472 Principles of Advertising
- BUS 473 International Marketing
- BUS 474 Consumer Behavior
- BUS 476 Retailing
- BUS 480 Analysis of Financial Statements
- BUS 484 Investment Management
- BUS 486 Industrial Organization

The list below shows *some* of the non-Business courses that BUS students can take as electives:

- PSIR 203 History of Political Thought
- PSIR 202 Constitutional Law
- ECO 201 Intermediate Microeconomics
- ECO 202 Intermediate Macroeconomics
- ECO 301 Introduction to Econometrics
- ECO 455 Turkish Economic History
- ECO 466 Economics of Growth
- ECO 211 Economic History
- ECO 212 History of Econ. Thought
- PSIR 361 Turkish Politics and Political Structure
- PSIR 345 Turkish Foreign Policy
- ECO 303 International Trade Theory and Policy
- ECO 306 Monetary Theory and Policy

DESCRIPTION OF COURSES

BUS 111 Fundamentals of Business (3-0)3
Basic concepts and principles of Management; the functions of planning, organizing, staffing, directing and controling, and their relationships to key issues in Management practice such as leadership, motivation, and communication.

BUS 142 Financial Accounting (3-0)3
This course will provide students with a solid foundation for becoming a manager by giving them a fundamental understanding of accounting theory and practice both internationally and in Turkey. Students will be provided with the basic tools they require from the field of Financial Accounting.

BUS 152 Statistics for Social Sciences (3-0)3
This course covers basic statistical concepts and methods useful in decision making in the business environment. Emphasis on descriptive and inferential tools used in converting raw data into useful information. Use of statistical computer packages and interpretation of statistical results. Topics include descriptive statistics, discrete and continuous probability distributions, sampling distributions, estimation**,** hypothesis testing, analysis of variance, simple linear regression, multiple regression, multiple regression model building, and time series analysis.

BUS 221 Organizational Behavior and Social Psychology (3-0)3
The human element is a fundamental component of management. This course introduces students to the fundamental concepts and research in social psychology and human behavior. Particular attention is given to human behavior in large and complex organizations and the impact of organizations on human interrelationships. The course thus focuses on how social factors influence individual behavior. Topics include basic research methods, causes and effects of biases, attribution, happiness, depression, individualism, collectivism, conformity, gender, corruption, communitarianism, persuasion, groups and productivity, diversity and prejudice, conflict. Skills and strategies in organizational development and change, such as leadership, influence and control systems, group dynamics, and personal/organizational goals. The implications for managers in these areas are a major focus for this course.

BUS 222 Organization Theory (3-0)3
Introductory survey and analysis of major theories dealing with organizational characteristics and processes. The relationship between theories and supporting empirical evidence. Current issues in organization theory, decision-making, the organizational environment, and the changing nature of organization in contemporary society.

BUS 232 Information Systems and Programming (3-0)3
Advanced features of word processors, spreadsheets, and data base management systems. Internet applications. Web page design with html tags. Introduction to algorithms and structured programming. Structure and basic elements of a programming language: Character set, identifiers, data types and declarations, constants, and expressions. Selection and looping. Modular programming: Functions and procedures. Text files. One-dimensional arrays.

BUS 242 Managerial Accounting (3-0)3
Introduction to managerial accounting. Accounting as an informational system to provide managers with the basis for decision-making. Includes basic CVP analysis, job and process costing, standard costing and variance analysis, as well as specific situational decision-making matrices.
Prerequisite: BUS 142.

BUS 252 Applied Business Techniques (3-0)3
Use of intermediate statistical techniques in business and economic problem solving (ie cost estimation, forecasting, survey analysıs). Includes non-parametric tests, analysis of data across different groups, regression model buildıng and estimation (including non-linear forms and moderating and mediatıng effects), time series forecasting and index numbers.
Prerequisite: BUS 152.

BUS 271 Principles of Marketing (3-0)3
Introduction to the nature of marketing; development of marketing over time; consumer behavior; market segmentation; product development and policies; pricing methods and practices; distribution, marketing communications; marketing research; international marketing; contemporary issues in marketing.

BUS 281 Principles of Finance (3-0)3
This course addresses the theory and practice of financial management--the generation and allocation of financial resources. It provides students with grounding in the basic concepts of finance, including the time value of money, the role of financial markets, asset valuation, capital budgeting decisions,

portfolio theory, asset pricing, and the risk-return tradeoff.
Prerequisite: BUS 142.

BUS 312 Business Law (3-0)3
Introductory course on the legal environment of business. The course covers such subjects as: merchants, their rights and obligations; contract agency; legal forms of business; negotiable instruments; insurance law; maritime law.

BUS 321 Human Resource Management (3-0)3
The Management of human resources in complex organizations. Personnel recruitment and selection; increasing employee effectiveness; employee and Management development; performance evaluation; motivation communication; employee morale; labor Management relations; grievance and disciplinary actions; incentives and security.
Prerequisite: BUS 221.

BUS 352 Management Science (3-0)3
Covers the most commonly used models/methods of Operations Research/Management Science; emphasizes on business applications rather than a mastery of the solution algorithms. Linear and dynamic programming, inventory and queuing models, simulation modeling and applications are studied.
Prerequisite: BUS 152.

BUS 361 Operations Management (3-0)3
Introduction to Managerial problems in production and operations; design, planning and control of production and service systems. Topics covered; Demand Management, Product Design, Process Selection, Job Design and Work Measurement, Capacity Planning, Facility Layout/Location Problems, Aggregate/Master Production Scheduling, Inventory Management, Operations Scheduling, MRP II, JIT and TOC.
Prerequisite: BUS 152.

BUS 362 Quality Management (3-0)3
Provides a comprehensıve coverage of qualıty management as an important business enabler. Quality theory and global supply chain quality and İnternational Quality Standards. Design of quality and quality services, quality assurance. Tools of quality, statistically based quality improvement, six sigma quality management and tools. Managing learning for quality improvement.
Prerequsite: BUS 152.

BUS 381 Financial Institutions and Markets (3-0)3
The course does not aim to make experts of the students in the field of high finance but it does aspire to build with them a firm grasp of the basic financial principles that guide financial decisions and financial markets operations. Financial intermediation will be explained and substantiated along with operations, functions and participants of the markets. The evolution of the markets will be explained along with the pricing methods of money markets and capital markets. This overview will be extended to include international markets as well. The course will move also to the actual instruments the markets use and how these can be optimally used by the players. Principles of money management will be explained as well as industry-relevant portfolio management techniques. The advent of EU institutions and the introduction of the Euro will be examined and explained in terms of the above.
Prerequisite: BUS 281.

BUS 391 Innovation Management (3-0)3
This course is intermediate and advanced study of innovation management, focusing on radical innovation, which is a critical aspect of firm management in the global era. It will address the question of how firms survive in the era of globalization. In recent years, major multinational firms found themselves met with competition from small and medium start-ups that challenged giant firms with quick and radical innovation strategies. The radical innovation strategies were successful in the market place, as traditional innovation strategies of incremental changes couldn't survive new market challenges from new firms. This course provides students with existing and new theories of radical innovation through various case studies. Students are required to complete both take home and in class assignments, as well as developing their own cases.

BUS 400 Graduation Project (0-6)3
Students will form preferably interdisciplinary groups and will prepare a paper on a research or policy issue that the students will identify. Each group will be supervised by one or two instructors. In addition to the final report at the end of the semester, the group will be required to submit a minimum of 1 progress report halfway through the semester.

BUS 401 Fundamentals of Entrpreneurship (3-0)3
This course aims to provide the graduating students i.e potential entrpreneurs, with the basics they need in order to set up their own business, or become intrapreneurs, alias organizational entrepreneurs, within their own organizational framework. The

course content includes introductory information into the concept of entrepreneurship, entrepreneurial perspectives, developing the entrpreneurial plan, marketing research, financial preparation, developing an effective business plan, assessment and evaluation of entrepreneurial opportunities, Turkish legal requirements, sources of capital, managing entrpreneurial growth, valuation of business ventures, and intrapreneurship.

BUS 411 E-Technologies and Managerial Applications (3-0)3
The course starts with the key issues of e-Technologies, e-Business, e-Government, and e-Commerce. Then the infrastructure, business environment, business strategy, CRM, SCM topics are discussed. Hands-on exercises and a term project will enable the students learn the basics by doing.

BUS 412 Strategic Processes and Management (3-0)3
This is a capstone course aimed at providing an opportunity for Business Administration students to integrate materials covered in their previous core and supporting courses. The course focuses on the development of skills in identifying, analyzing, and solving realistic business problems.

BUS 413 Leadership Theory and Applications (3-0)3
This course is designed to equip students with the knowledge and skills necessary to work more effectively with individuals and groups in contepporary organizations. Some examples of topics covered include using power of influence followers and others, delegating effectively, dyadic role making theories, contingency theories of leadership, leading change, strategic leadership and managing diversity**.**

BUS 415 Business Ethics (3-0)3
This course introduces students to a series of ethical challenges currently facing the corporate world by taking a historical look at the proponents and critics of capitalism as well as the role of business and businesspersons in civil society. Building on the work of a wide variety of authors presented in the textbook for the course. Discussion and debates on recent business crises and other disquieting trends in the corporate world. Implications for developing ethics policies are considered. This course examines the foundations of moral reasoning and the analysis of ethical issues that arise in a wide range of contemporary business practices, both domestically and globally. The central aim of the course is to enable students to develop a framework through which to recognize, analyze, and address challenges as they arise in their careers. The course also involves an evaluation of the institutions that structure the interaction of corporations and individuals in the conduct of business.

BUS 416 Organization, Work and Society (3-0)3
This course is concerned with the social-cultural ethnic context of work in business organizations; focusing on the business environment as affecting social behavior and applying OB concepts in diverse cultural settings. It overviews relevant topics in Human Relations area, focusing on selective human issues and topics that have must been covered in the previous courses, introduces OB in a global context in parallel with the developments in the larger world context, and tries to help students to integrate social-cultural-ethnic concepts in the light of changing world order. Topics include the individual, the group, and the organization system, with a specific emphasis on thought-provoking ideas to simulate interest and discussions.
Prerequisite: BUS 222.

BUS 418 Project Management (3-0)3
The course provides a review of CPM and PERT models to cover cases with certain and uncertain activity times; project crashing; and PERT/Cost analysis; GANTT charts and resource leveling decisions; use of simulation in connection with project scheduling; project control, revision and verification techniques; computer applications using commercial software.
Prerequisite: BUS 152.

BUS 421 Organizational Influence Processes (3-0)3
Influence processes that individuals go through within organizations in order to accomplish personal and/or organizational goals are analyzed in this course. Topics include formal versus informal organization; authority versus power; individual and organizational sources of power; organizational politics, methods of influence, strategies and tactics for acquiring, increasing and using power, and ethics of political behavior.
Prerequisite: BUS 221 or BUS 222.

BUS 424 Current Issues in Industrial Relations (3-0)3
The objective of the course is to acquaint the student with a general framework of the actual play of forces in the labor market ant the international and national levels, taking into consideration the rapid change in the structure of the labor force and industrial relations as a result of the developments in technology, globalization and new forms of work organization.
Prerequisite: BUS 321

BUS 431 Information Systems (3-0)3
The course stresses the value of information as an organizational resource; covers system development methodologies, systems analysis, design, implementation and evaluation, prototyping, data communications and database management.
Prerequisite: BUS 232.

BUS 432 Topics in MIS (3-0)3
The course provides a practical understanding of the concepts and theories involved in the development and implementation of Management information systems. The identification of various information subsystems, the initiation of and responsibility fort he MIS project, the strategies for the determination of the system requirements, methods and tools fort he analysis and design of the new system, software and hardware selection criteria are among the topics discussed through various case studies.
Prerequisite: BUS 431.

BUS 433 Database Design and Management (3-0)3
Basic concepts of database design and management are offered in this course. File structures and data storage organization, searching, sorting and reporting, conceptual database design: relational models and table normalization; ER-model, relational query languages, information protection and concurrency control, computer applications are major areas covered. *Prerequisite: BUS 232.*

BUS 435 Computers and Networking (3-0)3
A practical hands-on course on UNIX and Internet. Topics include UNIX basics and command language, networking basics, communication protocols, services and tools available on Internet
Prerequisite: BUS 232.

BUS 451 Business Forecasting (3-0)3
Introduction to quantitative and subjective forecasting methods. Evaluating forecast accuracy. Smoothing methods: Simple, Holt's and Winters' exponential smoothing techniques. Forecasting with Regression Methods: Forecasting with simple linear trend, using casual regression models, and forecasting with multiple regression models. Time-series Decomposition models. Finding seasonal indexes, and long-term trend, and measuring cyclical component. Box-Jenkins (ARIMA) forecasting models. Introduction to simulation usage in forecasting. Combining Forecast results and Forecast Implementation are areas covered in the course.
Prerequisite: BUS 152.

BUS 461 Supply Chain Management (3-0)3
This course introduces the concepts, models, and solution tools that are needed in the design, control, and operation of supply chains. The discussion ranges from basic topics of inventory management, logistics network design, distribution systems, strategic alliances, buyer-supplier relationships, the value of information in the supply chain, utilizing readings, cases, and technical exercises.
Prerequisites: BUS 352.

BUS 463 Production Planning and Control (3-0)3
This is a continuation of BUS 361. Topics that will be covered include static and dynamic planning models, planning for mass production, planning and control of batch production; deterministic and stochastic models of batch production; deterministic and stochastic inventory models, MRP, maintenance and manpower planning.
Prerequisite: BUS 361.

BUS 466 Services Management (3-0)3
This course presents a study of the inherent characteristics of service organizations in the public and private sectors; the service package and service delivery system; service design and process selection; forecasting in services; location and layout of service firms; human resources management; capacity management and the quality challenge in services.
Prerequisite: BUS 152.

BUS 470 Cross-Cultural Management (3-0)3
The interdependence of economies, political systems, and cultures has created a world of organizations that is no longer limited by national boundaries. Society and organizations alike have become microcosms of human diversity reflecting demographic, social, psychological and cultural differences. Increasingly managers interact with individuals and groups of different national origin and cultural backgrounds - whether in their own domestic corporations, as members of international organizations, or when working in foreign environments. This course is an introduction to the unique challenges faced by persons attempting to enter, interpret, understand, and above all function effectively in foreign environments with the goal of managing organizations and people having diverse notions of time, space, linguistic structures and work-related values and practices. There is a thematic focus on the "Big Emerging Market" countries, i.e. Argentina, Brazil, China, India, Indonesia, Mexico, Poland, South Africa, South Korea, and Turkey.

BUS 471 Marketing Research (3-0)3
This course provides a hands-on introduction to empirical methodology for market research applications. Problem formulation, research design, measure development, scaling techniques, attitude measurement, simple and applied multivariate analysis, report writing are topics covered. An extensive term project enables the student to put the course content into practice.
Prerequisite: BUS 152 and BUS 271.

BUS 472 Principles of Advertising (3-0)3
The course aims to introduce the student to an overview of the world of advertising industry and provide the fundamentals for developing, creating and implementing advertising campaigns based on strategic marketing principles and planning. The idea of the course is to develop students' knowledge and understanding of the advertising process. By the end of the course students will grasp the role of advertising and get familiar with the basic concepts and terminology used in the business.
Prerequisites: BUS 271

BUS 473 International Marketing (3-0)3
The course introduces the student to the global marketing environment including the global economy, cultural forces, and the political and regulatory climate, explores how managers analyze global opportunities, buyer behavior, competitors, and marketing research, describes global marketing strategies, foreign market entry options, and the global implications of managing the marketing mix.
Prerequisites: BUS 271.

BUS 474 Consumer Behaviour (3-0)3
This course centers on the role of the consumer in the marketing process, enables the student to understand why certain marketing strategies are more effective than others, how humans behave in the marketplace, and which social and cognitive mechanisms the consumer brings to the purchasing decisions. Strong managerial, psychological, and personal implications; individual, social, and marketing determinants of consumption behavior are covered in the course.
Prerequisites: BUS 271.

BUS 476 Retailing (3-0)3
The course aims to give the student an appreciation of the constant change and development in retailing. It introduces the students to basic qualitative and quantitative retail management concepts provides the student with current examples of retailing concepts in action: improves the student's skills in analyzing competitive situations and marketing opportunities.
Prerequisites: BUS 271.

BUS 480 Analysis of Financial Statements (3-0)3
The objective of the course is to provide the knowledge and the skills necessary to take full advantage of financial reports and analysis. Starting with an overview of financial accounting, the topics that will be covered include financial statements, ratio analysis, comparative analysis and the management of operating funds.
Prerequisites: BUS 281.

BUS 481 Quantitative Methods in Finance (3-0)3
This course will cover the application of select mathematical tools in business and economics. Among these topics are equilibrium analysis, sets, functions, matrices and determinants, sequences, limits, cobweb model, rate of change, exponential function, continuous compounding, introduction to optimization, derivatives, partial derivatives, chain rule, integration, martingales, Brownian motion, Markov processes. The aim is to introduce how mathematical tools are applied in economics and business, especially in finance.
Prerequisite: BUS 281.

BUS 482 Corporate Finance (3-0)3
This course is an introduction to the financial operations in business corporations and the related concepts like risk, rate of return, valuation. Topics covered: Risk, Rates of Return, Time Value of Money, Bond and Stock Valuation, Cost of Capital, Basics of Capital Budgeting, Cash Flow Estimation, Capital Structure and Leverage, Investment Banking and Securities Market.
Prerequisites: BUS 281.

BUS 484 Investment Management (3-0)3
The purpose of this course is to introduce the student to the area of investment with emphasis upon why individuals and institutions invest and how they invest. Topics include measures of risk and return; capital and money markets; process and techniques of investment valuation; principles of fundamental analysis; technical analysis; analysis and management of bonds; analysis of alternative investments; portfolio theory and application.
Prerequisite: BUS 281.

BUS 486 Industrial Organization (3-0)3
The course analyzes structure, conduct and performance in imperfectly competitive markets. It considers strategic interaction between firms, and provides understanding of competition within and for the market place. Topics include monopoly, price discrimination, product selection, oligopoly, price

competition, collusion, entry deterrence, reputation, limit pricing, and predation.

BUS 487 International Finance (3-0)3
The first part of the course aims at introducing the student to foreign exchange markets, exchange rate determination theories, forecasting and international trade financing. A project on Turkey will be assigned. The second part of the course deals with aspects of financial management for multinational corporations.
Prerequisite: BUS 281.

BUS 490 International Joint Venture (3-0)3
This is an intermediate and advanced course on international business. Students will learn basic economic and international strategic theories of cooperation through international strategic alliances and other forms of joint ventures. Students will be familiarized with both theoretical issues of strategic cooperation in international business and practical ways of achieving and managing international alliances, including joint ventures. Therefore, there will be three parts in this course: (1) theories of strategic alliance, (2) practices of establishing cooperation, and (3) managing ongoing alliance patterns in international business.

NORTHERN CYPRUS CAMPUS - SUNY NEW PALTZ

DUAL-DIPLOMA PROGRAM IN BUSINESS ADMINISTRATION

GENERAL INFORMATION: Since its establishment, The Middle East Technical University has embraced international quality standards and aimed for international recognition. In recent years, our university has developed different collaboration models in education and research with foreign institutions.

This program is the result of a cooperation model between METU NCC and the State University of New York at New Paltz (SUNY NP). Students admitted to this program will be completing part of their education at METU NCC and part of it at SUNY NP. Upon successful completion of their studies, they will receive Business Administration Diplomas from METU NCC and SUNY NP. This model of education will allow the accumulated knowledge of the two universities to be at the disposal of the students and also adds an international perspective that Business Programs around the world have been striving for. As a result, graduates of this program will be particularly well suited to compete in a global environment.

In addition to the international exposure to various cultures, the program provides access to the resources of the two universities in order to deliver an education program that covers all of the functional areas of modern Business Administration and allows specialization through the numerous elective courses that are offered across a broad range.

CAREER OPPORTUNITIES: Graduates of this program will have significant cross-cultural experience which is becoming increasingly important for managers working in increasingly globalized economies. Furthermore, by making use of the resources of the two universities the students will have been able to receive an education focused on business administration areas of their choice. They will be highly-qualified candidates for management positions in companies doing business internationally or locally.

UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester (METU-NCC)				Second Semester (METU-NCC)			
BUS	111	Fundamentals of Business	(3-0)3	BUS	142	Financial Accounting	(3-0)3
BUS	221	Org. Beh. and Soc. Psychology	(3-0)3	BUS	152	Statistics for Social Sciences	(3-0)3
ECO	101	Microeconomics	(4-0)4	ECO	102	Macroeconomics	(4-0)4
ENGL	101	Development of Reading and Writing Skills I	(4-0)4	ENGL	102	Development of Reading and Writing Skills II	(4-0)4
MAT	119[a]	Calcul. with Analytic Geom.	(4-2)5	PSIR	108	Introduction to Global Politics	(3-0)3
TUR	101[b]	Turkish I	(2-0)NC	TUR	102[b]	Turkish II	(2-0)NC
GPC	100	First Year on Campus Seminar	(0-2)1	CNG	100	Introduction to Information Technologies and Applications	(2-0)NC
			8				

SECOND YEAR

Third Semester (METU-NCC)				Fourth Semester (SUNY-NP)			
BUS	271	Principles of Marketing	(3-0)3	BUS	202	Managerial Accounting	(3-0)3
BUS	281	Principles of Finance	(3-0)3	BUS	215	Decision Support Systems	(3-0)3
PSIR	237	Principles of Law	(3-0)3	BUS	250	Principals of Management	(3-0)3
		Elective	(-)3	BUS	429	Marketing Management	(3-0)3
ENGL	211	Acad.Oral Pres. Skills	(3-0)3			GE Elective *	(-)3

THIRD YEAR

Fifth Semester (METU-NCC)				Sixth Semester (METU-NCC)			
BUS	321	Human Resource Manag.	(3-0)3	BUS	222	Organization Theory	(3-0)3
BUS	361	Operations Management	(3-0)3	BUS	312	Business Law	(3-0)3
BUS	431	Information Systems	(3-0)3	BUS	352	Management Science	(3-0)3
		GE Elective*	(-)3			Elective	(-)3
		Elective	(-)3			Elective	(-)3
HST	201[c]	Principles of Kemal Atatürk I	(2-0)NC	HST	202[c]	Principles of Kemal Atatürk II	(2-0)NC

FOURTH YEAR

Seventh Semester (SUNY-NP)				Eighth Semester (SUNY-NP)			
BUS	xxx	Business Elective	(-)3	BUS	450	Strategic Management	(3-0)3
BUS	xxx	Business Elective	(-)3	BUS	xxx	Business Elective	(-)3
BUS	xxx	Business Elective	(-)3	BUS	xxx	Business Elective	(-)3
BUS	xxx	Business Elective	(-)3	BUS	xxx	Business Elective	(-)3
XXX	xxx	GE Elective*	(-)3	XXX	xx	GE Elective*	(-)

[a] Students who are unable to achieve the minimum required passing grade in the Mathematics Proficiency Exam are required to take MAT 100 before MAT 119

[b] International students will take TUR 201 and TUR 202, which may be taken in the first year by the consent of the advisor.

[c] International students will take HST 205 and HST 206 instead of HST 201 and HST 202.

* These four GE courses must be in USST, ART, NSCI and HUM areas.

ELECTIVE COURSES

The curriculum has 15 elective courses (5 from METU NCC-10 from SUNY New Paltz). Out of 5 METU NCC electives, one of them should be GE. Out of the remaining four; two courses should be BUS elective and the other two courses can be "free elective". All the elective courses should be taken by the approval of the student advisor.

For a list of some of the Business courses that may be offered as electives see the Business Administration Program.

Note: For description of courses see the Business Program.

NORTHERN CYPRUS CAMPUS

COMPUTER EDUCATION AND INSTRUCTIONAL TECHNOLOGY PROGRAM

GENERAL INFORMATION: For educators, it is important to know how to choose and process knowledge and teaching material for creating sufficient and enriched learning environment. METU Northern Cyprus Campus Computer Education and Instructional Technology Program aims to equip students with basic knowledge and skills that enable them to attain the above goals. The medium of instruction, as in all METU Programs, is in English. Computer Science, Informatics and Internet Technologies in their rapid progress and wide impact, increase the need for human force worldwide with skills to productively utilize and adapt these technologies into learning environments and to transfer this knowledge and abilities to others. In fulfilling the above task, the support of existing experience and accumulated knowledge at METU Ankara Campus is one of the strengths of our program. Curriculum of this program has been designed to provide up to date information to prospective teachers in their field of study, familiarize them with the learning environments which are supported by new technologies, while achieving their professional skills. To graduate, one has to succeed in 48 courses (two of which are non credit) with the total 149 credits. METU Northern Cyprus Campus Computer Education and Instructional Technology Program is being conducted in coordination with, and the faculty support of the identical program existing in METU Ankara Campus.

CAREER OPPORTUNITIES: The graduates of the program will receive Bachelor of Science degree in Computer Education and Instructional Technology, which comprises the teacher formation as well. The graduates of this program can be employed as academics in Computer Education and Instructional Technology Programs of different institutions, as teachers, supervisors, inspectors, curriculum consultants, test and evaluation specialists in computer education and instructional technology in the private or public schools attached to the Ministry of Education. There is also a wide range of opportunities of employment in the computer and information technology industries.

UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester				Second Semester			
CTE	111	Information Technology in Education I	(3-2)4	CTE	112	Information Technology in Education II	(3-2)4
EDUS	200	Introduction to Education	(3-0)3	CTE	133	Programming in Internet Environment	(3-2)4
ENGL	101	Development of Reading and Writing Skills I	(4-0)4	CNG	100	Introduction to Information Technologies and Appl.	(2-0)NC
GPC	100	First Year on Campus Seminar	(0-2)1	MAT	119	Calculus with Analytic Geometry	(4-2)5
MAT	100	Precalculus	(1-2)2	ENGL	102	Development of Reading and Writing Skills II	(4-0)4
TUR	103	Turkish I: Written Communication	(2-0)2	TUR	104	Turkish II: Oral Communication	(2-0)2
HST	201[(c)]	Principles of Kemal Atatürk I	(2-0)NC	HST	202[(c)]	Principles of Kemal Atatürk II	(2-0)NC

SECOND YEAR

Third Semester				Fourth Semester			
CTE	210	Programming Languages I	(3-2)4	CTE	211	Programming Languages II	(3-2)4
CTE	207	Desing and Use of Inst. Material	(2-2)3	CTE	225	Instructional Design	(2-2)3
CTE	213	Computer Hardware	(2-2)3	CTE	218	Graphics and Animation in Education	(2-2)3
PHY	105	General Physics I	(3-2)4	CTE	216	Principles and Methods of Instruction	(3-0)3
ENGL	211	Acad. Oral Pres. Skills	(3-0)3	XXX	xxx	Elective	(3-0)3
EDUS	220	Educational Psychology	(3-0)3	PHY	106	General Physics II	(3-2)4

THIRD YEAR

Fifth Semester				Sixth Semester			
CTE	313	Use of Operating Systems	(2-2)3	CTE	314	Computer Networks and Communication	(2-2)3
CTE	321	Foundations of Distance Education	(2-2)3	CTE	390	Database Management Systems	(2-2)3
CTE	341	Measurement and Evaluation	(3-0)3	CTE	386	Community Work	(1-2)2
CTE	323	Multimedia Design and Development	(2-2)3	CTE	382	Computer Education Teaching Methods II	(2-2)3
CTE	380	Computer Education Teaching Methods I	(2-2)3	EDUS	304	Classroom Management	(3-0)3
XXX	xxx	Elective	(3-0)3	XXX	xxx	Elective	(3-0)3

FOURTH YEAR

Seventh Semester				Eighth Semester			
CTE	435	Project Development and Management I	(1-4)3	CTE	436	Project Development and Management II	(1-4)3
CTE	419	Web Design	(2-2)3	CTE	410	Practice Teaching	(2-6)5
CTE	421	Research Methods	(2-0)2	EDUS	424	Guidance	(3-0)3
CTE	411	School Experience	(1-4)3	EDUS	416	Turkish Educational System and School Management	(3-0)3
XXX	xxx	Elective	(3-0)3	XXX	xxx	Elective	(3-0)3
XXX	xxx	Elective	(3-0)3	XXX	xxx	Elective	(3-0)3

[c] International students will take HST 205 and HST 206 instead of HST 201 and HST 202.

DESCRIPTION OF COURSES

CTE 111 Information Technology in Education I (3-2) 4
Information systems in education and introduction to computers. Evolution of computers. Data presentation. Components of computer systems: the CPU, input-output devices, auxiliary storage devices, microcomputers, operating systems and environments, Windows. Managing text: processors. Managing numbers: spreadsheets. Impact of computers on society, computer ethics, security.

CTE 112 Information Technology in Education II (3-2)4
Telecommunications and computer networks. Internet fundamentals. Data and database structures. Programming languages. Structured program design. Programming basics, arithmetic and logical operations, basic control structures, modularizing programs. Use of computers in school education

CTE 133 Programming in Internet Environment (3-2)4
Fundamentals and functions of the Internet. Common Internet applications used in education: WWW, e-mail, gopher, ftp. Principles of using Internet applications in education.

CTE 207 Design and Use of Instructional Material (2-2)3
This course underlines major implications of learning theories as they are applied into development of instructional materials. The course introduces all major types and formats of instructional media including audio, visual, audio-visual, computers, and so on. The course also provides the necessary background and skills in selection, development, and assessment of all types of instructional media and materials.

CTE 210 Programming Languages I (3-2)4
General structure of a Pascal program, data types, variables, standard functions, subprograms, selection statements, loops, text files, user-defined data types, records, pointers, dynamic data structures.

CTE 211 Programming Languages II (3-2)4
This course introduces the underlying concepts and principles of programming in visual environments. The course emphasizes the design and implementation of visual software, such as Visual Basic. General structure of a VB program, data types, variables, standard functions, subprograms, selection statements, loops, text files, user-defined data types, records, pointers, dynamic data structures.

CTE 213 Computer Hardware (2-2)3
This course presents information about the installation, operation, maintenance and support of PC hardware. It will enable students to learn more about maintaining a personal computer system. The course provides fundamental information about personal computers, microprocessors, RAM, power supplies, motherboards, BIOS, CMOS, the expansion bus, input/output devices and other critical hardware component of an idealized PC.

CTE 216 Principles and Methods of Instruction (3-0)3
Basic concepts and principles of teaching and learning. The importance and benefits of instructional planning. Planning instruction (yearly plan based on units, daily plan and examples of activities). Teaching and learning strategies. Instructional methods and techniques and their relation to practice. Instructional tools and materials. Teacher's duties and responsibilities in improving the quality of instruction. Teachers' qualifications.

CTE 218 Graphics and Animation in Education (2-2)3
Communication through graphics, graphic design, design process and principles of design, history of graphic design, creativity in graphic design, basic design elements of graphic, application areas of graphic design (typography, signs, emblems, icons, logo and trademarks, visual identity design, poster design); basic graphic terminology (pixel depth, compression, picture layout, resolution); graphical software packages (Photoshop, Fireworks, etc.) and tools (toolbox, layers, filters, effects); animation, scripting languages in animation; animation in education.

CTE 225 Instructional Design (2-2)3
Principles of instructional design. Analysis of content, learner, and resources. Selecting instructional objectives and sequencing instruction. Instructional treatments, matching treatments and conditions of instructional events and selection of instructional media. Evaluation of instruction.

CTE 313 Use of Operating Systems

(2-2)3

Comparative Anatomy of Operating Systems, Computer System Structures. Basic concepts and the evolution of operating system. Operating system functions and characteristics. Standard operating systems and structures (NT, WINxx, UNIX (Linux)). Using operating systems: monitor programs and shells; system calls and the programmer interface. Processes, memory management, file systems.

CTE 314 Computer Networks and Communications (2-2)3

This course introduces the underlying concepts and principles of computer networks. It presents the different components of a network and how these components fit together. The course emphasizes the design and implementation of network software that transforms raw hardware into a richly functional communication system. Real networks (such as the Internet, ATM, Ethernet, Token Ring) are used as examples to reinforce the concepts and demonstrate various protocols.

CTE 319 Instructional Technology and Material (2-2)3

(For Non-CTE students) Characteristics of various instructional technologies, the place and the use of technologies in instructional process, development of teaching materials through instructional technologies (worksheets, transparencies, slides, videotapes, computer-based instructional material, etc.), assessment of various teaching materials.

CTE 321 Foundations of Distance Education (2-2)3

Historical development of distance education, definition and function of distance education, technologies used within distance education: TV, VCR, radio, printed materials, computers, and the Internet. Typology of distance education teaching systems. Techniques and methods used in planning, development, and implementation of distance education teaching systems.

CTE 323 Multimedia Design and Development (2-2)3

Introduction of course development software, electronic courseware planning, design and development stages, screen design principles, digital image/audio/video software, animation, user interaction, feedback techniques, navigation, multimedia courseware packaging, evaluation.

CTE 341 Measurement and Evaluation (3-0) 3

This course offers participants the opportunity to explore concepts of measurement and evaluation as applied to behavioral sciences. How to measure outcome of the teaching-learning process in Computer Education. Cognitive, affective and psychomotor measurements. Teacher-made and standardized tests for Computer Education. Interpretation and treatment of the outcomes of the measurements. Basic descriptive statistics. Formative and summative evaluation. Alternative evaluation strategies.

CTE 360 Introduction to Visual Design / Basic Elements of Visual Design (CTE only) (2-2)3

The course introduces the underlying concepts and principles of design in visual environments. Mainly two dimensional design and its basic definitions are given. Major concepts are: harmony, contrast, unity, color, background, texture and order. By defining and applying these keywords to their own projects, students will be forming their own understanding of visual design.

CTE 376 Introduction to C++ and Object Oriented Programming (3-0)3

Introduction to computers and C++ programming, control structures, functions, arrays, pointers and strings, classes and data abstraction, operator overloading, inheritance, virtual Functions and polymorphism, C++ stream input/output, templates, exception handling, file processing, data structures, bits, characters, strings and structures, the preprocessor, C legacy code topics, class string and string stream processing, standard template library (STL), standard C++ language additions.

CTE 380 Computer Education Teaching Methods I (2-2)3

Concepts of method and teaching strategies. Different methods of instruction and teaching as applied to computer education. Special emphasis on computer education at secondary education and special teaching methods using technology.

CTE 382 Computer Education Teaching Methods II (2-2)3

Teaching methods and teaching and learning processes in computer education and instructional technology, application of general teaching methods to specific content area, critical examination of textbooks and establishing their relations to teaching methods and strategies in computer education and instructional technology, microteaching applications, evaluation of classroom teaching.

CTE 386 Community Service (1-2) 2

The importance of community service; identification and proposing projects for possible solutions to

current problems or an educational issue in society; organize, present, or participate in panel discussions, conferences, conventions, and/or symposia; voluntary work in various social responsibility projects. Gaining required skills and knowledge for the implementation of community services in schools.

CTE 390 Database Management System (2-2)3
Foundations of database systems, data and data models, design of relational database, SQL, Basic SQL commands, SQL functions, using multi-tables with SQL, SQL programming and function, transaction and errors in SQL, DBMS installation and administrative operations, doing SQL queries in a DBMS.

CTE 410 Practice Teaching (2-6)5
Field experience and practice teaching including class observation, adjusting to classroom conditions, planning and preparation for teaching. Guided teaching practice in Computer Education and Instructional Technology.

CTE 411 School Experience (1-4)3
School experience is a course based on observations and discussions. The aim of the course is to give the students an opportunity to observe authentic teaching. During this course the student is introduced to different aspects of teaching and the teaching profession. The course is providing a structured induction into school life. The tasks and activities performed by student-teachers enable them to observe teachers at work and get to know pupils.

CTE 415 Routing Basics and WAN Protocols (2-2)3
This course introduces the basic concepts and principles of router, routing terminology and Wide Area Network protocols. The course covers topics related to Ethernet and Token Ring frames, TCP/IP basics, IP addressing, distance vector and link state routing protocols, RIP and IGRP, router IOS and basic router configuration. It also covers the various Wide Area Network services, including Frame Relay, ISDN, HDLC, PPP. This course provides additional information on routing protocols beyond that of CTE314 "Computer Networks and Communications".

CTE 419 Web Design (2-2)3
Fundamentals and functions of the Internet. Common Internet applications used in education: e.g., WWW, e-mail, chat, ftp, etc. Principles of using Internet applications in education.

CTE 420 Design, Development and Evaluation of Educational Software (2-2)3
Overview of computer aided instruction (CAI): types, strengths and weaknesses, effective CAI. Implications of learning theories for courseware design and authoring. Features, advantages and limitations of different CAI modes. Planning and managing CAI projects. Designing and producing CAI. Evaluation and revision.

CTE 421 Research Methods (2-0) 2
This course aims to provide prospective teachers with necessary skills and knowledge in planning, conducting and reporting a research in social sciences. This course focuses on such main issues as the nature of scientific inquiry, phases of educational research, intellectual property rights and ethics in educational research, forming research questions, data collection and analyses techniques and preparing a research report.

CTE 435 Project Development and Management I (1-4)3
This course underlines main components of project management in the field of instructional technology. This course will offer students with necessary background and skills in project management by providing with an understanding of the theory and practice of project management process. The course will cover project management context and processes, project integration, project management, time management, cost management, quality management, team management, risk management and project planning in the process of design development and evaluation of instructional software.

CTE 436 Project Development and Management II (1-4)3
This course underlines major steps and techniques used in design development and evaluation of instructional software. It also provides the necessary knowledge and skills to apply project management life cycle to instructional software design, development and evaluation process.

CTE 440 Special Problems in Computer Education and Instructional Technology (2-2)3
Research project carried out under the supervision of a staff member on CTE aiming at giving the student the necessary skill and experience in carrying out

scientific research. Students are expected to complete a written report on their topics and give a seminar.

CTE 450 Advanced Programming in Visual Environments (2-2)3

The course introduces the underlying concepts and principles of programming in visual environments. The course emphasizes the design and implementation of a visual software, such as Visual Basic. In the course students have to complete a complete instructional material prepared by Visual Basic.

CTE 461 Professional Practice I (2-2)3

Definitions and discussions on Computer Education and Instructional Technology profession, career building, job application, resume writing, interview techniques, team work, communication skills, Total Quality Management, Intellectual Property and professional experiences.

CTE 462 Professional Practice II (2-2)3

Definitions and discussions on work relationships, supervisory interactions, personal relationships and day-to-day interactions, group dynamics, discussion techniques, consensus, agenda formation, decision making process, and facilitation techniques.

CTE 471 The Business of E-Learning (3-0)3

This course offers participants the opportunity to explore the emerging business side of e-learning. Participants will explore organizational and strategic issues associated with developing and delivering e-learning though a wide range of topics including: e-learning business analysis, e-learning business design, e-learning marketplace, legal and ethical considerations, strategic partnership and funding, special issues in e-learning and the global environment, the future of e-learning business. Participants will be provided with the fundamental background knowledge of the business design principles, using business planning models, conducting product and market analyses, the development of business and marketing plans, the use of common business analysis tools, financing major investments, and analyzing various risk considerations. Participants examine private and publicly traded education companies that are marketing e-learning products and services to the consumer market and study the use of sound business practices and market processes impacting the success of e-learning enterprises, conduct business evaluations of e-learning enterprises, and learn strategies for funding new e-learning enterprises to support the development and implementation of effective e-learning programs.

CTE 472 Knowledge Management in Education and Research (3-0)3

This course offers participants the opportunity to explore the framework for knowledge management in education and research. Participants will explore the potential of knowledge management in support of education and research for increasing the capacity of identifying, distilling, harnessing and using information to improve student and institutional success. This course provides the fundamental background for understanding knowledge management and offers necessary resources and practices to enable participants to design and implement a knowledge management strategy in order for education and research initiatives to succeed and flourish. This course includes a strong focus on the implementation of necessary tools and procedures to construct and maintain an outstanding sustainable knowledge management environment for education and research organization

NORTHERN CYPRUS CAMPUS

ECONOMICS PROGRAM

GENERAL INFORMATION: METU-NCC Economics program started education in the academic year of 2004-2005 with the principal aim of establishing and improving the understanding of economic problems from the elementary to the most complex, in an interdisciplinary manner, supported by historical, social and political aspects and providing its students with necessary skills and tools to undertake critical and systematic analysis of the economic environment, with a special focus on the local economic issues, and area studies.

Besides teaching basics of the economic theory to develop economic understanding at the international standards, the general structure of the program has enough flexibility to permit interdisciplinary feedback from different programs by allowing its students to take courses from Political Science and International Relations and Business Administration programs. Thus the students of the program will develop an extensive economic understanding as well as a general comprehension of social and administrative sciences.

CAREER OPPORTUNITIES: The graduates of the program are expected to have a wide range of opportunities both in Turkish and international job markets. Turkish government institutions and public organizations like the Central Bank, Treasury Department, State Planning Institute, Foreign Trade Department, State Institute of Statistics, Competition Board, Energy Board, and international institutions like World Bank, IMF, and NATO are examples of potential job opportunities. In general a wide variety of private sector jobs especially the ones in the banking and financial sector will be available for our graduates.

UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester

ECO	101	Microeconomics	(4-0)4
ENGL	101	Development of Reading and Writing Skills I	(4-0)4
GPC	100	First Year on Campus Seminar	(0-2)1
MAT	119[a]	Calcul. with Analytic Geom.	(4-2)5
PSIR	101	Intro. to Sociol. and Politics	(3-0)3
XXX	xxx	Restricted Elective	(3-0)3
TUR	101[b]	Turkish I	(2-0)NC

Second Semester

ECO	102	Macroeconomics	(4-0)4
BUS	152	Statistics for Social Sciences	(3-0)3
CNG	100	Introduction to Information Technologies and Appl.	(2-0)NC
ENGL	102	Development of Reading and Writing Skills II	(4-0)4
MAT	120	Calcul. for Func.of Sev.Var.	(4-2)5
XXX	xxx	Restricted Elective	(3-0)3
TUR	102[b]	Turkish II	(2-0)NC

SECOND YEAR

Third Semester

ECO	201	Intermed. Microeconomics	(4-0)4
ECO	211	Economic History	(3-0)3
ECO	275	Mathematics for Economists	(3-0)3
ENGL	211	Acad. Oral Pres. Skills	(3-0)3
XXX	xxx	Elective	(-)3
HST	201[c]	Principles of Kemal Atatürk I	(2-0)NC

Fourth Semester

ECO	202	Intermed. Macroeconomics	(4-0)4
ECO	205	Statistics for Economists	(4-0)4
ECO	212	Hist.of Economic Thought	(3-0)3
BUS	232	Info. Sys. and Prog.	(3-0)3
XXX	xxx	Elective	(-)3
HST	202[c]	Principles of Kemal Atatürk II	(2-0)NC

THIRD YEAR

Fifth Semester

ECO	303	International Trade Theory and Policy	(3-0)3
ECO	311	Princip. of Econometrics I	(4-0)4
XXX	xxx	Elective	(-)3
XXX	xxx	Elective	(-)3
XXX	xxx	Elective	(-)3

Sixth Semester

ECO	304	Internat. Macroeconomics	(3-0)3
ECO	306	Monetary Theory and Policy	(3-0)3
ECO	312	Princip. of Econometrics II	(3-2)4
ENGL	311	Advan. Communi. Skills	(3-0)3
XXX	xxx	Elective	(-)3

FOURTH YEAR

Seventh Semester

ECO	480	World Economy	(3-0)3
XXX	xxx	Elective	(-)3
XXX	xxx	Elective	(-)3
XXX	xxx	Elective	(-)3
XXX	xxx	Elective	(-)3

Eighth Semester

ECO	400	Graduation Project	(0-6)3
XXX	xxx	Elective	(-)3
XXX	xxx	Elective	(-)3
XXX	xxx	Elective	(-)3
XXX	xxx	Elective	(-)3

[a] Students who are unable to achieve the minimum required passing grade in the Mathematics Proficiency

Exam are required to take MAT 100 before MAT 119

[b] International students will take TUR 201 and TUR 202, which may be taken in the first year by the consent of the advisor.

[c] International students will take HST 205 and HST 206 instead of HST 201 and HST 202.

Restricted Electives: 1) BUS 221 or PSIR 105 in the first semester, and 2) BUS 142 or PSIR 110 in the second semester.

Electives: In addition to restricted electives, the curriculum has 14 electives, at least 7 of which should be taken from the ECO program. Maximum of 3 courses may be taken from the fields other than BUS, PSIR, MAT and engineering. Out-of-department electives should be second year or higher level and should have at least 3 credits. If the student's advisor lets him/her take more electives than stated above, they should be taken under NOT INCLUDED category.

Some ECO electives:

- ECO 401 Practical Training in Economics
- ECO 407 Input-Output Analysis and Economic Modeling
- ECO 411 Topics in Economic History
- ECO 416 Real Estate Economics and Finance
- ECO 424 Economics of Regulation and Antitrust
- ECO 421 The European Union
- ECO 425 Environmental Economics
- ECO 426 Economics of Natural Resources
- ECO 431 Economics of Gender
- ECO 433 Financial Markets
- ECO 442 Topics in Monetary Macroeconomics
- ECO 443 Game Theory and its Applications
- ECO 448 Technology and Industrial Dynamics
- ECO 451 Industrial Economics
- ECO 452 Agricultural Trade Policies
- ECO 453 Business Forecasting
- ECO 455 Turkish Economic History
- ECO 458 Project Evaluation
- ECO 459 Turkish Banking System
- ECO 460 Structure of the Turkish Economy
- ECO 465 Development Economics
- ECO 466 Economics of Growth
- ECO 476 Introduction to Mathematical Economics
- ECO 477 Welfare Economics and Theory of Social Choice
- ECO 478 Topics in Linear and Non-Linear Programming
- ECO 489 European Union and Turkey
- ECO 490 International Economic Institution
- ECO 499 International Money, Finace and Banking
- ECO 538 Applied Econometrics

DESCRIPTION OF COURSES

ECO 101 Introduction to Economics I
(4-0)4

This is an introduction to Microeconomics course. The topics to be covered are: the economic problem, demand and supply, competitive markets, monopoly and non-competitive market structures, factor markets and the theory of income distribution.

ECO 102 Introduction to Economics II
(4-0)4

This is an introduction to Macroeconomics course. The topics to be covered are: national income accounting, the theory of income determination, money and monetary policy, the aggregate demand/supply analysis, international trade and finance.
Prerequisite: ECO 101.

ECO 201 Intermediate Microeconomics
(4-0)4

Utility analysis of demand, theory of production and cost, imperfect competition, general equilibrium and welfare.
Prerequisite: ECO 101.

ECO 202 Intermediate Macroeconomics
(4-0)4

Review of national income accounting and income determination, alternative theories of income determination, theories of consumption, investment and the demand for money, inflation and economic activity, open economy extensions.
Prerequisite: ECO 102.

ECO 205 Statistics for Economists (4-0)4

Frequency distributions, measures of central tendency and variability, basic theorems of probability, discrete probability distributions, important continuous distributions (normal, Poisson, Chi2,F), sampling distributions, correlation and analysis of variance, introduction to estimation (point and interval) and hypothesis testing, optimality of estimators.
Prerequisite: BUS 152.

ECO 210 Principles of Economics (3-0)3

A non-departmental course designed for students outside the Programs of BUS, PSIR and ECO. The nature of economics; a general view of price system; markets and pricing; the determination and the control of national income; fiscal policy; money, banking and monetory policy; international trade and finance; economic growth and development are some of the topics covered in this course.

ECO 211 Economic History (3-0)3

Pre-industrial Europe and transition to industrial societies, industrial revolution, an overview of economic and social change in the twentieth century.

ECO 212 History of Economic Thought
(3-0)3

The course develops a history of the development of economic ideas and theories: mercantalism, physiocrats, the classical school (Adam Smith to Ricardo), Marxian school, marginal revolution, Keynesian revolution, and various responses to Keynesian macroeconomics to date.
Prerequisite: ECO 102

ECO 275 Mathematics for Economists
(3-0)3

This course provides an introduction to mathematical techniques frequently used in economic analysis. Topics include differential and integral calculus, and matrix algebra. Emphasis is placed on the application of mathematics to topics in economic theory, such as profit maximization, utility maximization and output determination.
Prerequisite: MAT 120.

ECO 280 Engineering Economy (3-0)3

Introduction to engineering economy. Interest and money-time relationship. Depreciation, valuation depletion. Basic methods for making economy studies. Risk-decision analysis. Selection between alternatives and the replacement problem. Applications related to various constructions projects. Quantity measurement and cost estimating of a building project.

ECO 303 International Trade Theory and Policy (3-0)3

The classical theory of comparative advantage, the factor proportions theory of comparative advantage, the Hecksher-Ohlin theory of gains from trade, classical theorems of two sector trade models, trade policy and welfare analysis.
Prerequisite: ECO 201.

ECO 304 International Macroeconomics
(3-0)3

Balance of payments, open economy macroeconomics and monetary policy, exchange rate systems, economics of regional and global integration.
Prerequisite: ECO 202.

ECO 306 Monetary Theory and Policy
(3-0)3

An overview of the financial mechanism, capital markets, and interest rate determination. Demand for and the supply of money. Monetary transmission mechanism. Tools and indicators of monetary policy. Inflation targeting.
Prerequisite: ECO 202.

ECO 311 Principles of Econometrics I (4-0)4

The simple regression model: basic assumptions, estimation, hypothesis testing and prediction, choosing among functional forms. The multiple regression model: estimation, hypothesis testing and prediction, functional forms and specification errors, multicollinearity.
Prerequisite: ECO 205.

ECO 312 Principles of Econometrics II (3-2)4

Autocorrelation: causes, consequences, tests and estimation. Univariate Time Series Modelling and Testing for Non-Stationary, Dynamic Models, Cointegration and Estimation of Equilibrium. Correction Models, Simultaneous Equations Models: Identification and single-equation estimation. Heteroscedasticity: Causes,
consequences tests and estimation.
Prerequisite: ECO 311.

ECO 313 Public Finance (3-0)3

Theory of taxation, and public goods. Budgetary and fiscal policy and dept sustainability.
Prerequisite: ECO 201.

ECO 400 Graduation Project (0-6)3

Students will form preferably interdisciplinary groups and will prepare a paper on a research or policy issue. Each group will be supervised by one or two instructors. In addition to the final report at the end of the semester, the group will be required to submit regular progress reports through the semester.

ECO 401 Practical Training in EconomicsI (3-0)3

The course is designed for 3rd and 4th year students to equip them with practical tools of their future careers. For those students planning to enter academic career, the course will involve teaching techniques, practical teaching in tutorials, discussion and problem hours. For those students planning to enter the applied research career, the course will involve research techniques, statistical data bases and practical training in reseach institutions.

ECO 402 Practical Training in Economics II (3-0)3

Same as ECO 401.

ECO 406 Real Estate Economics and Finance (3-0)3

Real estate represents a large fraction of the world's wealth and real estate investment represents a significant part of many institutional portfolios. Its efficient utilization and the markets in which it is traded involve many interesting and complex economic issues. This course applies the economic and finance theory to the real estate investment analysis. In particular, Urban Economics foundation of real estate investment in the space market and Financial Economics perspective on both equity real estate (REITs and real property) and debt real estate (mortgages and mortgage-backed securities) investments are covered.

ECO 410 Economics of Entrepreneurship (3-0)3

This course focuses on the role of innovation with a special emphasize on enterpreneurship in the growth and development of 21st century economies. During the course the economic theories behind enterpreneurship will be discussed. The methods used in succesfull enterprises will also be analyzed as an enterpreneurial process. The participants will develop and present their business plans as their final project.

ECO 411 Topics in Economic History (3-0)3

Study of Ottomon and Turkish social and economic structure beginning with developments in 16th century, followed by the study of 19th and early 20th century. *Prerequisite: ECO 211.*

ECO 412 Turkish Economy (3-0)3

An overview of economic development starting from 1920s, the planned era through to current state of the economy. The recent trends in fiscal and monetary policymaking. *Prerequisite: ECO 202.*

ECO 421 Economics of Integration and the EU (3-0)3

The course provides a broad perspective on globalization, regionalization and the European integration. The institutions and decision-making processes in the EU are discussed to provide a comprehensive picture of the EU.

ECO 425 Environmental Economics (3-0)3

The effects of economic activity on the natural environment with special reference to urban development forms the central subject matter of the course. Consideration is given to economic analysis of the causes of pollution and its control through taxes, the use of property rights and standards.

ECO 426 Economics of Natural Resources (3-0)3

This course is designed to introduce students to certain areas of natural resource economics. Topics include theories of replenishable and exhaustible resource exploitation and the environment. Specific natural resources (e.g. depletable energy resources, recyclable resources, replenishable but depletable resources, etc.) are studied in depth.

ECO 433 Financial Markets (3-0)3

The structure and functions of financial markets are analyzed. Operations and regulations in the money and capital markets introduced. Financial innovations and liberalization processes will be at the core of the course.

ECO 442 Topics in Monetory Macro Economics (3-0)3

The main objective of the course is to introduce students to a number of approaches to monetary theory and policy. The following topics are covered: Theoretical Fundaments of Monetary Policy, Vulnerabilities and Limits to Monetary Policy: Financial Dollarisation, Fiscal Dominance, New Monetary Macroeconomics Beyond IS-LM, Monetary Policy Transmission Mechanisms, Inflation Dynamics, Monetary Policy and Nominal Anchors, Inflation Targeting.

ECO 443 Game Theory (3-0)3

Game Theory involves the analysis of situations in which payoffs to agents depend on the behavior of other agents. It involves the analysis of conflict, cooperation, and (tacit) communication. Game theory has applications in several fields, such as economics, politics, law, biology, and computer science. In this course we will learn both the theory behind the games and their application in various fields.
Prerequisite: ECO 201.

ECO 448 Technology and Industrial Dynamics (3-0)3

The main objective of this course is to enable students to understand and to analyze the forces which determine industrial development. The material includes a wide range of issues from a variety of perspectives: Broad historical analyses, microeconomic theory, the economics of technological change and industrial policy from both a domestic and an international perspective.

ECO 451 Industrial Economics (3-0)3

This course is an extension of ECO 201. Organization and development, consentration, entry barriers and other aspects of oligopolistic market structures is discussed in the first part of the course. The second part involves the theoretical and empirical dimensions of firm behavior. The specific topics centers on the pricing, investment and growth process of modern oligopolistic firms.

ECO 453 Business Forecasting (3-0)3

Various forecasting methods are introduced with emphasis on their applications for social and economic planning. The core of the course is the use of models in forecasting future sales, capital, investment, new product development etc.
Prerequisite: BUS 152.

ECO 460 Structure of Turkish Economy (3-0)3

Overall structure of the economy; sources and use of income; economy of government; main sectors; agriculture, industry, services; income distribution; regional dispersion of economic activities.
Prerequisite: ECO 102.

ECO 465 Development Economics (3-0)3

This course studies the current policy issues of underdeveloped countries with reference to the relevant theoretical debates and country experiences, with some emphasis on the East Asian experience. Economic relations between North and South; trade, technology and financial policy issues; the role of the state; the implications of endogenous growth theory and international institutional constraints on policy making are discussed.

ECO 466 Economics of Growth (3-0)3

The main objective of the course is to familiarize the students with the key theories of growth and the implications for economic development. The course is designed to combine the theoretical rigor of main growth theories, with the intuition of major development issues. Another equally important aim of this course is to channel the students into thinking about various development issues and sources of growth in Turkey, or around the world.
Prerequisite: ECO 102.

ECO 480 World Economy (3-0)3

The course investigates developments, trends, cycles and facts of the world economy during the 1980's and its future. A framework is developed within which to examine the subject matter. Outcomes of "structural adjustment" on a major country basis as well on a global basis are evaluated.

ECO 494 Political Economy of Industrial Societies since 1945 (3-0)3

The course deals with conceptualizations of economic development in the past-World War II era. One objective of this course is to focus on concrete historical changes in the global development.

Ultimately, the course aims at being an exercise in the global economic history and the economic thought of the past-war period.As such, it seeks to relativize the economic development process.

ECO 497 Comparative European Labor Markets (3-0)3

This course examines labor market characteristics and institutions in developed countries in general and Western European countries in particular. Comparisons to the most flexible labor market, the US, will be a focus of the course. Underlying paradigms are the skill-biased technological change adversely affecting low-skill workers and labor market institutions –as these institutions relate to labor market flexibility or wage rigidity.

ECO 498 Labor Market Economics (3-0)3

An up-to-date review of modern labor market theories, related policy issues and applications, as well as methods and findings of empirical research, including national and regional level analysis of these markets both in developed and developing countries. Open to economic and administrative sciences majors as well as to students from computer science, regional planning and engineering.
Prerequisite: ECO 101.

ECO 499 International Money, Finance and Banking (3-0)3

The course aims to introduce students to alternative approaches to international money, finance and banking. Whilst the emphasis is on policy questions, theory postulations and empirical evidence will be referred to frequently. The course is planned to cover some topical issues including i) International monetary regimes and financial integration, ii) Exchange rate determination theories and evidence, iii) Alternative exchange rate regimes and policies, iv) Banking system: risks and regulation, v) The international experience with currency and banking crises, vi) Turkish financial system: Issues, risks and regulation, vii) Monetary policy in financially open economies with special reference to Turkey.

NORTHERN CYPRUS CAMPUS

GUIDANCE AND PSYCHOLOGICAL COUNSELING PROGRAM

GENERAL INFORMATION: The Guidance and Psychological Counseling Program seeks to prepare students as highly qualified counseling professionals capable of functioning well in the dynamic counseling field. The program aims to equip students with necessary theoretical knowledge and skills to serve as counseling professionals in addressing the academic, career and personal/social needs of individuals. The program also intends to develop students' awareness regarding the nature of helping relationships to prevent problems, enhance human potential, and cope with life challenges. The program is committed to the development and improvement of counseling field by preparing highly qualified professionals capable of assuming leadership roles in the field of counseling through the effective technological infrastructure, English-medium instruction, and a highly qualified faculty. To graduate, one has to succeed in 52 courses (three of which are non-credit) with the total of 147 credits.

CAREER OPPORTUNITIES: The graduates of the program will receive Bachelor of Science degree in Guidance and Psychological Counseling. The graduates of this program are qualified to work as guidance counselor/psychological counselor at public and private schools, university counseling centers, other educational settings, and mental health related institutions.

UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester

PSYC	100	General Psychology	(3-0)3
GPC	124	Introduction to Guidance and Counseling	(3-0)3
GPC	136	Human Relations in Education	(3-0)3
EDUS	200	Introduction to Education	(3-0)3
ENGL	101	Development of Reading and Writing Skills I	(4-0)4
GPC	100	First Year on Campus Seminar	(0-2)1
TUR	103	Turkish I: Written Expression	(2-0)2

Second Semester

GPC	126	Physiological Psychology	(3-0)3
GPC	254	Social Psychology	(3-0)3
CNG	100	Introduction to Information Technologies and Appl.	(2-0)NC
GPC	150	Psychology of Learning	(3-0)3
ENGL	102	Development of Reading and Writing Skills II	(4-0)4
SOCL	109	Introduction to Sociology	(3-0)3
TUR	104	Turkish II: Oral Communication	(2-0)2

SECOND YEAR

Third Semester

EDUS	209	Introduction to Educational Statistics I.	(3-2)4
GPC	122	Developmental Psychology	(3-0)3
EDUS	230	Introduction to Curriculum and Instruction	(3-0)3
ENGL	211	Academic Oral Presentations	(3-0)3
PHL	xxx	Elective	(3-0)3
GPC	xxx	Departmental Elective	(3-0)3
HST	201[(b)]	Principles of Kemal Atatürk I	(2-0)NC

Fourth Semester

EDUS	210	Introduction to Educational Statistics II	(3-2)4
GPC	200	Observation in Schools	(2-2)3
GPC	253	Psychology of Adolescence	(3-0)3
EDUS	302	Research Methods in Education	(3-2)4
SOCL	xxx	Elective	(3-0)3
GPC	xxx	Departmental Elective	(3-0)3
HST	202[(b)]	Principles of Kemal Atatürk II	(2-0)NC

THIRD YEAR

Fifth Semester

PSYC	340	Theories of Personality	(4-0)4
GPC	300	Career Counseling	(3-0)3
ENGL	311	Advan. Communic. Skills	(3-0)3
GPC	313	Theories of Counseling	(3-0)3
GPC	363	Measurement and Evaluation in Counseling	(3-0)3
XXX	xxx	Non-Departmental Elective	(3-0)3

Sixth Semester

GPC	301	Practicum in Career Counseling	(1-4)3
GPC	314	Methods and Techniques of Counseling	(3-0)3
GPC	355	Special Education	(3-0)3
GPC	364	Appraisal of Students	(3-0)3
XXX	xxx	Non-Departmental Elective	(3-0)3
XXX	xxx	Non-Departmental Elective	(3-0)3

FOURTH YEAR

Seventh Semester				Eighth Semester			
GPC	410	Field Practice in Individual Counseling	(1-4)3	GPC	400	Field Practice in School Counseling Services	(1-4)3
GPC	411	Community Work	(1-2)2	GPC	438	Practicum in Group Counseling	(2-4)4
GPC	415	Behavior Disorders	(3-0)3	GPC	490	Professional Standards and Problems in Guidance and Counseling	(3-0)3
GPC	437	Group Counseling	(3-0)3	GPC	495	Seminar in Guidance and Counseling	(2-2)3
GPC	xxx	Departmental Elective	(3-0)3	GPC	xxx	Departmental Elective	(3-0)3
XXX	xxx	Non-Departmental Elective	(3-0)3	XXX	xxx	Non-Departmental Elective	(3-0)3

DESCRIPTION OF COURSES

GPC 100 First Year on Campus Seminar (0-2)1
This course is a first-year student seminar designed to assist new students make a successful transition to the academic and social life of METU-NCC and thereby foster a sense of belonging to the institution. The course is taken by all students during the first year of enrollment at METU-NCC. The course is delivered through a combination of group seminars/activities and small group discussion sessions.

GPC 122 Developmental Psychology (3-0)3
Physical, sensory, motor, cognitive, social and emotional development from birth to late adulthood, with special reference to major theoretical approaches to human development.

GPC 124 Introduction to Guidance and Counseling (3-0)3
An introduction to basic concepts of guidance and counseling; historical background and development of the field; basic functions of the counseling and guidance services; roles and functions of school counselors; basic counseling and guidance techniques utilized by counselors.

GPC 126 Physiological Pyschology (3-0)3
Fields of physiological psychology, research methods in physiological psychology, physiology and anatomy of organism, mechanisms of behavior, functions of senses, motor functions, motives and physiological foundations of emotions, functional disorders and causes of functional disorders.

GPC 136 Human Relations in Education (3-0)3
An introduction to basic concepts and principles of human relationships with special emphasis on interaction, power, roles, conflict, development and change in human relationships; techniques of improving communication skills; the role of human relations in educational process.

GPC 150 Psychology of Learning (3-0)3
A survey of different theories and approaches to psychology of learning. Areas of major emphasis are concepts and principles of classical and instrumental conditioning. A selective treatment of behavior modification is included in the course material.

GPC 200 Observation in Schools (2-2)3
Experiencing school environment and school climate with its organization, process and problems. Understanding roles of all the personnel and their activities; their interactions and parent-school collaborations and school-community relationships.

GPC 253 Psychology of Adolescence (3-0)3
A detailed account of various theories of adolescent development emphasizing biological, cognitive and emotional changes in adolescence. Adolescents and their families, adolescents in schools and at work. Counseling services for adolescents

GPC 254 Social Psychology (3-0)3
An introduction to the basic concepts, principles, and theories of social psychology; the method of social psychology; analysis of major topics including human interaction and its products such as group structure, properties of groups, types of groups, intra and intergroup relations, leadership, power, communication, and social attitudes.

GPC 300 Career Counseling (3-0)3
Survey and critical analysis of theory and research on career choice and adjustment. Definition and correlates of career preferences, choices, motivation, success and satisfaction. Developmental trends in career decision making and career patterns.

GPC 301 Practicum in Career Counseling (1-4)3
Administering and evaluating instruments used in career counseling; preparing and implementing career development programs; conducting career counseling sessions with individuals and group.

GPC 310 Developing Skills for Peer Guidance (2-2)3
This course has been designed to facilitate the development of leadership, communication and helping skills among advanced 3rd and 4th year students by providing them an opportunity to assist in the delivery of the GPC 100 courses to first year METU-NCC students. The course will be conducted in an interactive small group format. Through discussion and small group exercises, students enrolled in this course will be introduced to a variety of topics designed to enhance their skills in the following areas: effective communication, ethical and professional behavior, peer education, study and time management skills, conflict resolution and problem solving. The focus of this course will be on the development of skills and knowledge that will not only support the students' work as peer guides with 1st year students but will provide essential training and experience in the development of leadership, communication, and helping skills that will be

helpful in other settings. The class also provides the means for the evaluation, reflection and processing of student experiences as a peer guide.

GPC 313 Theories of Counseling (3-0)3
Introduction and overview of the counseling theories in terms of the emphasis placed upon the cognitive, affective and behavioral domains. Comparison of basic philosophies, key concepts, goals of counseling; development of relationship between counselor and client; clients and counselors work and techniques of various approaches in counseling.

GPC 314 Methods and Techniques of Counseling (3-0)3
Some perspectives on effective helping; characteristics of effective helpers; various methods and skills used in individual counseling; selecting and structuring skills to meet clients needs; developing counseling skills appropriate to different stages of counseling.

GPC 355 Special Education (3-0)3
Basic concepts and principles of special education; examination of the various types of handicaps in childhood and adolescence; types of special education services; intervention strategies offered to different types of handicaps. Organizations, programs, curriculum, and their implications provided for various types of handicaps.

GPC 363 Measurement and Evaluation in Counseling (3-0)3
Principles of measurement and evaluation; methods and techniques used for the measurement and evaluation of student behavior in various domains.

GPC 364 Appraisal of Students (3-0)3
Use of various non-test and test techniques in schoolcounseling services with special emphasis on assessment procedures and skills used in interpreting the test results in counseling.

GPC 400 Field Practice in School Counseling Services (1-4)3
In this practicum course, students attend to counseling services where they are expected to observe and practice guidance activities based on the needs of a particular school. Every student administers a test or non test guidance technique, writes observation reports about the schools and conducts a research project.

GPC 410 Field Practice in Individual Counseling (1-4)3
In this practicum course, students attend to the secondary schools or prep-schools and conduct interviews with students. Each session of these interviews is tape-recorded, transcribed and supervised. Theoretical discussions and providing feedback are essential elements of the course.

GPC 411 Community Work (1-2)2
Introducing the principles of community work; enhancing the skills of students to develop programs and strategies in assisting the community to meet its own needs.

GPC 415 Behavior Disorders (3-0)3
Misconceptions about abnormal behaviors, criteria for abnormality, the problem of classification, main approaches to behavior disorders, the basic nature of neurosis (the neurotic nucleus and paradox, anxiety disorders, somatoform disorders, affective disorders, sexual dysfunction and variants).

GPC 437 Group Counseling (3-0)3
Basic concepts and philosophies of group counseling; a survey and comparison of different theoretical approaches to group counseling; group processes, norms, and stages in the development of a counseling group; characteristics of group leadership and group members; effective group leadership skills; multicultural issues in group counseling.

GPC 438 Practicum in Group Counseling (3-0)3
Application of different techniques used in group counseling. Practicing group process and different stages of group counseling.

GPC 490 Professional Standards and Problems in Guidance and Counseling (3-0)3
The role definitions and work settings of the counselor, desired requisite preparation of counseling practice and the related ethical standards.

GPC 495 Seminar in Guidance and Counseling (3-0)3
Preparing and presenting comprehensive projects on chosen subjects according to students needs and interests.

NORTHERN CYPRUS CAMPUS

POLITICAL SCIENCE AND INTERNATIONAL RELATIONS PROGRAM

GENERAL INFORMATION: The aim of the Bachelor of Science degree program in Political Science and International Relations is to encourage and allow students to acquire the analytical skills to examine critically the organisation and expressions of political power, social power, economic power and cultural power that is, power in all its human expressions.

Where Political Science was traditionally concerned with the study of power within states and International Relations was traditionally concerned with the study of power between states, here in the PSIR programme at METU NCC we are concerned with examining the totality of these expressions of power. To that end, not only will undergraduate students be offered foundational courses in Political Science and International Relations thereby anchoring their knowledge in both traditions of enquiry, but they will be encouraged to examine and explain the development of more complex expressions of global power. Thus their primary concern will be the interaction between domestic politics, state behaviour and the international system and international society, and the issues these raise for the future of international relations in a world of changing economies, social structures, technologies, environments and ideologies. It is the aim of this program, therefore, to provide students with a thorough knowledge of the processes and practices which characterise the relations of power within states and between states whilst encouraging students to examine the combined development of world history.

On the basis of a firm foundation in study of government, economy and society, international history, and political and social theory, as well as law, students will then progress to a more interdisciplinary analysis of more specialist fields of enquiry. Having also completed a special course in research methods in social and political sciences, students will be guided through focused study in social and political theory, political economy and war and peace studies as well as being offered a number of electives across a range of specialisms.

The syllabus is designed to enable the student to examine and explain the complexities and processes that make up global power relationships, including analysis of the history, organisation and dynamics of state institutions and international institutions. Students will be able to examine the development, structural characteristics and crises in a wide range of political settings and political issues."

CAREER OPPORTUNITIES: While many of our graduates successfully continue on to M.A. and Ph.D. programs in Europe and Turkey, others pursue careers in the Turkish civil and foreign service, as well as in the private service sector, for instance in financial institutions and news media. Some of the potential employment opportunities in the public service include the State Planning Organization, the Ministry of Foreign Affairs, the Undersecretary of the Treasury, the Undersecretary of Foreign Trade, the General Secretariat for European Union, the Ministry of Finance, the Central Bank, the Capital Markets Board of Turkey, and also local and municipal government.

UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester				Second Semester			
PSIR	101	Intr. to Sociol. and Politics	(3-0)3				
PSIR	105	World History, 1453-1914	(3-0)3	PSIR	108	Intr. to Global politics	(3-0)3
PSIR	111	Study Skills in Social and Political Sciences	(3-0) 3	PSIR	110	Internat. History, 1914-1989	(3-0)3
ECO	101	Microeconomics	(4-0)4	PSIR	112	Statistics for Political Scientists	(3-0)3
ENGL	101	Development of Reading and Writing Skills I	(4-0)4	CNG	100	Introduction to Information Technologies and Appl.	(2-0)NC
GPC	100	First Year on Campus Seminar	(0-2)1	ENGL	102	Development of Reading and Writing Skills II	(4-0)4
TUR	101[a]	Turkish I	(2-0)NC	ECO	102	Macroeconomics	(4-0)4
				TUR	102[a]	Turkish II	(2-0)NC

SECOND YEAR

Third Semester				Fourth Semester			
PSIR	203	Hist. of Political Thought I	(3-0)3	PSIR	202	Constitutional Law	(3-0)3
PSIR	212	Comparative Politics	(3-0)3	PSIR	206	Hist. of Political Thought II	(3-0)3
PSIR	218	Political Sociology	(3-0)3	PSIR	210	Theories of Intern. Relations	(3-0)3
PSIR	237	Principles of Law	(3-0)3	PSIR	211	Comparative Government	(3-0)3
ENGL	211	Acad. Oral Pres. Skills	(3-0)3	PSIR	214	War and Peace Studies	(3-0)3
HST	201[b]	Principles of Kemal Atatürk I	(2-0)NC	HST	202[b]	Principles of Kemal Atatürk II	(2-0)NC

THIRD YEAR

Fifth Semester				Sixth Semester			
PSIR	303	Public International Law	(3-0)3	PSIR	304	International Organizations	(3-0)3
PSIR	305	Int. Political Economy	(3-0)3	PSIR	306	Process of Europ. Integration	(3-0)3
ENGL	311	Advan. Communic. Skills	(3-0)3	XXX		Elective 3 PSIR 308, Gender and Politics (guaranteed elective)	(-)3
XXX		Elective 1	(-)3				
XXX		Elective 2	(-)3	XXX		Elective 4	(-)3
				XXX		Elective 5	(-)3

FOURTH YEAR

Seventh Semester				Eighth Semester			
PSIR	401	Contemp. Political Theory	(3-0)3	PSIR	400	Graduation Project	(0-6)3
PSIR	403	Contemp. Issues in Global Political Economy	(-)3	PSIR	404	Contemporay Issues in War and Peace	(3-0)3
XXX		Elective 6	(-)3	XXX		Elective 9	(-)3
XXX		Elective 7	(-)3	XXX		Elective 10	(-)3
XXX		Elective 8	(-)3	XXX		Elective 11	(-)3

[a] International students will take TUR 201 and TUR 202, which may be taken in the first year by the consent of the advisor.

[(b)] International students will take HST 205 and HST 206 instead of HST 201 and HST 202.

ELECTIVE COURSES

At least seven of the elective courses must be taken from the PSIR program. Of the remaining non-PSIR portion, a maximum of four courses may be taken from any other program. The electives to be taken at METU Ankara during the summer school need to have prior approval of the PSIR co-ordinator. Otherwise they will not count.The only exception to the above mentioned rules is for the students who are taking a second language course and wants to take continous courses of the same language.

Out-of-department electives should be second year or higher level and should have at least 3 credits.

The following is a list of possible elective courses. The list is not exhaustive and there will be additional electives to cover local and regional agenda and issues.

- PSIR 311 Nations and Nationalism
- PSIR 314 Political Economy of Turkey
- PSIR 316 Understanding Capitalism
- PSIR 320 International Human Rights
- PSIR 322 History of the Cyprus Conflict
- PSIR 323 Political Psychology
- PSIR 333 States and Societies in Central Asia
- PSIR 340 Politics in International Migration
- PSIR 341 Contemporary Social Theory
- PSIR 343 International Development
- PSIR 345 Turkish Foreign Policy
- PSIR 348 Public Opinion & International Relations
- PSIR 381 Development and the Developing World
- PSIR 413 Comparative Political Cultures: Greece, Turkey, Cyprus
- PSIR 415 Political Economy of Environment and Energy
- PSIR 416 Terrorism and Global Society
- PSIR 418 International Humanitarian Law
- PSIR 420 Politics and Society in Turkey
- PSIR 421 Transitional Justice
- PSIR 423 Historical Sociology and International Relations
- PSIR 424 Theories of Diplomacy
- PSIR 425 Ethics and International Relations
- PSIR 427 Approaches to State-Society Relations
- PSIR 428 Politics of Literature
- PSIR 429 International Politics of Oil
- PSIR 430 Imperialism & Making of the Modern Middle East
- PSIR 431 Law and Institutions of the European Union
- PSIR 451 Theories of Democracy
- PSIR 454 Ottoman Diplomacy and the European States System
- PSIR 463 Russian Foreign Policy
- PSIR 470 Turkey and the EC/EU
- PSIR 559 Politics and Society in Latin America

DESCRIPTION OF COURSES

PSIR 101 Introduction to Sociology and Politics (3-0)3
This course provides the introductory conceptual framework for the study of politics and the changing social world. Definition of the basic concepts of authority, power, ideology, socialization, stratification, culture and gender will be combined with the examination of the basic approaches in the sociological theory and political science.

PSIR 105 World History, 1453-1914 (3-0)3
This course examines the rise and fall of great powers as political, military and economic entities. Since 1500, history has shown many comparable examples regarding the relation of economic and military overstretch of many great states like Ming China, Ottoman Empire, France, Great Britain, Austrian-Hungarian Empire, Prussia and the two great powers at the beginning of this century: the United States and Russia. All this will be considered in the framework of the "European Balance of Power" and the traditional "isolationist foreign policy" of the U.S. in the last century. The beginning of World War I and its implications on the world balance of power will be considered. The developments in Europe and U.S. since 1919 until today will be examined. World War I and the new political structure after 1918 will be considered from the point of global developments. World War II and the involvement of the U.S. in European affairs, the

Cold War Sovietization of Eastern Europe and the emancipation of the Third World countries are also to be discussed. The relations among the industrial and non-industrial countries in political, economic and military fields will be explained with some comments on future prospects for global developments.

PSIR 108 Issues in Global Politics (3-0)3
The aim of this course is to introduce the students to main issues in international relations discipline and provide a general framework for understanding the processes of globalisation and the changing meanings of governance and order. The impact of globalisation on different structures and processes of world politics, including security, political economy, international organisations, nationalism, environment, gender and culture will be the main focus of this course.

PSIR 110 International History, 1914-1989 (3-0)3
This course is an introduction to the international history of the 'short' twentieth century. Its primary concerns are the rise and formation of the modern international order with analysis directed at the causes and consequences of the two world wars, the processes of decolonization, the development of the Cold War and the development of international organizations and world order over the twentieth century.

PSIR 202 Constitutional Law (3-0)3
This course represents a conceptual and historical introduction to constitutional government and law. Within that framework, it also examines the constitutional movements of the Ottoman Empire and the early Republican period. In the final part of the course, the 1961 and 1982 Turkish Constitutions are analyzed with a comparative outlook.

PSIR 203 History of Political Thought I (3-0)3
This course aims to give students a broad perspective on developments in the history of political philosophy. It starts with the pre-Socratic philosophers of nature and Socratic criticism of conventions through dialogue. Following the significant turn brought by the Platonic-Aristotelian tradition, the course examines Hellenistic worldviews and medieval outlook to political affairs. It focuses on the major works of the political thinkers of the Renaissance and modern eras. It analyses Renaissance Humanism, strategic approach to political action, the scientific and intellectual revolution of the 17th Century, the birth of liberalism, the rise of democratic theory, modernity and politics, the conception of historicity and the philosophy of life. Some of the themes that are surveyed in this course are early philosophical reflection on nature and human essence, time and matter, theory of forms, questions of justice, equality and freedom, practices concerning the self and the good life, and, the rising or declining significance attributed to political participation.

PSIR 206 History of Political Thought II (3-0)3
The aim of this course is to introduce students to main issues in the international relations discipline and provide a general framework for understanding the processes of globalisation and the changing meanings of governance and order. The impact of globalisation on different structures and processes of world politics, including security, political economy, international organisations, nationalism, environment, gender and culture will be the main focus of this course.

PSIR 210 Theories of International Relations (3-0)3
This course provides a systematic and comprehensive survey of contending theories of international relations with a special reference to important theoretical debates between idealist vs realist, traditionalist vs behavioralist and realist vs neo-realist approaches. The course will also address the central assumptions and key concepts of these theoretical perspectives.

PSIR 211 Comparative Government (3-0)3
This course provides a conceptual introduction to the field of Comparative Government. After briefly analyzing the legislative, executive and judiciary branches of government, it studies the governments of the United States, the United Kingdom, France, and the Russian Federation.

PSIR 212 Comparative Politics (3-0)3
This course attempts to deal with the question of how to analyse state-society relations within a comparative perspective. On the basis of alternative methodological approaches that will be introduced and key conceptual issues examined, it will specifically focus on the (ways in which different approaches study) dynamics of change and forms of representation in both developed and peripheral, capitalist social formations.

PSIR 213 Research Methods in Social and Political Sciences (3-0)3
This course introduces the students to a range of commonly used methods of social research at an introductory level. Particular emphasis will be on the needs of research in the disciplines of political science and international relations. The course will focus on how to formulate research questions and subsequent hypotheses, how to design a research plan, how to determine appropriate methodologies,

and how to perform data analysis. The course is not restricted to purely quantitative or qualitative approaches; rather, it will emphasize determining appropriate methodologies given specific research areas of interest.

PSIR 214 War and Peace Studies (3-0)3
This course examines the historically changing expressions and meanings of war and peace. Is 'war' a distinctive form of social and political violence? Is peace simply the absence of war? Is peace or war the international norm? How have the causes of war (and peace) changed over history? How have wars been concluded and has this entailed the outbreak of peace? These and other questions are addressed in the context of the development of international relations, the international system and imperialism. The basic ideas of war studies on the one hand and peace studies on the other hand are introduced and reviewed before considering a range of theoretical approaches to the field and examining distinct historical examples of the outbreak of wars and the conclusion of 'peace'.

PSIR 234 Introduction to Foreign Policy Analysis (3-0)3
This course is intended to provide an introductory examination of the subject of foreign policy analysis. In this general context, the nature, scope and definition of foreign policy; the impact of main theories and methods of international relations on foreign policy studies; and various approaches and methods to the study of foreign policy will be covered in the lectures.

PSIR 237 Principles of Law (3-0)3
This is an introductory course in which basic concepts and general principles of law, as well as issues concerning the Turkish legal system, are studied in order to provide an introduction to legal concepts and institutions that will serve as a foundation for other courses dealing with legal studies. The scope of the course includes, but is not limited to, the characteristics of law as compared to other rules of social conduct; functions of law; basic legal concepts and legal institutions; sources of law; the court systems; and other related issues.

PSIR 303 Public International Law (3-0)3
An introductory course, dealing with sources of international law, states, individuals, recognition, international agreements, international responsibilities of states, peaceful settlement of international disputes, theory and reality in modern law of war, coercive measures, laws of land and serial warfare, laws of maritime warfare, enemy persons and property within belligerent states, neutral states, termination of war.

PSIR 304 International Organizations (3-0)3
This course examines the evolution of international organizations in relation to developments in the international system, undertaking a comparative study between the various pacts and systems prior to the foundation of the League of Nations and the United Nations system. The course addresses the relevant international organizations of the post-World War II period and the post-Cold War international system

PSIR 305 International Political Economy (3-0)3
This course is intended to provide an introduction to the different methodological approaches in the field of international political economy and to the basic concepts and issues in international politics and economics. It will also undertake a comparative analysis of alternative strategies of capitalist development and/or modes of integration into the world economy with special reference to Latin America, South and East Asia, Africa and the newly emerging market economies of the former centrally-planned economies.

PSIR 306 Process of European Integration (3-0)3
This course is designed as a general introduction to the process of European integration and the politics of the European Union (EU). The course consists of three parts: Part One traces the history of European integration from the end of the WWII through 2002. To facilitate different interpretations of the EU in the making, part one also reviews the main academic debates about European integration and about the Union. Part Two looks at EU institutions, including the formal and informal aspects of EU governance. Part Three discusses the main policy areas ranging from agriculture to EMU. On the basis of the findings drawn from the theory and practice of European integration, the course addresses the relationship of post-1995 enlargement with the challenge of deepening of the EU and challenges students to think about the future of EU integration.

PSIR 311 Nations and Nationalism (3-0)3
This course aims to critically review competing theoretical approaches to nations and nationalism. It will also seek to deepen understanding of these theories through an analysis of a number of comparative case studies drawn from Europe, Latin America and the Middle East. This analysis will draw on historical experiences of nationalism as well as contemporary examples of nationalist political movements. The course will also include an examination of the emergence of sub-nationalist and secessionist movements and the impact that globalisation is having on nationalism today.

PSIR 314 Political Economy of Turkey (3-0)3

This course is designed to introduce students to the political economy of Turkey. The course topics are grouped according to the various political and economic issues that Turkey has faced. The course will start with the economic and political foundations of the early Turkish Republic and continue with the state-led development, agricultural policies, and import substitution industrialization experience. Later, it will focus on the political and economic crisis in the 1970s and the military coups. Next, addresses the economic and political liberalization efforts of the 1980s and the main problems faced in the 1990s. Lastly, some current issues in Turkish political economy will be discussed. Underdevelopment, the tension between democracy and economic growth, industrialization, agricultural policies, class conflicts, economic liberalization, regionalization, chronic inflation, and financial crises will be among the course topics.

PSIR 316 Understanding Capitalism (3-0)3

This course aims to introduce students to the debates on the origins, nature and development of capitalism. The course is divided into four parts: the first part introduces students to the literature on the historical origins of capitalism. The second part then looks at the nature of capitalism from a political economy perspective. The third part highlights the relationship between capitalism and the state whilst the final part focuses on theories of contemporary capitalism.

PSIR 318 Imperialism and the Making of Modern Middle East (3-0)3

This course introduces students to the history of imperial organisation, state formation and imperial interventions in the making of the modern Middle East. In particular, focus will be concentrated on four periods: first, the formal 'great power' post-Ottoman divisions of the region, the peace treaties and settlement treaties, out of which the new state order was built. The geo-politics prior to and in preparation of the Paris peace treaties, Sevres and later Lausanne will be scrutinised. Second, the geo-politics of resource access (oil) and demographic movements during and throughout the League of Nations period, up to and including the second world war will be examined. Third, the contemporaneous rise of Arab and Jewish nationalism and their imbrication in imperial and Cold War order will be studied. And finally the tensions of confessional politics in the post-Cold War order, focusing on Israel-Palestine, Iraq and Iran will be used to assess more recent expressions of imperial interventions. Whilst principally a course in international history, regular reference will be made to theories of imperialism, critical political economy and historical sociology.

PSIR 320 Interational Human Rights (3-0)3

This course introduces students to key issues concerning international human rights. The goal of the course is to provide an overview of international human rights and consider the role of human rights in the international realm. There will be an examination of treaty texts, state reports, recent research, and actual cases before international bodies, along with media presentations. The course will be conducted through readings, lectures, and student presentations.

Prerequisite: PSIR 303

PSIR 321 Political Sociology (3-0)3

This course aims to examine the major issues of political science from the vantage point of sociological theories and concepts. In this vein, the course will discuss the social origins of state, civil society, citizenship, parties and law, as the fundamental objects of inquiry in political science. The relationships between power struggles, social movements and the transformation of political structure/regime will be another central issue to be dealt with. The examination of the issues such as citizenship, democracy and civil society will be linked to some pertinent political issues such as the enlargement of the European Union and new social movements.

PSIR 322 History of Cyprus Conflict (3-0)3

This course introduces students to questions in the history of the Cyprus conflict, representing both a history of the conflict itself and an examination of the role of history in the conflict. The course will require students to examine both primary and secondary materials and to conduct research on contested issues in the island's recent history, including the role of British colonialism in the conflict, the rise of nationalist mobilization, and the increasing division of society leading to partition. Students will learn what materials are available to research Cyprus' recent history, and they will also examine the construction of history within the context of conflict.

PSIR 333 States and Societies in Central Asia (3-0)3

This course is designed as an undergraduate level interdisciplinary introduction to the states and societies of contemporary Central Asia. Fundamentally, the course aims to shed light on post-Soviet developments in the region through a critical reading of the politics, economy, society and culture of Central Asia since Russian colonization. The organization of the course includes two parts. The first part aims to familiarize the student with socio-political and cultural transformations

experienced by the people of Central Asia under the colonial rule of tsarist Russia and the Soviet Union. Then the course proceeds to discuss major issue areas that have emerged in post-Soviet Central Asia and which dominate the scholarly debate in the field of Central Asia Studies. The course will consist of lectures, reading assignments, class discussions and film screenings. No special knowledge of the region on the part of students is presumed.

PSIR 341 Contemporary Social Theory (3-0)3

The course is an effort to understand the content of contemporary sociological theory that emphasizes the manner in which sociological theory provides insights in to the character and dynamics of social reality. The focus is on making the theory accessible and relevant to an intellectual community that includes not only social science students that must acquire familiarity with sociological theory, but also to a broader intellectual community of persons and groups interested in unraveling, and piecing together, characteristics of social world. The course will focus on variety of forms of what is termed sociological theory, while at the same time examining contemporary expressions of it.

PSIR 342 Southern Europe in World Politics (3-0)3

This course intends to provide the student with an understanding of Southern Europe and the Mediterranean (including theoretical and conceptual approaches). Case studies: Greece and Spain. Economic Environment: Economic development patterns; characteristics of the economic elites; state as an actor in the economy; the role of foreign economic aid and foreign investment. Political Environment: The nature of the political establishment; authoritarianism; democratization; the role of individual leaders. External Environment: Supportive and reactionary responses in the international system (intervention, solidarity, etc.); foreign policy behavior; the role of the USA, EEC/EC/EU and USSR/Russia.

PSIR 343 International Development (3-0)3

This course is designed to build a core understanding of the basic theories, concepts, and policies of international development. Major contemporary issues facing Third World countries (e.g. industrialization, urbanization, agricultural development, poverty, gender and development, environmental degradation) are also examined.The course is multi-disciplinary as it draws on history, economics, politics, and sociology to discuss the problems and prospects of development. It will be integrating theory with practice in development. All issues will be examined from diverse perspectives, and students will learn to integrate and reconcile these diverse views.

PSIR 345 Turkish Foreign Policy (3-0)3

The course aims to identify and analyze various factors contributing to Turkey's foreign policy orientation. While the main focus of this course is the political dynamics and issues of Turkish foreign policy after World War II, the problems and determinants of Turkish foreign policy between 1919-1945, with reference to past experiences and geopolitical imperatives placing certain constraints on the state's decision makers, will also be briefly discussed.

PSIR 381 Development and the Developing World (3-0)3

This course aims to provide an introduction to the study of development and the developing world. It introduces students to the key theoretical perspectives and conceptual frameworks through a wide-ranging analysis of contemporary issues in Third World development. By using an interdisciplinary approach the course hopes to explore the nature of structural changes taking place in the developing world. It will cover a variety of development problems and issues and explore different interpretations of such issues. The first part of the course focuses on definitions and theories of development, providing an historical account of the evolution of development theory and practice in recent decades. The second part of the course consentrates on key development strategies by paying specific attention to the role of state and international agencies.

PSIR 400 Graduation Project (3-0)3

Students will form preferably interdisciplinary groups and will prepare a paper on a research or policy issue. Each group will be supervised by one or two instructors. In addition to the final report at the end of the semester, the group will be required to submit a minimum of 1 progress report halfway through the semester.

PSIR 401 Contemporary Political Theory (3-0)3

This course is aimed to introduce students to the works of major political thinkers of the 20th Century with the central focus on the problems of domination and inequality. It begins with the four major thinkers of the previous century who have influenced heavily the 20th Century political philosophy: Kant, Hegel, Nietzsche and Marx. It then examines, Arendt, Althusser, Foucault, Habermas, Rawls and Mouffe with the aim of reaching certain generalizations and comparisons.

PSIR 403 Contemporary Issues in Global Political Economy (3-0)3

This course aims to introduce students to the core theoretical debates and empirical issue-areas of contemporary Global Political Economy (GPE), and to develop their research and critical analysis skills in the study of GPE. The course is divided into three parts. In the first part, it introduces students to the historical and theoretical foundations of GPE. The second part then looks at core GPE issues such as economic globalization, neoliberalism and state restructuring. The last part focuses on broader GPE issues such as global inequality, labour and social justice movements in the North and South.
Prerequisite: PSIR 305

PSIR 404 Contemporary Issues in War and Peace (3-0)3

This course is a capstone course for the war, peace and security studies courses in the PSIR programme, bringing together the theories, concepts, methods, historiographical debates and techniques developed in earlier courses and now brought to bear in the analysis of current expressions of war and peace. Current and recent examples of war and of peace negotiations and settlements, including post-war reconstruction, will be examined. The course will select, on a case study basis, current or recent examples for examination.
Prerequisite: PSIR 214.

PSIR 413 Comparative Political Cultures: Greece, Turkey, Cyprus (3-0)3

This course provides a comparative introduction to political cultures in the eastern Mediterranean, with a specific focus on Greece, Turkey, and Cyprus. The course will explore the ways in which citizens in a nation-state, or those who aspire to build a nation-state, legitimize politics, define inclusion in the nation, and formulate the rights and responsibilities of citizens. We will draw upon the anthropological and sociological literature on the region to examine the norms, symbols, and practices of politics, including the formation and often contradictory practices of nationalist ideologies. The latter half of the course will focus on the emergence of nationalisms in Cyprus as an instance of divisive political cultures, as well as on more recent attempts to formulate an anti-nationalist politics.

PSIR 415 A Global Political Economy of Environment and Energy (3-0)3

This course will introduce students to the principal political economic debates, controversies and policies that have developed regarding key aspects of global environmental change. In addition to a brief examination of the international history of environmental change, the course seeks to focus on a select number of environmental problems and to discuss some of the proposed remedies for environmental harms or policies for 'sustainability'. This course forms an introduction and foundation for anyone interested in the problems of environment and energy. Insofar as it is possible and desirable, a non-technical approach will be taken in the organisation and study of this course.

PSIR 416 Terrorism and Global Society (3-0)3

This course introduces students to questions regarding the contemporary nature of terrorism, and in particular will examine the global, political, economic and cultural roots of terrorism and terrorist groups. There will be an examination of theoretical debates on terrorism as well as detailed analysis of case studies, past and present. The course will also examine the relationship between the United States and terrorist groups during the Cold War period and contrast this with its present day 'War on Terror'. This course will be conducted through discussions of leading theories of nations and nationalism as well as examination of different case studies.

PSIR 418 Humanitarian Law (3-0)3

This course introduces students to key issues concerning international humanitarian law. The goal of the course is to provide an overview of international humanitarian law and consider the role of humanitarian law in the international realm. There will be an examination of treaty texts, recent research, the role of human rights, and actual cases before international bodies. The course will be conducted through readings, lectures, and student presentations.
Prerequisite: PSIR 303.

PSIR 420 Politics and Society in Turkey (3-0)3

This course introduces five political and sociological themes in the study of Turkish society, which are discussed and analyzed from different perspectives. These themes and issues have both historical roots and incessant actuality. In view of this, these themes could function as vantage points for developing a coherent perspective to the historical transformation as well as to the current structure of Turkish society. These issues include

a) State apparatus in Turkey, which will deal with the topics such as democratisation in Turkey, center-periphery paradigm, the role of military in Turkish political history.
b) Nationalism in Turkey, which will cover the themes such as Kemalism, citizenship practices, ethnicity and race, ultra-nationalism in Turkish politics.

c) Religion and Politics in Turkey, which will elaborate on secularization, laicism, the rise of Islamic conservatism in Turkish society.
d) Gender and Society in Turkey, which willl focus on nationalism and women, Muslimhood and women, Kemalism and women and feminist movement in Turkey.
e) Urban Life in Turkey, which will examine trajectory of urbanization, migration and urban poor.

PSIR 421 Transitional Justice (3-0)3
How do states or societies that have suffered massive human rights abuses deal with the complex legacies of their past as they transition to peace and democracy? What can policymakers or activists do to defuse the bitterness of past conflict or repression and meet rhetorical and political demands for justice?
This course examines the ethical, political, legal, and practical challenges that states face when trying to overcome the legacy of a violent past. It begins by looking at the development of transitional justice as field of political and social activism, including its relationship to political science and international law. It sets out the developing legal framework that supports such activism, as well as the practical constraints and ethical dilemmas that both characterize such contexts and make transitional justice such a complicated field.

PSIR 423 Historical Sociology and International Relations (3-0)3
This course provides a critical analysis of different historical sociological approaches to international relations. It aims to provide a comprehensive account of international political and economic change. Can international relations be explained only as an interaction between states? What is the effect of war on social change? What is the relation between capitalism and the international state system? Does domestic class structure of societies and their economic transformation effect international change? This course will adress these questions in the context of different historical sociological approaches thus analysing the overlapping concerns of international relations, history and sociology.

PSIR 425 Ethics and International Relations (3-0)3
This course provides a framework for discussing the ethical dimensions of international relations. It aims to provide students with different approaches to international ethics. Is ethics only what the powerful say? Is it possible to have a moral foreign policy? Under what circumstances is it legitimate to intervene into the affairs of another state? How can we define the national interest? Can ethics and international business coincide? What are the ethical issues involved in global climate change? Do the rich nations owe to help the poor ones? This course will adress these questions in the context of different ethical traditions in international relations.

PSIR 431 Law and Institutions of the European Union (3-0)3
The course is designed as a general introduction to the primary and secondary sources of European law covering European institutions involved in the European law making process. The materials follow three basic themes: 1) The constitutional and institutional architecture of the Union and its evolution, 2) Select issues of EU-Turkey relations, and 3) Incorporation of European law into national legislation. Attention focuses on equipping the students with the basic information necessary to understand the basic principles of European legal integration.

PSIR 451 Theory of Democracy (3-0)3
In this course the concept of democracy is studied from its genesis to our day. The analysis includes different theories and aims to provide the student the ability of critically compr-ehending and evaluating the practice(s) of democracy in the contemporary world.

NORTHERN CYPRUS CAMPUS

PSYCHOLOGY PROGRAM

GENERAL INFORMATION: The undergraduate program is designed to acquaint students with a broad knowledge and basic skills in the main fields of psychology. The required courses aim to equip students with the basics of different fields of psychology, such as social, clinical, developmental, industrial/organizational, physiological, and health psychology, and methodologies employed in psychological research. In addition to the required courses, students are expected to take a minimum of 15 elective courses. Eight of these courses are departmental elective courses (see the list below) and aim to provide students with in-depth knowledge in their areas of interest in psychology. Six non-departmental elective courses aim to introduce students other scientific disciplines which are closely related to psychology (e.g., sociology, philosophy, economics, etc.). By offering a broad spectrum of elective courses, the undergraduate program gives the students opportunity to specialize in different areas of psychology and to get familiar with the interdisciplinary nature of social sciences.

CAREER OPPORTUNITIES: Students graduating from psychology department can work in hospitals, counseling centers (e.g., health centers of universities), nursery schools and higher level schools, research institutions, or assume administrative and research positions at state institutions. They can also work at various advertisement firms, and other public and private organizations to develop assessment techniques for selection, placement, and to coordinate human relationships, public relations, and human resources. Naturally, the level at which they will be employed and the nature of their responsibilities will tend to vary depending on their post-graduate qualifications and the requirements of the related institutions. A significant number of graduates may also work towards a masters' degree for specialization or study in a Ph.D. program with the goal of becoming an academician.

UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester				Second Semester			
PSYC	101	Introduction to Psychology I	(3-0)3	PSYC	102	Introduction to Psychology II	(3-0)3
PSYC	116	Statistics for Psychology I	(3-2)4	PSYC	113	Research Meth.in Psych. I	(3-2)4
XXX	xxx	Non-Dept.Elect. (SOCL)	(3-0)3	XXX	xxx	Non-Dept.Elect.(PHL)	(3-0)3
ENGL	101	Development of Reading and Writing Skills I	(4-0)4	ENGL	102	Development of Reading and Writing Skills II	(4-0)4
BIOL	106	General Biology	(3-0)3	TUR	102[(a)]	Turkish II	(2-0)NC
TUR	101[(a)]	Turkish I	(2-0) NC	CNG	100	Intr. to Information Tech.and Applications	(2-0)NC
GPC	100	First Year on Campus Seminar	(0-2)1				

SECOND YEAR

Third Semester

PSYC	217	Statistics for Psychology II	(3-2)4
PSYC	221	Developmental Psychology I	(4-0)4
PSYC	251	Social Psychology I	(3-0)3
PSYC	281	Exp.Psychology I: Learning	(3-0)3
ENGL	211	Acad. Oral Pre. Skills	(3-0)3
HST	201[b]	Principles of Kemal Atatürk I	(2-0)NC

Fourth Semester

PSYC	214	Research Meth.in Psych. II	(3-2)4
PSYC	200	Ethics in Research and Practice of Psychology	(2-0)2
PSYC	222	Developmental Psych. II	(4-0)4
PSYC	252	Social Psychology II	(3-0)3
PSYC	284	Exp.Psych. II: Cognition	(3-0)3
XXX	xxx	Non-Depart. Elective	(-)3
HST	202[b]	Principles of Kemal Atatürk II	(2-0)NC

THIRD YEAR

Fifth Semester

PSYC	331	Testing & Meas. in Psych.	(3-2)4
PSYC	335	Industrial Psychology	(3-2)4
PSYC	340	Theories of Personality	(4-0)4
PSYC	xxx	Departmental Elective	(-)3
XXX	xxx	Non-Departmental Elective	(-)3

Sixth Semester

PSYC	342	Psychopathology	(4-0)4
PSYC	374	Biological Psychology	(4-0)4
ENGL	311	Advan.Communic.Skills	(3-0)3
XXX	xxx	Non-Departmental Elective	(-)3
XXX	xxx	Non-Departmental Elective	(-)3

FOURTH YEAR

Seventh Semester

PSYC	442	Clinical Psychology	(4-0)4
PSYC	449	Intr.to Health Psychology	(3-0)3
PSYC	xxx	Departmental Elective	(-)3
PSYC	xxx	Departmental Elective	(-)3
PSYC	xxx	Departmental Elective	(-)3
PSYC	400	Summer Practice	NC

Eighth Semester

XXX	xxx	Free Elective	(-)3
PSYC	xxx	Departmental Elective	(-)3
PSYC	xxx	Departmental Elective	(-)3
PSYC	xxx	Departmental Elective	(-)3
PSYC	xxx	Departmental Elective	(-)3

[a] International students will take TUR 201 and TUR 202, which may be taken in the first year by the consent of the advisor.
[b] International students will take HST 205 and HST 206 instead of HST 201 and HST 202..

ELECTIVE COURSES

PSYC	242	Coping with Stress
PSYC	272	Human Nervous System
PSYC	282	Experimental Psychology II: Perception
PSYC	301	Background in Psychology
PSYC	302	Visual Perception
PSYC	312	Experimental Design and Analysis
PSYC	320	Topics in Developmental Psychology
PSYC	321	Cognitive Development
PSYC	322	Social Development
PSYC	332	Intelligence Testing
PSYC	333	Forensic Psychology
PSYC	336	Organizational Psychology
PSYC	341	Psychology of Adjustment
PSYC	343	Topics in Clinical Psychology
PSYC	345	Speech And Language Pathology
PSYC	347	Counseling the Communicatively Disordered

PSYC	349	Aging and Communication Disorders
PSYC	350-353	Topics in Social Psychology
PSYC	352	Environment and Behavior
PSYC	354	Introduction to Traffic Psychology
PSYC	357	Culture and Relationship
PSYC	358	Social Identity, Majority- Minority Relations and Acculturation
PSYC	371	Emotion
PSYC	372	Motivation and Emotion
PSYC	380	Topics in Experimental Psychology
PSYC	381	Cognitive Processes I
PSYC	382	Cognitive Processes II
PSYC	383	Attention
PSYC	384	Speech Perception
PSYC	385	Introduction to Cognitive Science
PSYC	386	Auditory Perception
PSYC	390-399	Workshop
PSYC	410	General Experimental Psychology
PSYC	414	Computer Applications in Psychology
PSYC	420	Experimental Child Psychology
PSYC	421	Topics in Developmental Psychology
PSYC	422	Language Acquisition and Development
PSYC	424	Applied Developmental Psychology
PSYC	426	Childhood Psychopathology
PSYC	431	Personality Assessment
PSYC	432	Job Analysis and Performance Appraisal
PSYC	434	Industrial and Organizational Psychology
PSYC	436	Job Analysis and Personnel Selection
PSYC	440	Topics in Clinical Psychology
PSYC	441	Theories of Psychotherapy
PSYC	443	Community Psychology
PSYC	447	Family Therapy Approaches
PSYC	448	Methods of Family Therapy
PSYC	450	Topics in Social Psychology
PSYC	451	Experimental Social Psychology
PSYC	452	Psychology of Gender
PSYC	454	Social Psychological View of Media
PSYC	455	Psychology of the Self and Attachment
PSYC	456	Applied Social Psychology
PSYC	460	Issues in Contemporary Psychology
PSYC	470	Systems and Theories in Psychology
PSYC	483	Psychopharmacology

or other approved by the Program

DESCRIPTION OF COURSES

PSYC 100 General Psychology (3-0)3
This course aims to provide a general overview of theoretical and empirical areas of literature in psychology for non-psychology students. Students are exposed to major areas of psychology such as physiological psychology, developmental psychology, learning, memory and perception, personality and social psychology, and psychopathology. Individual instructors may tailor the course in accordance with the needs of the students taking the course. (Elective for non-Psychology Program students).

PSYC 101 Introduction to Psychology I (3-0)3
An introduction to general theories and methods of psychology; basic concepts and research findings in major areas of psychology, such as perception, learning, cognition and emotion.

PSYC 102 Introduction to Psychology II (3-0)3
A continuation of PSYC 101. Basic concepts and research findings in the areas of developmental psychology, personality, individual differences, abnormal behavior, psycho-therapy and social psychology.

PSYC 113 Research Methods in Psychology I (3-2)4
This course is intended, first, to introduce the basic concepts of psychological research, such as the relationship between theory and research formulating and testing hypotheses, ethics in research, presentation of results, and second, to explain the nature of and problems associated with observational research in psychology. In addition to three lecture hours a week, two hours will be devoted to the discussion, exemplification, and application of the basic principles of sound psychological research.

PSYC 116 Statistics for Psychology I (3-2)4
This course will introduce the basics of descriptive statistics and the principles of hypothesis testing. Methods of summarizing data, principles of probability, and basic assumptions and methods of hypothesis testing will be discussed as they relate to psychological research. The course will include weekly problem sessions (2 hours a week) to reinforce the learning of the principles by application.

PSYC 200 Ethics in Research and Practice of Psychology (2-0)2
An introduction to ethical issues inherent in the conduct of psychological research and practice. Topics on ethical issues and dilemmas relevant in different fields of studies, including therapy, clinical and organizational assessment, training, consulting, and forensic issues.

PSYC 214 Research Methods in Psychology II (3-2)4
This course aims to familiarize students with the use of experimental methods in psychology. The content will include basic principles of good experimentation, between group and within-group experiments, how to deal with the problems associated with these kinds of experiments, design and interpretation of factorial experiments. During the course of the semester, students will be required to create a simple experiment of their own, collect data, and report the result in a computer generated report in the appropriate format.
Prerequisite: PSYC 113.

PSYC 217 Statistics for Psychology II (3-2)4
This course is intended to introduce the methods of statistical hypothesis testing that are used frequently in more complex research designs in psychology. The main part of the course will cover the use of Analysis of Variance (ANOVA) in analyzing psychological data. In addition, the use of non-parametric tests and the issue of statistical power will be discussed.
Prerequisite: PSYC 116.

PSYC 221 Developmental Psychology I (4-0)4
An integrated account of the various approaches to human development emphasizing the relevant research findings in this area with special reference to psycho-motor, mental, emotional and social development from birth through adolescence. Discussion of basic issues in developmental psychology.

PSYC 222 Developmental Psychology II (4-0)4
Review of theory and research on psychological problems associated with different periods of life. Adolescence, early and late adulthood, family, parenthood, work environment and retirement. Old age, abilities and psychological development of the elderly.

PSYC 242 Coping with Stress (3-0)3
The course aims at introducing basic theories and empirical evidence about human stress response.

Focusing on transaction between mind and body and between persons and environments, the course intends to examine how physiological, psychological, social and cultural factors come together to influence what people perceive as stressful and how they cope with it. The course also involves practical applications of various stress management techniques.

PSYC 251 Social Psychology I (4-0)4
Introduction to the field and methods of social psychology; historical perspective, review of theoretical and empirical work related to areas such as social perception, cognition, attitude formation, change and measurement.

PSYC 252 Social Psychology II (4-0)4
Review of theoretical and empirical work in the areas of interpersonal attraction, group processes including norms, conformity, negotiation, cooperation, conflict, leadership, productivity and socialization processes such as sex-role learning and pro and antisocial behavior.

PSYC 281 Experimental Psychology I: Learning (4-0)4
A course designed to acquaint the students with the experimental literature of the psychology of learning. Areas of major emphasis are principles of classical and instrumental conditioning, reinforcement and its patterns, extinction, relation of learning to motivation, generalization and discrimination. A selective treatment of major learning theories in various contexts is distributed throughout the course material.

PSYC 284 Experimental Psychology II: Cognition (4-0)4

A survey course built upon the experimental cognitive approach to human information processing. Topics to be covered include sensory memory, attention, pattern recognition, short-term storage and processing, non-acoustic coding and forgetting in short-term memory.

PSYC 331 Testing and Measurement in Psychology (3-2)4
Students wil be exposed to the basic principles of measurement in psychology; norm development validity, reliability, and related statistics. Special emphasis will be given to test development and use of tests. Nature of abilities, intelligence and issues in intelligence testing are among the other topics covered in this course.

PSYC 335 Industrial Psychology (3-2)4
This course provides a general overview of industrial psychology. Topics, such as methods used in the science and practice of industrial psychology, job analysis, criterion development, personnel selection, placement and training, and performance appraisal are covered with the purpose of providing a foundation in both theoretical and applied areas of the field.

PSYC 340 Theories of Personality (4-0)4
A survey of different theories and approaches to the study of personality. Comparison, critique and evaluation of different theories.

PSYC 342 Psychopathology (4-0)4
Historical review of the field; concepts of normal and abnormal behavior; theoretical approaches to abnormal behavior; examination of the types of adulthood psycho pathology as proposed in the latest classification system.

PSYC 343 Topics in Clinical Psychology * (3-0)3
The course objective is development of knowledge and understanding of the basic skills of clinical interview. By the end of the course, students will have the knowledge and understanding of the basic skills of clinical interview.

PSYC 350-353 Topics in Social Psychology * (3-0)3
This course will focus on the topic of close relationships. The course expands on what students have learned about this topic in PSYC 252 by addressing in more depth a number of questions, which include why we fall in love with particular individuals, the qualities we look for in potential mates, causes of relationship dissolution, and factors that help relationships endure. Students will be introduced to basic research and theory in this subarea of social psychology. There may be prerequisites as per the consent of the instructor.

PSYC 374 Biological Psychology (4-0)4
The physiological basis of behavior; study of sensory, neural and motor structures for sensory coding, hunger and thirst, sleep-waking cycle, communication emotion, learning, and psychosomatic disorders.

PSYC 380 Topics in Experimental Psychology* (3-0)3
This course aims at expanding students' knowledge in the area of experimental psychology by focusing on a select number of topics tackled by psychologists. Students will learn to critically read and analyze journal articles addressing experimental questions on topics such as learning, perception, memory, and

social behavior. Through readings and class discussions, students will become well versed with various experimental designs and methods employed by experimental psychologists. There may be prerequisites as per the consent of the instructor.

PSYC 384 Speech Perception & Development (3-0)3

The aim of this course is to teach the acoustics of speech and its perception. Basic concepts are explained. Then these concepts are applied to the description of speech sounds, and acoustic research on the perception of speech sounds and their meanings are presented.
Prerequisite: PSYC 284.

PSYC 400 Summer Practice NC

This course is designed to give studens a first hand experience in the application of psychology in real life setting. Students will have the opportunity to make observations and applications related to psychology in various institutions. They are expected to develop an understanding of practical issues relevant for the applications of their theoretical knowledge. The course also aims to give students an appreciation of ethical guidelines for the professional conduct of psychology.

PSYC 410 General Experimental Psychology (3-0)3

A course designed to acquaint the student with experimentation and report-writing in a problem area of experimental psychology. Typically, the student finds a research problem, designs an experiment, collects dara, analyzes and interprets data and writes an article based on the experiment.

PSYC 421 Topics in Developmental Psychology* (3-0)3

The aim of this course is to look at psychopathology from a developmental perspective while familiarizing students with the main disorders of childhood.

PSYC 422 Language Acquisition & Development (3-0)3

This course focuses several aspects of language development: audio-visual speech perception, contemporary models and theories of speech perception and development and developmental language disorders.

PSYC 434 Topics in Industrial & Organizational Psychology (3-0)3

The course provides a detailed review of the current issues, theories, and applications in I/O psychology. Topics covered include job analysis and applications; personnel selection systems and techniques; the turnover process; performance and management theory and practice; human factors in work organizations; organizational culture and climate; leadership; and cross cultural I/O issues.
Prerequisite: PSYC 335

PSYC 440 Topics in Clinical Psychology * (3-0)3

A review of classical and contemporary schools of psychotherapy as well as current research and applied issues in clinical psychology.

PSYC 441 Theories of Psychotherapy (3-0)3

Survey of different schools of psychotherapy. Review of psychotherapy research, critique and ethical standards for therapists.

PSYC 442 Clinical Psychology (4-0)4

Historical development and relationships with other disciplines; review of recent theories and research in the major areas of clinical psychology such as measurement of abilities, personality assessment, psychotherapy and prevention of behavior disorders; clinical psychology as a profession; training, legislation, licensing and ethical standards. Visits to settings where clinical psychologists are working may be arranged.

PSYC 444 Undergraduate Research Thesis (0-6)3

PSYC 444 is a fourth-year thesis course. Students enrolled in this course will run a semester long undergraduate research thesis in an area of their choice with a faculty member who is an expert in that area. The 30% of this course will be assessed with a research proposal and the remainder 70% will be assessed with an empirical thesis submitted during the final exams period.

PSYC 449 Introduction to Health Psychology (3-0)3

This course is designed to explore the bio-psychosocial factors associated with health and wellness. The aim of the course is to familiarize students with behavioral changes that facilitate the acquisition and maintenance of health, primary and secondary prevention, and the role of psychosocial factors such as stress in the development of illness. Multicultural aspects of health behavior will be examined throughout the course.

PSYC 450 Topics in Social Psychology * (3-0)3

Main objectives of this course are to make students to acquire knowledge and appreciation of biopsychosocial and behavioral factors associated

with health, wellness and illness, to encourage them to develop skills and behavioral strategies for lifestyle change and to promote health and wellness, and to make them recognize the importance of assuming responsibility for making significant choices that enhance quality of life and personal contribution to society.

NORTHERN CYPRUS CAMPUS

TEACHING ENGLISH AS A FOREIGN LANGUAGE PROGRAM

GENERAL INFORMATION: The B.A. Program in Teaching English as a Foreign Language provides students with the opportunity to expand and refine their knowledge of English and equips them with the means and resources to assist their students in learning English. Students learn the best practices in the planning, teaching and evaluating of second language instruction and are given the opportunity to observe how these practices are implemented in local schools. To address some of the needs of globalization, students are also provided with courses in a second foreign language, which they learn to actively use in communication and to obtain or reinforce knowledge of other subject areas. The program provides students with a wide selection of elective courses mainly focusing on English literature and translation. Most of these courses are also open to interested students studying at the METU Northern Cyprus campus, giving them the opportunity to learn English literature and practice translation from English or another European language to Turkish.

CAREER OPPORTUNITIES: Graduates of this program will be certified English teachers and will be qualified to work as English teachers, curriculum designers and material developers at public and private schools and universities as well as in other areas requiring advanced English language skills.

UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester

EFL	121	Contextual Gram.&Comp. I	(3-0)3
EFL	123	Listening and Pronunciation	(3-0)3
EFL	125	Advanced Read.&Writing I	(3-0)3
XXX(*)	201	Basic German I / Basic French I	(4-0)4
EDUS	200	Introduction to Education	(3-0)3
TUR	103(a)	Turkish I: Written Comm.	(2-0)2
CNG	100	Introduction. to Information Tech. and Applications	(2-0)NC
GPC	100	First Year on Campus Seminar	(0-2)1

Second Semester

EFL	122	Contextual Gram.&Comp. II	(3-0)3
EFL	124	Oral Communication Skills	(3-0)3
EFL	126	Advanced Read.&Writing II	(3-0)3
EFL	130	Introduction to Literature	(3-0)3
XXX(*)	202	Basic German II / Basic French II	(4-0)4
TUR	104(a)	Turkish II: Oral Comm.	(2-0)2

SECOND YEAR

Third Semester

EFL	211	English Literature I	(3-0)3
EFL	245	Linguistics I	(3-0)3
EFL	249	ELT Methodology I	(3-0)3
XXX(*)	203	Intermediate German I / Intermediate French I	(4-0)4
EDUS	220	Educational Psychology	(3-0)3
EFL	xxx	Departmental Elective I	(3-0)3

Fourth Semester

EFL	212	English Literature II	(3-0)3
EFL	244	Translation Studies	(3-0)3
EFL	246	Linguistics II	(3-0)3
EFL	250	Oral Expr. &Publ.Speaking	(3-0)3
EFL	254	ELT Methodology II	(3-0)3
EFL	xxx	Departmental Elective II	(3-0)3

THIRD YEAR

Fifth Semester

EFL	311	Adv.Writng&Research Skills	(3-0)3
EFL	313	Language Acquisition	(3-0)3
EFL	315	Contast. Turkish-Engl. Struc.	(3-0)3
EFL	319	Drama Analysis	(3-0)3
EFL	321	Teaching Language Skills – Speaking and Listening	(3-0)3
CTE	319	Instr.Tech. &Mater.Develop.	(3-0)3
HST	201[(b)]	Principles of Kemal Atatürk I	(2-0)NC

Sixth Semester

EFL	318	Novel Analysis	(3-0)3
EFL	320	Teach.Engl.to Young Learn.	(3-0)3
EFL	322	Teaching Language Skills – Reading and Writing	(3-0)3
EFL	324	Community Service Practice	(1-2)2
EDUS	304	Classroom Management	(3-0)3
EDUS	416	Turk.Edu.Sys. &Sch. Mang.	(3-0)3
XXX	xxx	Non-Departmental Elec. I	(3-0)3
HST	202[(b)]	Principles of Kemal Atatürk II	(2-0)NC

FOURTH YEAR

Seventh Semester

EFL	411	The English Lexicon	(3-0)3
EFL	413	Eng.Lang.Test.&Evaluation	(3-0)3
EFL	415	Mat.Adap. & Development	(3-0)3
EFL	417	School Experience	(2-4)4
XXX	xxx	Non-Departmental Elec. II	(3-0)3

Eighth Semester

EFL	414	Schools of Modern Thought	(3-0)3
EFL	418	Practice Teaching	(1-6)4
EDUS	424	Guidance	(3-0)3
EFL	xxx	Departmental Elective III	(3-0)3

[(a)] International students will take TUR 201 and TUR 202, which may be taken in the first year by the consent of the advisor.
[(b)] International students will take HST 205 and HST 206 instead of HST 201 and HST 202.

[(*)] FRN or GRM courses.

ELECTIVE COURSES

The following courses may be offered as electives:

- EFL 252 Instructional Principles and Methods
- EFL 260 The Novel I
- EFL 261 The Novel II
- EFL 262 Shakespeare
- EFL 263 Modern Drama
- EFL 264 Poetry
- EFL 265 Literary Theory
- EFL 266 Comparative Literature
- EFL 267 The Renaissance
- EFL 268 History of Ideas
- EFL 269 Mythology
- EFL 270 American Literature
- EFL 274 European Theater
- EFL 275 Postmodern Literature
- EFL 276 European Arts in Context, 1800 to 1918
- EFL 277 20th Century European Arts
- EFL 278 Global English
- EFL 279 Sociolinguistics and Intercultural Communication
- EFL 280 Etymology
- EFL 285 Language and Culture
- EFL 461 History of English
- EFL 462 Corpus Linguistics

DESCRIPTION OF COURSES

EFL 121 Contextual Grammar and Composition I (3-0)3

This course aims to develop students' grammatical competence in English by increasing awareness of how meaning is created through structure and how structure and vocabulary are related to produce texts. This course will enable students to employ these structures in context starting from narrative, descriptive and expository paragraph levels to the introduction of full essays.

EFL 122 Contextual Grammar and Composition II (3-0)3

This course is a continuation of EFL 121 Contextual Grammar and Composition. It aims to improve students' use of linguistic structures at the discourse level focusing on relation between form and text type. Students will examine texts that increase sensitivity to grammar in context and will produce comparison and contrast, classification, process analysis, cause and effect analysis and argumentative essays.

EFL 123 Listening and Pronunciation (3-0)3

This course aims to develop students' listening and pronunciation skills by providing them with the fundamentals of listening and phonetics—vowels, consonants, stress in words, rhythm and intonation--as well as the usage of phonetic alphabet. Students will be exposed to authentic listening materials; and the course, starting from basic listening and phonetic skills such as discriminating minimal pairs and formulating phonetic transcriptions of problematic sounds in class, will also focus on higher level listening skills and strategies such as note-taking, predicting, extracting information and guessing meaning from context.

EFL 124 Oral Communication Skills (3-0)3

This course offers a variety of different communication oriented speaking opportunities for students to improve their oral competence by developing effective language use both in formal and informal contexts. Students will develop a good command in supra-segmental features (pitch, stress and intonation) as well as strategic competence, in repairing communication breakdowns. By exploring components of communicative competence this course aims to equip students with the necessary skills to become successful communicators as well as language teachers. The course includes discussion topics, literary texts and the use of audiovisual aids (OHP, power point, posters) and techniques for effective presentations.

EFL 125 Advanced Reading and Writing I (3-0)3

This course aims to improve students' reading proficiency, effective critical thinking and study skills by exposing them to authentic academic texts in order to comprehend contrasting viewpoints and to predict and identify main ideas and to decode intersentential clues. Critical thinking skills such as analyzing, synthesizing and reacting on the basis of evaluation are employed in students' writing as an integral part of critical reading skills.

EFL 126 Advanced Reading and Writing II (3-0)3

This course is a continuation of EFL 125 Advanced Reading and Writing I. By processing authentic reading texts students will be able to make inferences and deductions and read between the lines. By means of the awareness gained from the texts, students will analyze, synthesize and evaluate information and react to readings in their compositions and develop basic research skills including library/ internet search and basic research report writing skills such as citing, paraphrasing and referencing.

EFL 130 Introduction to Literature (3-0)3

This course aims to introduce fundamental terms and techniques of literary analysis through selected texts from various genres and periods.

EFL 211 English Literature I (3-0)3

This course aims to introduce intensive study of advanced level literary texts representing different periods and genres of English literature up to the 18th Century

EFL 212 English Literature II (3-0)3

This course is a continuation of EFL 211 and aims to introduce intensive study of advanced level literary texts representing different periods and genres of English literature from the 18th Century to the present.

EFL 244 Translation Studies (3-0)3

Examines fundamental theories and approaches in translation studies. Aspects of translation to be examined include style, word selection, cultural aspects of translation, and the role and importance of translation in language teaching. Readings covering historical and contemporary issues in the field of English language translation are included.

EFL 245 Linguistics I (3-0)3

Introduction to language, brain and language, phonetics, phonology and morphology of English.

EFL 246 Linguistics II (3-0)3

Syntax, semantics, the functioning of language in society, pragmatics.

EFL 249 ELT Methodology I (3-0)3
Developing students' awareness concerning the relationship between linguistics, psychology and educational psychology; enabling students to make presentations with major approaches, methods and techniques of teaching English.

EFL 250 Oral Expression and Public Speaking (3-0)3
This course is an introduction to public speaking and focuses on development of practical skills for effective communication. Students will deliver extended presentations as an outcome of extensive reading and research. The course also aims to foster students' oral and written language skills in job related situations such as interviewing, socializing, telephoning, presenting information, holding meetings as well as CV and application writing.

EFL 252 Instructional Principles and Methods (3-0)3
This course introduces fundamental educational concepts; learning and teaching principles; the importance and advantages of planning in learning; planning teaching on daily and yearly basis as units with examples of activities; learning and teaching strategies; teaching methods and techniques and their relation to teaching; tools and materials in teaching; responsibilities and duties of teachers in developing the quality of teaching and teachers.

EFL 254 ELT Methodology II (3-0)3
Skills necessary for teaching different language skills to learners of all age groups and language proficiency levels with special emphasis on learning and teaching strategies, lesson planning and class management.

EFL 262 Shakespeare (3-0)3
This course is an introduction to the works of Shakespeare as literature and as theatre. At least three of four genres (comedy, history, tragedy, romance) are considered, with emphasis on close analysis of the text, historical background, and thematic and dramatic structures. This course will approach Shakespeare's plays from cultural, theatrical, and literary viewpoints.

EFL 263 Modern Drama (3-0)3
Drama is introduced as a literary genre with emphasis on origins of drama and traditional modes, modern movements and principles of critical evaluation. A brief history of drama from its origins to the birth of modern theatre is introduced and discussed with selected representative plays

EFL 264 Poetry (3-0)3
This course aims to introduce elements, literary devices, and forms of poetry. Analysis of poems in English from a variety of time periods and contexts is emphasized.

EFL 266 Comparative Literature (3-0)3
This course explores a variety of approaches to the comparative or transnational study of literature through readings of several kinds: texts from different cultural traditions that raise questions about the nature and function of literature; texts that comment on, respond to and rewrite other texts from different historical periods and nations; translations; and readings in critical theory. The course will address themes such as race, class, gender and sexuality, religion, colonialism, immigration, exile, and integration and alienation in relation to key literary texts.

EFL 269 Mythology (3-0)3
This course will investigate mythological narratives that have shaped human actions, art and thought across space and time. Students will learn approaches to myth analysis, and identify cross-cultural commonalities in myths, as well as what they reveal about specific cultures -- European, Middle Eastern, Native American, Indian, Pacific, and others. The primary focus will be on myths about language itself, including language origins, the magical power of names and words, the search for original or perfect languages, the intellectual and political ramifications of such searches, and 'modern myths' about language held even today.

EFL 270 American Literature (3-0)3
This course is a thematic survey of American literature. Students will read short stories, poems, and novels, that address or help to define the formation of the United States and theories of government; literature written by and about slavery and racial prejudice; literature that defines the philosophy of transcendentalism; and works that have contributed to diversity in American culture.

EFL 276 European Arts in Context: 1800-1918 (3-0)3
This course explores the major 19th century art movements of Europe to the end of World War I and the cultural contexts within which they existed. The movements to be discussed include Romanticism, Realism, Impressionism, Post-Impressionism, Cubism, and Fauvism as well as the invention of photography. Selected examples from the visual arts, literature, and music will be discussed in conjunction with contextually related political, economic, social, and philosophical occurrences.

EFL 277 20th Century European Arts (3-0)3

This course explores the major 20th century art movements of Europe and the cultural contexts within which they existed. Some of the movements to be discussed include Dadaism, Surrealism, the Bauhaus School, Performance Art, Conceptual Art, and Neo-Expressionism. In addition, philosophical and critical schools such as feminism, existentialism, and the Frankfurt School will be considered as well as stylistic trends and developments in European cinema. Selected examples of visual arts, films, and literary works will be discussed in conjunction with contextually related political, economic, social, and philosophical occurrences.

EFL 278 Global English (3-0)3

The course introduces students to varieties of English and the implications of these varieties for English language teaching and learning in specific contexts. The course also examines the linguistic, social, and political impact of the spread of English around the world; where, when, why and how new forms of English have emerged. It places specific emphasis on the set of implications for English language teachers and learners.

EFL 279 Sociolinguistics and Intercultural Communication (3-0)3

Language variation and change; the relationship between social identity and language use; linguistic diversity; language contact; verbal and nonverbal communication; language and gender; code-switching/mixing; language attitudes, biases, prejudices; language policy and planning; intercultural communication in a globalized world; society, power and implications for pedagogy.

EFL 311 Advanced Writing and Research Skills (3-0)3

Practice in writing a research paper; conducting library research and producing a full-length term paper.

EFL 313 Language Acquisition (3-0)3

Theories of native and second languages; stages of language development and acquisition; learning grammar and other components of language in L1 and L2.

EFL 315 Contrastive Turkish – English Structure (3-0)3

Comparison of English and Turkish with respect to phonetic, morphologic and syntactic structure.

EFL 318 Novel Analysis (3-0)3

This course aims to introduce the characteristics of the novel as a literary genre: approaches to analyzing the novel: analysis of sample British and American novels that represent various literary periods.

EFL 319 Drama Analysis (3-0)3

This course aims to introduce the characteristics of drama as a type of literature: types of drama: analysis of significant examples from English, including selected plays from Shakespeare and his contemporaries, American and World drama representing different trends in drama.

EFL 320 Teaching English to Young Learners (3-0)3

The learning strategies of young children and the acquisition of the mother tongue as well as the learning of a foreign language; the classroom methods and techniques to be used when teaching English to young learners; the development of games, songs and visual materials and their use in teaching.

EFL 321 Teaching Language Skills – Speaking and Listening (3-0)3

Builds language awareness and teaching skills through the study of techniques used in teaching speaking and listening. Includes skills for language learners at various ages and language proficiency levels. Group and micro-teaching activities will be used to practice and refine lesson planning and teaching techniques for listening and speaking.

EFL 322 Teaching Language Skills – Reading and Writing (3-0)3

Builds language awareness and teaching skills through a detailed study of techniques used in teaching reading and writing. Includes skills for language learners at various ages and language proficiency levels. Group and micro-teaching activities will be used to practice and refine lesson planning and teaching techniques for reading and writing.

EFL 324 Community Service Practice (3-0)3

Understanding the importance of participating in community service; identifying the current problems of local community and developing projects to generate solutions for these problems; attending academic events such as panels, conferences, symposiums and conventions as speakers, organizers or participants; taking part in various projects, approved by the department, with the aim of assuming social responsibility and acquiring basic knowledge & skills for the application of community service in educational environments.

EFL 411 The English Lexicon (3-0)3
An indepth analysis of the relation between lexical semantics, clause structure and discourse in English, with a focus on aspects of English grammar that are problematic for second language learners. Argument structure: types of verbs and passivisation. Lexical aspect and discourse: types of lexical aspect; aspect in discourse; adverbial modification. The syntax and the semantics of the noun phrase in English: definiteness, quantifiers and subject-verb agreement.

EFL 413 English Language Testing and Evaluation (3-0)3
Types of tests; test preparation techniques for measuring various language skills and knowledge; preparing various types of test items and alternative assessment tools; evaluation and analysis techniques; statistical calculations.

EFL 414 Schools of Modern Thought (3-0)3
Representative readings from such topics as structuralism, empiricism, mentalism, semiotics, post-structuralism, Marxism, Feminism, postmodernism and postcolonialism.

EFL 415 Materials Adaptation and Evaluation (3-0)3
Skills necessary for evaluating language teaching materials in current textbooks, adapting and developing materials for language teaching.

EFL 417 School Experience (2-4)4
Preparing students for teaching practice through observation and application tasks under the supervision of a cooperating teacher.

EFL 418 Practice Teaching (1-6)4
Consolidating the skills necessary for teaching English as a foreign language at primary and secondary schools through observation and teaching practice in pre-determined secondary schools under staff supervision; critically analyzing the previously acquired teaching related knowledge and skills through further reading, research and in class activities in order to develop a professional view of English Language Teaching.

EFL 461 History of English (3-0)3
Exploration of the development of English over the last 1500 years. Discussion of English's Indo-European and Germanic roots and various linguistic and historical influences on the development of English. Analysis of historical English varieties and changes in the grammar and social role of English. Contrast of historical varieties of English with contemporary Englishes using principles of historical linguistics.

EFL 462 Corpus Linguistics (3-0)3
Examination of approaches in corpus linguistics. Discussion of various aspects of corpus linguistics and corpora and its application in language learning and teaching. Analysis of lexis, discourse, grammar and pronounciation with corpus tools. Adapting corpus-based materials to English Language Teaching. Analyzing the English language with a range of corpora.

DESCRIPTION OF SERVICE COURSES

ARTS

ART 113 Intr. to Artistic Drawing (2-2)3
This course aims to teach the students (how) to look, see, draw, make a composition, and therefore to enable them to develop their abilities and aesthetic senses. This course offers an introduction to drawing materials, basic rules of drawing, mental calculation of dimensions and proportions and working with coloured pencils. Lessons begin with the simplest and easiest drawing medium, lead pencil. By following simple, step by step procedures, students can learn how to use texture and line, how to create light and shade and illusion of depth.

ART 211 Intr. to Basic Design in Art (2-2)3
This course is designed: i) to introduce basic design methods in art, two and three-dimension forms of production originating from the imaginary and the reality (real objects), ii) to help students acquire the related technical knowledge and skills and iii) to enable them to have discussions on the works they have produced by utilizing different design techniques; i.e. drawing, study, modelling, patchwork, composition, small models, etc.) and to evaluate them. The goal of the course is to provide the students with basic design principles and to put these principles into practice.

ART 232 Introduction to Clay Sculpture (2-2)3
This course is designed for students who have interest in the art of sculpture and who would like to start working on it to furnish them with basic knowledge on this specific branch of art. Within this context the aim of the course is to supply the beginners with an insight into the whats of sculpture and how to approach it. This course offers an introduction to the techniques of hand building with an emphasis on sculptural form and individual project development. Students not only become familiar with basic construction techniques in clay object making but they also work with a number of different surface treatments particularly suited to sculptural ceramics.

EDUCATIONAL SCIENCES

EDUS 200 Introduction to Education (3-0)3
Characteristics and principles of teaching profession, school and classroom contexts, alternative perspectives in education, social, psychological, philosophical and historical foundations of education, Turkish education system.

EDUS 220 Educational Psychology (3-0)3
Various dimensions of human development (cognitive, social, psychological, moral and physical), approaches to learning and learning process, learning styles, individual differences in learning.

EDUS 304 Classroom Management (2-2)3
Social and psychological factors that influence student behaviour, basic characteristics and functions of classroom context, designing the physical environment, starting a new school year, developing and teaching rules and routines for classroom management, gaining student cooperation, protecting and restoring order, creating a positive learning environment, managing seatwork, group work, recitations and discussions, productive and effective use of time in class, motivation and communication, problem behaviors and ways of dealing with them.

EDUS 416 Turkish Educational System and School Management (3-0)3
This course introduces the objectives and basic principles of Turkish educational system; the legislative arrangements related to education; the examination of Turkish educational system in terms of its structure, management theories and educational processes; school systems and management; personnel, student, teaching and administrative tasks in school management and ways of promoting involvement of society in schools.

EDUS 424 Guidance (3-0)3
Purposes of student personality services and their place in education, introduction to guidance services in schools, principles of guidance, diagnosing and guiding students, collection and use of data on student counselling, placement, follow-up advising, research and evaluation, relations with parents and beyond the school community, vocational guidance, purposes of special education, identifying students with special learning needs.

HISTORY

HST 201 Principles of Kemal Atatürk I (2-0)NC
A history of the foundation of the Turkish Republic under the light of Kemal Atatürk's principles. (This course is taught in Turkish)

HST 202 Principles of Kemal Atatürk II (2-0)NC
Continuation of HST 201. (This course is taught in Turkish)

HST 205 History of the Turkish Revol. I (2-0)NC
(International students only) A required course for international students, with particular consentration on the War of Independence, the foundation of the Republic, Atatürk's domestic and foreign policies. (This course in taught in English).

HST 206 History of the Turkish Revol. II (2-0)NC
(International students only)
Continuation of HST 205. (This course in taught in English).

PHILOSOPHY

PHL 101 Introduction to Philosophy I (3-0)3
An introductory survey of the main problems of philosophy.

PHL 291 History of Science I (3-0)3
A general survey of the development of science from Greeks to Newton.

STATISTICS

STAS 221 Statistics for Engineers I (3-0)3
Introduction to probability. Finite sample spaces. Conditional probability and independence. Discrete and continuous random variables. Random sample and statistics. Statistical inference, estimation and tests of hypotheses. Simple linear regression.
Prerequisite: MAT 120.

SOCIOLOGY

SOCL 109 Introduction to Sociology (3-0)3
An introduction to basic principles, concepts and theories of sociology; analysis of social structure, cultural processes and patterns: the relationship of individual with society. Emphasis on case studies. Offered to non-Sociology majors.

SOCL 134 Social Anthropology (3-0)3
The study of human beings in different cultural contexts. Theories of culture and social structure. An examination of major human institutions (kinship, economic, political and religious) in cross-cultural perspective

TURKISH

TUR 101 Turkish I (2-0)NC
The course will cover the following: The importance of language as a social institution in the life of a nation; relations between culture and language; the Turkish languages and their geographical distribution; history of the Turkish language; phonology of the Turkish language; rules of punctuation. Use of language on different mediums. General rules of composition; various forms of written expression.

TUR 102 Turkish II (2-0)NC
Reading from literature; exercises in composition. Errors in sentence structure and their correction, development of students' ability to speak and write well through the use of selected texts from world literatures.
Prerequisite: TUR 101.

TUR 103 Turkish I: Written Communication (2-0)2
Written expression; composition and punctuation rules; types of written expression; colloquial, literary, scientific and official language; criticism; researching and using sources; classroom exercises and discussions concerning all the subjects.

TUR 104 Turkish II: Oral Communication (2-0)2
Language, its definition and importance, relations between speaking and thinking, developing the comprehension and expression ability; language and culture relations, listening and its importance, effective listening; reading, its importance and functions; reading types; expression and its rules, expression units, types, forms and means; oral expression and types of oral expression; fluent, correct and effective speaking, body language; classroom exercises and discussions.
Prerequisite: TUR 103.

TUR 201 Elementary Turkish (4-0)NC
Designed to instruct foreign students in the Turkish language in terms of grammar, syntax and vocabulary. Basic characteristics of Turkish language: sound, vowel and consonant harmonies, changes in consonants, nominal compounds, possessive suffixes, cases, the verb "i-", basic tenses and modes, comparative and superlative, numerals,

compound tenses. (Course is for international students)

TUR 202 Intermediate Turkish (4-0)NC
Designed to increase students' knowledge of Turkish language. Compound sentences, voices, compound verbs written and oral expression of ideas within the limits of a paragraph, written and oral translation. (Course is for international students)
Prerequisite: TUR 201.

NORTHERN CYPRUS CAMPUS
DEGREE PROGRAMS UNDER ACADEMIC BOARD OF ENGINEERING AND NATURAL SCIENCES

Academic Staff
(2017-201 Academic Year)

Full-Time Academic Staff

AKER Kürşat, Instr. Dr., *Mathematics,* B.S., METU; Ph.D., University of Pennsylvania

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ÜSTÜN, Firat, Instr., *Petroleum and Natural Gas Engineering*, B.S., METU; M.S., Louisiana State University; Ph.D. (in progress) METU

YALÇINER Uğur, Instr., *Industrial Design;* B.S., M.S., METU

YAZICI, Adnan, Prof. Dr., *Computer Engineering*, B.S., ITU; M.S., University of Tulsa; Ph.D., Tulane University (*From METU-Ankara*)

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NORTHERN CYPRUS CAMPUS

AEROSPACE ENGINEERING PROGRAM

GENERAL INFORMATION: The mission of the METU NCC Aerospace Engineering Program is to educate students and to do research in aerospace sciences including analysis, design, manufacturing and testing of air and space flight vehicles, in order to contribute to economic progress and welfare of the society.

Aerospace Engineering Program is multi-disciplinary in nature and is very closely related to the disciplines of Mechanical, Electrical and Computer Engineering. The students are required to take courses in the fields of Aerodynamics, Structures and Materials, Propulsion, Flight Mechanics and Control during their undergraduate studies.

The undergraduate program objectives are:

- To teach students fundamental knowledge of mathematics, science, and engineering, and educate them to apply this knowledge in the solution of aerospace engineering problems.
- To educate students to design aerospace systems and components.
- To educate students to do experiments.
- To encourage students to do research.
- To train students to function within multidisciplinary teams, and communicate effectively.
- To broaden perspectives of the students with respect to economical and societal issues, responsibilities, ethics and professionalism.

CAREER OPPORTUNITIES: Today, aerospace industry in the world is growing very rapidly and is considered as one of the major driving force for the technology. As a result, the aerospace sector provides a significant number of attractive job opportunities for young Aerospace Engineers. Demand for high technology placed an increased emphasis in the investment of scientific R&D projects to develop novel and more efficient, more performant manned and unmanned aerial and space systems as well as wind turbines for energy production.

METU NCC Aerospace Engineering graduates have a lot of career opportunities in both the public and private sector related to aerospace engineering around the world. Graduates may also pursue academic careers in leading universities with the knowledge and perspective they gain through the METU NCC Aerospace Engineering Program.

UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester

GPC	100	First Year on Campus Sem.	(0-2)1
ASE	101	Introduction to Aerospace Engineering	(0-2)NC
MECH	113	Computer Aided Engineering Drawing 1	(2-2)3
MAT	119(a)	Calculus with Analytic Geometry	(4-2)5
PHY	105	General Physics I	(3-2)4
CHM	107	General Chemistry	(3-2)4
ENGL	101	Development of Reading and Writing Skills I	(4-0)4
CNG	100	Introduction to Information Technologies and Applications	(2-0)NC

Second Semester

ASE	172	Introduction to Aircraft Performance	(3-0)3
MAT	120	Calculus for Functions of Several Variables	(4-2)5
PHY	106	General Physics II	(3-2)4
CNG	230	Introduction to C Programming	(2-2)3
ENGL	102	Development of Reading and Writing Skills II	(4-0)4
GPC	100	First Year on Campus Seminar	(0-2)1

SECOND YEAR

Third Semester

ASE	231(*)	Thermodynamics	(4-0)4
ASE	261(*)	Statics	(3-0)3
MECH	202	Manufacturing Technologies	(3-2)4
MECH	227	Engineering Materials	(3-0)3
MAT	219	Int. to Differential Equations	(4-0)4
		Non-Technical Elective	(3-0)3
HST	201(b)	Principles of Kemal Atatürk I	(2-0)NC
ASE	200	Summer Practice I	

Fourth Semester

ASE	244(*)	FluidMechanics	(4-0)4
ASE	262(*)	Dynamics	(3-0)3
ASE	264(*)	Mechanics of Materials	(4-0)4
MAT	210	Applied Math. for Engineers	(4-0)4
EEE	209	Fund.of Elec.andElectro.Eng.	(3-0)3
ENGL	211	Acad. Oral Pres.Skills	(3-0)3
HST	202(b)	Principles of Kemal Atatürk II	(2-0)NC

THIRD YEAR

Fifth Semester

ASE	331(*)	Heat Transfer	(3-0)3
ASE	341	Aerodynamics I	(3-2)4
ASE	361	Applied Elasticity	(3-0)3
ASE	383(*)	System Dynamics	(3-0)3
MAT	310	Numerical Analysis for Engineers	(3-0)3
ENGL	311	Advan. Communic. Skills	(3-0)3
TUR	101(c)	Turkish I	(2-0)NC
ASE	300	Summer Practice II	NC

Sixth Semester

ASE	301	Numerical Methods for Aerospace Engineering	(3-0)3
ASE	334	Propulsion Systems I	(3-2)4
ASE	342	Aerodynamics II	(3-2)4
ASE	362	Aerospace Structures	(4-0)4
ASE	372	Flight Mechanics	(3-0)3
TUR	102(c)	Turkish II	(2-0)NC

FOURTH YEAR

Seventh Semester				Eighth Semester	
ASE	435	Propulsion Systems II	(3-0)3	Restricted Departmental	
ASE	451	Aeronautical Eng. Design	(2-2)3	Elective (d)	(2-2)3
ASE	463(*)	Mechanical Vibrations	(3-0)3	Technical Elective	(3-0)3
		Technical Elective	(3-0)3	Technical Elective	(3-0)3
		Non-Technical Elective	(3-0)3	Technical Elective	(3-0)3
ASE	400	Summer Practice III	NC	Free Elective	(3-0)3

Notes:
(a) Students who successfully completed "MAT 100 Precalculus (1-2)2″ course or passed "Mathematics Proficiency Examination" can take MAT 119 course.
(b) International students are required to take HST 205 and HST 206 to replace HST 201 and HST 202.
(c) International students are required to take TUR 201 and TUR 202 to replace TUR 101 and TUR 102.
(d) Following courses are offered as "Restricted Departmental Elective":

ASE 438 Aircraft Engine Design (2-2)3
ASE 446 Int. to Helicopter Aero. and Design (2-2)3
ASE 452 Aeronautical Engineering Design-II (2-2)3
ASE 462 Design of Aerospace Structures (2-2)3

(*) Courses listed in the following table can be substituted:

Courses for Aerospace Engineering Program	Substitute Courses
ASE 231 Thermodynamics (4-0)4	MECH 203 Thermodynamics (4-0)4
ASE 261 Statics (3-0)3	MECH 205 Statics (3-0)3
ASE 261 Statics (3-0)3	CVE 221 Engineering Mechanics-I (3-0)3
ASE 244 Fluid Mechanics (4-0)4	MECH 305 Fluid Mechanics (4-0)4
ASE 262 Dynamics (3-0)3	MECH 208 Dynamics (3-0)3
ASE 262 Dynamics (3-0)3	CVE 222 Engineering Mechanics-II (3-0)3
ASE 264 Mechanics of Materials (4-0)4	MECH 206 Strength of Materials (4-0)4
ASE 331 Heat Transfer (3-0)3	MECH 311 Heat Transfer (4-0)4
ASE 331 Heat Transfer (3-0)3	CHME 325 Heat Transfer (3-0)3
ASE 383 System Dynamics (3-0)3	MECH 304 Control Systems (3-0)3
ASE 383 System Dynamics (3-0)3	EEE 302 Feedback Systems (3-0)3
ASE 463 Mechanical Vibrations (3-0)3	MECH 429 Mechanical Vibrations (3-0)3

DESCRIPTION OF COURSES

ASE 101 Introduction to Aerospace Engineering (0-2)NC
Aerospace Engineering Department of METU: METU; Faculty of Engineering; Department of Aerospace Engineering; Purpose, Staff, Facilities, Courses, Rules and Regulations. History of Turkish Aviation. Turkish Aerospace Industry : Existing industry, opportunities in Aerospace Industry; Companies and factories related to aviation located in the vicinity of Ankara. Ethics in Aerospace Engineering. Aviation authorities in the world. Safety rules and regulations in Aerospace Applications.

ASE 172 Introduction to Aircraft Performance (3-0)3
Elements and functions of A/C basic configuration. Forces and moments acting on an A/C; aerodynamic coefficients. Standard atmosphere. Performance: equations of motion; horizontal flight; climb performance; take-off performance; gliding; descent and landing performance; range and endurance; flight envelope; V-n diagram. Longitudinal static stability; aerodynamic center; criterion for longitudinal static stability; static margin; unstable A/C.

ASE 200 Summer Practice I NC
Students are required to participate in a one-week summer practice at a certified model aircraft school. The student learns how to build a small model airplane during this period and earns a Participant's Certificate and submits it to the department.

ASE 231 Thermodynamics (4-0)4
Introduction, definition and physical properties of fluids, concept of continuum, definitions of density, pressure and viscosity, Kinematics, motion of a fluid element, rotation, deformation, streamlines. Fluid statics and buoyancy. Forces acting on flat and curved surfaces. Eulerian and Lagrangian flow descriptions, conservation laws, flow properties, system-control volume approaches, Reynolds Transport theorem. Governing equations: conservation of mass, linear momentum and energy equations. Bernoulli equation and its applications. Flow of real fluids: Newtonian fluids, Navier- Stokes equations. Application for incompressible flows, laminar - turbulent flow definitions, and application to pipe flows.

ASE 261 Statics (3-0)3
Fundamental concepts and principles of mechanics. Introductory vector analysis. Statics of particles. Statics and equilibrium of rigid bodies in 2-D and 3-D. Equivalent system of forces and couples. Analysis of simple structures, trusses and machines. Analysis of simple beams.Friction. Moments of Inertia.

ASE 262 Dynamics (3-0)3
A vectorial approach to dynamics of particles and rigid bodies. Kinematics of particles, kinetics of particles. Kinematics of rigid bodies and kinetics of rigid bodies. Newton's second law and the laws of linear and angular momentum. Conservation Laws. The principle of impulse and momentum. Impact of particles and rigid bodies. Potential and kinetic energy, conservation laws and energy methods. Relative motion. The emphasis on dynamics of particles, system of particles and plane motion of rigid bodies. Introduction to three dimensional motion of rigid bodies.
Prerequisite: ASE 261 or consent of the program.

ASE 264 Mechanics of Materials (4-0)4
Introduction to stress and strain concepts. Concept of analysis and design. Structural joints. Introduction to determinate and indeterminate problems, stress concentrations. Analysis of linearly elastic problems in "axial loading", "torsion" and "pure bending" cases. Transverse loading and analysis of shear stresses. Transformations of stress and strain. Design of beams and shafts for strength. Analysis of deflection of beams with various support conditions by integration and by moment-area methods.
Prerequisite: ASE 261 or consent of the program.

ASE 300 Summer Practice II NC
Workshop practice; aircraft maintenance, repair, parts production.

ASE 301 Numerical Methods for Aerospace Engineers (3-0)3
Numerical solution of Ordinary Differential Equations (ODE), initial value problems, Runge-Kutta methods, adaptive stepping, systems of ODEs, higher order ODEs, boundary value problems. Numerical solution of partial Differential Equations (PDE): Finite Volume method, numerical solution using triangular grids, Finite Difference method, model equations, finite difference approximations, convergence and stability analysis of finite difference equations, numerical solutions of parabolic PDEs, elliptic PDEs, hyperbolic PDEs.
Prerequisite: MAT 310 or consent of the department.

ASE 331 Heat Transfer (3-0)3
Basic concepts. One dimensional steady-state conduction, extended surfaces, two-dimensional

steady-state conduction, shape factors, transient conduction. Forces convection, Reynolds analogy, convection for external and internal flows. Free convection, boiling and condensation, heat exchangers. Radiation heat transfer between surfaces, basic concepts of mass transfer.

ASE 334 Propulsion Systems I (3-2)4
Introduction to propulsion systems. Reciprocating engines. Propeller Theory. Aerothermodynamics of ideal airbreathing propulsion systems (turbojet, turbofan, turboprop, turboshaft, ramjet, scramjet). Mixtures, Combustion, Equilibrium and Dissociation. Rocket Engines.
Prerequisite: ASE 231 or consent of the program.

ASE 341 Aerodynamics I (3-2)4
Potential flow theory, complex potential function, flow around a cylinder, formation of lift, Kutta-Joukovsky theorem, conformal mapping, Joukovsky airfoil, definition of aerodynamic coefficients, Panel Method. Thin airfoil theory, Kutta condition, Kelvin's circulation theorem, symmetrical and cambered airfoils, lift curve slope and zero lift angle of attack, flapped airfoil. Finite wing, lifting line theory, elliptic and general wing loading. Slender wing theory, pressure distribution, aerodynamic coefficients.
Prerequisite: ASE 244 or consent of the program.

ASE 342 Aerodynamics II (3-2)4
Compressible flow, normal and oblique shock waves, Prandtl-Mayer expansion wave. Subsonic Compressible Flow over Airfoils; Linear Theory, Linearized Supersonic Flow. 2D Boundary layers, concept and governing equations, similar flows and similarity transformation, Blassius problem. Integral methods of solution. Laminar and turbulent flows, stability and transition. Turbulence and transition. Turbulent boundary layers, Law of the wall and various turbulence models, Prandtl mixing length concept. Combined B/L along a flat plate, separation and stall, B/L on airfoils.
Prerequisite: ASE 341 or consent of the program.

ASE 361 Applied Elasticity (3-0)3
Generalized theory of pure bending. Unsymmetric loading of beams and shear center. Shear stresses in beams of thin walled open sections. General theory for shear stresses, analysis of statically indeterminate beams. Stress, stress tensor, variation of stress within a body. 3-D stress equilibrium equations, definitions of plain stress and plain strain, three dimensional stress at a point. Transformation of stress, principal stresses in 3D, normal and shear stresses on an oblique plane. Strain displacement relations, strain compatibility equations. State of strain and transformation of strain, measurement of strain. Generalized Hooke's law. General solution of torsion problem. Prandlt's membrane analogy, torsion of thin-walled members of open cross sections, torsion of multiply connected thin walled sections. Fluid flow analogy. Warping function. Significance of torsion in open section thin walled members. 2-D problems in elasticity: plane stress and plane strain problems, stress function and applications. Equations of elasticity in polar coordinates. Stress concentrations and thermal stresses. Thick walled cylinders, compound cylinders. Rotating disks of constant thickness. Thermal stresses in thin disks.
Prerequisite: ASE 264 or consent of the program.

ASE 362 Aerospace Structures (4-0)4
Main structural elements in aircraft. Loads on aircraft. V-N diagrams. Failure theories. Energy methods. Analysis of open and closed section stiffened box beams and torque boxes. Bending of unsymmetrical sections. Structural analysis of aircraft sub-structures: ribs, frames, wing box sections with cut-outs. Elastic stability: Column buckling, buckling of flat and curved panels, buckling analysis of stiffened closed section box beams, post-buckling behavior of stiffened flat and curved panels.
Prerequisite: ASE 361 or consent of the program.

ASE 372 Flight Mechanics (3-0)3
Reference frames, coordinate systems and transformations. Aircraft general equations of motion, small gain theory, longitudinal static stability and control, lateral static stability and control. Stability derivatives. Dynamic stability of uncontrolled motion.

ASE 383 Systems Dynamics (3-0)3
System concepts; Laplace transformation and properties; transfer function, block diagram, and reduction; lumped parameter modelling of physical systems; state space formulation, linearization of nonlinear systems; stability of linear time invariant systems, Routh test; time domain analysis of dynamic systems, response, performance specifications; feedback control system examples, P, PD, PID control; frequency response methods.
Prerequisite: MAT 219 or consent of the department.

ASE 400 Summer Practice III NC
Students are required to perform summer practice at a factory or engineering firm to get acquainted with managerial work.

ASE 435 Propulsions Systems II (3-0)3
Aerothermodynamic performance of aircraft engines. Non-ideal cycle analysis of turbojet, turbofan and turboprop engines. Performance characteristics of axial and radial compressors and turbines. Performance of non-rotating components: inlets, nozzles and combustion chambers. Matching of compressors and turbines.
Prerequisite: ASE 334 or consent of the program.

ASE 451 Aeronautical Engineering Design (2-2)3
Conceptual design of fixed wing aircraft. Aircraft sizing. Airfoil and geometry selection. Thrust to weight ratio and wing loading. Configuration layout. Propulsion and fuel system integration. Landing gear and subsystems. Weights and balance. Stability, control and handling qualities. Performance and flight mechanics. Cost. Certification and qualification.
Prerequisite: ASE 342 or consent of the program.

ASE 463 Mechanical Vibrations (3-0)3
Free and forced vibrations of single degree-of-freedom undamped linear systems. Types and characteristics of damping and its effects on the response. Two degree-of-freedom systems. Coordinate transformation. Coupling. Free vibration, response to harmonic excitation. Multi degree-of-freedom systems. Eigenvalue problem, modal vectors and orthogonality. Vibration of continuous systems. Transverse vibration of beams. Effects of boundary conditions on the response. Vibration measurement and isolation.
Prerequisite: ASE 262 or consent of the program.

NORTHERN CYPRUS CAMPUS

CHEMICAL ENGINEERING PROGRAM

GENERAL INFORMATION: A unique chemical engineering program has been designed for METU Northern Cyprus Campus. The over fifty years of experience from the chemical engineering program of the METU Ankara Campus, has been blended with the current trends and future expectations of the industry, to come up with a program aiming to educate the next generation of chemical engineers, who are expected to assume new responsibilities in addition to the more conventional ones. In this respect the traditional backbone of the modern chemical engineering program has been retained. Thus it is aimed for the graduates to have a solid background in fundamental sciences, mathematics, engineering sciences, the unit operations, thermodynamics and reaction engineering, and engineering design and economics. Additionally, the graduates will have the necessary background and understanding of ethical responsibilities, environmental, occupational health and safety issues, and will have developed life-long learning habits.

CAREER OPPORTUNITIES: Chemicals are utilized as finished products and as inputs to various manifacturing sectors of the industry, and they cover a very large spectrum. Thus, chemical engineers are employed in very different production areas. As such they are considered to be among the most versatile engineers and traditionally work in petroleum refining, petrochemicals, rubber and plastics, pulp and paper, fiber and textiles, pharmaceuticals, dyes and paints, cosmetics, sugar, starch, fermentation, fine and specialty chemicals, soap and detergents, oil, glass, ceramics, cement, industrial gases, catalysts, semiconductors, food, fertilizers, agricultural chemical industries. The graduates of our program are expected to be highly sought as they will have developed an expertise either in resource or chemical product engineering. Resource engineering will particularly emphasize sustainable material and energy utilisation. Chemical product engineering, however will emphasize the production of specific products, such as ceramics, plastics, composites, dyes and paints.

UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester				Second Semester			
MAT	119[a]	Calculus with Analytic Geometry	(4-2)5	MAT	120	Calculus for Functions of Several Variables	(4-2)5
PHY	105	General Physics I	(3-2)4	PHY	106	General Physics II	(3-2)4
CHM	111	General Chemistry I	(3-2)4	CHM	112	General Chemistry II	(3-2)4
MECH	113	Computer Aided Engineering Drawing 1	(2-2)3	CNG	230	Introduction to C Programming	(2-2)3
ENGL	101	Development of Reading and Writing Skills I	(4-0)4	ENGL	102	Development of Reading and Writing Skills II	(4-0)4
CNG	100	Introduction to Information Technologies and Applications	(2-0)NC	CHME	102	Int. to Chemical Engineering	(1-0)1
GPC	100	First Year on Campus Seminar	(0-2)1				

SECOND YEAR

Third Semester				Fourth Semester			
CHME	203	Chem. Process Calculations	(4-0)4	CHME	204	Thermodynamics I	(4-0)4
MAT	219	Int. to Differential Equations	(4-0)4	MAT	210	Applied Math. for Engineers	(4-0)4
CHM	237	Organic Chemistry I	(3-2)4	CHM	230	Analytical Chem. for Eng.	(3-2)4
ENGL	211	Acad. Oral Present. Skills	(3-0)3	CHM	238	Organic Chemistry II	(3-0)3
XXX	xxx	Hum.and Soc.Scien. Elective	(-)3	ECO	210	Principles of Economics	(3-0)3
HST	201[b]	Principles of Kemal Atatürk I	(2-0)NC	HST	202 [b]	Principles of Kemal Atatürk II	(2-0)NC

THIRD YEAR

Fifth Semester				Sixth Semester			
CHME	305	Thermodynamics II	(2-2)3	CHME	302	Chem. Eng. Laboratory I	(0-4)2
CHME	323	Fluid Mechanics	(3-0)3	CHME	312	Chem. Reaction Engineering	(4-0)4
CHME	325	Heat Transfer	(3-0)3	CHME	326	Mass Trans. and Separ. Proc.	(3-2)4
CHM	351	Physical Chemistry	(3-2)4	CHME	xxx	Track Course I	(3-0)3
ENGL	311	Advan. Communic. Skills	(3-0)3	XXX	xxx	Engineering Elective	(-)3
TUR	101[c]	Turkish I	(2-0)NC	TUR	102[c]	Turkish II	(2-0)NC
CHME	300[d]	Summer Practice I	NC				

FOURTH YEAR

Fifth Semester				Sixth Semester			
CHME	401	Chem.Eng. Laboratory II	(0-4)2	CHME	418	Chem.Eng. Design II	(3-2)4
CHME	417	Chem. Eng. Design I	(3-2)4	CHME	xxx	Track Elective 3	(3-0)3
CHME	xxx	Track Course II	(3-0)3	CHME	xxx	Track Elective 4	(3-0)3
CHME	xxx	Track Elective 1	(3-0)3	XXX	xxx	Free Elective	(-)3
CHME	xxx	Track Elective 2	(3-0)3	XXX	xxx	Non-Technical Elective	(-)3
CHME	400[d]	Summer Practice II	NC				

[a] Students who are unable to achieve the minimum required passing grade in the Mathematics Proficiency Exam are required to take MAT 100 before MAT 119
[b] International students will take HST 205 and HST 206 insread of HST 201 and HST 202.
[c] International students will take TUR 201 and TUR 202, which may be taken in the first year by the consent of the advisor.
[d] Students are expected to complete their summer training prior to registering CHME 300 and CHME 400

ELECTIVE COURSES

Engineering Elective: Students are allowed to choose from a number of courses offered in other engineering departments, choices are announced each semester

Track Course I: CHME 332 Resource Engineering I (3-0)3 or CHME 342 Chemical Product Engineering I (3-0)3.

Track Course II: CHME 433 Resource Engineering II (3-0)3 or CHME 441 Chemical Product Engineering II (3-0)3.

Track Electives 1, 2, 3, 4: Resource Engineering (Track A) or Chemical Product Engineering (Track B) Electives are listed below:

Track A Electives: CHME 407, CHME 443, CHME 446, CHME 448, CHME 452, CHME 482, CHME 499 and other approved electives.

Track B Electives: CHME 407, CHME 442, CHME 444, CHME 447, CHME 449, CHME 454, CHME 461, CHME 462, CHME 482, CHME 499 and other approved electives.

DESCRIPTION OF COURSES

CHME 102 Intr. to Chemical Eng. (1-0)1
Basic concepts of chemical engineering profession; ethical issues, environmental responsibilities and future trends; literature survey and oral presentation of a term project.

CHME 203 Chem. Process Calculations(4-0)4
Basic chemical engineering concepts and methods of analysis. Introduction to mass and energy balance calculations applied to solution of problems in systems of interest to chemical process industries.

CHME 204 Thermodynamics I (4-0)4
Concepts of equilibrium, temperature and reversibility. First law and concepts of heat and work; second law and entropy. Equations of state and thermodynamic properties of pure substances. Engineering applications of these principles in the analysis and design of closed and open systems. Thermodynamic analysis of cyclic processes including power generation and refrigeration.

CHME 300 Summer Practice I NC
A practical training for a period of 20 works-days in an organization with sizeable operations that are of interest to chemical engineering. Emphasis is made on the application of mass and energy balances. A formal report is required to reflect the work carried out.
Prerequisite: CHME 102 and CHME 203 or CHME 204.

CHME 302 Chem.Eng.Laboratory I (0-4)2
.Laboratory studies demonstrating the principals of fluid mechanics and heat transfer. Emphasis is on laboratory safety, correlation of experimental results and on written reports and oral presentations.
Prerequisite: CHME 323 or CHME 325, and one of the following: CHM 237, CHM 230, CHM 351.

CHME 305 Thermodynamics II (2-2)3
Thermodynamic properties of pure fluids and mixtures. Phase equilibrium. Chemical reaction equilibrium. Applications to real and ideal processes.
Prerequisite: CHME 204.

CHME 312 Chemical Reaction Engineering (4-0)4
Nonequilibrium processes including chemical reaction mechanisms, rate equations and reactor design applied to homogeneous and heterogeneous systems under isothermal and non isothermal conditions
Prerequisite: CHM 351.

CHME 323 Fluid Mechanics (3-0)3
Hydrostatics. Fundamentals of momentum transport. Newton's law of viscosity. Interphase momentum transport and friction factors. Flow in conduits and around submerged objects. Mechanical energy balances and Bernoulli equation. Dimensional analysis. Applications to practical problems. Principles of settling and filtration.

CHME 325 Heat Transfer (3-0)3
Molecular mechanisms of heat transfer. Fourier's law. Transport of heat in one dimension by molecular mechanisms and by convection. Transport of heat in turbulent regime, Heat transfer by radiation. Heat transfer to fluids with phase change. Evaporation. Heat exchanger design.

CHME 326 Mass Transfer& Separation Processes (3-2)4
Molecular mechanisms of mass transfer. Fick's law. Transport of mass in one dimension by diffusion and by convection. Transport of mass in turbulent regime. Principles of stagewise and continuous contact operations. Absorption, distillation, extraction, and simultaneous heat and mass transfer. Applications and design of separation process units.
Prerequisite: CHME 323 or CHME 325.

CHME 332 Resource Engineering I (3-0)3
Intoduction of green process engineering with effective use of resources, such as coal, petroleum and natural gas. Fast depletion of resources and environmental impacts. Synthesis and use of petrochemicals. Basic principles of equilibrium and rate concepts in physical and chemical processes. Case studies illustrating sustainable chemical processes and trends in chemical technology.
Prerequisite: CHME 203.

CHME 342 Chemical Product Engineering I (3-0)3
Statistics theory relevant to process engineering; Data collection, management and quality in production environments; Basic design of experiments; Statistical process control; Process health monitoring, reliability and yield enhancement; Process development cycle; Total quality management.
Prerequisite: CHME 203.

CHME 400 Summer Practice II NC
A practical training for a period of 20 working days in an organization where chemical engineering is extensively practiced. A formal report is required to reflect the work carried out.
Prerequisite: CHME 323 or CHME 325.

CHME 401 Chem. Eng. Laboratory II (0-4)2

Laboratory experiments to illustrate the application of chemical and physical principles to chemical processes. Emphasis is given to mass transfer, simultaneous heat and mass transfer, process control and instrumental analysis. Report writing is emphasized.
Prerequisite: CHME 312 or CHME 326, and *one of the following: CHM 237, CHM 230, CHM 351.*

CHME 407 Process Control (3-2)4
Modeling of steady and unsteady-state behavior of chemical processes. Optimal control strategies of processes of particular interest to chemical engineers. Discussion of both classical and modern control theory with applications.

CHME 417 Chemical Engineering Design I (3-2)4
Application of chemical engineering principles and methods of chemical process synthesis, simulation and economics on open ended process and/or product design problems. Use of computer programming and/or design packages in iterative decision making and optimization. Emphasis on process safety and ethical issues.
Prerequisites: CHME 203 and three out of following four courses: CHME 305, CHME 312, CHME325 and CHME 326.

CHME 418 Chemical Engineering Design II (3-2)4
Continuation of CHME 417. Equipment selection and design. Cost estimation, project evaluation, process and product safety and ethical issues.
Prerequisite: CHME 417.

CHME 433 Resource Engineering II (3-0)3
Assessment of current and potential energy systems, covering extraction, conversion and end-use, with emphasis on meeting regional and global energy needs in a sustainable manner. Examination of energy technologies in each fuel cycle stage for fossil, nuclear, and renewable (solar, biomass, wind, hydro, and geothermal) energy types, along with storage, transmission, and conservation issues. Focus on evaluation and analysis of energy technology systems in the context of political, social, economic, and environmental goals.

CHME 441 Chemical Product Engineering II (3-0)3
Overview to the batch and continuous and hybrid processes. Synthesis of reaction and separation systems. Introduction to the process intensification and utility integration in chemical production facilities and their applications. Mathematical modeling and optimization of batch processes. Resource planning, product scheduling, and supply chain management.
Prerequisite: CHME 204

CHME 442 Polymer Technology (3-0)3
Chemistry of polymerization; mechanisms such as step, radical chain, emulsion, ionic chain, chain copolymerization, ring opening, etc. Production, properties and fabrication of plastic materials of industrial importance. Rheology of polymers and polymer solutions. Polymer composites, new polymers.

CHME 443 Downstream Processing of Bio Products (3-0)3
Fundamentals and importance of downstream processing. Recovery, separation and purification of both low and high molecular weight biotechnological products by various methods.
Prerequisite: CHME 204

CHME 444 Structure. Polymer Relationships (3-0)3
Macromolecular chains. Thermodynamics of macromolecules. Diffusion in macromolecules. Gelation, rheological properties.

CHME 446 Fundamentals of Industrial Waste Treatement (3-0)3
Introduction to waste treatment in industrial plants. Kinetics of reactions involved in different methods. Chemical study of unit processes and unit operations. Design of treatment devices for purification of waste water and control procedures for environmental protection.

CHME 447 Chemical Processes in Microelectronics (3-0)3
Introduction to microelectronics processing. Silicon Refining. Crystal growth. Chemical rate processes and kinetics. Chemical vapor deposition incorporation and transport of dopants. Physical and physico-chemical rate processes. Design of chemical reactors and process equipment used in microelectronics manufacturing.

CHME 448 Ceramic Technology (3-0)3
Raw materials, structure and properties of clays, feldspars, and silicate minerals. Forming and firing of ceramics, vitrification. Rate process theory and use of phase equilibrium diagrams. Whitewares, refractories, enamels, and glazes. Glass and glass forming. Special ceramics.

CHME 449 Macromolecular Technology (3-0)3
Inorganic and organic macromolecules, structure and behavior of macromolecules. Structure of clays.

Vitrification. Properties of ceramic materials like whitewares, refractories and glass. Principles and methods of polymerization, types of polymers, industrial polymers. Composites, natural macro-molecules, biomaterials.

CHME 452 Chemical Process Optimization (3-0)3
The nature and organization of optimization problems. Formulation of the objective functions. An overview of optimization of individual units as well as complete flowsheets.

CHME 454 Polymer Process Analysis and Design (3-0)3
Development of tools of continuum mechanics necessary for the quantitative description of viscoelastic media. Use of principles of chemical kinetics, fluid and continuum mechanics and heat and mass transfer to describe the production and processing of polymeric materials.

CHME 461 Polymer Additives, Blends and Composites (3-0)3
Additives for processing, surface and optical property modification, fire retardants, UV protecting agents, blowing agents. Principles of blending and compatibilization. Thermodynamics, rheology and morphology of polymer blends. Principles of composites, interfaces, geometrical aspects, elastic properties. Introduction to laminate theory. Short fiber reinforced plastics. Processing of composites.

CHME 462 Polymer Solutions (3-0)3
Fundamentals of dilute polymer solutions, single chain conformations and configurations. Polymer solution thermodynamics, lattice models, equation of state approach. Phase equilibria and phase separation in polymeric solutions. Behavior of concentrated and/or multicomponent solutions, physical gelation. Diffusion in polymeric systems.

CHME 482 Chemical Process Safety (3-0)3
Industrial hygiene and loss statistics, toxicology, source models (fluid flow through holes in tanks, pipes etc.) toxic release and dispersion models, fires and explosions, designs to prevent accidents, hazard identification and risk assessment, accident investigations with some sample case historie.

CHME 499 Topics in Chemical Engineering (3-0)3
Faculty-supervised term projects assigned to individual students or groups on new and developing areas of chemical engineering. A written report and an oral presentation are required.

NORTHERN CYPRUS CAMPUS

CIVIL ENGINEERING PROGRAM

GENERAL INFORMATION: The goal of the METU NCC Civil Engineering Program is to educate future engineers who can apply basic science in the analysis and synthesis of complex civil engineering problems, who are competent in oral and written communication, and who can co-operate with disciplines other than engineering. In this regard, graduates are expected to have developed skills in critical thinking, searching and learning, adherence to ethical principles, leadership qualities, and the ability to maintain interaction with social environment in which they live.

The METU NCC Civil Engineering curriculum has been designed and based on current trends in engineering programs as well as the needs of the Middle Eastern countries, and comprises a series of compulsory and elective courses in the areas of structural mechanics, water resources, geotechnical engineering, construction materials, surface transportation, construction management and geodesy.

CAREER OPPORTUNITIES: METU NCC Civil Engineering graduates will have career opportunities in both the public and private sector in any field of civil engineering. With a strong background in engineering and communication skills, they can be especially sought after candidates for companies operating in the Middle East and Euro-Asia. Those who would like to carry on with academic research will have ample opportunities both in Turkey and elsewhere, due to the analytical abilities they have gained by following the curriculum.

UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester

MAT	119[a]	Calculus with Analytic Geometry	(4-2)5
PHY	105	General Physics I	(3-2)4
ENGL	101	Development of Reading and Writing Skills I	(4-0)4
CNG	100	Introduction to Information Technologies and Applications	(2-0)NC
CNG	230	Introduction to C Programming	(2-2)3
GPC	100	First Year on Campus Seminar	(0-2)1

Second Semester

MAT	120	Calculus for Functions of Several Variables	(4-2)5
PHY	106	General Physics II	(3-2)4
MECH	113	Computer Aided Engineering Drawing 1	(2-2)3
ENGL	102	Development of Reading and Writing Skills II	(4-0)4
CHM	107	General Chemistry	(3-2)4
CVE	102	Introduction to Civil Engineering	(2-0)NC

SECOND YEAR

Third Semester

MAT	219	Int. to Differential Equations	(4-0)4
CVE	202	Surveying	(1-4)3
CVE	221	Engineering Mechanics I	(3-0)3
CVE	241	Materials of Construction	(3-2)4
XXX	xxx	Non-technical Elective	(-0)3
TUR	101 [b]	Turkish I	(2-0)NC

Fourth Semester

MAT	210	Applied Math. for Engineers	(4-0)4
CVE	222	Engineering Mechanics II	(3-0)3
CVE	224	Mechanics of Materials	(3-0)3
ECO	280	Engineering Economy	(3-0)3
ENGL	211	Acad. Oral Present. Skills	(3-0)3
XXX	xxx	Non-technical Elective	(-)3
TUR	102 [b]	Turkish II	(2-0)NC

THIRD YEAR

Fifth Semester

CVE	303	Prob. and Stat. for Civil Eng.	(3-0)3
CVE	323	Int. to Structural Mechanics	(3-0)3
CVE	353	Transport. and Traffic Eng.	(3-0)3
CVE	363	Soil Mechanics	(3-2)4
CVE	371	Int. to Fluid Mechanics	(3-0)3
HST	201[c]	Principles of Kemal Atatürk I	(2-0)NC
CVE	300[d]	Summer Practice I	NC

Sixth Semester

CVE	332	Construc. Eng.and Manag.	(3-0)3
CVE	366	Foundation Engineering	(2-2)3
CVE	372	Hydromechanics	(3-2)4
CVE	376	Engineering Hydrology	(3-0)3
CVE	382	Reinfor. Concrete Fund.	(3-0)3
CVE	384	Structural Analysis	(3-0)3
HST	202[c]	Principles of Kemal Atatürk II	(2-0)NC

FOURTH YEAR

Seventh Semester

CVE	471	Water Resources Engineering	(3-0)3
CVE	485	Design of Steel Structures	(2-2)3
CVE	xxx	Technical Elective	(-)3
CVE	xxx	Technical Elective	(-)3
ENGL	311	Advan. Communic. Skills	(3-0)3
CVE	400[d]	Summer Practice II	NC

Eighth Semester

CVE	xxx	Technical Elective	(-)3
CVE	xxx	Technical Elective	(-)3
CVE	xxx	Technical Elective	(-)3
CVE	xxx	Technical Elective	(-)3
XXX	xxx	Free Elective	(-)3

[a] Students who are unable to achieve the minimum required passing grade in the Mathematics Proficiency Exam are required to take MAT 100 before MAT 119

[b] International students will take TUR 201 and TUR 202, which may be taken in the first year by the consent of the advisor.

[c] International students will take HST 205 and HST 206 instead of HST 201 and HST 202

[d] Students are expected to complete their summer training prior to registering CVE 300 and CVE 400

ELECTIVE COURSES

Some courses that may be offered as electives are:

- CVE 424 Urban Hydrology and Hydraulics
- CVE 425 Introduction to Finite Elements
- CVE 428 Hydrosystems Engineering and Management
- CVE 430 Practical Aspects of Construction Management
- CVE 434 Construction Planning
- CVE 441 Highway Materials
- CVE 445 Concrete Making Materials
- CVE 446 Properties of Fresh and Hardened Concrete
- CVE 458 Design of Hydraulic Structures
- CVE 461 Computer Applications in Foundation Eng.
- CVE 462 Foundation Engineering II
- CVE 467 Soil Dynamics
- CVE 472 Statistical Techniques in Hydrology
- CVE 481 Reinforced Concrete Structures
- CVE 483 Advanced Structural Analysis
- CVE 486 Structural Design: Concrete Structures
- CVE 490 Introduction to Earthquake Resistant Design
- CVE 4001 Introduction to Pavement Design
- CVE 4004 Shear Strength and Slope Stability

DESCRIPTION OF COURSES

CVE 102 Int. to Civil Engineering (2-0)NC
An orientation course to provide counsel to the students on the major areas of Civil Engineering including information on typical activity of civil engineers, integrated course sequences and content, and an introduction of the faculty. Professional engineering practice. Oral and written engineering communication.

CVE 202 Surveying (1-4)3
Introduction. Distance measurement. Taping. Angle measurement. Errors. Direct, indirect and conditional adjustment of observations. Differential leveling. Rise and fall. Height of collimation method. Traverse surveys. Azimuth and coordinate computations. Area computations. Stadia survey. Trigonometric leveling. Contour lines. Curve layout. Remote sensing and photogrammetry.

CVE 221 Engineering Mechanics I (3-0)3
Introduction to rigid body mechanics. Equivalent force systems: Concepts of moment, couple, resultant. Equilibrium: Free-body diagram; equations of equilibrium. Structural analysis: Trusses; beams. Shear force and bending moment diagrams by method of sections and by method of integration. Properties of surfaces: Area moment and centroid; moments and product of inertia; to the principal directions.
Prerequisite: PHY 105, MAT 119.

CVE 222 Engineering Mechanics II (3-0)3
Kinematics of particles and rigid bodies: absolute motion, relative motion. Kinetics of particles: equations of motion, work-energy and impulse-momentum. Systems of particles. Kinetics of rigid bodies: Euler's equation, plane motion of rigid bodies, kinetic energy of rigid bodies. Introduction to the dynamics of vibrating systems.
Prerequisite: CVE 221

CVE 224 Mechanics of Materials (3-0)3
Simple stress and strain. Equilibrium, compatibility and constitutive relations. State of stress and state of strain with emphasis on two dimensional problems. Bending and shear stresses. Deflection of beams. Torsion of circular shafts. Combined stresses. Buckling of columns.
Prerequisite: CVE221

CVE 241 Materials of Construction (3-2)4
Mechanical properties of materials and basic concepts. Production, types, uses in construction, properties and related tests for the following materials are covered: ferrous metal, bituminous materials, clay products, timber, building stones, mineral aggregates, lime, gypsum, hydraulic cements and concrete. Constituents, theories of mix design, principal steps in production, physical and mechanical properties of concrete.

CVE 300 Summer Practice I NC
Subjects that are acceptable for summer practice: Surveying, time-keeping, checking and testing construction materials, assisting resident engineers. Preparing quantity and cost estimates, unit price estimates, civil engineering drawings and graphs. Use of computational machines, taking part in construction work. The department may organize a compulsory, collective Summer Practice Program in place of the above. (20 working days).
Prerequisite: CVE 102, CVE241, CNG 100.

CVE 303 Probability and Statistics for Civil Engineering (3-0)3
Descriptive statistics, histograms, central tendency, dispersion and correlation measures. Basic probability concepts, random variables, probability density and mass function. Hypothesis testing, confidence intervals. Law of large numbers and central limit theorem. Regression analysis. Applications in engineering.
Prerequisite: MAT 119.

CVE 323 Int. to Structural Mechanics (3-0)3
Unsymmetrical bending, shear center. Definition, classification, idealization and modeling of structures. Analysis of statically determinate structures, including beams, frames and arches. Analysis of cables. Work and energy principles and their application in deformation analysis of structures. Force method of structural analysis.
Prerequisite: CVE 224.

CVE 332 Construction Engineering and Management (3-0)3
Profile of the construction sector; company and site organization and types of contracts. Construction projects; estimating, tendering, planning and execution. Professional responsibility and engineering ethics. Productivity, quality, health and safety issues. Construction equipment; selection criteria, hourly cost determination and output analysis of excavators.
Prerequisite: CVE 224.

CVE 353 Transportation and Traffic Engineering (3-0)3
Introduction to transportation systems. Vehicles, network and terminals as components of

transportation systems engineering. Design of transportation facilities emphasizing land transportation. Operations planning of transportation systems and traffic engineering. Models of traffic flow. Traffic analysis at intersections. Basic definitions and computations of level of service. Planning and management techniques.

CVE 363 Soil Mechanics (3-2)4
Basic geology for civil engineers. Engineering problems involving soils. Basic characteristics of soils, classification and compaction of soils. Principle of effective stress. Permeability and flow of water (seepage) in soils. Shear strength of soils. Slope stability. Lateral earth pressure theories. Consolidation theory.
Prerequisite: CVE 224.

CVE 366 Foundation Engineering I (2-2)3
Site investigations, retaining structures, excavations, dewatering, shallow foundation design, bearing capacity, settlement, stress distribution in soils, initial settlement, consolidation settlement, permissible settlement, deep foundation design, bearing capacity, settlement, types of piles, ground improvement.
Prerequisite: CVE 363.

CVE 371 Introduction to Fluid Mechanics (3-0)3
Definitions, physical properties. Hydrostatics, forces on plane and curved surfaces, buoyancy, hydrostatics in moving and rotating containers. Lagrangian and Eulerian descriptions, derivatives, rate of deformation, flowlines. System and control volume approach, Reynolds transport theorem, principles of conservation of mass, momentum and energy, Bernoulli equation. Dimensional analysis, Buckingham pi theorem, similitude.
Prerequisite: CVE 221, and MAT 219.

CVE 372 Hydromechanics (3-2)4
Laminar and turbulent flows. Friction factor in pipe flow. Computation of flow in single pipes: Hydraulic machinery: turbines and pumps. Pipeline systems and networks. General characteristics and classification of open channel flow: pressure and velocity distribution. Continuity equation. Energy concept. Momentum principle. Uniform flow. Rapidly varied flow gradually-varied flow. Wave hydraulics.
Prerequisite: CVE 371.

CVE 376 Engineering Hydrology (3-0)3
Hydrologic analysis in water resources: Precipitation, streamflow and hydrograph analysis. Hydrologic flood routing. Statistical analysis in water resources. Groundwater hydrology. Engineering applications.

CVE 382 Reinforced Concrete Fundamentals (3-0)3
Mechanical behavior of concrete in uniaxial and multiaxial states of stress. Time dependent behavior of concrete. Mechanical behavior of reinforcing steel. Behavior and strength of uniaxially loaded members; confinement. Behavior and strength of members in pure bending. Behavior and strength of members under combined bending and axial load. Behavior and strength of members under combined shear and bending.
Prerequisite: CVE 224.

CVE 384 Structural Analysis (3-0)3
Introduction to structural analysis. Displacement methods: slope deflection, moment distribution, special topics. Stiffness method, derivation of element stiffness matrices, assembly procedures. Computerized implementation of the stiffness method and use of instructional programs. Large scale structural analysis. Influence lines and moving loads.
Prerequisite: CVE 323.

CVE 400 Summer Practice II NC
Subjects that are acceptable for summer practice: quantity and cost estimates, application of plans to site conditions, mix design, taking part in reinforced concrete work. Structural, highway and hydraulic designs. Preparing standard engineering drawings (20 working days).

CVE 430 Construction Management in Practice (3-0)3
Introduction to management, general description of construction industry, contract systems, types of construction contracts. Review of typical organizational structures for construction companies and projects. Planning and scheduling, resource analysis and leveling, management of resources. Survey of main activities and procedures for starting a new project. Communication basics and communication in construction sites. Monitoring and control systems. Procedures and formalities for project completion.
Prerequisite: CVE 332.

CVE 458 Design of Hydraulic Struc. (3-0)3
Dam design concepts. Design of overflow and outlet structures; frontal overflow, side channel, morning glory overfall, siphon, free fall, chute, cascade spillway. Design of dissipation structures; hydraulic jump and stilling basin, drop structures and plunge pools, trajectory basins. Design of bottom outlets; gate types, hydraulics of high-head gates, air entrainment, cavitation. Design of intake structures;

hydraulic losses, vortex formation, hydraulic loadings, control gates and valves, penstock.
Prerequisites: CVE 372, and CVE 376.

CVE 462 Foundation Engineering II (3-0)3
Deep foundations. Piles and pile foundations, types of piles, pile foundation design. Types of sheet pile walls. Single-wall, double-wall and cellular cofferdams. Box open and pneumatic caissons. Underpinning of existing structures.
Prerequisites: CVE 363.

CVE 471 Water Resources Engineering (3-0)3
Introduction to water resources. Reservoirs. Classification of dams. Failure and rehabilitation of dams. Types of spillways, energy dissipation facilities, crest gates. Water uses and quantities, water quality, water treatment. Elements of water transmission and distribution. Design and construction of sewer systems. Land classification for irrigation, soil-water relationships. Design of classical irrigation networks. Characteristics of land drainage, design of surface and subsurface drainage systems.
Prerequisites: CVE 372, and CVE 376.

CVE 472 Statistical Techniques in Hydrology (3-0)3
Importance in Hydrology. Properties and model parameter estimation techniques. Use of discrete and continuous functions in hydrology. Point and regional frequency analysis. Applications.
Prerequisite: CVE 303, and CVE 376.

CVE 481 Reinforced Concrete Struct. (3-0)3
General RC behavior: Moment-curvature relationship; plastic hinge, redistribution. Behavior and strength of members under combined shear and torsion: Equilibrium torsion, compatibility torsion, punching, capacity design. Repair/Strengthening Principles: Column, beam, slab repair, structural system improvement. Seismic design principles. Serviceability. Detailing.
Prerequisite: CVE 382.

CVE 485 Design of Steel Structures (2-2)3
General concepts in design. Design methods, loads (dead, live, wind, snow and earthquake), codes, safety serviceability. Behavior of steel structures. Tension members, compression members, beams, beam-columns, types and behavior of connections in steel structures, bolted welded connections.
Prerequisite: CVE 224.

CVE 486 Structural Design: Concrete Structures (3-0)3
One-two way slabs, joist floors, wall, individual, combined and continuous footings, mat foundations. Stairs. Structural systems: Framed, wall and combined structures, flat slabs, flat plates, and masonry. Modeling. Approximate methods of structural analysis, most unfavorable loading. Introduction to advanced methods of construction: Prefabricated pre-stressed concrete, composite structures, etc. Professional authority and responsibility.
Prerequisite: CVE 382.

CVE 490 Introduction to Earthquake Resistant Design (3-0)3
Causes of earthquakes, earthquake magnitude and intensity, earthquake ground motions. Seismic response analysis of simple structures. Elastic response spectra, design spectra. Earthquake design criteria. Equivalent static lateral force procedure. Design codes, design applications.
Prerequisite: CVE 222.

CVE 491-498 Special Topics in Civil Engineering (3-0)3
These code numbers will be used for technical elective courses which are not listed regularly in the catalog. The course contents will be announced before the semester commences.

NORTHERN CYPRUS CAMPUS

COMPUTER ENGINEERING PROGRAM

GENERAL INFORMATION: The Northern Cyprus Campus Computer Engineering Undergraduate Program provides professional training in Computer Engineering. The program, aimed at meeting the demand for B.S. level computer engineers in industry, business and in higher education, covers a wide range of areas in the field of computer engineering, including programming languages, computer architecture, data structures, algorithms, theory of computation, databases, software engineering, embedded systems, graphics, operating systems, and networks. It also addresses other core and supporting areas, such image processing, e-business, intelligent systems, distributed and parallel systems, knowledge engineering, etc.

The preparation of students to be successful in Computer Engineering practice is the primary objective of the program. Graduates will be able to pursue advanced studies in Computer Engineering and Computer Science on a competitive universal basis.

The focus of the first two years of the undergraduate program is on foundational courses, which provide a solid basis for some concurrent courses and most of the courses taken in the last two years which are related to the computer engineering field in general, as well as applied and advanced topics. Undergraduate students spend a total of 12 (twelve) weeks in industrial practice during the summers. As an integral part of undergraduate study, students are given numerous assignments, many of which require team work and collaboration, essential qualities for success in today's world. Assignments of this nature foster a collaborative atmosphere in and outside of class, not only between students, but also involving close interaction with the teachers and assistants.

The general aims of the METU NCC CNG Undergraduate Program are to provide:

- a significant depth and breadth of coverage of the core concepts in computing, with options for in-depth studies related to computer engineering and science disciplines.
- a basic engineering and science curriculum (mathematics, physics, and engineering).
- opportunities for students to become aware of computing profession in the context of science, society and technology.
- opportunities for students to develop design capabilities and decision-making abilities.
- a basic engineering and science curriculum as a basis for further engineering education and practice.

CAREER OPPORTUNITIES: Information technologies play a vital role in everyday life and in many sectors including communication, education, banking, health, defense, and the production industry. Therefore, graduates from the METU NCC CNG Undergraduate Program will have very good career prospects both at home and abroad in various private and public sector organizations. More specifically, our graduates will be eligible for jobs in computer centers of the large banks and multinational companies and, of course, in information technology (IT) companies. Some of our graduates will also have the opportunity of postgraduate study leading to MS and Ph.D in or outside of Turkey.

UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester

MAT	119[a]	Calculus with Analytic Geometry	(4-2)5
PHY	105	General Physics I	(3-2)4
CHM	107	General Chemistry	(3-2)4
CNG	111	Introduction to Computer Engineering Concepts	(3-2)4
ENGL	101	Development of Reading and Writing Skills I	(4-0)4
CNG	100	Introduction to Information Technologies and Applications	(2-0)NC
GPC	100	First Year on Campus Seminar	(0-2)1
CNG	101	Computer Engineering Orientation	(2-0)NC

Second Semester

MAT	120	Calculus for Functions of Several Variables	(4-2)5
PHY	106	General Physics II	(3-2)4
CNG	140	C Programming	(3-2)4
ENGL	102	Development of Reading and Writing Skills II	(4-0)4
MAT	260	Basic Linear Algebra	(3-0)3

SECOND YEAR

Third Semester

MAT	219	Int. to Differential Equations	(4-0)4
EEE	281	Electrical Circuits	(3-2)4
CNG	213	Data Structures	(3-0)3
CNG	223	Discrete Comput. Structures	(3-0)3
ENGL	211	Acad. Oral Pres. Skills	(3-0)3
TUR	101[b]	Turkish I	(2-0)NC

Fourth Semester

STAS	221	Statistics for Engineers I	(3-0)3
EEE	282	Int. to Digital Electronics	(3-2)4
CNG	242	Prog. Language Concepts	(3-2)4
CNG	280	Formal Lang. and Abstract Machines	(3-0)3
CNG	232	Logic Design	(3-2)4
TUR	102[b]	Turkish II	(2-0)NC

THIRD YEAR

Fifth Semester

CNG	315	Algorithms	(3-0)3
CNG	331	Computer Organization	(3-0)3
CNG	351	Data Manag. and File Structures	(3-0)3
XXX	xxx	Technical Elective	(-)3
XXX	xxx	Non-Technical Elective	(-)3
HST	201[c]	Principles of Kemal Atatürk I	(2-0)NC
ENGL	311	Advan. Communic. Skills	(3-0)3
CNG	300[d]	Summer Practice I	NC

Sixth Semester

CNG	336	Int. to Embed. Sys. Develop.	(3-2)4
CNG	334	Int. to Operating Systems	(3-0)3
CNG	384	Signals and Systems for Computer Engineers	(3-0)3
CNG	350	Software Engineering	(3-0)3
XXX	xxx	Non-technical Elective	(-)3
HST	202[c]	Principles of Kemal Atatürk II	(2-0)NC

FOURTH YEAR

Seventh Semester

CNG	491	Senior Project and Seminar: Design	(2-0)2
CNG	435	Data Communications and Networking	(3-0)3
XXX	xxx	Technical Elective	(-)3
XXX	xxx	Technical Elective	(-)3
XXX	xxx	Non-technical Elective	(-)3
CNG	400[(d)]	Summer Practice II	NC

Eighth Semester

CNG	492	Senior Project and Seminar: Implementation	(1-2)2
XXX	xxx	Technical Elective	(-)3
XXX	xxx	Technical Elective	(-)3
XXX	xxx	Technical Elective	(-)3
XXX	xxx	Free Elective	(-)3

[(a)] Students who are unable to achieve the minimum required passing grade in the Mathematics Proficiency Exam are required to take MAT 100 before MAT 119

[(b)] International students will take TUR 201 and TUR 202, which may be taken in the first year by the consent of the advisor.

[(c)] International students will take HST 205 and HST 206 instead of HST 201 and HST 202

[(d)] Students are expected to complete their summer training prior to registering CNG 300 and CNG 400

ELECTIVE COURSES

Some Computer Engineering courses that may be offered as electives are:

- CNG 316 Practice of Algorithms
- CNG 332 Systems Programming and Support Environments
- CNG 340 Rapid Application Development
- CNG 352 Database Management Systems
- CNG 382 Analysis of Dynamic Systems with Feedbacks
- CNG 443 Introduction to Object-Oriented Programming Languages and Systems
- CNG 444 Language Processors
- CNG 451 Information System Development
- CNG 453 Introduction to Service-Oriented Computing
- CNG 462 Artificial Intelligence
- CNG 463 Introduction to Natural Languages Processing
- CNG 465 Int. to Bioenformatics
- CNG 476 System Simulation
- CNG 478 Int. to Parallel Computing
- CNG 495 Cloud Computing

Some courses from other disciplines that may be taken as electives are:

- EEE 306 Signals and Systems II

DESCRIPTION OF COURSES

CNG 100 Introduction to Information Technologies and Applications (2-0)NC
Introduction to computers, computer software and hardware, computer network, Internet applications, ethics, document processing, data analysis, and spreadsheets (OS Environment: Microsoft Windows Vista, Office Tools).

CNG 111 Introduction to Computer Engineering Concepts (3-2)4
Introduction to fundamentals of Computer systems, including Computer organization, operating systems, language processors and user interfaces. Introduction to algorithms and programming. Reasoning informally about the correctness and efficiency of programs. A functional programming language will be used for practical work.

CNG 140 C Programming (3-2)4
Advanced programming with C: storage and control structures, recursion and programming with dynamic data structures. Homeworks are required to run on Unix environment.

CNG 213 Data Structures (3-0)3
Classification of data structures, space and time considerations. Linked lists, stacks and queues. Tree structures, binary search trees. Array and pointer based implementations. Recursive applications. Sorting and searching.
Prerequisite: CNG140.

CNG 223 Discrete Computational Structures (3-0)3
Fundamentals of logic, set relations, functions, induction, graph theory, trees introduction to algebraic structures, lattices.

CNG 230 Introduction to C Programming (2-2)3
Introduction. Constants, variables, expressions, statements. Selective structures. Repetitive structures and arrays. Functions. Pointers. Multi-dimensional arrays.
(Offered to non-CNG students only).

CNG 232 Logic Design (3-2)4
Introduction to Computer architecture. Number systems. Boolean algebra. Logic Gates and flip flops. Combinational and sequential circuit design. Registers. Counters. Bus transfer. RAM, ROM units. Instruction execution and hardwired control.

CNG 242 Programming Language Concepts (3-2)4
Evolution of programming languages. Overview of language translation, virtual machines, and run-time environments. Names, bindings and scopes. Values, expressions and types. Type CNGatibility and type checking. Storage, variables, and commands. Procedural abstraction. Generic units. Overview of functional programming paradigm. Overview of object-oriented programming paradigm: Encapsulation, classes and objects, inheritance, *polymorphism, dynamic binding.*
Prerequisite: CNG111, and CNG213

CNG 280 Formal Languages and Abstract Machines (3-0)3
Introduction to strings, languages and grammars. Concept of abstract machines and language acceptance. Deterministic and non-deterministic finite state machines. Regular expressions. machines with pushdown tape. Turing Machines and recursive functions
Prerequisite: CNG223.

CNG 300 Summer Practice I NC
A minimum of six weeks (30 working days) of training in Computer centers involving observation of the Computer system and the software developed and used in the center, and discussion of various aspects of the system. The training is based on the contents of the summer practice manual.

CNG 315 Algorithms (3-0)3
Selected Computer algorithms: sorting, searching, string processing and graph algorithms. Algorithm design and analysis techniques. Time and CNGutational CNGlexities of algorithms. Introduction to NP-CNGleteness, parallelization of algorithms, linear and dynamic programming.
Prerequisite: CNG213.

CNG 316 Practice of Algorithms (3-0)3
Advanced algorithmic problems in graph theory, combinatorics, and artificial intelligence. Creative approaches to algorithm design. Efficient implementation of algorithms.
Prerequisites: CNG315

CNG 331 Computer Organization (3-0)3
Microprogramming and micro programmed control. Input and output devices, I/O interfaces. Memory hierarchy and memory management. Fast arithmetic: fast multipliers and floating point operations. Reduced instruction set Computer. Computer communications.
Prerequisite: CNG232.

CNG 332 System Programming (3-0)3
Basic System Software. Assemblers. Macro Processors. Compilers. Interpreters. Loaders and Linkers. Run-Time Support Environments. Networking Software. Network Programming. Issues of Systems Integration over Networks. Graphical User Interfaces. Windows Programming.
Prerequisite: CNG331.

CNG 334 Introduction to Operating Systems (3-0)3
Introduction to Operating Systems. Memory Management. Process Management. Concurrent Processes. Deadlocks. Processor Management. I/O and Device Management. Gile Management and File Systems. Introduction to Distributed Operating Systems. Synchronization in Distributed Systems. Distributed File Systems. Overview of contemporary OS technology.
Prerequisite: CNG331.

CNG 336 Introduction to Embedded Systems Development (3-2)4
Assembly language and controller architecture. Peripheral interfaces:A/D and D/A conversion, parallel and serial ports, interrupts and timers/counters I/O bus architectures. Sensors and actuators. Design and analysis techniques. Real time operating systems.
Prerequisite: CNG140and CNG232

CNG 340 Rapid Appl. Development (3-0)3
Overview of the base language of a Rapid Application Development (RAD) tool; object definitions, methods, properties and inheritance. Form design using visual components Application development using the libraries of an industry standard RAD tool.
Prerequisite: CNG350

CNG 350 Software Engineering (3-0)3
Software Project Management: metrics, estimation, planning. Software requirement analysis techniques. Software design techniques. Software implementation. Software quality assurance. Software testing.

CNG 351 Data Management and File Structures (3-0)3
Sequential files. Unordered sequential files. Ordered sequential files. External sorting. Heap sort. Replacement selection sort. Large memory sorting. B+tree index. Hashing. Classical hashing.
Linear hashing. Introduction to DBMSs. Relational databases. Relational query languages. Relational algebra. Relational calculus. SQL. QBE.QUEL. Implementing the join operation. Entity-Relationship data model.

CNG 352 Database Management Systems (3-0)3
Relational model of data. Relational algebra. SQL. Query optimization. Entity-Relationship data model. Normalization, physical database design. Concurrency control in DBMSs. Crash recovery. Client-server architectures. Introductions to object databases, distributed databases, web data management.
Prerequisite: CNG351.

CNG 371 Scientific Computing (3-0)3
Accuracy in numerical analysis. The sources and propagations of errors. Solution of non-linear equations. Interpolating polynomials. Solution of linear algebraic equations. Least squares curve fitting. Numerical integration.
Prerequisites: MAT120 or MAT260.

CNG 372 Numerical Computations II(3-0)3
Matrix eigenvalue problem, finite differences and numerical differentiation. Numerical solution of ordinary differential equations. Introduction to numerical solution of partial differential equations.
Prerequisites: CNG371 or MAT219.

CNG 373 Operational Mathematics (3-0)3
Introduction to partial differential equations. Laplace transforms. Convolution operator. Applications of Laplace transformations. Functions of a complex variable. The inversion integral. Fourier transforms. The Z-transform and applications.
Prerequisite: MAT219.

CNG 382 Analysis of Dynamic Systems with Feedback (3-0)3
Mathematical modelling of systems. Difference and differential equations. State-space representation. Solutions of state equations. Linear-time-invariant systems and impulse response (discrete and continuous time). Stability. Routh-Hurwitz method. Feedback. Controllability. Observability. An introduction to nonlinear systems.
Prerequisites: MAT219and MAT260 .

CNG 384 Signals and Systems for Computer Engineers (3-0)3
Linear time invariant systems; Frequency domain; Periodic and finite signals; Frequency response; Fourier series and transforms; Filtering; Finite impulse response filters; Sampling and reconstruction.
Prerequisite: MAT 219 and MAT260.

CNG 400 Summer Practice II NC
A minimum of six weeks (30 working days) of training in Computer centers involving observation of the Computer system and the software developed

and used in the center, and discussion of various aspects of the system. The training is based on the contents of the summer practice manual. Students are expected to be involved in the software development projects of the Computer center.

CNG 424 Logic for Computer Sciences (3-0)3
Overview of propositional and first-order logic. Computational aspects of logic: definite clauses, resolution, unification, and clausal forms. Modal, temporal, and other non-standard logics. Applications of various logics in computer science.
Prerequisite: CNG223.

CNG 435 Data Communications and Computer Networking (3-0)3
Introduction to data communications. OSI Reference Model. Physical layer. Electrical interface and data transmission. Data Link layer. Media Access sublayer. LAN/MAN Technologies. Network layer. Inter networking. Bridging and routing. Transport layer. Introduction to upper Layers'issues.
Prerequisite: CNG334

CNG 437 Advanced Computer Architecture (3-0)3
Architectural approaches to parallelism, pipelining, vector processors, shared memory multiprocessors and interconnection networks, array processors, message passing, dataflow mechanisms.
Prerequisite: CNG331.

CNG 438 Information and Network Security (3-0)3
Introduction to security. Principles of cryptography. Software security. Operating system security techniques. Authentication. Public key infrastructure. Integrity. Access control. Security in many layers. Web and wireless security.
Prerequisites: CNG334, CNG435

CNG 443 Intr. to Object- Oriented Prog. Languages and Systems (3-0)3
Object-Oriented Programming Concepts. Exception handling. I/O Streams and Decorator Pattern. Concurrency. GUI Development. Security Issues. Objects over Networks. Database Connectivity. Serialization and Deserialization. Remote Method Calls. Introduction to Enterprise Components.
Prerequisite: CNG213

CNG 444 Language Processors (3-0)3
Formal description and classification of programming languages. Specifications syntax. The parsing problem. Top-down and bottom-up parsing. Attaching semantics to syntax. Translator writing systems. Translator writing case study

CNG 451 Information Systems Development (3-0)3
Information systems life cycle. Effective human communications. Common tools for information gathering. Some classical tools. Some structured tools. Organizational structure and personnel for information systems department. Computer systems evaluation and selection. Modeling and simulation. An information systems development methodology. A Case tool.
Prerequisites: CNG350.

CNG 452 Information System Engineering (3-0)3
Planning and estimation. Risk analysis and management. Specification techniques. Process modeling. Measurement and evaluation. Information systems development methodologies. A comparative survey. Case Technology in information systems development. Evaluating commercial case products.
Prerequisite: CNG350.

CNG 453 Introduction to Service Oriented Computing (3-0)3
Service-Oriented Computing (SOC) is the new computing paradigm that utilizes services as the basic constructs to support the development of rapid, low-cost and easy composition of distributed applications even in heterogeneous environments. This course covers the basic foundations of SOC, and discusses basic standards of web services technology that enables SOC such as SOAP, WSDL, UDDI and BPEL4WS. The course demonstrates some programming techniques for web services creation and consumption, also lays out the roadmap for future SOC research.
Prerequisite: CNG350and CNG351.

CNG 456 Scalable Web Applications (3-0)3
Http fundamentals, web browsers, web server configuration and tuning, server capacity and management, dynamic content delivery, virtual hosting and proxies, transaction processing and web servers' security.
Prerequisites: CNG352 and CNG435.

CNG 462 Artificial Intelligence (3-0)3
Basic LISP programming; picture analysis WALTZ algorithm; game playing, game trees, the mini-max rule, alpha-beta pruning technique; natural language understanding, transformation grammar; ATN grammars, techniques used in semantics.

CNG 463 Introduction to Natural Language Processing (3-0)3

Introduction to linguistic theory and techniques used in natural language processing (NLP). Template and keyword systems. Declarative and procedural approaches to NL parsing. Phrase Structure. Unification-based grammar. Parsing algorithms. Semantics. Morphology and Lexicon.
Prerequisite: CNG 280.

CNG 465 Introduction to Bioinformatics (3-0)3
This course covers computatioanl techniques for mining the large amount of information produced by recent advances in biology, such as genome sequencing and microarray technologies. Main topics of the course include: DNA and protein sequence alignment, phylogenetic trees, protein structure prediction, motif finding, microarray data analysis, gene/protein networks.

CNG 476 System Simulation (3-0)3
Introduction to simulation as a general scientific problem solving technique. Methodology of simulation and use of computers. Classifications of simulation models. Introduction to simulation programming languages.

CNG 477 Int. to Computer Graphics (3-0)3
Hardware and software components of graphics systems. Output and filled-data primitives. Fourier analysis, convolution, sampling, quantization, aliasing. 2D and 3D geometric transformations. Two-dimensional viewing. Three-dimensional viewing: Viewing pipeline, viewing parameters, projections, viewing transformations, clipping. Visible surface detection. Introduction to illumination models and surface rendering.
Prerequisite: CNG 213.

CNG 478 Int. to Parallel Computing (3-0)3
History and basic concepts of parallel computing. Classification of parallel processing systems. Organization of data and parallel storage. Design and analysis of parallel and vector algorithms. Performance and complexity of parallel algorithms. Examples and applications of some parallel algorithms.
Prerequisite: CNG 140 and CNG 331.

CNG 483 Int.toComputerVision (3-0)3
Image formation, camera models and parameters, stereo vision, shape from stereo, shape from single image cues, apparent motion, optical flow, introduction to 3D shape representation and recognition.

CNG 491 Senior Design Project and Seminar: Design (2-0)2
Analysis, requirement specification and design phases of Project. Team setting and working as an individual. Engineering design and brainstorming. Project management, planning and scheduling.
Prerequisite: CNG 350.

CNG 492 Senior Project and Seminar: Implementation (1-2)2
Implementation and test phases of a Project.Engineering and software standarts. Configuration management, revision control. Engineering ethics and legal issues. Testing and quality assurance. Final product preparation and deployment.
Prerequisite: CNG 491.

CNG 492 Senior Project and Seminar: Implementation (1-2)2
Implementation and test phases of a Project.Engineering and software standarts. Configuration management, revision control. Engineering ethics and legal issues. Testing and quality assurance. Final product preparation and deployment.
Prerequisite: CNG 491.

CNG 495 Cloud Computing (3-0)3
Cloud basics. Service models. Cloud platforms. Cloud access. Resource virtualization. Virtualization types. Multi-tenant software. Cloud applications: design, construction and deployment. Use of workflows. MapReduce. Data in the cloud. CAP theorem. NoSQL.
Prerequisite: CNG 331 and CNG 351

NORTHERN CYPRUS CAMPUS

ELECTRICAL AND ELECTRONICS ENGINEERING PROGRAM

GENERAL INFORMATION: The purpose of the METU NCC EEE Program is to provide a contemporary education opportunity in every field of Electrical and Electronics Engineering. Students, both national and international, will become engineering professionals with recognized research and leadership abilities, working creatively and effectively, and adhering to life-long learning principles. Students will not only acquire a sound knowledge of basic sciences, such as mathematics, physics and chemistry but they will also develop a firm understanding of economics, social sciences and humanities before specializing in Electrical and Electronics Engineering. Students can take advantage of the flexibility of the curriculum design, and upon building a sound background on basic sciences and engineering sciences, they may specialize in computer design, microwave and antennas, energy systems and power electronics, or control fields of Electrical and Electronic Engineering by choosing appropriate technical electives.

CAREER OPPORTUNITIES: Students graduating from the METU NCC Electrical and Electronics Engineering Program can work as engineers, researchers or managers in any public or private organization operating in areas as diverse as digital system design and communication technologies, automation and control of energy production, conveyance and distribution; bioengineering and defense applications requiring high-level technology such as intelligent control, signal processing; hardware design and software development. Graduates may also pursue academic careers in leading universities, both in Turkey or elsewhere, as a result of the broad knowledge and analytical perspective they gain through the METU NCC Electrical and Electronics Engineering Program.

UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester

MAT	119[a]	Calculus with Analytic Geometry	(4-2)5
PHY	105	General Physics I	(3-2)4
CHM	107	General Chemistry	(3-2)4
ENGL	101	Development of Reading and Writing Skills I	(4-0)4
CNG	100	Int. to Infor.Tech.and Appl.	(2-0)NC
EEE	100	Intr.to Elec.- Electro.Eng.	(1-0)NC
GPC	100	First Year on Campus Seminar	(0-2)1

Second Semester

MAT	120	Calculus for Functions of Several Variables	(4-2)5
PHY	106	General Physics II	(3-2)4
CNG	230	Introduction to C Programming	(2-2)3
ENGL	102	Development of Reading and Writing Skills II	(4-0)4
MAT	260	Basic Linear Algebra	(3-0)3

SECOND YEAR

Third Semester

MAT	219	Int. to Differential Equations	(4-0)4
EEE	201	Circuits Theory I	(4-2)5
XXX	xxx	Restricted Elective	(3-0)3
CNG	301	Algorithms and Data Structues	(3-0)3
ENGL	211	Acad. Oral Pres. Skills	(3-0)3
TUR	101[b]	Turkish I	(2-0)NC

Fourth Semester

EEE	202	Circuits Theory II	(4-2)5
EEE	212	Semiconductor Devices and Modeling	(3-0)3
EEE	224	Electromagnetic Theory	(4-0)4
EEE	248	Logic Design	(3-2)4
XXX	xxx	Non-technical Elective	(-)3
TUR	102[b]	Turkish II	(2-0)NC

THIRD YEAR

Fifth Semester

EEE	361	Electromechanical Energy Conversion	(3-2)4
EEE	303	Electromagnetic Waves	(3-0)3
EEE	301	Signals and Systems I	(3-0)3
EEE	311	Electronics I	(3-2)4
HST	201[c]	Principles of Kemal Atatürk I	(2-0)NC
ENGL	311	Advan. Communic. Skills	(3-0)3
EEE	300[d]	Summer Practice I	NC

Sixth Semester

EEE	347	Introduction to Microprocessors	(3-2)4
EEE	312	Electronics II	(3-2)4
EEE	302	Feedback Systems	(3-0)3
EEE	330	Probability and Random Variables	(3-0)3
XXX	xxx	Non-technical Elective	(-)3
HST	202[c]	Principles of Kemal Atatürk II	(2-0)NC

FOURTH YEAR

Seventh Semester

EEE	493	Engineering Design I	(1-2)2
XXX	xxx[€]	Technical Elective	(-)4
XXX	xxx	Technical Elective	(-)3
XXX	xxx	Technical Elective	(-)3
XXX	xxx	Non-technical Elective	(-)3
EEE	400[d]	Summer Practice II	NC

Eighth Semester

EEE	494	Engineering Design II	(1-2)2
XXX	xxx	Technical Elective	(-)3
XXX	xxx	Technical Elective	(-)3
XXX	xxx	Technical Elective	(-)3
XXX	xxx	Free Elective	(-)3

[a] Students who are unable to achieve the minimum required passing grade in the Mathematics Proficiency Exam are required to take MAT 100 before MAT 119

[b] International students will take TUR 201 and TUR 202, which may be taken in the first year by the consent of the advisor.

[c] International students will take HST 205 and HST 206 instead of HST 201 and HST 202

[d] Students are expected to complete their summer training prior to registering EEE 300 and EEE 400

[e] At least one technical elective courses should involve laboratory work.

ELECTIVE COURSES

Restricted electives will be chosen among available courses offered by the other engineering departments, such as MECH 203, MECH 205/CVE 224, MECH 227, CVE 241

Technical Electives: At least one of the fourth year technical elective courses should involve laboratory work. 2 of the courses should be a sequence (I and II) in one of the 5 concentration areas: Communications, Computers, Microwave/Antennas, Power Systems, Power Electronics. Up to 2 technical elective courses can be from other engineering disciplines provided that these courses are consistent with the student's core concentration goals, and are approved by the program advisor.

Communications Area core sequence: EEE 435, EEE 436 (Also recommend EEE 430).
Computers Area core sequence: EEE 445, EEE 446 (Also recommend EEE 441).
Microwave/Antennas Area core sequence: EEE 427, EEE 428 (Also recommend EEE 426, EEE 435).
Power Electronics Area core sequence: EEE 463, EEE 464 (Also recommend EEE 462).
Power Systems Area core sequence: EEE 471, EEE 472 (Also recommend EEE 463).

Some courses from interdisciplinary areas that may be taken as technical electives are:

- Computer Networks
- CNG 213 Data Structures
- CNG 330 Computer Architecture
- CNG 462 Artificial Intelligence
- CNG 476 System Simulation
- CNG 334 Operating Systems

DESCRIPTION OF COURSES

EEE 100 Introduction to Electrical and Electronic Engineering (1-0)NC
An orientation course aiming at introducing the student to the profession of engineering in general and Electrical and Electronics engineering in particular, with a discussion of the past, present and future of major areas. Course will benefit from external lecturers and audio-visual aids whenever applicable.

EEE 201 Circuit Theory I (4-2)5
Lumped circuits: Kirchhoff's laws, basic lumped elements, circuit graphs, circuit equations, linear and nonlinear resistive circuits, first and second order dynamic circuits. Introduction to operational amplifier circuits.
Prerequisite: MAT119

EEE 202 Circuit Theory II (4-2)5
Sinusoidal steady-state analysis. Three-phase circuits. Coupled inductors. Frequency response. Linear time-invariant dynamic circuits: state equations, natural frequencies, complex frequency domain analysis. Time-varying and nonlinear circuits.
Prerequisite: MAT219 and EEE201

EEE 209 Fundamentals of Electrical and Electronics Engineering (3-0)3
Fundamental circuit laws. Resistive circuit analysis. Sinusoidal steady-state response of circuits. Three-phase circuits. Magnetic circuits and transformers. Electromechanical energy conversion.
Semiconductor elements, transistor biasing and amplifiers. Operational amplifiers.
(Offered to non-EEE students only)
Prerequisite: PHY106

EEE 212 Semiconductor Devices and Modeling (3-0)3
Basic semiconductor concepts. Physical electronics. Physics of p-n junction diodes, bipolar junction transistors and field-effect transistors. Transistor biasing and small-signal models. Secondary effects in transistors. Dynamic models for diodes and transistors. p-n-p-n switching devices. Modeling concepts for computer-aided design, and introduction to circuit analysis with SPICE.
Prerequisite: EEE201

EEE 224 Electromagnetic Theory (4-0)4
Review of vector analysis. Electrostatic fields in vacuum and material bodies. Dielectric properties of materials. Electrostatic energy and forces. Steady electric current and conductors. Static magnetic fields in vacuum and in materials. Magnetic energy and forces. Quasistatic fields and electromagnetic induction.
Prerequisite: PHY-106 (DD) and MAT-120(DD)

EEE 230 Probability and Random Variables (3-0)3
Axiomatic definition of probability space. Combinatorial methods. Conditional probability; product spaces. Random variables; distribution and density functions; multivariate distributions; conditional distributions and densities; independent random variables. Functions of random variables; expected value, moments and characteristic functions.
Prerequisite: MAT120

EEE 248 Logic Design (3-2)4
Binary systems and Boolean Algebra. Boolean function simplification. Combinational logic. Sequential synchronous logic. Registers and counters.

EEE 281 Electrical Circuits (3-2)4
Circuit laws and basic elements. Resistive circuits, analysis methods. Network theorems. First and second order circuits. Sinusoidal steady-state analysis and power. Basic diyote and transistor circuits. (Offered to non-EEE students only).
Prerequisite: MAT120

EEE 282 Intro. to Digital Electronics (3-2)4
Semiconductor diodes. Diode characteristics. Diode circuits. Transistors, BJT, FET and integrated circuits. Inverters TTL, MOS, ECL structures. Logic Gates. Flip-flops. Bistable, astable and monostable multivibrators. Semiconductor memories. ROM, RAM structures. Programmable logic arrays.
(Offered to non- EEE students only)
Prerequisite: EEE281

EEE 300 Summer Practice I NC
Minimum four weeks (20 working days) of practical work in an organization with a sizable electrical or electronics operation. Special attention
should be given to most but not necessarily all of the following subjects: production, operation, maintenance, management and safety. A formal report as described in the Summer Practice Guide is to be submitted.

EEE 301 Signals and Systems I (3-0)3
Continuous and discrete time signals and systems classification and properties. Linear time-invariant systems: impulse response, convolution. Functions

of a complex variable, complex series and integrals. Transform methods: Continuous-time Fourier series and transform, discrete-time Fourier series and transform. Frequency response. Sampling theory. Laplace and z-transforms, system functions.
Prerequisite: MAT219

EEE 302 Feedback Systems (3-0)3
Mathematical modeling: Transfer functions, state equations, block diagrams. System response; performance specifications. Stability of feedback systems: Routh-Hurwitz criterion, principle of argument, Nyquist stability criterion, gain margin and phase margin. Design of dynamic compensators. Analysis and design techniques using root-locus. State-space techniques: Controllability, observability, pole placement and estimator design. Discrete-time control systems.
Prerequisite: EEE301

EEE 303 Electromagnetic Waves (3-0)3
Maxwell's Equations in time and frequency domains. Electromagnetic energy and power. Wave equation. Uniform plane electromagnetic waves, reflection and refraction. Introduction to transmission lines, waveguides, antennas and radiation.
Prerequisite: EEE224

EEE 306 Signals and Systems II (3-0)3
Correlation of signals. Energy and power spectral densities. Hilbert transform. Principles of modulation. Stochastic processes: Characterization, correlation functions, stationarity, ergodicity, power spectral density. Transmission of random signals through linear systems. Special stochastic processes. Noise.
Prerequisite: EEE301and EEE230

EEE 311 Electronics I (3-2)4
Basic single-stage transistor amplifiers and frequency responses.Multi-stage amplifiers. Feedback in amplifiers. Differential pair stages. Current mirrors. Operational amplifiers. Power amplifiers and regulators.
Prerequisite: EEE202 and EEE 212

EEE 312 Electronics II (3-2)4
Large signal transistor models. TTL, MOS and CMOS logic gates: Inverters, input and output circuits, NAND and NOR gates; static and dynamic analyses. Regenerative circuits: Astable, monostable, bistable multivibrators and Schmitt triggers. Introduction to VLSI. Static and dynamic memories: RAM, ROM, EPROM, EEPROM, etc. A/D and D/A converters.
Prerequisite: EEE212

EEE 347 Introduction to Microprocessors (3-2)4
Microprocessor architecture; a particular microprocessor software. I/O interfacing. Interrupt processed I/O. Direct memory access. Microprocessor based communication.
Prerequisite: EEE248

EEE 361 Electromechanical Energy Conversion (3-2)4
Electromechanical energy conversion principles. DC machines, characteristics, speed control. Transformers. Principles of ac machine operation. Synchronous machines; equivalent circuit, characteristics. induction machines; equivalent circuit, characteristics, speed control. Single phase machines.
Prerequisite: EEE202 and EEE224

EEE 400 Summer Practice II NC
Minimum four weeks (20 working days) of practical work in an organization with a sizable electrical or electronics operation. Special attention should be given to most but not necessarily all of the following subjects: maintenance, production planning, management, quality control and design. A formal report as described in the Summer Practice Guide is to be submitted.

EEE 402 Discrete Time Systems (3-0)3
Importance and advantages of discrete time system models in control. Time domain analysis of discrete-time systems. Sampled data systems. Stability; translation of analog design. State space design methods: observer theory, introduction to optimal design methods. Quantization effects.
Prerequisite: EEE302

EEE 404 Nonlinear Control Systems (3-0)3
State-space analysis methods. Isocline Lienard's methods, classification of singularities. Analytic techniques of periodic phenomena: Perturbation method. Stability definitions. Lyapunov's second method; Popov stability criterion. The method of harmonic realization: Describing functions. Dual-input describing functions. Equivalent linearization and oscillations in nonlinear feedback systems.
Prerequisite: EEE302

EEE 426 Antennas and Propagation (3-2)4
Antenna parameters. Linear antennas. Influence of earth on antenna radiation pattern and impedance. Radiation from slot and aperture antennas. Antenna arrays and the general array formula. Baluns. Receiving antenna theory. Elements of groundwave, tropospheric and ionospheric propagation.
Prerequisite: EEE 303

EEE 427 Microwaves I 4(3-2)
TEM mode transmission lines. Field and distributed circuit analysis. Frequency and time domain analysis. Waveguiding structures. Rectangular and circular waveguides. Impedance transformations and matching techniques. Scattering matrix of microwave junctions.
Prerequisite: EEE 303

EEE 428 Microwaves II 4(3-2)
Passive reciprocal and nonreciprocal devices. Electromagnetic resonators. Periodic structures and microwave filters. Microstripline structures and coupled lines. Solid state microwave devices.
Prerequisite: EEE 427

EEE 430 Digital Signal Processing (3-0)3
Discrete-time signals and systems. Discrete Fourier transform. Sampling and reconstruction. Linear time-invariant systems. Structures for discrete-time systems. Filter design techniques. Fast Fourier Transform methods. Fourier analysis of signals using discrete Fourier transform. Optimal filtering and linear prediction.
Prerequisite: EEE301

EEE 435 Telecommunications I (3-0)3
Amplitude and angle modulation techniques: Amplitude Modulation, Double Side Band, Single Side Band, Vestigial Side Band, Quadrature Amplitude Modulation, Frequency Modulation, Pulse Modulation. Phase-locked loops. Superheterodyne receivers. Frequency division multiplexing. Television. Noise in CW systems.
Prerequisite: EEE306

EEE 436 Telecommunications II (3-0)3
Pulse modulation: Sampling process, pulse-amplitude modulation, time-division multiplexing, quantization, pulse-code modulation. Line codes. Baseband pulse transmission. Digital passband transmission. Introduction to information theory and error control coding.
Prerequisite: EEE435

EEE 441 Data Structures (3-0)3
Arrays, stacks, queues, linked lists, trees, hash tables, graphs: Algorithms and efficiency of access. Searching and sorting algorithms.
Prerequisite: CNG140

EEE 445 Computer Architecture I (3-0)3
Asynchronous logic system. Algorithmic state machines. CPU organization. Construction of arithmetic logic unit. Process control architectures. Instruction modalities. Microprogramming. Bit slicing.
Prerequisite: EEE248

EEE 446 Computer Architecture II (3-2)4
Arithmetic processor design, arithmetic algorithms. Memory organization, parallel processing. Multiprocessors systems. Peripheral organization. I/O processing. I/O controllers.
Prerequisite: EEE445

EEE 462 Utilization of Elec.Energy (3-2)4
Basic operating characteristics and classification of electrical drives. Solid state DC motor control. Solid state AC motor control. Dynamic behavior of electrical machines. Electric braking. Starting of electrical machines. Intermittent loads. Drive applications. Modern methods of reactive power compensation. Electric energy saving.
Prerequisite: EEE463 and EEE361

EEE 463 Power Electronics I (3-2)4
Power switches and their characteristics. Power converter definitions, classification. VTA method. Midpoint and bridge rectifiers: non-ideal commutation, harmonics, input power factor, utility-factor, winding utilization and unbalances in rectifier transformers. Applications.
Prerequisite: EEE212 and EEE 361

EEE 464 Power Electronics II (3-0)3
Introduction to forced commutated circuits, analysis, classification of techniques. Centretap inverter. Voltage-fed inverters; waveshaping; PWM, stepped and square-waveforms, voltage regulation, harmonics. Current-fed inverters; analysis, effect of SCR turn-off time on voltage waveform, overlap. DC-DC switching converters; time-ratio control, effect of loading, parameter optimization. Device failure mechanisms. Thermal considerations, maximum ratings, protection of switching elements. Series and parallel operation of switching elements.
Prerequisite: EEE463

EEE 471 Power System Analysis I (3-0)3
Basic structure of electrical power systems. Electrical characteristics of transmission lines, transformers and generators. Representation of power systems. Per Unit System. Symmetrical three-phase faults. Symmetrical components. Unsymmetrical faults.
Prerequisite: EEE361.

EEE 472 Power System Analysis II (3-2)4
Matrix analysis of power systems networks and methods of solution. Load flow and short circuit analysis. Economic operation of power systems. Transient stability analysis.
Prerequisite: EEE471.

EEE 493 Engineering Design I (1-2)2
Fundamentals of design, project management, design tools, simulation standards, quality concepts, design experience through a team project.
Prerequisite: EEE311 and two of the following: EEE302 EEE361 EEE248

EEE 494 Engineering Design II (1-2)2
Continuation of Engineering Design I with topics covering statistics, reliability, engineering economics, ethics and completion of a team project with a final report and presentation.

EEE 495-499 Special Topics in Electrical and Electronics Engineering (3-0)3
These code numbers will be used for courses which are not listed regularly in the catalog. The course contents will be announced before the semester commences.

NORTHERN CYPRUS CAMPUS

MECHANICAL ENGINEERING PROGRAM

GENERAL INFORMATION: The mission of METU NCC Mechanical Engineering Program is:

- To educate individuals to become creative, inquisitive and productive in both national and international arenas, instilled with global knowledge and abilities, and able to be leaders and pioneers in their field.
- To perform research and development activities that will contribute to science and national technologies,
- To lead and to pioneer in related fields.

With this mission in mind, the graduates of the Mechanical Engineering Program of the METU NCC are engineering professionals who:

I. Are sought after in areas of new technology and/or product development, being innovative and entrepreneurial individuals with leadership abilities and pioneering abilities in professional areas.
II. Identify and solve engineering problems combining the scientific approach with their sound engineering base of knowledge and practice.
III. Seek rational solutions in their professional practice while considering their social, environmental, economical and ethical dimensions.

The curriculum of the Mechanical Engineering program provides a balanced course schedule for students with a variety of courses in basic sciences, engineering sciences and, applications and other related areas. In the first year of the curriculum, the program includes basic fundamental science coursess; in the second year is devoted to fundamental engineering courses; in the third year includes basic fundamental mechanical engineering courses, and finally, in the fourth year courses involve applications of mechanical engineering. A variety of courses covering basic and specialized subjects in Mechanics, Design and Production, Thermal and Fluid Sciences, Theory and Dynamics of Machines are offered.

CAREER OPPORTUNITIES: Mechanical engineering is one of the most wide-ranging engineering disciplines. Mechanical engineers work in almost all industries, irrespective of their main field of interest. Mechanical engineers are usually needed wherever there is production. Mechanical engineers work in factories related to their own field of interest, like automotive, machine tools, household goods, heating-ventilating and air conditioning, textile, steel, construction and agricultural machinery, power plants and similar factories. Additionally, mechanical engineers make up a considerable portion of all the engineers working in other industries like electric and electronics, chemical, construction, and mining. Mechanical engineers who graduate from the METU Northern Cyprus Campus will find jobs easily in any of these areas. Graduates of the METU Northern Cyprus Campus Mechanical Engineering Program may also pursue an academic career in leading universities in Turkey or abroad, as a result of their broad knowledge and analytical perspective.

UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester

MAT	119[a]	Calc. with Analytic Geo.	(4-2)5
PHY	105	General Physics I	(3-2)4
ENGL	101	Dev. of Reading & Writing Skills I	(4-0)4
MECH	113	Computer Aided Engineering Drawing 1	(2-2)3
CNG	230	Introduction to C Programming	(2-2)3
GPC	100	First Year on Campus Sem.	(0-2)1
CNG	100	Intro. to Information Tech. and Applications	(2-0)NC

Second Semester

MAT	120	Calculus for Functions of Several Variables	(4-2)5
PHY	106	General Physics II	(3-2)4
CHM	107	General Chemistry	(3-2)4
ENGL	102	Development of Reading and Writing Skills II	(4-0)4
MECH	114	Computer Aided Engineering Drawing II	(2-2)3
MECH	100	Introduction to Mechanical Engineering	(1-1)NC

SECOND YEAR

Third Semester

MAT	219	Introduction to Differential Equations	(4-0)4
MECH	202	Manufacturing Technologies	(3-2)4
MECH	203	Thermodynamics	(4-0)4
MECH	205	Statics	(3-0)3
MECH	227	Engineering Materials	(3-0)3
TUR	101[b]	Turkish I	(2-0)NC

Fourth Semester

MAT	210	Applied Math. for Engineers	(4-0)4
MECH	206	Strength of Materials	(3-0)3
MECH	208	Dynamics	(3-0)3
MECH	220	Mechanical Eng. Lab. I	(2-2)3
EEE	209	Fundamentals of Electrical and Electronics Engineering	(3-0)3
ENGL	211	Acad. Oral Pres. Skills	(3-0)3
TUR	102[b]	Turkish II	(2-0)NC

THIRD YEAR

Fifth Semester

ECO	280	Engineering Economy	(3-0)3
MECH	301	Theory of Machines	(4-0)4
MECH	305	Fluid Mechanics	(4-0)4
MECH	307	Mechanical Eng. Design	(3-0)3
MECH	310	Numerical Methods	(3-0)3
HST	201[c]	Principles of Kemal Atatürk I	(2-0)NC
MECH	300[d]	Summer Practice I	NC

Sixth Semester

MECH	303	Manufacturing Engineering	(3-0)3
MECH	304	Control Systems	(3-0)3
MECH	308	Mechanical Eng. Design	(3-0)3
MECH	311	Heat Transfer	(4-0)4
MECH	320	Mech.Eng. Laboratory II	(0-2)1
XXX	xxx	Non-technical Elective	(-)3
HST	202[c]	Principles of Kemal Atatürk II	(2-0)NC

FOURTH YEAR

Seventh Semester

MECH	xxx	Technical Elective	(-)3
MECH	xxx	Technical Elective	(-)3
MECH	xxx	Technical Elective	(-)3
ENGL	311	Advan. Communic. Skills	(3-0)3
XXX	xxx	Non-Technical Elective	(-)3
MECH	400[d]	Summer Practice II	NC

Eighth Semester

MECH	420	Mech. Eng. Laboratory III	(0-4)2
MECH	458	Graduation Design Project	(0-6)3
MECH	xxx	Technical Elective	(-)3
MECH	xxx	Technical Elective	(-)3
MECH	xxx	Technical Elective	(-)3
XXX	xxx	Free Elective	(-)3

[a] Students who are unable to achieve the minimum required passing grade in the Mathematics Proficiency Exam are required to take MAT 100 before MAT 119

[b] International students will take TUR 201 and TUR 202, which may be taken in the first year by the consent of the advisor.

[c] International students will take HST 205 and HST 206 instead of HST 201 and HST 202

[d] Students are expected to complete their summer training prior to registering MECH 300 and MECH 400

ELECTIVE COURSES

Some courses that may be offered as electives are:

- MECH 401 Internal Combustion Engines
- MECH 402 Fluid Machinery
- MECH 403 Heating, Ventilating, Air Conditioning and Refrigeration
- MECH 405 Energy Conversion Systems
- MECH 408 Hoisting and Conveying Machinery
- MECH 411 Gas Dynamics
- MECH 413 Introduction to Finite Element Analysis
- MECH 414 System Dynamics
- MECH 415 Utilization of Geothermal Energy
- MECH 416 Tool Design
- MECH 418 Dynamics of Machinery
- MECH 421 Steam Generator and Heat Exchanger Design
- MECH 422 Heating, Ventilating, Air Conditioning and Refrigeration Sys. Design
- MECH 423 Gas Turbines and Jet Propulsion
- MECH 401 Internal Combustion Engine Design
- MECH 427 Introduction to Nuclear Engineering
- MECH 428 Nuclear Reactor Engineering
- MECH 429 Mechanical Vibrations
- MECH 431 Kinematic Synthesis of Mechanisms
- MECH 482 Acoustics and Noise Control Engineering
- MECH 433 Engineering Metrology and Quality Control
- MECH 434 Advanced Strength of Materials
- MECH 437 Pipeline Engineering
- MECH 438 Theory of Combustion
- MECH 440 Numerically Controlled Machine Tools
- MECH 442 Design of Control Systems
- MECH 444 Reliability in Engineering Design
- MECH 445 Integrated Manufacturing Systems
- MECH 450 Non-destructive Testing Methods
- MECH 451 Introduction to Composite Structures
- MECH 453 Metal Forming Technology
- MECH 455 Manufacturing of Polymeric Structures
- MECH 461 Mechatronic Components and Instrumentation
- MECH 462 Mechatronic Design
- MECH 466 Performance of Road Vehicles
- MECH 471 Production Plant Design
- MECH 476 Second Law Analysis of Engineering Systems
- MECH 478 Introduction to Solar Energy Utilization
- MECH 483 Experimental Techniques in Fluid Mechanics
- MECH 490 Special Topics in Mechanical Engineering

DESCRIPTION OF COURSES

MECH 100 Introduction to Mechanical Engineering (1-1)NC
Introduction to mechanical engineering. Demonstrations in Mechanical Engineering department laboratories. Practical work in the machine shop. Workshop safety. Lectures on ethics. Technical trips to various industrial sites.

MECH 113 Computer Aided Engineering Drawing I (2-2)3
Introduction to computer aided drawing. Geometrical constructions. Orthographic drawing and sketching. Three dimensional drawings. Dimensioning principles. Sectioning and conventions.

MECH 114 Computer Aided Engineering Drawing II (2-2)3
Working drawings, assembly drawings. Screw threads, threaded fasteners. Keys, springs, locking devices, rivets, welding, piping layouts. Gears and cams. Dimensioning and tolerances. Introduction to descriptive geometry, points, lines, planes. Piercing points, dihedral angle. Angle between line and plane. Parallelism, perpendicularly. Intersections. Developments.
Prerequisite: MECH113.

MECH 202 Manufacturing Technologies (3-2)4
Introduction. Casting. Powder metallurgy. Metal working; hot working and cold working processes. Chip removal processes. Non-traditional machining processes. Welding. Manufacturing systems and automation. Machine shop practices.

MECH 203 Thermodynamics (4-0)4
Basic concepts and definitions. Properties of a pure substance. Equations of state. Work and heat. First laws of thermodynamics. Internal energy and enthalpy. Second law of thermo-dynamics. Availability. Power and refrigeration cycles. Gas and vapor mixtures. Thermodynamic relations.

MECH 205 Statics (3-0)3
Idealizations and principles of mechanics. Important vector quantities, classification and equivalence of force systems. State of equilibrium. Elements of structures; trusses, beams, cables and chains. Friction. Elements of statics of fluids. Variational methods.

MECH 206 Strength of Materials (4-0)4
Concept of stress: normal, bearing and shear stresses. Stress and strain in simple loadings: axial loading, pure torsion and bending. Thermal stresses. Deflection of beams. Statically indeterminate members. Combined loadings: Combined stresses, Mohr's circle. Columns. Curved beams. Pressurized thin and thick walled cylinders. Contact stresses. Strain Energy and Castigliano's theorem. Stress concentration. Static design criteria. Fatigue design criteria.
Prerequisite: MECH205.

MECH 208 Dynamics (3-0)3
Kinematics and kinetics of particles and system of particles. Plane kinematics and kinetics of rigid bodies. Newton's second law of motion. Methods of work-energy and impulse-momentum.
Prerequisite: MECH205.

MECH 220 Mech. Engineering Lab. I (1-2)2
Laboratory work and its guidelines. Laboratory safety issues. Laboratory notebook keeping, report writing. Basic concepts in measurements, experiment planning, calibration, standards, experimental error and its analysis, uncertainty analysis. Data acquisition and processing. Analysis of experimental data. Displacement and area measurements. Pressure measurement. Flow measurement. Temperature measurement. Force, torque and strain measurements. The concepts of teamwork and leadership.

MECH 227 Engineering Materials (3-0)3
Structure of engineering materials. Bonding, crystals, grains, imperfections. Mechanical properties. Tensile testing, impact testing, hardness. Plastic deformation, strain hardening, solution hardening, grain size effect, recrystallization. Failure of materials, fracture, fatigue, creep. Phase and phase diagrams. Fe-C phase diagram. Steels. Heat treatment of steels. Alloy steels. Cast iron. Non-ferrous alloys. Ceramics. Polymers. Composites. Some laboratory experiments will be carried out.

MECH 300 Summer Practice I NC
Students are required to do a minimum of four weeks (twenty working days) summer practice at the shop floor of a suitable factory. The students are expected to practice on manufacturing processes such as machining, foundry work, metal forming, welding,

non-traditional machining, heat treatment, finishing, etc. A report is to be submitted to reflect the work carried out personally by the student.

MECH 301 Theory of Machines (4-0)4
Basic concepts, mobility, basic types of mechanisms. Position, velocity and acceleration analysis of linkages. Gear trains. Static and dynamic force analysis of mechanisms. Virtual work method. Modeling and elements of vibratory systems. Free and forced vibrations of single degree-of-freedom systems.
Prerequisite: MECH208.

MECH 303 Manufacturing Engineering (3-0)3
Introduction. Strain hardening properties of metals. Theory of metal forming; formability, bulk deformation processes, sheet metal forming processes. Theory of metal cutting; cutting forces and energy requirement, tool life, machinability, tool materials, cutting fluids, surface quality, machining economics.
Prerequisites: MECH 202 and MECH 206

MECH 304 Control Systems (3-0)3
Introduction and basic concepts. Modeling physical systems. Control system components. Transient response. Stability. Steady state response and error. Sensitivity. Basic control actions and controllers. Frequency response. Some laboratory experiments will be carried out.
Prerequisites: MECH 208 and MAT219.

MECH 305 Fluid Mechanics (4-0)4
Introduction. Fluid statics. Kinematics of fluid flow. Integral formulation of basic equations. Bernoulli equation. Similarity. Viscous flow. Introduction to Compressible fluid flow.

MECH 307 Mechanical Engineering Design (4-0)4
Tolerances and allowances. Design of shafts. Design of permanent joints. Design of detachable joints. Design of springs. Friction, wear and lubrication. Design of sliding bearings. Antifriction bearings; types, selection criteria and calculation procedure. Power transmission. Design of gear drives; types, kinematics, spur gears, helical gears. Design of couplings, clutches and brakes. Design of belt drives; flat belts, V-belts. Design of chain drives and rope drives.
Prerequisite: MECH206.

MECH 311 Heat Transfer (4-0)4
1-D and 2-D steady heat conduction, extended surfaces. 1-D transient conduction. Dimensionless parameters, Reynolds analogy. External flow, empirical correlations. Internal flow correlations. Free convection. Forced convection. Heat exchangers. Radiative heat transfer.
Prerequisite: MECH 203

MECH 320 Mech. Engineering Lab. II (1-2)2
Review of laboratory safety issues. Statistical analysis of experimental data. Probability distribution, normal and Gaussian distribution. Chi-square test. Method of least squares. Regression analysis. Graphical analysis and curve fitting. Laboratory notebook keeping and report writing. Experimentation, data collection and treatment within the subjects of thermodynamics, fluid mechanics, heat transfer, vibrations and control. Written and oral presentation.
Prerequisite: MECH220.

MECH 400 Summer Practice II NC
Students are required to do a minimum of four weeks (twenty working days) summer practice in a suitable factory, a power station, or an engineering design and consultancy office. They are expected to get acquainted with a real business environment by studying various managerial and engineering practices through active participation. A report is to be submitted to reflect the students' contributions.

MECH 401 Internal Combustion Engines (3-0)3
Thermodynamic cycle analysis of gas exchange, compression, expansion and combustion processes with dissociation. Mechanism of combustion. Fuel and additive characteristics. Real cycles. Performance characteristics. Brief analysis of the fuel metering and ignition systems, exhaust emissions and control systems, heat transfer, friction and lubrication systems.
Prerequisite: MECH203.

MECH 403 Heating, Ventilation, Air Cond. and Refrigeration (3-0)3
Psychrometrics and elementary psychrometric processes. Simultaneous heat and mass transfer in external flows. Direct contact transfer devices. Heating and cooling coils-compact heat exchangers. Thermal comfort. Warm water heating systems. Cooling load calculations. Vapor compression refrigiration cycles.

MECH 405 Energy Conversion Systems (3-0)3
Energy demand and available resources in the world and in Turkey. Renewable sources: wind, wave, tide, geothermal, biogas and solar energy. Fossil fuels, combustion and combustion equipment. Steam generators. Atomic structure, nuclear reactions; decay, fusion and fission. Reactors. Environmental effects.
Prerequisite: MECH 203.

MECH 408 Hoisting and Conveying Machinery (3-0)3
Introduction to material handling. Bulk and unit load concepts. Cranes: overhead traveling cranes; FEM rules, calculation method for bridge girders and carriages, drive and hoist mechanisms and related equipment; jib cranes; gantry cranes. Feeders and conveyors, roller conveyor, pneumatic conveyors, vibrating conveyors, screw conveyor.
Prerequisite: MECH 307

MECH 413 Introduction to Finite Element Analysis (3-0)3
Review of basic laws of continuum. Variational and weighted residual methods. Element type. Interpolation function. Boundary conditions. Transformation and assembly of element matrices. Solution methods and accuracy. Examples from solid mechanics, heat transfer and fluid mechanics.
Prerequisite: MAT 210

MECH 418 Dynamics of Machinery (3-0)3
Kinematic influence coefficients. Equation of motion and dynamic response of single degree-of-freedom machines: analytical and numerical solution methods. Shaking forces and moments. Balancing of a four-bar linkage. Dynamically equivalent mass systems. Analysis of unbalance in multi-cylinder engines. Kinetostatics: effects of dry friction, power flow in simple and planetary gear trains. Jump phenomenon in rigid cam-follower systems.
Prerequisite: MECH 301.

MECH 420 Mech. Engineering Lab. III (0-4)2
Experiments on a number of engineering systems. Preferably interdisciplinary team work. Report writing. Written and oral presentation.
Prerequisite: MECH320.

MECH 422 Heating, Ventilating, Air Cond. & Refrig. Sys. Design (3-0)3
District heating systems-steam and hot water. Psychrometric analysis of summer air conditioning systems. Air cleaning and filtering. Analysis and design of a year-round air conditioning unit. Ducting and air distribution. Refrigeration equipment in HVAC & R systems. Control equipment and systems in HVAC & R applications.
Prerequisite: MECH403.

MECH 433 Engineering Metrology & Quality Control (3-0)3
Analysis of errors. Calibration. Linear, angular measurement. Geometric tolerances and their measurement. Measurement of surface roughness. Measurements of threads and gears. Testing of machine tools. Gage design. Quality assurance systems: ISO 9000 series of standards. Acceptance sampling. Design of sampling plans and control charts. Process capability analysis.

MECH 451 Introduction to Composite Structures (3-0)3
Composite materials and their structural properties. Composite systems. Principles of manufacturing. Structural mechanics of laminated composites. Generalized Hooke's law. Classical lamination theory. Plane stress problems. Engineering applications. Design principles. Failure criteria and damage tolerance.
Prerequisite: MECH 206.

MECH 453 Metal Forming Technology (3-0)3
Classification of forming processes. Bulk and sheet metal forming processes. Working spaces of various processes. Product spectrum and properties, materials suitable for forming processes. Forming force and forming work computations. Design of forming tools: punches and dies, tool materials. Forming sequences. Process procedures: heat treatments, raw material preparation, lubrication, environmental issues. Principles of forming machines: hammers, mechanical presses and hydraulic presses, selection of forming machines. Economical aspects. *Prerequisite: MECH303.*

MECH 458 Graduation Design Project (0-6)3
This course acquaints students with all the phases of the design process through a term project with a final report and oral presentation.

MECH 466 Performance of Road Vehicles (3-0)3
Vehicle performance: engine characteristics, resistances to motion, maximum speed, acceleration performance, gradability. Calculation of fuel consumption. Power train: clutch, gearbox, gear ratios, propeller shaft, universal and constant velocity joints, differential, differential ratio, drive shafts. Brakes: basic requirements, directional stability, weight transfer, brake force distribution.
Prerequisite: MECH 208.

MECH 468 Microfluidics (3-0)3
Basic concepts in microfluidics and lab-on-a-chip technology, electrokinetic transport of fluids and particles inside microchannels and its application to microfluidics systems, fabrication techniques for microfluidic devices, fluid flow and heat transfer modeling at microscale, convective heat transfer in microchannels.

MECH 471 Production Plant Design (3-0)3
Fundamentals and design of production systems. Group technology, FMS and CIM. Market survey and plant location analysis. Types of plant layout. Process analysis. Quantity and quality planning and controlling for production. Machine selection. Materials handling. Storages. Safety rules and regulations. Computer applications. Evaluation of design alternatives. A complete design of a production plant as a guided term paper.
Prerequisite: MECH 303

MECH 478 Introduction to Solar Energy Utilization (3-0)3
Nature of solar radiation. Calculation and measurement of insolation on horizontal and tilted planes. Transmission of solar radiation through glass and plastics. Flat-plate collector theory and performance of concentrating type collectors. Heat storage, use of solar energy for power production. Miscellaneous uses such as distillation, cooking, cooling. Laboratory practice on solar radiation.

MECH 485 Computational Fluid Dynamics Using Finite Vol. Method (3-0)3
Conservation laws and boundary conditions, finite volume method for diffusion problems, finite volume method for convection-diffusion problems, solution algorithms for pressure-velocity coupling in steady flows, solution of discretization equations, finite volume method for unsteady flows, implementation of boundary conditions.

MECH 490-498 Special Topics in Mechanical Engineering (3-0)3
These course numbers will be used for technical elective courses which are not listed regularly in the catalog. The course contents will be announced before the semester commences.

NORTHERN CYPRUS CAMPUS

PETROLEUM AND NATURAL GAS ENGINEERING PROGRAM

GENERAL INFORMATION: Petroleum and Natural Gas Engineering Program provides education to help students gain knowledge about the fundamentals of petroleum and natural gas engineering, find solutions for national, international, social and environmental issues related to the petroleum industry, other aspects of the engineering of underground fluid resources (drilling, production, reservoir engineering and geothermal energy). It is aimed that, in addition to technical ability, graduates adapt principles of lifetime learning, environmental responsibility and ethical awareness, and that they have sufficient knowledge about the health and safety of employees. Summer practices give students the opportunity to establish the link between theoretical knowledge and practical applications, as well as the recognition of work conditions.
The main content of Petroleum and Natural Gas Engineering education can be summarized as follows:

- Fundamental and natural sciences, engineering topics,
- The physical and chemical properties of petroleum and natural gas,
- The rock properties of petroleum and natural gas,
- The drilling and production of petroleum and natural gas,
- The economical and effective management of petroleum and natural gas reserves

CAREER OPPORTUNITIES: Petroleum and Natural Gas Engineering graduates will have acquired the necessary education to work in the domains of exploration, drilling, production, transportation, storage and management of petroleum, natural gas and geothermal energy. These graduates work in national and international petroleum, natural gas, geothermal energy and pipeline transportation companies.

UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester

MAT	119[a]	Calculus with Analytic Geometry	(4-2)5
PHY	105	General Physics I	(3-2)4
CHM	111	General Chemistry I	(3-2)4
MECH	113	Computer Aided Engineering Drawing I	(2-2)3
ENGL	101	Development of Reading and Writing Skills I	(4-0)4
CNG	100	Introduction to Information Technologies and Applications	(2-0)NC
GPC	100	First Year on Campus Seminar	(0-2)1

Second Semester

MAT	120	Calculus for Functions of Several Variables	(4-2)5
PHY	106	General Physics II	(3-2)4
CHM	112	General Chemistry II	(3-2)4
ENGL	102	Development of Reading and Writing Skills II	(4-0)4
PNGE	110	Intro. to Petroleum Eng.	(2-0)2
CNG	230	Int. to C Programming	(2-2)3

SECOND YEAR

Third Semester

MAT	219	Int. to Differential Equations	(4-0)4
ECO	280	Engineering Economy	(3-0)3
CHME	204	Thermodynamics I	(3-0)3
		--- one of the following ---	
MECH	205	Statics	(3-0)3
CVE	221	Engineering Mechanics I	(3-0)3

PNGE	201	General Geology	(3-2)4
PNGE	220	Reservoir Rock Properties	(2-2)3
HST	201[c]	Principles of Kemal Atatürk I	(2-0)NC

Fourth Semester

PNGE	202	Petroleum Geology	(2-2)3
PNGE	211	Int. to Fluid Mechanics	(3-2)4
PNGE	218	Reservoir Fluid Properties	(2-2)3
		--- one of the following ---	
CVE	224	Mechanics of Materials	(3-0)3
ESC	224	Mechanics of Materials	(3-0)3

MAT	210	Applied Math. for Engineers	(4-0)4
HST	202 [c]	Principles Kemal Atatürk II	(2-0)NC

THIRD YEAR

Fifth Semester

ENGL	211	Academic Oral Presentation Skills	(3-0)3
PNGE	301	Petroleum Geology	(2-2)3
PNGE	321	Drilling Engineering I	(3-2)4
PNGE	331	Petroleum Production Eng. I	(3-0)3
PNGE	343	Petroleum Reservoir Eng. I	(3-0)3
TUR	101[b]	Turkish I	(2-0)NC
XXX	xxx	Non-Technical Elec.	(-)3
PNGE	300[c]	Summer Practice I	NC

Sixth Semester

ECO	210	Principles of Economics	(3-0)3
CVE	303	Prob.and Stat. for Civil Eng.	(3-0)3
PNGE	322	Drilling Engineering II	(3-0)3
PNGE	332	Petroleum Production Eng. II	(3-0)3
PNGE	344	Petroleum Reservoir Eng. II	(3-0)3
PNGE	352	Well Logging	(3-0)3
XXX	xxx	Non-Technical Elective	(-)3
TUR	102[b]	Turkish II	(2-0)NC

FOURTH YEAR

Seventh Semester

PNGE	417	Petroleum Eng. Design I	(2-0)2
PNGE	411	Petroleum Prop. Valuation	(3-0)3
PNGE	461	Natural Gas Engineering	(3-0)3
PNGE	xxx	Technical Elective	(-)3
PNGE	xxx	Technical Elective	(-)3
PNGE	400[c]	Summer Practice II	NC
XXX	xxx	Technical Elective	(-)3

Eighth Semester

PNGE	418	Petroleum Eng. Design II	(1-4)3
PNGE	xxx	Technical Elective	(-)3
PNGE	xxx	Technical Elective	(-)3
XXX	xxx	Free Elective	(-)3
ENGL	311	Advan. Communic. Skills	(3-0)3

[a] Students who are unable to achieve the minimum required passing grade in the Mathematics Proficiency Exam are required to take MAT 100 before MAT 119

[b] International students will take TUR 201 and TUR 202, which may be taken in the first year by the consent of the advisor.

[c] International students will take HST 205 and HST 206 instead of HST 201 and HST 202

[d] Students are expected to complete their summer training prior to registering PNGE 300 and PNGE 400

ELECTIVE COURSES

PNGE	414	International Petroleum Economics and Politics
PNGE	422	Pressure Control
PNGE	424	Special Operations in Drilling

PNGE 426 Drilling Fluid Engineering
PNGE 432 Production Optimization by Nodal System Analysis
PNGE 434 Well Stimulation
PNGE 436 Reservoir Characterization
PNGE 440 Well Test Analysis
PNGE 443 Enhanced Oil Recovery Methods
PNGE 444 Mathematical Modelling of Hydrocarbon Reservoirs
PNGE 445 Transport Phenomena in Geosystems
PNGE 446 Thermal Recovery Methods
PNGE 448 Miscible EOR Processes
PNGE 450 Introduction to Geothermal Reservoir Engineering
PNGE 460 Natural Gas Technology
PNGE 462 Underground Gas Storage
PNGE 490 Petroleum Engineering Research
PNGE 491-498Special Topics in Petroleum Engineering

DESCRIPTION OF COURSES

PNGE 110 Introduction to Petroleum Engineering (2-0)2
A course designed to acquaint the students with the basic concepts of petroleum industries. Historical background, sources, world supply and demand, chemical and physical properties of petroleum. Introduction to petroleum exploration, reservoir types and engineering concepts, production methods, refining and transportation of natural hydrocarbons.

PNGE 201 General Geology (3-2)4
Structure of the Earth. Elements, minerals, and rocks of the Earth's crust. Igneous and metamorphic processes. Weathering. Sedimentary processes. Geological external processes. Rock formation. Earth's dynamic processes and rock deformation. Map studies. (For Petroleum Engineering students only).

PNGE 211 Introduction to Fluid Mechanics (3-2)4
Definitions and fluid properties. Fluid statics. Fluid-flow phenomena. The Bernoulli equation. Laminar and turbulent pipe flows. Transportation and metering of fluids.

PNGE 218 Reservoir Fluid Properties (2-2)3
Properties of fluids encountered in petroleum engineering. Phase behavior, density, viscosity, interfacial tension, and composition of oil, gas, and brine systems. PVT relationships of hydocarbon gas and liquid systems. Thermodynamic behavior of naturally occurring hydrocarbon mixtures; evaluation and correlation of physical properties of petroleum reservoir fluids, including laboratory and empirical methods. Interpreting lab data for engineering applications. Flash calculations.

PNGE 220 Reservoir Rock Properties (2-2)3
Petrophysical properties of reservoir rocks and measurement procedures: Coring and core handling; sandstone and carbonate reservoir rock and pore types; fundamental porosity, grain density, permeability and saturation properties; special core analysis such as mechanical, acoustic and electrical properties; multiphase rock and fluid interactions, interfacial tension, capillary pressure, wettability and relative permeability properties.

PNGE 300 Summer Practice I NC
A minimum of four weeks (20 working days) of Summer Practice is obligatory to fulfill the requirements for the B.Sc. degree. The first practice is preferred to be in drilling operations after the second year. The training is based on the content of the summer practice manual.

PNGE 301 Petroleum Geology (2-2)3
Physical and chemical properties of oil and gas; generation and accumulation of oil; traps; Regional distribution of oil; reservoir mechanics; subsurface exploration techniques. Geodynamic evolution of the major tectonic units.

PNGE 321 Drilling Engineering I (3-2)4
Drilling machinery: hole and equipment. Drilling fluids and hydraulics. Cementing and hydraulics. Drill off tests (bit performances). Pressure control.
Prerequisite: CVE224and PNGE211.

PNGE 322 Drilling Engineering II (3-0)3

Directional drilling (Tangential, ROC and Minimum Curvature Methods). Drill string design (neutral point of tension and compression, neutral point of bending, Lubinski's stresses, margin of over pull). Casing design (biaxial, triaxial). Casing setting (buckling and well head loads).
Prerequisite: PNGE321.

PNGE 331 Petroleum Production Engineering I (3-0)3
Drill stem testing, well completion methods, completion fluids and sand control. Perforating, well head equipment and flow control devices, production packers, oil and gas separators. Flowing well performance, sucker rod pumping, submersible electrical centrifugal pumping, well stimulation techniques; acidizing, hydraulic fracturing.

PNGE 332 Petroleum Production Engineering II (3-0)3
Methods of artificial lift. Selection of and artificial-lift method. Preparation of tubing intake curves for artificial lift systems. Design of electric submersible, hydraulic, jet, beam and screw pumps. Pumping methods for unloading of gas wells.
Prerequisite: PNGE331.

PNGE 343 Petroleum Reservoir Engineering I (3-0)3
Estimation of hydrocarbon pore volume and recovery factor. Classification of oil reservoirs. Reservoir performance prediction for solution gas drive, water drive, gas-cap drive, drainage and combination drive reservoirs using material balance approach. Water influx theory. Water and gas coning in oil producing formations. Characterization of fractured reservoirs. Decline Curve Analysis.
Prerequisite: PNGE216and MAT219.

PNGE 344 Petroleum Reservoir Engineering II (3-0)3
Steady and unsteady state single phase flow equations through porous media, steady and unsteady superposition. Multiphase flow through porous media. Reservoir characterization in homogeneous and heterogeneous reservoirs by pressure and tracer testing.
Prerequisite: PNGE343.

PNGE 352 Well Logging (3-0)3
Principles and operation of gamma ray, self potential, caliper, resistivity (micro and focused), density neutron, sonic, cement bond and variable density, dipmeter and production well logging tools. Interpretation of well log and their crossplotting techniques. Determination of formation properties such as porosity, hydrocarbon saturation, lithology, zone thickness, shaliness, etc. Guidelines to select proper logs in given field conditions.
Prerequisite: PNGE216.

PNGE 400 Summer Practice II NC
A minimum of four weeks (20 working days) of summer practice is obligatory to fulfill the requirements for the B.S. degree. The second practice is for production and/or reservoir engineering after the third year of undergraduate education. The training is based on the content of the summer practice manual.

PNGE 411 Petroleum Property Valuation (3-0)3
Estimation of reserves. Optimization of production rate. Maximizing the oil recovery within economic limits. Investment required for exploration and development of oil gas fields. Investment required for improved recovery processes. Operating cost. Taxes, prices and depreciation. Profit analysis.

PNGE 414 International Petroleum Economics and Politics (3-0)3
Review of petroleum industry from l859 when it was discovered by Drake in Pennsylvania, USA, up to and including early 1980's when the world economic structure survived the "second oil price shock." Role of oil in international economics and politics, its vital importance in the Middle East and North Africa for the Western and Eastern economical and political systems. Economical and political results of developments. A brief survey of the structure of oil market.

PNGE 417 Petroleum Engineering Design I (2-0)2
Development and use of design methodology, formulation of design problem statements and specifications, consideration of alternate solutions, feasibility considerations. Development of student creativity by using open ended problems. Project engineering and management of engineering projects. Case studies in Petroleum Engineering. A term project is assigned to each student in which proper engineering design approach is the prime requirement.
Prerequisite: At least three of the following four courses:PNGE322,PNGE331, PNGE343, PNGE352

PNGE 418 Petroleum Engineering Design II (1-4)3
Continuation of PNGE 417.
Prerequisite: PNGE417.

PNGE 422 Pressure Control (3-0)3
Origin and detection of abnormal formation pressures. Principles of pressure control: behavior of

gas in drilling fluids, mechanics of bubble rise. Pressure control methods: driller, engineer, concurement and low choke pressure methods. Prediction methods for fracture pressure gradient. Drilling and completion concepts in overpressured formations. Pressure control equipments. Special problems.

PNGE 424 Special Operations in Drilling (3-0)3
Coring; core barrel types. Fishing; differential sticking, freepoint detection, string-shot back-off taps and die collars, spears and overshots, washover pipe, cutters. Measurement while drilling.

PNGE 426 Drilling Fluid Engineering (3-0)3
Clay mineralogy and colloid chemistry of muds. Rheology and filtration properties of drilling fluids. Annual performance calculations. Composition of water base muds. Inhibitive and low solid muds. Theory of emulsion and foam. Composition of oil base and pneumatic drilling fluids. Solids control. Hole stability. Problems related to drilling fluids. Differential sticking, lost circulation and corrosion.

PNGE 432 Production Optimization by Nodal System Analysis (3-0)3
Solution procedure for oil wells and injection wells. Nodal analysis as applied to gas wells, gravel-packed oil and gas wells and a standard perforated well. Special pipeline problems. Production optimization for a complete ocean-floor optimization. Applying production optimization to a complete field integrated oil-production system.

PNGE 434 Well Stimulation (3-0)3
Acidizing: carbonate and sandstone acidizing. Diverting agents: history and application. Fracturing; principles of hydraulic fracturing, planning a fracturing treatment (data gathering), fluid design, perforation design, breakdown design, design of a fracturing treatment, post-job evaluation. Re-fracturing. Fracture acidizing.

PNGE 436 Reservoir Characterization (3-0)3
Definition of petroleum reservoir heterogeneity using conventional methods and possible improvements to these methods. Review of basic statistical concepts and methods. Reservoir Rock and Fluid Property Evaluation by Statistical Methods. Scale-up and Simulator Data Preparation. Emerging Methods in Petroleum Reservoir Characterization. Case studies from oil industry.

PNGE 440 Well Test Analysis (3-0)3
Analytical solution to diffusivity equation and basis for pressure transient test analysis. Skin and wellbore storage concepts. Pressure buildup and flow tests. Estimating average drainage area pressure. Type curves as diagnostic tools and as an analysis technique. Analysis of well tests in hydraulically fractured wells. Well test behavior in naturally fractured reservoirs. Multiple well testing, interference and pulse tests. Well test design.

PNGE 443 Enhanced Oil Recovery Methods (3-0)3
Immiscible fluid displacement mechanisms. The fractional flow formula. The rate of advance formula. Stabilized zone concept. Mechanisms and performance calculations of waterflooding and immiscible gas injection. Improved waterflooding methods. Miscible injection methods. Thermal methods: Hot water, steam and in-situ combustion. Field design parameters.

PNGE 444 Mathematical Modeling of Hydrocarbon Reservoirs (3-0)3
Basic principles of mathematical modeling. Finite difference/finite element form of equations that govern single and multiphase flow through porous media. Characteristics of finite difference/finite element equations. Solution strategy techniques of originating matrix problems. Data evaluation in simulation problems. Case studies.

PNGE 445 Transport Phenomena in Geosystems (3-0)3
Applications of mass, heat and momentum balances to fluid flow problems. Shell balances. Non-Newtonian fluids. Transport processes in porous media.

PNGE 446 Thermal Recovery Methods (3-0)3
Fluid flow and heat transport through porous media. Definition of thermal EOR methods. Hot water injection, steam injection, steam override, steam additives, case histories. Insitu combustion, wet combustion, superwet combustion. Combustion reaction in porous media. Case histories.

PNGE 448 Miscible EOR Processes (3-0)3
Definition of miscibility in hydrocarbon reservoirs. Phase behavior and miscibility, ternary diagrams, methods of determining miscibility conditions. Condensing gas drive, vaporizing gas drive processes. Design considerations and predictive methods.

PNGE 450 Introduction to Geothermal Reservoir Engineering (3-0)3

Classification of geothermal reservoirs, distribution and characteristics of geothermal resources. Physical aspects of hydrothermal systems. Assessment of geothermal resources. Well completion and warm-up, measurements during drilling; temperature log, the completion tests, pressure log. Flow testing. Well performance.

PNGE 460 Natural Gas Technology (3-0)3
The origin and characteristics of natural gas. The purification and liquefaction of natural gas. Natural gas transmission and distribution.

PNGE 461 Natural Gas Engineering (3-0)3
Properties of natural gases, hydrate formation. Estimation of gas reserves. Gas well testing. Estimation of gas deliverability. Gas flow measurement. Natural gas deliverability. Natural gas transmission, design of gathering systems. Field treating and processing of natural gas. Compressor horsepower requirement

PNGE 462 Underground Gas Storage (3-0)3
Aspects of energy related to gas storage, degree day concept, base load, peak load. Properties of gas storage reservoirs, aquifer storage, salt cavern storage. Design, development and operation of storage fields.

PNGE 490 Petroleum Engineering Research (1-2)2
Fundamentals of problem solving and decision making. Research experience, report writing and presentation techniques through a team project.

PNGE 491-498 Special Topics in Petroleum Engineering (3-0)3
These code numbers will be for technical elective courses which are not listed regularly in the catalog. The course contents will be announced before the semester commences.

DESCRIPTION OF SERVICE COURSES

ARCHITECTURE

ARC 344 Environment and Man: Cause and Effect (3-0)3
How Environment and Man relate. Basic phenomena of their domains. Conditions of their co-existance: interrelationships and interactions. Concepts and manifestations of `shelter`. The continuum of time and space. Needs, activities, and responses. Activity locations and boundaries. Attributes of Man: Anthropometrics and ergonometrics. Space and the built environment: Definitions and attributes. Environmental information for Man`s continued survival.

BIOLOGY

BIOL 106 General Biology (3-0)3
The course aims to provide knowledge in essential concepts of Biology such as the structure and function of cells with emphasis on eukaryotic systems, metabolism, genetics, ecology and evolution. A condensed (one semester) course for non-biology students.

CHEMISTRY

CHM 107 General Chemistry (3-2)4
Introduction to atomic and electronic structure, chemical bonding, molecular structure and bonding theories, properties of liquids, solids and solutions, chemical equilibrium, kinetics, thermodynamics, metal complexes, organic compounds and nuclear chemistry.

CHM 111 General Chemistry I (3-2)4
A basic course emphasizing the metric system, introduction to stoichiometry, the structural and physical properties of matter, i.e., electronic structure of atoms, chemical binding, molecular geometry, hybridization and molecular orbitals.

CHM 112 General Chemistry II (3-2)4
Discussion of physical properties of solutions in aqueous solution, chemical kinetics, chemical equilibrium, chemical thermodynamics and electrochemistry.
Prerequisite: CHM 111

CHM 230 Analytic Chemistry for Engineers (3-2)4
Fundamentals and theories of analytical chemistry. Data evaluation, errors. Theory and applications of volumetry. Molecular spectroscopy, electroanalytical chemistry, potentiometry and chromatography.
Prerequisite: CHM 112

CHM 237 Organic Chemistry I (3-2)4
Introduction to organic chemistry. A new mechanistic approach to the study of chemical reactions and survey of hydrocarbons, alcohols, esters, aldehydes, ketones, carboxylic acids (and their derivatives), amines. The course emphasizes the fundamental properties of organic compounds.
Prerequisite: CHM 112

CHM 238 Organic Chemistry II (3-0)3
Continuation of CHM-237.
Prerequisite: CHM 237.

CHM 351 Physical Chemistry (3-2)4
This course covers an extensive application of physicochemical topics such as kinetics of elementary and complex reactions, molecular reaction dynamics, electrochemical systems and problems related to the topics.
Prerequisite: CHME 204, CHM 112

MATHEMATICS

MAT 100 Precalculus (1-2)2
MAT 100 is a preparatory course for calculus courses. Topics include: Functions and their inverses, operations with functions and graphing techniques, polynomial functions, rational functions, exponential and logarithmic functions, trigonometric functions, trigonometric identities and trigonometric equations, inequalities and solving techniques.

MAT 119 Calculus with Analytic Geometry (4-2)5
Functions, limits, continuity and derivatives. Applications. Extreme values, the Mean value Theorem and its applications. Graphing. The definite integral. Area and volume as integrals. The indefinite integral. Transcendental functions and their derivatives. L`Hopital`s rule. Techniques of integration. Improper integrals. Applications.
Prerequisite: MAT 100.

MAT 120 Calculus for Functions of Several Variables (4-2)5
Sequences, infinite series, power series, Taylor series. Vectors, lines and planes in space. Functions of several variables: Limit, continuity, partial derivatives, the chain rule, directional derivatives, tangent plane approximation and differentials extreme values, Lagrange multipliers. Double integrals with applications. The line integral.

Prerequisite: MAT119.

MAT 210 Applied Mathematics for Engineers (4-0)4
Introduction. Vector differential and integral calculus. Matrices. Determinant. Systems of linear equations. Characteristic values and characteristic vectors of matrices. Introduction to numerical methods.
Prerequisite: MAT120 .

MAT 219 Introduction to Differential Equations (4-0)4
First order equations and various applications. Higher order linear differential equations. Power series solutions. The Laplace Transform; solution of initial value problems. Systems of linear differential equations. Introduction to partial differential equations.
Prerequisites: MAT120.

MAT 260 Basic Linear Algebra (3-0)3
Matrices, determinants and systems of linear equations. Vector spaces, the Euclidian space, inner product spaces, linear transformations. Eigenvalues, diagonalization.

PHYSICS

PHY 105 General Physics I (3-2)4
Vectors; kinematics; particle dynamics work and energy; conservation of energy; system of particles; collisions; rotational motion; oscillations.

PHY 106 General Physics II (3-2)4
Electric charge; electric field; Gauss' law, electric potential; capacitance; current and resistance; circuits; magnetic field; Ampere's law; Faraday's law of induction; electro-magnetic oscillations; alternating currents.

STATISTICS

STAS 221 Statistics for Engineers I (3-0)3
Introduction to probability. Finite sample spaces. Conditional probability and independence. Discrete and continuous random variables. Random sample and statistics. Statistical inference, estimation and tests of hypotheses. Simple linear regression.
Prerequisite: MAT 120.

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NORTHERN CYPRUS CAMPUS
GRADUATE PROGRAMS

NORTHERN CYPRUS CAMPUS

M.S. PROGRAM IN POLITICAL SCIENCE AND INTERNATIONAL RELATIONS

The *Masters Program in Political Science and International Relations* provides an advanced and comprehensive understanding of the transformation of global politics and society. The challenges that these transformations pose both to individual states and to global society as a whole is at the heart of this master programme.

The Masters programme will enable students to address the big issues facing global decision-makers: from regional integration to democratic transformation; from the politics of intervention to the politics of reconciliation; from labour market regulation to migration management; from human security to military alliances; from the complexities of environmental degradation to the social consequences of inequality; from international law to human rights.

Those who work at the highest levels in business, government, or the non-governmental and 'third' sector, increasingly need to tackle these problems in a systematic and interdisciplinary manner, and the *Masters in Political Science and International Relations* programme offers students the opportunity to do so.

GRADUATE PROGRAM COMMITTEE

AYDIN Zülküf, Prof. Dr. **Coordinator***;* B.A., Ankara University; Ankara Yüksek Öğretmenlik Okulu Certificate; Ph.D., Durham University

KILINÇOĞLU Deniz Taner, Instr. Dr., *Economic;* B.S., M.S., METU; Ph.D., Princeton University

ÖZDEMİR Yonca, Assist. Prof. Dr., *Political Science and International Relations*; B.A., METU; M.A., University of Delaware; Ph.D., University of Pittsburgh

SÖZER Hande, Instr. Dr. *Political Science and International Relations;* B.S., METU; M.A., Boğaziçi University; Ph.D, University of Pittsburgh

REQUIRED COURSES:

PSIR	501	Social and Political Theory	(3-0)3
PSIR	503	International Relations in History and Theory	(3-0)3
PSIR	505	Research Methods for Social and Political Sciences	(3-0)3
PSIR	502	Comparative Political Development	(3-0)3
PSIR	504	Global Political Economy	(3-0)3
PSIR	506	International Human Rights in Conflict	(3-0)3
PSIR	508	Ethnic Conflict in the Eastern Mediterranean	(3-0)3
PSIR	590	Research Seminar	(0-2)NC
PSIR	500	M.S. Thesis	NC

DESCRIPTION OF GRADUATE COURSES

PSIR 501 Social and Political Theory (3-0)3

Students will form preferably interdisciplinary groups and will prepare a paper on a research or policy issue. Each group will be supervised by one or two instructors. In addition to the final report at the end of the semester, the group will be required to submit a minimum of 1 progress report halfway through the semester.

PSIR 502 Comparative Political Development (3-0)3

Students will form preferably interdisciplinary groups and will prepare a paper on a research or policy issue. Each group will be supervised by one or two instructors. In addition to the final report at the end of the semester, the group will be required to

submit a minimum of 1 progress report halfway through the semester.

PSIR 503 International Relations in History andTheory (3-0)3

Students will form preferably interdisciplinary groups and will prepare a paper on a research or policy issue. Each group will be supervised by one or two instructors. In addition to the final report at the end of the semester, the group will be required to submit a minimum of 1 progress report halfway through the semester.

PSIR 504 Global Political Economy (3-0)3

Students will form preferably interdisciplinary groups and will prepare a paper on a research or policy issue. Each group will be supervised by one or two instructors. In addition to the final report at the end of the semester, the group will be required to submit a minimum of 1 progress report halfway through the semester.

PSIR 505 Research Methods for Social and Political Sciences (3-0)3

Students will form preferably interdisciplinary groups and will prepare a paper on a research or policy issue. Each group will be supervised by one or two instructors. In addition to the final report at the end of the semester, the group will be required to submit a minimum of 1 progress report halfway through the semester.

PSIR 506 International Human Rights in Conflict (3-0)3

Students will form preferably interdisciplinary groups and will prepare a paper on a research or policy issue. Each group will be supervised by one or two instructors. In addition to the final report at the end of the semester, the group will be required to submit a minimum of 1 progress report halfway through the semester.

PSIR 508 Ethnic Conflict in the Eastern Mediterranean (3-0)3

Students will form preferably interdisciplinary groups and will prepare a paper on a research or policy issue. Each group will be supervised by one or two instructors. In addition to the final report at the end of the semester, the group will be required to submit a minimum of 1 progress report halfway through the semester.

NORTHERN CYPRUS CAMPUS

M.S. PROGRAM IN SUSTAINABLE ENVIRONMENT AND ENERGY SYSTEMS

There is no question that reinstating our world in a sustainable path will require new experts with fresh ideas, analytical approaches, interdisciplinary research and development skills, and intimate awareness of the "Vital Triad": Environment, Energy, and Water Resources. The *Masters Program in Sustainable Environment and Energy Systems* has been designed to educate and raise leaders to drive the generation of comprehensive interdisciplinary solutions to these fundamental problems, which cannot be effectively addressed through independent disciplinary approaches.

The mission of the program is to excel in state-of-the-art interdisciplinary research and education of sustainable environment and energy systems; to graduate scientists, managers, and leaders, who produce high quality designs and services for a sustainable environment using scientific data, and to advance social awareness and sensitivity in the area.

The program has the following specific goals:

- Focus research on scientific environmental audits, technology, system design, and policy development in critical interdisciplinary areas;
- Provide engineers, architects, policy makers, lawyers, business managers, with theoretical knowledge and practical skills required to be successful in delivering goods and services through sustainable means,
- Develop community awareness programs and centers through collaborations with local communities,
- Deliver high quality solutions to complex problems through interdisciplinary collaboration by conducting thesis research under interdisciplinary supervision.

GRADUATE PROGRAM COMMITTEE

MUHTAROĞLU Ali, Assoc. Prof. Dr., ***Coordinator***, *Electrical and Electronics Engineering*; B.S., University of Rochester; M.S., Cornell University; Ph.D., Oregon State University

AKINTUĞ Bertuğ, Assist. Prof. Dr.; B.S., M.S., Eastern Mediterranean University; Ph.D., University of Manitoba

ESAT Volkan, Assist. Prof. Dr., *Mechanical Engineering;* B.S., Gazi University; M.S., METU; Ph.D., Loughborough University

SAURIN Jochaim Julian, V. Assoc. Prof. Dr., B.A., Ph.D., University of Southampto

MANDRIK, Carter, Assist. Prof. Dr., Business Administration, B.S., M.B.A., Rensselaer Polytechnic Institute; Ph.D., Virginia Polytechnic Institute

OGUZ, Umut, Assoc. Prof. Dr., Chemistry, B.S., M.S., METU; Ph.D., Lousiana State University

Umut oğuz

REQUIRED COURSES:

Mandatory Courses:

SEES 501	Political Economy and Law in Sustainability	(3-0)3
SEES 502	Energy Systems and Sustainability	(3-0)3
SEES 503	Sustainable Water Resources	(3-0)3
SEES 591	Research Seminar I	NC
SEES 592	Research Seminar II	NC
SEES 500	M.S. Thesis	NC

ELECTIVE COURSES:

Four elective courses are to be taken from *Social Sciences* or *Natural and Applied Sciences and Engineering* categories; at least one elective being from the alternate category. Electives can be graduate courses from the METU Catalog, or newly designed interdisciplinary courses, such as:

SEES 505 Numerical Solutions of Ordinary Differential Equations (3-0)3
SEES 509 Energy Policy and Finance (3-0)3
SEES 510 Renewable Energy and Climate Change (3-0)3
SEES 572 Environmental Impact Assessment (3-0)3
SEES 593 Special Topics in Environment (3-0)3
SEES 594 Special Topics in Data Analysis (3-0)3

Typical thesis topics are targeted to produce solutions to contemporary problems, which are impossible to solve through traditional single-discipline approaches. As a graduate student enrolled in the SEES program, you will deliver high quality research in technology, product, service, and regulatory development, economic analyses, planning; social awareness building associated with one of the following focus areas:

- Environmentally friendly conventional and renewable energy production technologies
- Efficient energy distribution and use
- Waste management
- Water supplies
- Ecological assessment
- Sustainable production and construction
- Climate change

DESCRIPTION OF GRADUATE COURSES

SEES 501 Political Economy and Law in Sustainability (3-0)3

This course introduces the principal concepts and principles from political economy and law (especially international law) which have come to inform sustainability strategies and sustainable development. These concepts and principles have their origins across the natural and social sciences and include, but are not limited to, such notions as ecological crisis; metabolic rate; thermodynamics; discount rates; environmental Kuznets curve; market failure and market absence; transaction costs and public goods; tragedy of the commons; common property resources; moral hazard; socialization of risk; intergenerational equity; the precautionary principle; the polluter pays principle; liability; prior informed consent; and many others, as well as sustainability itself.

SEES 502 Energy Systems and Sustainability (3-0)3

Interdisciplinary exploration of environmental, scientific, economic, social, and political opportunities and impacts associated with energy systems. Main fuel technologies such as fossil, hydroelectric, nuclear, photovoltaic, wind, and biomass. The supply and use of energy systems with emphasis on sustainability. Qualitative and quantitative analysis of energy resources, combustion, conversion, distribution processes in terms of environmental, social, and economic impacts. Emerging portfolios of energy systems. Investigation of local and global options. A term paper on a topic outside thesis research area. A local field trip.

SEES 503 Sustainable Water Resources (3-0)3

Introduction to Hydrology: Hydrologic cycle, precipitation, evaporation, and stream flow; Extreme events: Floods and droughts; Water uses and quantities; Water characteristics and quality; Fresh water and sea water pollution; Groundwater use and contamination; Sewage and wastewater treatment and reuse; Effects of climate change on water resources; Hydroelectric power; Sustainable water resources development: Environmental, economic and social sectors.

SEES 505 Numerical Solution of Ordinary Differential Equations (3-0)3

Approximation of functions: function space, continuous and discrete least square approximations; spline functions; Fourier methods: complex Fourier series, discrete Fourier transform, Fourier integrals; numerical solutions of ordinary

differential equations in initial and boundary value problems: error propagation, control of step size.

SEES 509 Energy Policy and Finance (3-0)3
Energy markets, game theory and strategic interaction, imperfections and regulation. World energy markets as alternative investment areas, price movements, international trade and finance, macroeconomics impacts of energy price shocks. Renewable energy policy, evaluating energy projects and energy project financing policy appraisal.

SEES 510 Renewable Energy and Climate Change (3-0)3
Scientific data on global warming and climate change. Mitigation through renewable energy use. Conversion processes, materials and costs, planning and design, economics and ecology associated with: Photovoltaics, solar thermal systems, and wind. Socio-economic assessment of the energy supply systems, transmission and storage options. Technical and economic issues around integrating renewable energy to power systems. A term project on renewable energy on a topic outside the thesis research.

SEES 572 Environmental Impact Assessment (3-0)3
Historical evolution of EIA; techniques in surveys, auditing and footprinting, techniques in project cost-benefit analysis, assessing programmes and policies.

NORTHERN CYPRUS CAMPUS

M.A. PROGRAM IN ENGLISH LANGUAGE TEACHING

The MA Program in English Language Teaching aims to provide students with a firm foundation in the cultural, theoretical, and applied aspects of English Language Teaching. The program is designed around three major academic objectives: to foster cultural and contextual knowledge of English Language Teaching and English language learners; to instruct students in advanced English Language Teaching pedagogies and practices; and to improve interactive English language instruction across diverse instructional mediums. Graduates will develop their capabilities as adaptive and creative thinkers and be equipped with strong academic research skills and superior theoretical and practical knowledge of English Language Teaching.

This program addresses the intellectual and contextual needs of an English language teacher and researcher in contemporary societies. Current and future teachers of English will benefit from the program's focus on developing their theoretical and practical experience enabling them to enhance their career opportunities.

GRADUATE PROGRAM COMMITTEE

BOYD Scott, Assist. Prof. Dr., B.A., M.A., University of South Florida; Ph.D., Ohio University
ERKMEN Besime, Instr. Dr., *Teaching English as a Foreign Language;* B.A., Eastern Mediterranean University; M.A., University of Warwick; Ph.D., University of Nottingham
HATİPOĞLU Çiler, Assoc. Prof. Dr., *Teaching English as a Foreign Language;* B.A., M.A., Boğaziçi University; Ph.D., UWE, Bristol (*From METU-Ankara*)
ÖZBİLGİN GEZGİN Alev, Instr. Dr., *Teaching English as a Foreign Language*; B.A., Hacettepe University; M.A., Bilkent University; Ph.D., Indiana University of Pennsylvania
SELVİ Ali Fuad, Assist. Prof. Dr., ***Coordinator;*** B.A., M.A., METU; Ph.D., University of Maryland
WALTER Mary Ann, Assist. Prof. Dr., *Teaching English as a Foreign Language*; B.A., Harvard University; Ph.D., Massachusetts Institute of Technology

REQUIRED COURSES:

ENLT	508	Contemporary Issues in English Language Teaching	(3-0)3
ENLT	525	Research Methods for English Language Teaching	(3-0)3
ENLT	590	Seminar in English Language Teaching	(3-0)3

ENLT	599	M.S. Thesis	NC

ELECTIVE COURSES:

ENLT	506	Second Language Acquisition	(3-0)3
ENLT	507	Curriculum Development for English Language Teaching	(3-0)3
ENLT	509	Teaching English with Literature	(3-0)3
ENLT	513	Linguistics for English Language Teaching	(3-0)3
ENLT	514	Teaching Young Learners	(3-0)3
ENLT	517	Materials Evaluation and Development in ELT	(3-0)3
ENLT	518	English Language Testing	(3-0)3
ENLT	520	English-Turkish Contrastive Analysis	(3-0)3
ENLT	521	Cultural Aspects of Language Teaching	(3-0)3
ENLT	524	Language Teacher Development	(3-0)3
ENLT	526	Approaches, Methods and Techniques in ELT	(3-0)3
ENLT	527	Teaching Practicum	(3-0)3
ENLT	528	Instructional Technology in ELT	(3-0)3
ENLT	529	Global English: Political, Economic and Ethical Considerations	(3-0)3

DESCRIPTION OF GRADUATE COURSES

ENLT 506 Second Language Acquisition (3-0)3

Surveying current research in language acquisition with special emphasis on similarities and differences between child and adult language and between native and foreign language acquisition.

ENLT 507 Curriculum Development for ELT (3-0)3

Curriculum development and course design as applied to ELT; language functions, notions, and speech acts; principles of functional /notional or communicative syllabus strategies and techniques; designing structural interviews and questionnaires; and discourse analysis and teacher training for ELT.

ENLT 509 Teaching English with Literature (3-0)3

Analyzing current academic research, scholarship, and debates in broad areas of English language teaching. These areas include, but are not limited to, teaching English to Turkish speakers, linguistics, language acquisition, the Turkish educational system, technology and language instruction, and global Englishes.

ENLT 513 Linguistics for English Language Teaching (3-0)3

Examining contributions of linguistics to the field of foreign language teaching, including current approaches to the linguistic analysis of English.

ENLT 514 Teaching Young Learners (3-0)3

Teaching English as a foreign language to young learners from both theoretical and practical standpoints. Topics include understanding young learners, classroom management, techniques of teaching language skills and elements, group dynamics, lesson planning, and assessment.

ENLT 517 Material Evaluation and Development in ELT (3-0)3

Reviewing methods of evaluating language teaching materials and adaptation techniques and applying evaluation and adaptation criteria to materials currently employed. Determining appropriate discovery procedures for developing effective language teaching materials through applied research.

ENLT 518 English Language Testing (3-0)3

Major aspects of English language testing including item analysis and interpretation of test scores; subjective and objective tests; procedures in preparing different kinds of test items appropriate for testing different language skills; and practice in item writing and statistical methods.

ENLT 520 English-Turkish Contrastive Analysis (3-0)3

Introducing current approaches to contrastive analysis. Comparing and contrasting English and Turkish in the areas of phonetics and phonology, syntax and semantics, and with special emphasis on problem areas in language teaching and learning.

ENLT 521 Cultural Aspects of Language Teaching (3-0)3

Providing language teachers with a basis for introducing a cultural component into their teaching; significance of culture in teaching English as a foreign language; perspectives on how language and culture interact; and distinctions between understanding and participating in cultures.

ENLT 524 Language Teacher Development (3-0)3

Examining how language teachers develop professionally; includes key concepts in teacher education; distinction between language teacher education, training and development; teacher cognition and knowledge; teacher beliefs about language teaching and learning; reflective practice and action research; and observation and feedback on teaching.

ENLT 525 Research Methods for ELT (3-0)3

Reviews most widespread methods of carrying out research in ELT and language acquisition, with focus on experimental design and implementation, data collection and analysis, and standards of data reporting. Topics also include ethical standards in research and basic statistical analysis and software packages. This course prepares students for conducting their own term project/thesis work, and enables them to understand and evaluate ELT research during their academic and subsequent careers.

ENLT 526 Approaches, Methods and Techniques in ELT (3-0)3

Analyzing major approaches, methods, and techniques of English language teaching. Including the linguistic and psychological theories behind them and practical applications of techniques for teaching various language skills, including listening and speaking, grammar, vocabulary, and reading and writing.

ENLT 527 Teaching Practicum (3-0)3

This seminar covers different topics related to classroom teaching and classroom-centered research, including instructional observation, practice teaching, and in-class data collection and analysis. Projects based on these topics will be assigned during the semester.

ENLT 528 Teaching Practicum (3-0)3

Examining current developments in the use of instructional technology in language teaching; use of computers, interactive video, television and video in language teaching; and approaches to the design, evaluation, development and application of English language teaching course-ware by using instructional technology.

ENLT 529 Global English: Political, Economic, and Ethical Considerations (3-0)3

Explores the role and nature of the English language in a global context, focusing on political, economic, and ethical implications. This may include analysis of language standards, speech communities, linguistic identities, literacy practices, and language planning impacting contemporary English language teaching. Contextual issues include the implications of decolonization, diaspora communities, the Internet, and globalization for diversifying the structure, norms, and usage of the English language.

ENLT 590 Seminar in English Language Teaching (3-0)3

Preparation towards M.A. thesis proposal through prescribed readings; written or oral presentation of the work developed.