METAL EĞİTİMİ
LİSANSÜSTÜ EĞİTİM-ÖĞRETİM PROGRAMI

1. YARIYIL

KOD	Ders İsimleri	ZS	Teo	Uyg.	Top.	Kredi	
	Zorunlu Dersler					KRE	ECTS
MET-509	İleri Mikroskopi Teknikleri	Z	3	0	3	3	8
MET-519	X Işınları	Z	3	0	3	3	8
MET-	Kırılma Mekaniği	S	3	0	3	3	8
MET-	Döküm ve Katılaşma Yapısı	S	3	0	3	3	8
MET-513	Metal – Seramik Kompozitler	Z	3	0	3	3	8
MET-507	Kaplama Teknikleri	Z	3	0	3	3	8
MET-	Yüzey Sertleştirme Teknikleri	S	3	0	3	3	8
MET-401	Faz Diyagramları ve Alaşımların Mekaniközellikleri Arasındaki İlişki	S	3	0	3	3	4
	Metallerin Isıl İşlem Teorisi ve Teknolojisi	S	3	0	3	3	4
	TOPLAM		**27**	**0**	**27**	**21**	**64**

2. YARIYIL

KOD	Ders İsimleri	ZS	Teo	Uyg.	Top.	Kredi	
	Zorunlu Dersler					KRE.	ECTS
Met-522	Metalik Camlar	Z	3	0	3	3	8
Met-524	Süperalaşımlar	Z	3	0	3	3	8
Met-514	Kaynak Mikroyapıları Ve Özellikleri	Z	3	0	3	3	8
	Metallerin Tribolojisi	S	3	0	3	3	8
	Faz Dönüşümleri	S	3	0	3	3	8
	Dökme Demirler	S	3	0	3	3	8
	Demir Dışı Alaşımların Isıl İşlemi	S	3	0	3	3	8
Met -510	Toz Metalurjisi	Z	3	0	3	3	8
	İleri Fiziksel Metalurji	S	3	0	3	3	4
	Metallerin Mekanik Özellikleri	S	3	0	3	3	4
	TOPLAM		**30**	**0**	**30**	**30**	**38**

AKU GRADUATE SCHOOL METAL EDUCATION PROGRAM
M.Sc. DEGREE COURSES

ADVANCED PHYSICAL METALLURGY

ADVANCED PHYSICAL METALLURGY (3+0) 3 (ECTS:4)

Year/Semester	Spring semester
Type of Course	Selected
Course Contents	Atom-Crystal Lattices of Metals, Description of Crystallographic Planes and Directions, Point Defects in Metals and Their thermodynamics, Source of Point Defects, Fundamental Types of Dislocations, Relations between Dislocation Shear and Plastic Deformation, Explanation of Dislocation movement with Strain-Stress Diagram derived from Tensile Test of Metals, occur of Grain and Subgrain, Diffusion Mechanisms, Fick's Laws and it's Practice Application, Recrystallization Process in Metal alloys, Theoretical Fundamentals of crystallization Process in Metals, occur and Growth of Metal Grains, Free Energy analysis of Polymorph Transformations, Relation of Temperature and Deformation Speed With Yield stress of Metal and Alloys, Relation of Material Microstructure with Yield stress, Hardening Principles of Metal alloys.
Prerequisite/Recommended	None
Objective of the Course	Having information about subjects of lecture content
Textbook / Recommended Reading	Novikov I.I. Crystal structures of metals (2001) Moscow, Poluhin M.M. (2000) Physics fundamental of plastic deformation Moscow, G. Said (2002) Text notes, A.K.U.
Form of Teaching	Lectures, Practice
Form of Assessment	Midterm exam (% 40), Final exam (% 60)
Language of Instruction	Turkish
Instructor	Prof. Dr. Galip SAİD

HEAT TREATMENT THEORY AND TECHNOLOGY OF METALS

HEAT TREATMENT THEORY AND TECHNOLOGY OF METALS

(3+0) 3 (ECTS:4)

Year/Semester	Winter semester
Type of Course	Selected
Course Contents	I. Type annealing, Homogenization and Recrystallization Annealing, Stress Revealed Annealing, II. Type annealing, General Rules of Phase Transformations in Solid State, Annealing of steels and Cast Irons, annealing of Nonferrous Metals and Alloys, Quenching, Aging and Tempering, thermomechanism Process, Change in Hot Press Process of Microstructure of Metal, thermomechanism Process of Aged Alloys, Chemical heat Treatment, Rules of Change of Microstructure and Compound in Chemical heat Treatment, Types of Chemical heat Treatment.
Prerequisite/Recommended	None
Objective of the Course	Having information about subjects of lecture content
Textbook / Recommended Reading	Novikov I.I. (2000) Theory of heat treatments of metals, Moscow, Lahtin Yu. M. Metal science (1998) Moscow, G. Said (2002) Text notes A.K.U.
Form of Teaching	Lectures
Form of Assessment	Midterm exam (% 40), Final exam (% 60)
Language of Instruction	Turkish
Instructor	Prof. Dr. Galip SAİD

MECHANİCAL PROPERTİES OF METALS

MECHANICAL PROPERTIES OF METALS (3+0) 3 (ECTS:4)

Year/Semester	Spring Semester
Type of Course	Selected
Course Contents	Introduction, Tensor of Stress and Deformation, Classification and Statistical Process of Mechanical Tests, Elastic Properties of Metals, Plastic Deformation and Strain Hardening, Effect on Plastic Deformation and Strain Hardening of Various Factors, Fracture, Initiation and Propagation of Cracks, Ductile and Brittle Fracture, Properties derived from Static Tests, Effect on Mechanical Properties of Metal of Alloy Elements and Microstructure, Properties derived from Dynamic Tests, Hardness Test, Resistance to High Temperatures, Creep and Creep Test, Effect on Creep Process of Alloy Elements and Microstructure, Fatigue and Wear, Nature of Fatigue Fracture, Effect on Fatigue characteristics of Various Factors.
Prerequisite/Recommended	None
Objective of the Course	Having information about subjects of lecture content
Textbook / Recommended Reading	Zolotarevski V.S. (2001) Mechanics properties of metals, Moscow, Many books about mechanics properties of metals and materials.
Form of Teaching	Lectures
Form of Assessment	Midterm exam (% 40), Final exam (% 60)
Language of Instruction	Turkish
Instructor	Prof. Dr. Galip SAİD

PHASE DIAGRAMS

PHASE DIAGRAMS (3+0) 3 (AKTS:4)

(3+0) 3 (ECTS:4)

Year/Semester	4thYear/Winter Semester
Type of Course	Compulsory
Course Contents	Phase Diagrams of Binary Systems, Fundamental Information on Phase Equilibrium, Phase Diagrams of Equilibrated Systems with Mono Change, Phase Diagrams of Systems with Equilibrated Mono and Nona, Phase diagrams of Inter phase Systems, Phase Diagrams of systems with change of mono and Nona in Solid Solutions derived from Polymorph compounds and Inter phase, Rules of Find of Phase Diagrams of Binary Systems, Phase Diagrams of Ternary Systems, Geometrical Fundamentals of Ternary Systems, Phase Diagrams of Systems with Bi Changed
Prerequisite/Recommended	None
Objective of the Course	Having information about subjects of lecture content
Textbook / Recommended Reading	Zaharov A.D. Binary and ternary phase diagrams (2001) Moscow, G. Said (2003) Text notes A.K.U.
Form of Teaching	Lectures
Form of Assessment	Midterm exam (% 40), Final exam (% 60)
Language of Instruction	Turkish
Instructor	Prof. Dr. Galip SAİD

MET-522 METALLIC GLASSES

MET-522 METALLIC GLASSES (3+0) 3 (ECTS : 8)

Year / Semester	1st Year/Spring semester
Type of Course	Compulsory
Course Contents	The definition of metallic glasses, the production of metallic glasses, solidification and glass formation, atomic structure of metallic glasses, thermal stability, mechanical properties of metallic glasses and physical metallurgy, Magnetic properties and Mössbauer studies, Electrical properties of metallic glasses
Prerequisite / Recommended	None
Objective of the Course	This course is to acquaint the first year BSc students with fundamental concepts of metallic glass formation and their solidification beaviour, and their primary properties such as magnetic and mechanical properties
Textbook / Recommended Reading	- Ed.by T.R. Anantharaman, Metallic Glasses, Trans Tech Publications, 1984 -Zallen, R., The Physics of Amorphous Solids, , Wiley-Interscience; New Ed edition, 1998 - Dugdale, J.S., The Electrical Properties of Disordered Metals, , Cambridge Solid State Series, 2005
Form of Teaching	Lectures
Form of Assesment	One written midterm exams (40 %), reports (20 %), one written final exam (50 %)
Language of Instruction	Turkish, English
Instructor	Asist. Prof. Dr. Şükrü Talaş, stalas@aku.edu.tr

MET-509 ADVANCED MICROSCOPY TECHNIQUES

MET-509 ADVANCED MICROSCOPY TECHNIQUES (3+0) 3 (ECTS : 8)

Year / Semester	1st Year/Winter semester
Type of Course	Compulsory
Course Contents	The use of microscopy in Materials analysis, Quantitative microscopy, the classification of Microscopes, Optical and electron microscope lenses, Electron microscopes and their principles, SEM, TEM, EPMA, and EDX-WDX systems
Prerequisite / Recommended	None
Objective of the Course	This course is to acquaint the MSc students with fundamental concepts of advanced microscopy techniques and certain analysis techniques that are used in material science
Textbook / Recommended Reading	- Elizabeth M. Slayter, Henry S. Slayter, Light and Electron Microscopy, , Cambridge University Press -Ian M. Watt, The Principles and Practice of Electron Microscopy, Cambridge University Press (2nd Edition)
Form of Teaching	Lectures
Form of Assesment	One written midterm exams (40 %), reports (20 %), one written final exam (50 %)
Language of Instruction	Turkish, English
Instructor	Asist. Prof. Dr. Şükrü Talaş, stalas@aku.edu.tr

MET-524 SUPERALLOYS

MET-524 SUPERALLOYS (3+0) 3 (ECTS : 8)

Year / Semester	1st Year/Spring semester
Type of Course	Compulsory
Course Contents	Properties of superalloys, hardening mechanisms in superalloys, Nickel based superalloys, Cobalt based superalloys, the production of superalloys, physical and mechanical metallurgy of superalloys
Prerequisite / Recommended	None
Objective of the Course	This course is to acquaint the MSc and PhD students with fundamental concepts of superalloys and their production methods, their usage in industry, physical metalurgy and mechanical properties of superalloys
Textbook / Recommended Reading	- Elizabeth M. Slayter, Henry S. Slayter, Light and Electron Microscopy, , Cambridge University Press -Ian M. Watt, The Principles and Practice of Electron Microscopy, Cambridge University Press (2nd Edition)
Form of Teaching	Lectures
Form of Assesment	One written midterm exams (40 %), reports (20 %), one written final exam (50 %)
Language of Instruction	Turkish, English
Instructor	Asist. Prof. Dr. Şükrü Talaş, stalas@aku.edu.tr

MET-514 WELD MICROSTRUCTURES AND THEIR PROPERTIES

MET-514 WELD MICROSTRUCTURES AND THEIR PROPERTIES (3+0)3 (ECTS : 8)

Year / Semester	1st Year/Spring semester
Type of Course	Compulsory
Course Contents	Welding types, properties of weld zone, Gas-Metal reactions, solidification in weld, Weld fusion zone microstructures, ITAB microstructures, mechanical properties of welding
Prerequisite / Recommended	None
Objective of the Course	This course is to acquaint the MSc and PhD students with fundamental concepts of Welding and its formation and be able to define the microstructure properties.
Textbook / Recommended Reading	- R. W. K. Honeycombe, H. K. D. H. Bhadeshia, Robert, Sir Honeycombe, Butterworth-Heinemann; Steels: Microstructure and Properties, 2nd edition, 1996, -Welding steels without hydrogen cracking, 2nd edition. Cambridge; Woodhead Publishing, 1993. -, N. Bailey & G M Evans, Metallurgy of basic weld metal, Cambridge, Woodhead Publishing, 1997 -GRONG O., Metallurgical modelling of welding. 2nd edition.London; IOM Communications, 1997 LANCASTER J.F., Metallurgy of welding. 6th edition. Cambridge; Woodhead Publishing, 1999
Form of Teaching	Lectures
Form of Assesment	One written midterm exams (40 %), reports (20 %), one written final exam (50 %)
Language of Instruction	Turkish, English
Instructor	Asst. Prof. Şükrü Talaş, stalas@aku.edu.tr

MET-519 X RAYS

MET-519 X RAYS (3+0) 3 (ECTS : 8)

Year / Semester	1st Year/Winter semester
Type of Course	Compulsory
Course Contents	The use of Xrays in Materials analysis, Bravais lattices and crystal systems, principles, the production of X-rays, definition of Wave and its use in defining internal structure, Diffraction and the interaction between X-rays and material,
Prerequisite / Recommended	None
Objective of the Course	This course is to acquaint the MSc and PhD students with fundamental concepts of X rays and their use in the analysis of materials, crystal sructuctures and its use in quantitative analysis
Textbook / Recommended Reading	-The basics of crystallography and diffraction, C. Hammond, Oxford Science Publications, 1997 -An Introduction to X-ray Crystallography, Michael M. Woolfson, 2nd Edition, Cambridge Science Books, 1997 -Structure Determination by X-Ray Crystallography by M.F.C. Ladd, R.A. Palmer, Rex Palmer, Kluwer Academic/Plenum Publishers, 2003
Form of Teaching	Lectures
Form of Assesment	One written midterm exams (40 %), reports (20 %), one written final exam (50 %)
Language of Instruction	Turkish, English
Instructor	Asist. Prof. Dr. Şükrü Talaş, stalas@aku.edu.tr

FRACTURE MECHANICS

FRACTURE MECHANICS (3+0) 3 (ECTS : 8)

Year / Semester	1st Year/Winter semester
Type of Course	Selected
Course Contents	Fundamental Principles of Fracture Mechanism, Description and Relation between Fracture of Stress concentration, Kinds and Criteria of Fracture, Occur of Fracture in Conditions of Plain Stress and Plain strain (Deformation), Effect of Fracture Mechanism of Material Thickness, Relation of Fundamental Mechanism Properties of Material with Ductile-Brittle Transition Temperature, Fracture Criteria, Use for Safety of Machine Parts of Fracture Criteria, Fracture Micro Mechanism of Metals, Determinant according to Standard of Fracture Toughness of Metals, Analysis aspect to Thermo activation of Occurred Plastic Deformation in Crack Tip of Fracture Toughness, Relation of Microstructure and fundamental Mechanism Properties of Material with Fracture Toughness, Relation of Durability Factors (Temperature and Deformation speed) of Fracture Toughness, Material selection according to Fracture Toughness.
Prerequisite/Recommended	None
Objective of the Course	Having information about subjects of lecture content
Textbook / Recommended Reading	-G. Said (1982 -2005) SCI dergilerinde yayımlanmış olan makaleler -Borsom J.M., Rolf S.T. (2005), Fracture and fatigue control in structures. Standard of ASTM E399 (2003), -Broek D. Elementary engineering fracture mechanics (1974), Libowizc (1975) Fracture 1-7 cilt.
Form of Teaching	Lectures, Practice
Form of Assessment	Midterm exam (% 40), Final exam (% 60)
Language of Instruction	Turkish
Instructor	Prof. Dr. Galip SAİD

TRIBOLOGY OF METALS

TRİBOLOGY OF METALS (3-0)3 (ECTS:3)

Year/Semester	2nd Year/Spring semester
Type of Course	Elective
Course Contents	Surface characteristics, wear, wear regimes, adhesive-abrasive and fatigue wear, friction, lubrication, response of materials to loading, tribological properties of metals and coatings
Prerequisite/Recommended	None
Objective of the Course	Main goal of this course to give fundamental information about tribology and to gain research skills about tribology through researh duty.
Textbook / Recommended Reading	Coatings tribology, K. Holmberg, Elsevier press Tribology:friction and wear of engineering materials, I.M.Hutchings, Edward-Arnold press, London, 1992. Text notes
Form of Teaching	Lectures
Form of Assessment	One written midterm exams (40 %); written final exam (60 %)
Language of Instruction	Turkish
Instructor	Asist. Prof. Dr. Şükrü TAKTAK taktak@aku.edu.tr

PHASE TRANSFORMATIONS

PHASE TRANSFORMATIONS (3+0) 3 (ECTS : 8)

Year / Semester	1st Year/Spring semester
Type of Course	Compulsory
Course Contents	Thermodynamics and phase diagrams, diffusion, cyristal interfaces and microstructure, solidification, diffusional transformations in solid, diffusionless transformations.
Prerequisite/Recommended	None
Objective of the Course	This course is to acquaint the masters and doctorate students with fundamental concepts of phase transformations in metals and alloys.
Textbook / Recommended Reading	Phase Transformations in Metals and Alloys, D.A. Porter and K.E. Easterling, Chapman&Hall, 1992
Form of Teaching	Lectures
Form of Assessment	Two written exams (50 %) of mid-term and (50 %) final.
Language of Instruction	Turkish
Instructor	Asst. Prof. Dr. Yılmaz YALÇIN, yyalcin@aku.edu.tr

CASTING AND SOLIDIFICATION STRUCTURE

CASTING AND SOLIDIFICATION STRUCTURE (3+0) 3 (ECTS : 8)

Year / Semester	1st Year/Spring semester
Type of Course	Elective
Course Contents	Introduction, nucleation, growth, solidification time and cooling curves, solidification of solid solution alloys, segregation, casting and welding microstructures, solidification defects.
Prerequisite/Recommended	None
Objective of the Course	This course is to acquaint the masters and doctorate students with fundamental concepts of solidification and microstructures of cast metals and rapidly solidified structures.
Textbook / Recommended Reading	Döküm ve Katılaşma Yapısı, F. Yılmaz, İstanbul Teknik Üniversitesi Sakarya Mühendislik Fakültesi, 1982.
Form of Teaching	Lectures
Form of Assessment	Two written exams (50 %) of mid-term and (50 %) final.
Language of Instruction	Turkish
Instructor	Asst. Prof. Dr. Yılmaz YALÇIN, yyalcin@aku.edu.tr

CAST IRONS

CAST IRONS (3+0) 3 (ECTS : 8)

Year / Semester	1st Year/Spring semester
Type of Course	Elective
Course Contents	Introduction to cast irons, liquid metal preparation, solidification of cast irons, solid state transformations, microstructural features of cast irons.
Prerequisite/Recommended	None
Objective of the Course	Objectives of the lecture are to emphasize the importance of cast iron family as engineering materials, to examine ligued metal preparation, give the fundementals of solidification and heat treatment of cast irons and to demonstrate typical microstructural features of the cast iron family.
Textbook / Recommended Reading	Cast iron technology, Roy Elliott, Butterworth & Co. Ltd., 1988
Form of Teaching	Lectures
Form of Assessment	Two written exams (50 %) of mid-term and (50 %) final.
Language of Instruction	Turkish
Instructor	Asst. Prof. Dr. Yılmaz YALÇIN, yyalcin@aku.edu.tr

HEAT TREATMENT OF NONFERROUS ALLOYS

HEAT TREATMENT OF NONFERROUS ALLOYS (3+0) 3 (ECTS : 8)

Year / Semester	1st Year/Spring semester
Type of Course	Elective
Course Contents	Principles of heat treatment of nonferrous alloys, diffusion in metals and alloys, annealing of cold worked metals, homogenization of casting, precipitation hardening heat treatments, heat treating of some nonferrous alloys (aluminium alloys, copper alloys, magnesium alloys, nickel and nickel alloys, tin-rich alloys, and titanium and titanium alloys).
Prerequisite/Recommended	None
Objective of the Course	This course is to acquaint the masters and doctorate students with fundamental concepts of general heat treatment and followed by the heat treatment applied to some non-ferrous metals.
Textbook / Recommended Reading	Metals Handbook, Principles of heat treating of nonferrous alloys, Charlie R. Brooks, Vol. 4, Chapter 8.
Form of Teaching	Lectures
Form of Assessment	Two written exams (50 %) of mid-term and (50 %) final.
Language of Instruction	Turkish
Instructor	Asst. Prof. Dr. Yılmaz YALÇIN, yyalcin@aku.edu.tr

MET-513 METAL-CERAMIC COMPOSITES

MET-513 METAL-CERAMIC COMPOSITES (3+0) 3 (ECTS : 8)

Year / Semester	1st Year/Spring semester
Type of Course	Compulsory
Course Contents	Introduction to composite materials, varities and properties of matrix materials and fiber reinforcements. Elastic behavior of composites, stress transfer between the matrix and the fiber. Elastic behavior of anisotropic materials. Elastic behavior of laminated materials. Strength and toughness of composites. Al2O3-Mo composites and their micro structures, TiC-metal cermets and Ni-Mo-TiC cermets and their mechanical properties and aplications. Manufacturing methods and design criteria in composite materials
Prerequisite/Recommended	None
Objective of the Course	In this course; Introducing the students to composite materials, varities and properties of matrix materials and fiber reinforcements. Elastic behavior of composites, stress transfer between the matrix and the fiber. Elastic behavior of anisotropic materials. Elastic behavior of laminated materials. Strength and toughness of composites. Al2O3-Mo composites and their micro structures, TiC-metal cermets and Ni-Mo-TiC cermets and their mechanical properties and aplications. Manufacturing methods and design criteria in composite materials
Textbook / Recommended Reading	The properties of engineering materials, Edward Arnold, 1995, Princıples of materials science and engineering, William F. Smith, 1990, Composite materials lecturer note, 2002 , Ayhan EROL
Form of Teaching	Lectures
Form of Assessment	I. Mitterm exam (%40); final exam (%60)
Language of Instruction	Turkish / English
Instructor	Ass.Prof. Ayhan EROL aerol@aku.edu.tr

MET-510 POWDER METALLURGY

MET-510 POWDER METALLURGY (3+0) 3 (ECTS : 8)

Year / Semester	1st Year/Spring semester
Type of Course	Compulsory
Course Contents	The subjects related to this course are as follows: Basic definitions, manufacturing methods of metal powder, the properties of metal powder (physical, chemical, mechanical etc.), condensation of metal powder (pressing methods, sinterisation and processes after sinter) application fields of powder metallurgy (bearing materials, filters, contact materials, sinter magnets, hard points, etc.)
Prerequisite/Recommended	None
Objective of the Course	In this course; Introducing the students to The subjects related to this course are as follows: Basic definitions, manufacturing methods of metal powder, the properties of metal powder (physical, chemical, mechanical etc.), condensation of metal powder (pressing methods, sinterisation and processes after sinter) application fields of powder metallurgy (bearing materials, filters, contact materials, sinter magnets, hard points, etc.)
Textbook / Recommended Reading	The properties of engineering materials, Edward Arnold, 1995, Princıples of materials science and engineering, William F. Smith, 1990, Powder Metallurgy Lecturer note, 2002
Form of Teaching	Lectures
Form of Assessment	I. Mitterm exam (%40); final exam (%60)
Language of Instruction	Turkish / English
Instructor	Ass.Prof. Ayhan EROL aerol@aku.edu.tr

MET-507 COATING TECHNIQUES

MET-507 COATING TECHNIQUES (3+0) 3 (ECTS : 8)

Year / Semester	1st Year/Winter semester
Type of Course	Compulsory
Course Contents	The subjects related to this course are as follows: Basic definitions, Types of coating methods; Electrolytic coating, Electroless coating, CVD, PVD methods , the properties of coated materials. Application fields of coating material
Prerequisite/Recommended	None
Objective of the Course	In this course; Introducing the students to The subjects related to this course are as follows: Basic definitions for coating, , Types of coating methods; Electrolytic coating, Electroless coating, CVD, PVD methods , the properties of coated materials. Application fields of coating material.
Textbook / Recommended Reading	The properties of engineering materials, Edward Arnold, 1995, Princıples of materials science and engineering, William F. Smith, 1990, Coating Techniques Lecturer note, 2004
Form of Teaching	Lectures
Form of Assessment	I. Mitterm exam (%40); final exam (%60)
Language of Instruction	Turkish / English
Instructor	Ass.Prof. Ayhan EROL aerol@aku.edu.tr

TECHNIQUE OF SURFACE HARDENING

TECHNIQUE OF SURFACE HARDENING (3+0) 3 (ECTS : 8)

Year / Semester	1st Year/Winter semester
Type of Course	Elective
Course Contents	Flame surface hardening, induction hardening, carburizing, conventional and plasma nitriding, boronizing, thermo reactive diffusion coatings, physical vapor deposition (PVD), chemical vapor deposition (CVD) and plasma based surface coatings treatments
Prerequisite / Recommended	None
Objective of the Course	Main goal of this course to give fundamental information about surface hardening treatments and to gain research skills about surface treatments through researh duty.
Textbook / Recommended Reading	Metallic and ceramic coatings, MG Hocking, V Vasantesree, PS Sidky, Longman press, London, 1989. Text notes
Form of Teaching	Lectures
Form of Assesment	One written midterm exam (40 %); written final exam (60 %)
Language of Instruction	Turkish
Instructor	Asist. Prof. Dr. Şükrü TAKTAK taktak@aku.edu.tr