DEPARTMENT OF MATHEMATICS Content of Master's Degree in Mathematics with Thesis					
COURSE CODE	**COURSE NAME AND CONTENTS**	**T**	**A**	**C**	**ECTS**
LUEE701	**Scientific Research Techniques and Scientific Ethics**	**3**	**0**	**0**	**8**
Purpose and Content	Definition of science and learning scientific research methods / techniques, learning scientific methodology, research techniques and data collection methods, learning ethical issues in scientific studies. Scientific publication types (thesis, papers, articles, report etc.), gain the ability to follow current scientific developments in the field, learn the ethical principles to be followed in scientific research and publication. The definition of scientific knowledge and its different aspects from other types of knowledge. Learning the philosophy of science and philosophy of knowledge (epistemology) and trying to provide a conceptual basis.				
MAT201	**Analysis III**	**4**	**2**	**0**	**6**
Purpose and Content	The aim of this course, to give uniform convergence and uniform convergence properties of function, sequences, and series. To emphasize similarities and differences between concepts of series and series which are considered in Analysis II. To give topological structure of the n-dimensional Euclidean space, domain set of multivariate functions, limit, continuity, and differentiability of these function such as concepts, the similarities and differences of functions with one variable. Multivariable Functions, Limits and Continuity, General Chain Rule, Implicit Functions, Directional Derivative, Laplacian of Polar-Cylindrical-Spherical Coordinates, Maximums and Minimums of Multivariable Functions, Gradient-Divergence-Curl, Mean Value Rule and Taylor Theorem of Multivariate Functions.				
MAT203	**Linear Algebra I**	**4**	**2**	**0**	**6**
Purpose and Content	The aim of this course is to introduce the concepts of matrices, determinant, vector spaces. This course covers, Elementary Row Operations on Matrices, Linear Equations Systems, Matrix Algebra, Special Types of Matrices, Elementary Matrices, Equivalent Matrices, nxn Determinants, Properties of Determinants, The Inverse of a Matrix, Vector Spaces, Subspaces, Linear Independence, Basis and Dimension.				
MAT205	**Differential Equations I**	**3**	**2**	**0**	**6**
Purpose and Content	The aim of this course is to give the concept and types of differential equations and to teach methods of solution of differential equations. Forming of the basic concepts and differential equations. Existence and uniqueness theorems. Types of solutions and solutions of differential equations. The concepts of initial and boundary value problem. First order linear equations. the method of finding the irregular solution by using P- and C-discriminants, Higher Order homogenous and Nonhomogeneous differential equations.				

MAT705	**Advanced Complex Analysis I**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of this course is to give concept of analytic functions and their properties, general knowledge about topological and complex domains. Topological and complex domains, power series, analytic functions, maximum modulus theorem, open mapping theorem, Schwarz lemma, residue theorem.				
MAT706	**Advanced Complex Analysis II**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of this course is to give concept of analytic functions and their properties, general knowledge about topological and complex domains. Topological and complex domains, power series, analytic functions, maximum modulus theorem, open mapping theorem, Schwarz lemma, residue theorem.				
MAT707	**Sobolev Spaces I**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of this course is to define Sobolev Spaces, showing the relationship between these and solving Cauchy and boundary value problems of some partial differential equations in these spaces. C(Q) and Ck(Q) spaces , Lp spaces, K finite function spaces, Schwarz spaces (S), W0k and Hk spaces.				
MAT708	**Sobolev Spaces II**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of the course is to define K finite functions space and to show the relationship between Sobolev spaces, to make average value problem solutions of these spaces in the field of partial differential equations. K finite functions space, Shwarz spaces (S), D^ (?) generilazed functions space, D^ (?) generalized functions convolution.				
MAT709	**Algebra I**	**3**	**0**	**0**	**8**
Purpose and Content	The purpose of this course is to give general knowledge about concepts of groups and rings, Sylow Theorems and its applications, Nilpotent and Solvable groups, Factorization in rings,localization, simple and primitive rings, semisimple rings, Simple and Primitive rings, Prime and Semiprime rings. Groups, Sylow Theorems and its applications, Characterization of Nilpotent and Solvable Groups, Rings, Rings, concepts of F[x] polynomial rings, Factorization ın commutative rings, Simple and Primitive Rings, Prime and Semiprime Rings, Localization of Rings, Semisimple Rings, Prime Radical, Concepts of Prime and Primitive Rings Metin veya web sitesi adresi yazın ya da bir dokümanı çevirin. İptal DinleyinTürkçe dilinden İngilizce diline çeviri R-modules, sub modules and direct sums, R-homomorphic and Section Modules, Free Modules, Tensor Product, complexes, homology and Short Exact Sequences.				
MAT710	**Algebra II**	**3**	**0**	**0**	**8**
Purpose and Content	The main aim of this course is to give general knowledge about the concept of module theory, Projective and Injective modules, and Hom and Duality. Modules, Submodules, Homomorphsims, Short Exact Sequence, Projective and Injective modules, Hom and Dualtiy, Modules over Principle Ideal Domain, Algebras.				

MAT713	**Integral Transformations**	**3**	**0**	**0**	**8**
Purpose and Content	To give information about the integral transforms and to solve partial and ordinary differential equations. Introduction to the integral transformations, Laplace transformations, special functions, special polynomials, inverse Laplace transformations, applications of the Laplace transformations to differantial equations and the systems of equations, the Fourier series and transforms, their applications to boundary value problems.				
MAT714	**Method Of Differantial Transformation**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of the course is to solve linear and non-linear, ordinary and partial differential equations with the help of differential transformation method. Differential transformation of a function, differential transformation of inverse of a function, one-dimensional differential transformation method and the properties and characteristics of two-dimensional differential transform method, solutions of initial value problems with the help of differential transformation method.				
MAT715	**Fourier Transformations I**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of the course is to define the Fourier transformations, to teach transformation types and to demonstrate how to use them to make the solutions of some boundary value problems easier. Lp spaces ve Schwartz space, Definition of Fourier transformation, sine and cosine Fourier transformations, the continuity of Fourier transformation and its differential properties.				
MAT716	**Fourier Transformations II**	**3**	**0**	**0**	**8**
Purpose and Content	To give information about Fourier transforms in Lebesgue spaces. Riemann-Lebesgue theorems; Lebesgue spaces; Schwartz spaces; The main properties of Fourier transforms in L1 space; Main properties of inverse Fourier transforms in L1 space. Main properties of Fourier transform in L2 space; Plancherel theory in L2 space; Generalized functions and Fourier transform				
MAT717	**Special Topics from The Theory Of Differential Equation I**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of this course is to analyze significant problems and theories for the solution of differantial equations which are the application of differantial and integral computation and to teach the methods of solving differantial equations. Vector differantial equations, Existence and uniqueness theorems, Lipschitz condition, Autonomous equations, Equal-dimensional equations, Scale-invariant equations, The Riccati equation, Quadratic Riccati equation, The Abel equation, Examination in phase and Lie planes, The Duffing equation, Volterra-Lotka's system, The Lane-Emden equation, The Langmuir equation and Analysis of some nonlinear models.				

MAT718	**Special Topics from The Theory Of Differential Equation II**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of this course is to analyze significant problems and theories for the solution of differantial equations which are the application of differantial and integral computation and to teach the methods of solving differantial equations. Analysis and classification of singular points, Singularity of lineer and nonlineer differential equations, Fixed and removable singularity, Binomial equations, Elliptic integrals and elliptic functions, The Briot-Bouquet equation, Majorant's method, Cauchy's majorant, Lindelof's majorant, The painleve equations, Singular point analysis, The Thomas-Fermi equation, Spherical solutions, Secondary Painleve transcendent and The Euler-Painleve equations.				
MAT722	**Number Theory II**	**3**	**0**	**0**	**8**
Purpose and Content	The main of this course is to give arithmetic structure of field and classification of algebraic equations with 2 degree. Quadratic Fields-(Algebraic Numbers, Divisibility, Gaussian exact numbers), Continued Fractions (Continued Fractions, Quadratic irrational, Pell Equations) Quadratic Forms-(Binary Forms-Forms equivalence).				
MAT723	**Number Theory I**	**3**	**0**	**0**	**8**
Purpose and Content	The main aim of this course is to give concept of ring of integers, relation between prime numbers and integers, solution of the equation. Integers, well ordered principle, induction, Fibonacci numbers, divisibility, prime numbers, distribution of primes, Conjecture on primes, the greatest common divisor, Least common multiple, Euclidean Algorithm, Fundamental Theorem of Arithmetic, Fermat s products, Linear Diophantine Equations Excellent numbers, Mersenne Number, Congruences, Linear Congruences, Chinese Remainder Theorem, Wilson s Theorem and Fermat s Little Theorem, Euler s Phi function and properties, Moebius Reversal, Continued Fractions.				
MAT724	**Mathematical Physics II**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of this course is to show how ordinary differential equations and partial differential equations can be used for mathematical modelling of physics problems. Differential equations, Separation of variables in spherical coordinates, Second-order linear differential equations and their complex analysis, Integral transformations and differential equations, Operators in Hilbert spaces, Theory of operators, Integral equations, Sturm-Liouville systems, Green's functions, One-dimensional Green's functions, Multi-dimensional Green's functions and their applications.				
MAT725	**Mathematical Physics I**	**3**	**0**	**0**	**8**

Purpose and Content	The aim of this course is to present basic methods of linear algebra, functional analysis, and complex variable functions and explain how to use these methods as tools in solving of some physics problems. Finite dimensional vector spaces, Vectors and transformations, Algebra of operators, Representation of operators, Spectral decomposition, Infinite dimensional vector spaces, Hilbert spaces, Distributions, Fourier analysis, Complex analysis, Complex calculus, Residue calculus.				
MAT728	**Analysis On Time Scale II**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of this course is to describe differential equations on time scales and develop methods to solve them. The first-order linear differential equations on time scales, Initial value problem, The exponential function, The second-order linear differential equations on time scales, Boundary value problem, Green's function, The Sturm-Liouville eigenvalue problem.				
MAT729	**Analysis On Time Scale I**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of this course is to present the theory of derivative and integral on time scales. The h-derivative and its properties, The q-derivative and its properties, The concept of a time scale and examples, The dervative on time scales and its properties, The chain rule for derivative on time scales and the mean value theorem, The integral on time scales and its properties.				
MAT731	**Modeling of Communication Networks and the Concept of Vulnerability I**	**3**	**0**	**0**	**8**
Purpose and Content	To Model networks with a graph G and to examine the vulnerability measures that gives the value of vulnerability for these networks. Directed graphs, Modelling of communication networks, Network flows, Connectivity, k- Connectivity, k- edge Connectivity, Menger's Theorem, Maximum flow problem, Vulnerability of communication networks, vulnerability measures, Vertexintegrity number, Edge integrity number, neighbor integrity number and binding number.				
MAT732	**Modeling of Communication Networks and Concept of Vulnerability II**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of this course is to examine the different types of vulnerability measurements which give the vulnerability of communication networks and their applications. Vertex toughness number, Edge toughness number, Domiantion number and types of domination number, Bondage number and types of domination number, Izoparametri number and its applications, Graph decompositions.				
MAT733	**Concept of Distance in Graphs and Algorithms**	**3**	**0**	**0**	**8**

Purpose and Content	To teach consept of distance in graphs and to examine algoritmic solution of problems modeled with graphs. Path and connectedness, Eccentricity value of a vertex and center of graphs, Self-centered graphs, Incides and distance matrices, applications of distance matrices, Symetric graphs and distance, Distance distributions, Independence set problem and its algoritmic solution, Covering set problem and its algoritmic solution, Domination set problem and its algoritmic solution.				
MAT734	**External Problems in Graphs**	**3**	**0**	**0**	**8**
Purpose and Content	To examine important theories in graph theory, to introduce extremal problems and to teach special graph types. Introducing extremal problems, A theorem of Turan, Ramsey Theorem, 4 color problem, Scheduling Problem, Binary trees, Prefix codes, Magic graphs, Split graphs, Permutation graphs.				
MAT735	**MATLAB and Numerical Methods**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of this course is to teach MATLAB programming language effectively and to make algorithmic approach to numerical methods and to compile MATLAB code on computer. Principles of MATLAB programming language, Operational Operators, Loop Statements, General error analysis, Numerical methods for non-linear algebraic equations and errors on approach, Numerical methods for linear and nonlinear algebraic equation systems, Interpolation and curve fitting methods.				
MAT736	**Numerical Solutions of Ordinary Differential Equations**	**3**	**0**	**0**	**8**
Purpose and Content	To teach numerical methods for solving ordinary differential equations, to make stability analysis and to analyze numerical solutions of problems modeled by ordinary differential equations. General approach to initial value problems theory, Euler method, high order Taylor method, Runge-Kutta methods, Error checking and Runge-Kutta-Fehlberg method, Multistep methods, Extrapolation methods, High order equations and differential equation methods, Stability analysis.				
MAT737	**Algebraic Programming with MAGMA**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of this course is to provide the students who want to work in the field of algebra and number theory, the basics of programming languages and to enable students to make calculations on computer algebraic structures with a high number of elements in a short time. MAGMA programming language, constructing structures and elements, evaluating and printing expressions, identifiers, assignment process, applications on numbers, algebraic structures, conditional expressions, combined structures, representative and arbitrary element selection, cartesian products, transformations and homomorphisms, functions, repetitive expressions, rings and fields, finite fields, various applications on number fields, vector spaces and matrix spaces, error correction codes.				

MAT738	**Basic Mathematics for Cryptography**	**3**	**0**	**0**	**8**
Purpose and Content	The main aim of this course is to prepare students for further studies on Cryptography in the Master Program; to explain some problems which are easy to ask but still unsolvable and to give some ideas about why abstraction is done with the help of the basic properties of integers and some algebraic structures. Groups, Rings, Polynomials, Principal and maximal ideals, Divisibility, Euler, Chinese Remnainder and Wilson Theorems, Principal ideal domain (PID), Unique factorization domain (UFD), Fields, Arithmetic functions, Quadratic residues and quadratic reciprocity.				
MAT739	**Tensor Bundles and Fibers I**	**3**	**0**	**0**	**8**
Purpose and Content	To examine the basic geometric properties of tensor bundles, fiber bundles and manifolds. Tensor fields, differentiable manifolds, connections on manifolds, torsion and curvature tensors, cotangent bundle, fibers of vector fields.				
MAT740	**Tensor Bundles and Fibers II**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of the course is to give the tensor bundle of the manifold and to take the lifts of the objects of the base manifold in this bundle. Cotangent Bundle, Vertical fibers, Complete fibers, Derivation fiber, Affine fiber, Complete fiber of affine connection, Formulas on Lie derivative, Horizontal fibers, Horizontal fiber of Vector fields, Horizontal fiber of Tensor fields, Horizontal fiber of affine connection, Horizontal fiber of Lie derivative.				
MAT741	**Approximation Theory and Linear Positive Operators**	**3**	**0**	**0**	**8**
Purpose and Content	To provide comprehensive information about contemporary approximation theory. Characterization of function spaces, Linear positive operators, Summation-, integral- and hybrid-type operators, Theorems of P.P. Korovkin and their applications, Weierstrass Theorems, Best approximation, Bernstein polynomials and their generalizations, Pointwise and uniform approximation, Convergence in variation, Degree (rate) of convergence, Approximation in weighted spaces, k-positive operators, Shape preservation.				
MAT742	**Convex Analysis**	**3**	**0**	**0**	**8**
Purpose and Content	Learning algebraic properties of convex functions and solution methods of convex optimization problems. Demonstration of basic concepts used in optimization theory. Recognizing the methods used to solve optimization problems and analyzing the methods used to solve an optimization problem and deciding on the method to be used for the problem.				
MAT743	**Optimization Methods**	**3**	**0**	**0**	**8**

Purpose and Content	To recognize and classify optimization problems. To have knowledge about the methods used to solve optimization problems and to learn the concepts of active elements including saddle point used to solve optimization problems. Revealing optimization problems encountered in daily life, classifying problems, and obtaining solution methods. Also to know the concepts used in optimization theory.				
MAT746	**Structured Matrices**	**3**	**0**	**0**	**8**
Purpose and Content	To introduce special and different matrix structures which can be produced by expressing these formulations through the ordering of their elements, to obtain some representations of its own mathematical models formed by these structures in the Linear Algebra, to examine the effects of these structures on the characteristic properties of the matrices, to explore the applications of structured matrices in various fields. Symmetric, Toeplitz , Henkel, Vandermonde, Band, Circulant, Sparse, Toeplitz, Tridiagonal, Hessenberg and Permutation matrices, Pascal-like matrices and convolution on these matrices, Riordan type matrices, Innovative structured matrices, Rank structured matrices.				
MAT747	**Introduction to Interval Precious Analysis**	**3**	**0**	**0**	**8**
Purpose and Content	Learning algebraic properties of interval-valued functions and learning interval-valued optimization problems. Demonstration of basic concepts used in Interval-valued Analysis. Learning the properties of interval valued functions, vectors and matrices. Recognizing the interval-valued optimization problems and solving the problems.				
MAT748	**Range-Worthy Optimization**	**3**	**0**	**0**	**8**
Purpose and Content	Learning the properties of spaced vectors and functions, and the order relations used to compare spaced vectors. Solving interval-valued optimization problems. Properties of interval valued vectors and functions. Order relations used to compare interval-valued vectors. Methods used to solve interval-valued optimization problems. Interval-valued optimization problems encountered in daily life.				
MAT749	**Algebra I**	**3**	**0**	**0**	**8**

Purpose and Content	The purpose of this course is to give general knowledge about concepts of groups and rings, Sylow Theorems and its applications, Nilpotent and Solvable groups, Factorization in rings, localization, simple and primitive rings, semi simple rings, Simple and Primitive rings, Prime and Semiprime rings. Groups, Sylow Theorems and its applications, Characterization of Nilpotent and Solvable Groups, Rings, Rings, concepts of F[x] polynomial rings, Factorization in commutative rings, Simple and Primitive Rings, Prime and Semiprime Rings, Localization of Rings, Semi simple Rings, Prime Radical, Concepts of Prime and Primitive Rings, R-modules, sub modules and direct sums, R-homomorphic and Section Modules, Free Modules, Tensor Product, complexes, homology and Short Exact Sequences.				
MAT750	**Coding Theory I**	**3**	**0**	**0**	**8**
Purpose and Content	Learning the basic information about Coding Theory. Basic Concepts of Coding Theory, Finite Fields, Vector Spaces on Finite Fields, Linear Codes, Coding and Decoding with Linear Codes, Generator Matrix and Equivalent Codes, Dual Codes and Parity Check Matrix, Syndrome Decoding.				
MAT751	**Coding Theory II**	**3**	**0**	**0**	**8**
Purpose and Content	Learning the basic information about Coding Theory. Basic Concepts of Coding Theory, Finite Fields, Vector Spaces on Finite Fields, Linear Codes, Coding and Decoding with Linear Codes, Generator Matrix and Equivalent Codes, Dual Codes and Parity Check Matrix, Syndrome Decoding.				
MAT752	**Introduction to Mathematical Oncology I**	**3**	**0**	**0**	**8**
Purpose and Content	To obtain knowlege on tumor development and current prostate cancer modelling approaches and to gain qualification on generating numerical simulations about these subjects. To obtain knowlege on well-known cancer therapy methods and to gain qualification on generating numerical simulations about therapy models				
MAT753	**Introduction to Mathematical Oncology II**	**3**	**0**	**0**	**8**
Purpose and Content	To obtain knowlege on well-known cancer therapy methods and to gain qualification on generating numerical simulations about therapy models. Natural history of clinical medicine, Evolutionary ecology of cancer, Chemotherapy models, Major anticancer chemotherapies, Radiation therapy, Chemical kinetics				
MAT754	**History of Mathematics**	**3**	**0**	**0**	**8**

Purpose and Content	The aim of this course is to examine the ideas, opinions and studies underlying the oldest scientific discipline, Mathematics, to investigate how and which problems emerged for the purpose of solving the important mathematical discoveries that took centuries to formulate and whose origins are based on many different cultures. In addition to this, from the arithmetic, geometry, trigonometry and astronomy studies in ancient times to the development of callculus and analytical geometry in the 17th and 18th centuries, we will examine in detail the contributions of Egypt, Mesopotamia, Indian, Chinese, Arab-Islamic and modern European geographies to Mathematics and make correct scientific contributions and emphasising with historical real recordings are among the aims of this course. Information sources used and periods in the history of mathematics, Mathematics studies in Egyptian and Mesopotamian civilizations (Sumer, Assyria, Babylon), Mathematics studies in Indian and Chinese civilizations, studies and inventions on Mathematics, Geometry, Trigonometry and Astronomy in Greek (Ancient Greek) civilization, studies and inventions on Mathematics, Geometry, Trigonometry and Astronomy in the Arab-Islamic civilization, discoveries and reflections of the mathematics used in this period in art and architecture, new Mathematical approaches, theories and new Mathematical fields that emerged in modern Europe. Mathematically important figures and works of ancient Greek's, Arab-Islamic's and modern European's persons.				
MAT755	**Applied Statistics**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of this course is to introduce and teach the basic principles and tools of statistical methodology. This course has been prepared to teach students analytical methods and quantitative techniques of statistics. The course will be examined under the headings of statistical series, measures of central distribution, measures of variation, probability theory, variance and standard deviation, distributions, analysis of variance and regression analysis.				
MAT756	**Game Theory**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of this course is to explain the basic tools and analysis methods of game theory and to teach its application in economics. Game Theory is a multi-person decision theory that analyzes situations where the decision of the decision maker and the results of the decision depend on the behavior of another decision maker(s). In Game Theory, there are different situations where conflict, cooperation and communication can occur between decision units. Game Theory includes applications in a wide variety of fields such as economics, politics, law, biology and computer science.				
MAT757	**Geogebra and Its Applications in Mathematics Teaching I**	**3**	**0**	**0**	**8**

Purpose and Content	The aim of this course is to build structures in Geogebra applications based on the definition of geometric structure, as well as to benefit from the shortcuts that the program allows us. In this course, it is aimed to give various animation examples with the help of coding and mathematical logic, and to make inferences about the Geogebra application for those who want to produce various educational materials or who want to teach mathematics by concretizing it.				
MAT758	**Geogebra and Its Applications in Mathematics Teaching II**	**3**	**0**	**0**	**8**
Purpose and Content	The aim of this course is to build structures in Geogebra applications based on the definition of geometric structure, as well as to benefit from the shortcuts that the program allows us. In this course, it is aimed to give various animation examples with the help of coding and mathematical logic, and to make inferences about the Geogebra application for those who want to produce various educational materials or who want to teach mathematics by concretizing it.				
MAT202	**Analysis IV**	**4**	**2**	**0**	**6**
Purpose and Content	The aim of this course is to expand definition of integral functions in univariate functions to multivariate function and vector-valued functions with real variable. To give concept of the integral on the region, definition of multiple integrals, varieties of curvilinear integrals and Divergence and Stokes theorems which play an important role for curvilinear integrals. To give surface integrals. Double integrals, regional transformations, applications of double integrals, triple integrals and their applications, definition and types of line integrals, Green s theorem and its applications, surface integrals its applications, divergence theorem and its applications, Stokes theorem and its applications.				
MAT204	**Linear Algebra II**	**4**	**2**	**0**	**6**
Purpose and Content	The aim of this course is to introduce linear transformations with examples and applications, to show the transformations in which the eigenvalues and eigenvectors of a square matrix are related, to distinguish orthogonal matrices and to show their applications, to express the forms representing quadratic surfaces with the help of matrices and to reduce them into more simplier forms. This course covers, Linear Transformations on Vector Spaces, Matrix of a Linear Transformation, Change of basis, Kernel and the image of a linear transformation, orthogonal vectors, Gram-Schmidt orthogonalization Method, Eigenvalues and Eigenvectors of a square matrix, Diagonalization of a square Matrices, Quadratik and Canonic forms.				

MAT206	**Differential Equations II**	**3**	**2**	**0**	**6**
Purpose and Content	The aim of this course is to teach the concept of system of differential equation and solution of differential equations systems, to give Laplace transforms and to apply to differential equations and their systems. Applications of second order equations with constant coefficients, the solution with series in the neighborhood of a Regular point and a regular singular point , the method of Frobnius, definition, existence and the basic properties of Laplace transform , inverse Laplace transform and the convolution product, solution of Cauchy problems related to linear differential equations with constant coefficient using Laplace transform solution, systems of linear equation in normal form, systems of homogenous linear Equations with Constant Coefficients. Solution of Differential equation system by using the matrix method.				
MAT797	**MSc Seminar**	**0**	**2**	**0**	**6**
Purpose and Content	To gain data collection by researching literature and to demonstrate in a report by synthesizing knowledge. The literature research, synthesize, analysis processes of a specific subject determined by the student and advisor in order to prepare the report.				
MAT7098D	**Course Specialised Field**	**4**	**0**	**0**	**4**
Purpose and Content	Course Specialised Field is a theoretical course that the faculty member proposes by a faculty member to share their knowledge, experience and expertise in their scientific field with graduate students under their supervision. This course aims to educate students on scientific ethics and instil a strong work discipline.				
MAT7098T	**Thesis Specialised Field**	**4**	**0**	**0**	**4**
Purpose and Content	Thesis Specialised Field is a theoretical course that faculty member proposes to the graduate students he/she supervises in order to share the methods of conducting research in the current literature, following and evaluating the literature and to establish and carry out the scientific foundations of the student's thesis / exhibition / project work.				
MAT799	**Master's Thesis Study**	**0**	**1**	**0**	**26**
Purpose and Content	**Purpose and Content:** To have comprehensive information to be submitted on the issue, to make an oral presentation and discussion skills, thesis-operated, to determine the objectives and scope. Prepared for the research work the basic concepts, applications, and are required for all types of computer programs used in publishing content (books, theses, articles, etc.) will be used.				