

DEPARTMENT OF MATHEMATICS UNDERGRADUATE CURRICULUM

FIRST YEAR

First Semester

MATH 111	Analytic Geometry	(3-0)3 / ECTS:6
MATH 131	Fundamentals of Mathematics	(3-2)4 / ECTS:7
MATH 151	Calculus I	(4-2)5 / ECTS:8
PHYS 101	General Physics I	(2-2)3 / ECTS:6
ENG 101	Development of Reading and Writing Skills I	(3-0)3 / ECTS:3
		Total Credits:18 Total ECTS:30

Second Semester

MATH 132	Introduction to Discrete Mathematics	(3-2)4 / ECTS:8
MATH 152	Calculus II	(4-2)5 / ECTS:7
CENG 113	Programming Basics	(3-2)4 / ECTS:6
PHYS 102	General Physics II	(2-2)3 / ECTS:6
ENG 102	Development of Reading and Writing Skills II	(3-0)3 / ECTS:3
GCC 101	Career Planning and Development	(0-2)NC / ECTS:2
		Total Credits:19 Total ECTS:32

SECOND YEAR

Third Semester

MATH 201	Introduction to Mathematical Programming	(2-2)3 / ECTS:5
MATH 251	Vector Analysis	(3-2)4 / ECTS:6
MATH 255	Differential Equations	(4-0)4 / ECTS:6
MATH 261	Linear Algebra I	(3-2)4 / ECTS:6
HIST 201	Principles of Atatürk I	(2-0)NC / ECTS:2
TURK 201	Turkish Language I	(2-0)NC / ECTS:2
Non-Technical Elective		(3-0)3 / ECTS:3
		Total Credits:18 Total ECTS:30

Fourth Semester

MATH 202	Scientific Computing	(2-2)3 / ECTS:6
MATH 240	Analytical Mechanics	(3-2)4 / ECTS:5
MATH 252	Analysis	(4-0)4 / ECTS:6
MATH 262	Linear Algebra II	(3-2)4 / ECTS:6
HIST 202	Principles of Atatürk II	(2-0)NC / ECTS:2
TURK 202	Turkish Language II	(2-0)NC / ECTS:2
Non-Technical elective		(3-0)3 / ECTS:3
		Total Credits:18 Total ECTS:30

THIRD YEAR

Fifth Semester

MATH 301	Dynamical Systems	(3-0)3 / ECTS:6
MATH 355	Partial Differential Equations	(4-0)4 / ECTS:6
MATH 361	Abstract Algebra	(4-0)4 / ECTS:6
MATH 381	Numerical Analysis	(3-2)4 / ECTS:6
Technical elective		(3-0)3 / ECTS:6
		Total Credits:19 Total ECTS:30

Sixth Semester

MATH 332	Probability and Statistics	(3-2)4 / ECTS: 6
MATH 352	Complex Analysis	(4-2)5 / ECTS:10
MATH 372	Differential Geometry	(3-0)3 / ECTS:8
Technical Elective		(3-0)3 / ECTS:6
		Total Credits:15 Total ECTS:30

FOURTH YEAR

Seventh Semester

MATH 415 Mathematical Research Project I	(2-0)NC / ECTS:15
Technical elective	(3-0)3 / ECTS:6
Technical elective	(3-0)3 / ECTS:6
A Non Technical elective	(3-0)3 / ECTS:3
	Total Credits:9 Total ECTS:30

Eighth Semester

MATH 416 Mathematical Research Project II	(2-0)NC / ECTS:15
Technical elective	(3-0)3 / ECTS:6
Technical elective	(3-0)3 / ECTS:6
A Non Technical elective	(3-0)3 / ECTS:3
	Total Credits:9 Total ECTS:30

Total Credit: 124

Total ECTS: 242

Technical Elective: Any course from the Departments of Engineering or Science Faculty

A Non Technical Elective: Any course from the Department of General Culture, School of Foreign Languages or Faculty of Architecture

Core Courses

MATH 111 Analytic Geometry	(3-0)3/ECTS:6
MATH 131 Fundamentals of Mathematics	(3-2)4 ECTS:7
MATH 132 Introduction to Discrete Mathematics	(3-2)4 ECTS:8
MATH 151 Calculus I	(4-2)5 ECTS: 8
MATH 152 Calculus II	(4-2)5 ECTS: 7
MATH 201 Introduction to Mathematical Programming	(2-2)3 ECTS:5
MATH 202 Scientific Computing	(2-2)3 ECTS:6
MATH 240 Analytical Mechanics	(3-2)4 ECTS: 5
MATH 251 Vector Analysis	(3-2)4 ECTS:6
MATH 252 Analysis	(4-0)4 ECTS: 6
MATH 255 Differential Equations	(4-0)4 ECTS: 6
MATH 261 Linear Algebra I	(3-2)4 ECTS:6
MATH 262 Linear Algebra II	(3-2)4 ECTS:6
MATH 301 Dynamical Systems	(3-0)3 ECTS: 6
MATH 352 Complex Analysis	(4-2)5 ECTS: 10
MATH 332 Probability and Statistics	(3-2)4 ECTS: 6
MATH 355 Partial Differential Equations	(4-0)4 ECTS: 6
MATH 361 Abstract Algebra	(4-0)4 ECTS: 6
MATH 372 Differential Geometry	(3-0)3 ECTS: 8
MATH 381 Numerical Analysis	(3-2)4 ECTS: 6
MATH 415 Mathematical Research Project I	(2-0)NC ECTS: 15
MATH 416 Mathematical Research Project II	(2-0)NC ECTS: 15

Elective Courses

MATH 303 History Of Mathematical Concepts I	(3-0)3 ECTS: 6
MATH 304 History Of Mathematical Concepts II	(3-0)3 ECTS: 6
MATH 307 Introduction to Graph Theory	(3-0)3 ECTS: 6
MATH 308 Introduction to Combinatorics	(3-0)3 ECTS: 6
MATH 311 Coding theory	(3-0)3 ECTS: 6

MATH 312 Computational mathematics and algorithms	(2-2)3 ECTS: 6
MATH 313 Introduction to Cryptography	(3-0)3 ECTS:6
MATH 330 Trending Mathematical Algorithms	(2-2)3 ECTS:6
MATH 333 Introduction to Mathematical Modeling	(3-0)3 ECTS: 6
MATH 341 Advanced Mathematics Internship	(0-6)3 ECTS: 6
MATH 342 Mathematics Internship	(0-1)NC ECTS: 6
MATH 366 Number Theory	(3-0)3 ECTS: 6
MATH 368 An Introduction to Mathematical Control Theory	(3-0)3 ECTS: 6
MATH 382 Numerical Analysis II	(3-0)3 ECTS:6
MATH 385 Special Functions of Applied Mathematics	(3-0)3 ECTS: 6
MATH 386 Fluid Dynamics	(3-0)3 ECTS: 6
MATH 401 Quantum Mechanics	(3-0)3 ECTS: 6
MATH 403 Combinatorial Design theory	(3-0)3 ECTS: 6
MATH 404 Quantum Computations and Information	(3-0)3 ECTS: 6
MATH 405 Variational Analysis	(3-0)3 ECTS: 6
MATH 406 Mathematics of Public Key Cryptography	(3-0)3 ECTS: 6
MATH 407 Conformal Mappings	(3-0)3 ECTS: 6
MATH 408 Advanced Topics in Graph Theory	(3-0)3 ECTS: 6
MATH 409 Advanced Topics in Combinatorics	(3-0)3 ECTS: 6
MATH 410 Green's functions	(3-0)3 ECTS: 6
MATH 411 Mathematical optimization	(3-0)3 ECTS: 6
MATH 412 Hyperbolic geometry	(3-0)3 ECTS: 6
MATH 413 Linear and Nonlinear Waves	(3-0)3 ECTS: 6
MATH 414 Introduction to Integral Equations	(3-0)3 ECTS: 6
MATH 422 Introduction to Abelian Groups	(3-0)3 ECTS: 6
MATH 430 Contemporary Applications of Mathematics	(2-2)3 ECTS: 6
MATH 432 Analysis of Symmetric Encryption and Hash Functions	(3-0)3 ECTS: 6
MATH 440 Knot Theory and Its Applications	(3-0)3 ECTS: 6
MATH 441 Introduction to Geometric Topology	(3-0)3 ECTS: 6
MATH 450 Scale Invariance and Dimensional Analysis	(3-0)3 ECTS: 6
MATH 451 Mathematics and Technology	(3-0)3 ECTS: 6
MATH 452 Functional Analysis	(3-0)3 ECTS: 6
MATH 453 Introduction to Generalized Functions	(3-0)3 ECTS: 6
MATH 455 Control of Infinite Dimensional Systems	(3-0)3 ECTS: 6
MATH 456 Galois Theory	(3-0)3 ECTS: 6
MATH 481 Differential Equations with Numerical Methods	(2-2)3 ECTS: 6
MATH 482 Numerical Solutions of Linear Integral Equations	(3-0)3 ECTS: 6
MATH 499 Cooperative Education Course	(0-12)6 ECTS: 6