ÇANKAYA UNIVERSITY
Faculty of Arts and Sciences
Course Definition Form

Part I. Basic Course Information

Department Name	MATHEMATICS					**Dept. Numeric Code**	27
Course Code	MATH473	**Number of Weekly Lecture Hours**	1	**Number of Weekly Lab/Tutorial Hours**	2	**Number of Credit Hours**	2
Course Web Site	http:// math473.cankaya.edu.tr					**ECTS Credit**	05

Course Name *This information will appear in the printed catalogs and on the web online catalog.*	
English Name	History of Mathematics
Turkish Name	Matematik Tarihi

Course Description
Provide a brief overview of what is covered during the semester. This information will appear in the printed catalogs and on the web online catalog. Maximum 60 words.

The following periods of history of mathematics will be studied: Mathematical Periods, Egyptian and Babylonian Period (2000 B.C.- 500 B.C.) Greek Mathematics Period, (500 B.C- A.D.500) Hindu, Islamic and Period of Transmission (A.D.500-A.D.1700), Classic Period (A.D. 1700-A.D.1900) Modern Period (A.D.1900- present).

Prerequisites (if any) *Give course codes and check all that are applicable.*	1st	2nd	3rd	4th
	☐ Consent of the Instructor	☐ Senior Standing	☐ Give others, if any.	
Co-requisites (if any)	1st	2nd	3rd	4th
Course Type *Check all that are applicable*	☒ Must course for dept.	☐ Must course for other dept.(s)	☐ Elective course for dept.	☒ Elective course for other dept.(s)

Course Classification *Give the appropriate percentage for each category.*					
Category	Mathematics & Natural Sciences				
Percentage	100				

Part II. Detailed Course Information

Course Objectives
Maximum 100 words.

To teach periods starting with **Egyptian and Babylonian Period** (2000 B.C.- 500 B.C.), **Greek Mathematics Period,** (500 B.C- A.D.500), **Hindu, Islamic and Period of Transmission** (A.D.500-A.D.1700), **Classic Period** (A.D. 1700-A.D.1900), **Modern Period** (A.D.1900-present)

Learning Outcomes
Explain the learning outcomes of the course. Maximum 10 items.

1) The students will learn basic periods of mathematical improvements
2) The students will learn life's and contributions of famous mathematicians
3) The students will understand the counter proportional effects of religion and technology in each of these periods

Textbook(s)
List the textbook(s), if any, and other related main course material.

Author(s)	Title	Publisher	Publication Year	ISBN
H. Eves	*An introduction to the History of Mathematics*; 6th Edition	Thomson and Brooks/Cole	2005	0-03-029558-0

Reference Books
List, if any, other reference books to be used as supplementary material.

Author(s)	Title	Publisher	Publication Year	ISBN
C. B. Boyer	A History of Mathematics, 2 nd Edition	WILEY	1991	0471543977

Teaching Policy
Explain how you will organize the course (lectures, laboratories, tutorials, studio work, seminars, etc.)

3 hours of lecturing per week. Attendance to the lectures is compulsory.

Laboratory/Studio Work
Give the number of laboratory/studio hours required per week, if any, to do supervised laboratory/studio work and list the names of the laboratories/studios in which these sessions will be conducted.

Computer Usage
Briefly describe the computer usage and the hardware/software requirements for the course.

Course Outline
List the weekly topics to be covered.

Week	Topic(s)
1	Mathematical Periods
2	Egyptian and Babylonian Period (2000 B.C.- 500 B.C.) Introduction to early numeral systems, Simple arithmetic, Practical geometry, Decimal and Sexagesimal numeral systems, Sources: Ahmes (Rhind) papyrus; Moscow papyrus; Babylonian tablets, No theorems, no formulas, essentially empirical mathematics
3	Greek Mathematics Period, (500 B.C- A.D.500) Development of deductive geometry (Thales, Pythagoras), Start of number theory (Pythagorean school) Systematization of deductive logic (Aristotle, Platon or Eflatun; 340 B.C)
4	Geometry of conic sections (Apollonius, 225 B.C), Axiomatic development of geometry (Euclid, 300 B.C), Germ of the integral calculus (Archimedes, 225 B.C)
5	Hindu, Islamic and Period of Transmission (A.D.500-A.D.1700), Negative numbers And invention of zero, Introduction of Hindu-Arabic numeral system (before A.D 250), Preserves of Hindu arithmetic and Greek geometry
6	Book of Algebra and a book about the computation of Hindu numerals (Al- Khowarizmi, A.D.820), Geometric solution of cubic equations (Omar Hayyam, A.D. 1100, S. Al- Tusi A.D.1170)
7	Trigonometric tables (Ulug Bey, A.D.1435, Jamshid al-Kashi A.D.1430, Law of Cosine), Translation of Arabic works, learning's preserved by the Arabs slowly transmitted to Europe, Fibonacci's book about Hindu-Arabic numeral system (A.D.1202, an adaptation of al-Khowarizmi's book), First math. Book printed in Europe (Treviso Arithmetic, Italy 1478), First printed edition of Euclid's *"Elements"* (A.D.1482), Growth of the Ottoman Empire (450-1683)
8	**Classic Period** (A.D. 1700-A.D.1900) ,*(1700-1827 Stagnation period of the Ottoman Empire), Logarithms* (Napier1614), *Modern Number Theory* (Fermat,1635), *Analytic Geometry* (Descartes 1637), *Mathematical Probability* (Pascal 1654), *Calculus* (Leibniz 1684, Newton 1687)
9	*Applied Calculus* (Bernoulli 1700, D'Alembert 1743, Euler 1750,Lagrange 1788, Laplace 1805,Green 1828, Poisson 1831, Fourier, 1822), *Topology* (Riemann 1851, Möbius 1865, Poincaré 1895)
10	*Analysis* (Lagrange 1797, Abel 1826, Cauchy 1827, Dirichlet 1840, Dedekind 1872, Weierstrass 1874, Lebesgue 1903), *Abstract Spaces* (Frechet 1906, Hausdorff 1914, Banach 1923), *Set Theory* (Cantor 1874, Boole 1847, De Morgan 1848, Hausdorff 1914)
11	*Abstract Algebra* (Galois 1832, Hamilton 1843, Cayley 1857,Grassmann 1844) *Electromagnetism* (Edison, 1890, N.Tesla, 1900)
12	Modern Period (A.D.1900- present) , *(1828-1908 Decline period of the Ottoman Empire), Gödel 's Incompleteness Theorem* (1958), *Inner Product Spaces,* Generalizations of R^n (Hilbert, 1925),
13	*Metric Spaces* (Frechet, 1906), *Topological Spaces* (Kuratowski, 1922, Hausdorff 1914), *Functional Analysis* (**S. Banach**, 1932, Volterra 1930)
14	*Theory of Distributions (*Sobolev 1935, Schwarz (1942), Neutrices (B.Fisher 1996), Fractional Calculus (S.Dugowson 1998), Computing Machines (Babbage 1832, Alan Turing (1936)

Grading Policy
List the assessment tools and their percentages that may give an idea about their relative importance to the end-of-semester grade.

Assessment Tool	Quantity	Percentage	Assessment Tool	Quantity	Percentage	Assessment Tool	Quantity	Percentage
Homework	3	30	Case Study			Attendance		
Quiz(es)			Lab Work			Field Study		
Midterm Exam			Classroom Participation			Project		
Term Paper			Oral Presentation	1	40	Final Exam	1	30

ECTS Workload
List all the activities considered under the ECTS.

Activity	Quantity	Duration (hours)	Total Workload (hours)
Attending Lectures (*weekly basis*)	14	1	14
Attending Labs/Recitations (*weekly basis*)	14	2	28
Compilation and finalization of course/lecture notes (*weekly basis*)	14	0,5	7
Collection and selection of relevant material (*once*)	1	7	7
Self study of relevant material (*weekly basis*)	14	1	14
Take-home assignments	3	5	15
Preparation for quizzes			
Preparation for mid-term exams (*including the duration of the exams*)			
Preparation of term paper/case-study report (*including oral presentation*)	1	15	15
Preparation of term project/field study report (*including oral presentation*)			
Preparation for final exam (*including the duration of the exam*)	1	25	25
		TOTAL WORKLOAD / 25	125/25
		ECTS Credit	**5**

Total Workloads are calculated automatically by formulas. To update all the formulas in the document first press CTRL+A and then press F9.

Program Qualifications vs. Learning Outcomes *Consider the program qualifications given below as determined in terms of learning outcomes and acquisition of capabilities for all the courses in the curriculum. Look at the learning outcomes of this course given above. Relate these two using the Likert Scale by marking with X in one of the five choices at the right.*

No	Program Qualifications	Contribution				
		0	1	2	3	4
1	Adequate knowledge in mathematics; ability to use applied and theoretical information in these areas to solve pure and applied mathematics problems.			X		
2	Ability to use modern computational tools to analyze an abstract or real life problem			X		
3	Adequate knowledge in theoretical and historical background in mathematics					X
4	Ability to work individually and in teams efficiently, ability to collaborate effectively in teams to analyze complex systems from intra-disciplinary and multi-disciplinary areas			X		
5	Ability to communicate effectively in English about technical subjects, both orally and in writing				X	
6	Ability to use, develop and implement new experiments and algorithms to solve scientific, engineering and financial problems			X		
7	Ability to analyze a mathematical problem using both analytical and numerical methods; use and compare theoretical and simulational methods to gain deeper insight			X		
8	Ability to report the findings, conclusions and interpretations related to a project in the area of pure and applied mathematics, ability to write technical reports, to prepare and conduct effective presentations				X	
9	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to keep continuous self improvement				X	
10	Awareness of professional and ethical responsibility issues and their legal consequences					X

Scale for contribution to a qualification: **0**-none, **1**-little, **2**-moderate, **3**-considerable, **4**-highest