Department of Mathematics

Course Profile

Course Number: MATH461	**Course Title: Introduction to Topology**
Required / Elective: Elective	**Prerequisites:** None
Catalog Description: Elements of general topology, topological spaces, continuous functions, connectedness, compactness, completeness, separation axioms and metric spaces.	**Textbook / Required Material:** G.F. Simmons, Introduction to Topology and Modern Analysis, Krieger Pub. Co., 1982
Course Structure / Schedule: (3+0+0) 3 / 7 ECTS	
Extended Description: Elementary concepts; Metric spaces; Spaces of continuous functions. The definition and some examples of topological spaces; Open bases and open subbases; Weak topologies. Connected spaces; Totally disconnected spaces; Locally connected spaces. Compact spaces; Tychonoff's theorem; Locally compact spaces. T_1 spaces and Hausdorff spaces; Completely regular spaces and normal spaces; Urysohn's lemma and the Tietze extension theorem.	
Design content: None	**Computer usage:** No particular computer usage required

Course Outcomes:

By the end of the course the students should be able to:

1. to recognize metric spaces and topological spaces, understand the distinction between topological and metric properties, and handle a variety of topological properties **[3,6]**
2. to work with continuous functions, and to recognize whether spaces are connected, compact or complete **[3,6]**
3. to prove elementary theorems involving the concepts of topological space, continuous function, compactness, and connectedness **[3,6]**

[3] demonstrate the ability to apply mathematics to the solutions of problems,

[6] have a basic knowledge of the main fields of mathematics, including analysis, algebra, differential equations, differential geometry,

Recommended reading:

B. Mendelson, Introduction to Topology, Courier Dover Publications, 1990.

M.A. Armstrong, Basic Topology, Springer, 1997.

T.W. Gamelin and R.E. Greene, Introduction to Topology, Courier Dover Publications, 1999.

Teaching methods: Lectures, appropriate handouts which provide students with examples.

Assessment methods: Quizzes, midterm exams and final exam

Student workload:

Pre-reading .....25 hrs

Lectures ……45 hrs Preparatory reading .....…….....35 hrs Problem solving.....45 hrs Discussion.....25 hrs **TOTAL …… 175 hrs …… to match 25x7 ECTS**	
Prepared by : Banu Uzun	Revision Date : 08.02.2010