

	<b>Course name:</b> METRIC SPACES		<b>Department:</b> Mathematics				Semester
							4
	Methods of Education						Credit (ECTS)
	Lecture	Recitation/ (Etud)	Lab	Project/Field Study	Homework / Quiz	Other	Total
	52	0	0	0	40	88	180
Language	English						
Compulsory/Elective	Elective						
Prerequisites	Metric Spaces						
Weekly Detailed Course Contents	<b>Weeks</b>	<b>Subjects</b>					
	1	<ul style="list-style-type: none"> <li>Definition of metric, types, and examples of metric spaces</li> </ul>					
	2	<ul style="list-style-type: none"> <li>The concept of Ball, open and closed sets</li> </ul>					
	3	<ul style="list-style-type: none"> <li>Interior, closure, exterior, boundary, and accumulation points</li> </ul>					
	4	<ul style="list-style-type: none"> <li>Continuity of a function on metric spaces, Homeomorphism</li> </ul>					
	5	<ul style="list-style-type: none"> <li>Convergence of a sequence on metric spaces,</li> </ul>					
	6	<ul style="list-style-type: none"> <li>Cauchy sequences, Completeness on metric spaces</li> </ul>					
	7	<ul style="list-style-type: none"> <li>Restricted metric on a subset of a metric space, Norm</li> </ul>					
	8	<ul style="list-style-type: none"> <li>Uniform continuity of functions on Metric spaces</li> </ul>					
	9	<ul style="list-style-type: none"> <li>Isomorphism, isometric isomorphism</li> </ul>					
	10	<ul style="list-style-type: none"> <li>Isometry</li> </ul>					
	11	<ul style="list-style-type: none"> <li>Isomorphic spaces</li> </ul>					
	12	<ul style="list-style-type: none"> <li>Connected metric spaces</li> </ul>					
	13	<ul style="list-style-type: none"> <li>Theory of compactness on metric spaces</li> </ul>					
14	<ul style="list-style-type: none"> <li>Characterization of connectedness and compactness in metric spaces using open and closed sets.</li> </ul>						
Course Objectives	<p>The purpose of this course is to</p> <ul style="list-style-type: none"> <li>Introduce concepts related to metric spaces and provide general properties of metric structures.</li> </ul>						
Learning Outcomes and Competences	<p>Upon completion of this course students will be able to</p> <ul style="list-style-type: none"> <li>Define metric space Define rounding, norm, open set, closed set, and find the closure, interior, exterior, boundary, and accumulation points of a set in metric spaces.</li> <li>Characterize the continuity of functions between metric spaces.</li> <li>Define convergence of sequences, Cauchy sequences, Connectedness and completeness.</li> </ul>						

Textbook and /or References	<b>References:</b> <ul style="list-style-type: none"> <li>• Wilson A. Sutherland, Introduction to Metric &amp; Topological Spaces, Second Edition, Oxford Mathematics.</li> <li>• Satish Shirali and Harkrishan L. Vasudeva, Metric Spaces, Springer-Verlag London Limited 2006.</li> </ul>		
Assessment Criteria		If any, mark as (X)	Percentage (%)
	Midterm Exams	X	30
	Quizzes	X	10
	Homework		
	Projects		
	Term Paper		
	Laboratory work		
	Other		
	Final Exam	X	60