

	<b>Course name:</b> MATH 112 Calculus II		<b>Department:</b> Mathematics				Semester 2
	Methods of Education						Credit (ECTS)
	Lecture	Recitation/ (Etud)	Lab	Homework/ Quiz	Exams	Other	Total
56	28	0	30	75	112	301	
Language	English						
Compulsory/Elective	Compulsory						
Prerequisites	MATH 111 Calculus I						
Course Contents	Week	Subjects					
	1	<ul style="list-style-type: none"> <li>▪ Areas between two curves.</li> <li>▪ The method of substitution.</li> <li>▪ Integration by Parts</li> </ul>					
	2	<ul style="list-style-type: none"> <li>▪ Integrals of rational functions.</li> <li>▪ Inverse substitutions</li> <li>▪ Other methods for evaluating Integrals</li> </ul>					
	3	<ul style="list-style-type: none"> <li>▪ Improper integrals.</li> <li>▪ Volumes by slicing.</li> <li>▪ Solids of revolution.</li> </ul>					
	4	<ul style="list-style-type: none"> <li>▪ Cylindrical shells.</li> <li>▪ Arc length of the graph of a function.</li> <li>▪ Areas of surfaces of revolution.</li> </ul>					
	5	<ul style="list-style-type: none"> <li>▪ Parametric curves, smooth parametric curves.</li> <li>▪ Arc lengths and areas for parametric curves.</li> </ul>					
	6	<ul style="list-style-type: none"> <li>▪ Polar coordinates and polar curves</li> <li>▪ Slopes, areas, arc lengths for parametric curves.</li> </ul>					
	7	<ul style="list-style-type: none"> <li>▪ Sequences, convergence of sequences.</li> </ul>					
	8	<ul style="list-style-type: none"> <li>▪ Series, Convergence of Series Geometric series, telescoping series and harmonic series.</li> </ul>					
	9	<ul style="list-style-type: none"> <li>▪ The integral test.</li> <li>▪ Comparison tests.</li> <li>▪ The ratio and root tests.</li> </ul>					
	10	<ul style="list-style-type: none"> <li>▪ Absolute and conditional convergence.</li> <li>▪ Alternating series test.</li> <li>▪ Rearranging the terms in a series.</li> </ul>					
	11	<ul style="list-style-type: none"> <li>▪ Power series.</li> </ul>					
	12	<ul style="list-style-type: none"> <li>▪ Taylor and Maclaurin series.</li> </ul>					
	13	<ul style="list-style-type: none"> <li>▪ Series, Convergence of Series Geometric series, telescoping series and harmonic series.</li> </ul>					
	14	<ul style="list-style-type: none"> <li>▪ The Binomial theorem and Binomial series.</li> </ul>					
Course Objectives	<p>The purpose of this course is</p> <ul style="list-style-type: none"> <li>• to provide a strong background on integration in one variable and infinite series,</li> <li>• to give fundamental knowledge in integration techniques, together with convergence and divergence of integrals and series.</li> </ul>						
Learning Outcomes and Competences	<p>Upon completion of this course students will</p> <ul style="list-style-type: none"> <li>• be able to compute basic type of integrals in one variable,</li> <li>• be able to use integration to compute some fundamental areas and volumes,</li> <li>• know how to determine convergence of a series.</li> <li>• able to use these concepts in suitable real-life problems whenever necessary.</li> </ul>						

Textbook and /or References	1) Adams, R. A. and Essex, C., <i>Calculus a Complete Course</i> , 9 <sup>th</sup> edition Pearson, 2) Rogawski, J., <i>Single Variable Calculus</i> , 3 <sup>rd</sup> edition W.H. Freeman & CO.		
Assessment Criteria		If any, mark as (X)	Percentage (%)
	Midterm Exams	X	35
	Quizzes	X	5
	Homework		
	Projects		
	Term Paper		
	Laboratory work		
	Other		
	Final Exam	X	60
Instructors			