



COURSE: Cálculus I

DEGREE: Electric Engineering

YEAR: 1º

TERM: 1º

WEEKLY PLANNING

WEEK	SESSION	DESCRIPTION	GROUP		WEEKLY PROGRAMMING FOR STUDENTS		
			L	S	DESCRIPTION	CLASS HOURS	HOMEWORK HOURS
1	1	<b>1. Functions</b> <b>1.1 Numbers, functions and their graphs</b> <ul style="list-style-type: none"> <li>Real numbers</li> <li>Functions</li> <li>Graphs</li> </ul>		X	Study chapter P, [LE] (*1)	1,66 (100min)	7
1	2	<b>1.2 Limits and their properties</b> <ul style="list-style-type: none"> <li>Evaluating limits analytically</li> <li>Infinite limits</li> <li>Limits at infinity</li> </ul>	X		Study sections 1.1-1.3, 1.5 y 3.5, [LE]	1,66	
2	3	Selected exercises (*2)		X	Odd numbered exercises. Compare with solutions (*3)	1,66	7
2	4	<b>1.3 Continuous functions</b> <ul style="list-style-type: none"> <li>Continuity and one-side limits</li> <li>The Intermediate Value Theorem</li> </ul>		X	Study section 1.4, [LE] (*1)	1,66	
3	5	Selected exercises (*2) <b>TEST 1</b>		X	Odd numbered exercises. Compare with solutions (*3)	1,66	7
3	6	<b>2. Differentiation</b> <b>2.1 Definition and basic differentiation rules</b> <ul style="list-style-type: none"> <li>The derivative and tangent line</li> <li>Basic differentiation rules</li> <li>Product and quotient rules and higher-order derivatives</li> </ul>	X		Study sections 2.1-2.3, [LE] (*1)	1,66	

4	7	Selected exercises (*2)		X	Odd numbered exercises. Compare with solutions (*3)	1,66	7
4	8	<ul style="list-style-type: none"> <li>The Chain rule</li> <li>Implicit differentiation</li> </ul> <b>2.2 Applications</b> <ul style="list-style-type: none"> <li>Extrema on an interval</li> <li>Rolle's and mean-value theorems</li> </ul>	X		Study sections 2.4-2.5 y 3.1-3.2, [LE] (*1)	1,66	
5	9	Selected exercises (*2) <b>TEST 2</b>		X	Odd numbered exercises. Compare with solutions (*3)	1,66	7
5	10	<ul style="list-style-type: none"> <li>Increasing and decreasing functions</li> <li>Concavity</li> <li>Curve sketching</li> </ul> <b>2.3 Optimization problems</b>	X		Study sections 3.3 y 3.7, [LE] (*1)	1,66	
6	11	Selected exercises (*2)		X	Odd numbered exercises. Compare with solutions (*3)	1,66	7
6	12	<b>2.4 Taylor polynomials</b> <ul style="list-style-type: none"> <li>Taylor polynomials</li> <li>Indeterminate forms and L'Hôpital's rule</li> </ul>	X		Study sections 9.7 y 8.7, [LE] (*1)	1,66	
7	13	<b>Test on chapters 1 and 2</b>		X	Odd numbered exercises. Compare with solutions (*3)	1,66	7
7	14	<b>3. Integration</b> <b>3.1. Primitives</b> <ul style="list-style-type: none"> <li>Antiderivatives and indefinite integration</li> <li>Area and definite integrals</li> <li>The Fundamental Theorem of Calculus</li> </ul>	X		Study sections 4.1-4.4, [LE] (*1)	1,66	
8	15	Selected exercises (*2)		X	Odd numbered exercises. Compare with solutions (*3)	1,66	7
8	16	<b>3.2. Integration techniques</b> <ul style="list-style-type: none"> <li>Basic integration rules</li> <li>Integration by substitution</li> <li>Integration by parts</li> </ul>	X		Study sections 4.5 y 8.1-8.2 [LE] (*1)	1,66	
9	17	Selected exercises (*2) <b>TEST 3</b>		X	Odd numbered exercises. Compare with solutions (*3)	1,66	7
9	18	<ul style="list-style-type: none"> <li>Partial fractions</li> <li>Improper integrals</li> </ul>	X		Study sections 8.5 y 8.8, [LE] (*1)	1,66	

10	19	Selected excercises (*2)		X	Odd numbered exercises. Compare with solutions (*3)	1,66	7	
10	20	<b>3.3. Applications</b> • Area of a region between two curves • Volume	X		Study sections 7.1-7.3, [LE] (*1)	1,66		
10	21	• Arc length and surfaces of revolution • Centers of mass, fluide pressure	X		Study sections 7.4-7.7, [LE] (*1)	1,66		
11	22	Selected excercises (*2) <b>TEST 4</b>		X	Odd numbered exercises. Compare with solutions (*3)	1,66	7	
11	23	<b>4. Infinite series</b> <b>4.1 Sequences</b>	X		Study sections 9.1, [LE] (*1)	1,66		
12	24	Selected excercises (*2)		X	Odd numbered exercises. Compare with solutions (*3)	1,66	7	
12	25	<b>4.2 Series</b> • Real number series and convergence • Alternating series • Convergence criteria	X		Study sections 9.2-9.6, [LE] (*1)	1,66		
13	26	Selected excercises (*2) <b>TEST 5</b>		X	Odd numbered exercises. Compare with solutions (*3)	1,66		
13	27	<b>4.3 Power series</b> • Representation of functions by power series • Convergence radius	X		Study sections 9.8-9.9.9, [LE] (*1)	1,66	7	
14	28	Selected excercises (*2)		X	Odd numbered exercises. Compare with solutions (*3)	1,66	7	
14	29	• Taylor series	X		Study sections 9.10, [LE] (*1)	1,66		
						<b>Subtotal 1</b>	<b>48,33</b>	<b>98</b>
<b>Total 1 (Hours of class plus student homework hours between weeks 1-14)</b>							<b>146,33</b>	

15		Extra sessions Tutorials, handling in, etc					4	
16		Assessment, evaluation preparation					6	
17		Final Test				3,66		
18								
						<b>Subtotal 2</b>	<b>3,66</b>	<b>10</b>
<b>Total 2 (Hours of class plus student homework hours between weeks 15-18)</b>							<b>13,66</b>	

<b>TOTAL (Total 1 + Total 2)</b>							<b>160</b>
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Notes:

(\*1) Study the corresponding sessions in Larson&Edwards' book.

(\*2) Selected exercises from Larson&Edwards' book corresponding to the previous lecture in large group.

(\*3) Do some of the odd numbered exercises Larson&Edwards' book corresponding to the previous lecture in large group and compare with the solutions in the book.