



COURSE: Calculus I		
DEGREE: Bachelor in Engineering	YEAR: 1st	TERM: 1st

30 (*4, see Notes at the end) **sessions along 15 weeks.**

WEEKLY PLANNING									
WEEK	SESSION	DESCRIPTION	GROUPS		#1	#2	WEEKLY PROGRAMMING FOR STUDENTS		
			LECTURES	SEMINARS			DESCRIPTION	CLASS HOURS (*5, see Notes at the end)	HOMEWORK HOURS (Max. 7h week)
1		CHAPTER 1: Functions and Limits (*0, all chapters and section numbers refer to the book by Larson&Edwards) <ul style="list-style-type: none"> - Real Numbers (App C) - Functions (P.3) - Limits (1.2, 1.3) 	X				(*1, see Notes at the end)	1,66	7
		Selected exercises (*2, see Notes at the end)		X			Odd numbered exercises. Compare with solutions (*3)	1,66	
2		<ul style="list-style-type: none"> - Continuity (1.4) - Limits and Infinity (1.5, 3.5) 	X				(*1, see Notes at the end)	1,66	7
		Selected exercises (*2, see Notes at the end)		X			Odd numbered exercises. Compare with solutions (*3)	1,66	
3		CHAPTER 2: Differentiation <ul style="list-style-type: none"> - The derivative and the tangent line (2.1) - Basic differentiation rules (2.2, 2.3) - The chain rule (2.4) - Implicit differentiation (2.5) 	X				(*1, see Notes at the end)	1,66	7

		- Rates of change (2.2)						
		Selected exercises (*2, see Notes at the end)		X			Odd numbered exercises. Compare with solutions (*3)	1,66
4		CHAPTER 3: Rolle's and mean-value theorems - Extrema (3.1) - Rolle's and mean-value theorems (3.2) - Consequences of Rolle's theorem (3.3, 3.4)	X				(*1, see Notes at the end)	1,66
		Selected exercises (*2, see Notes at the end)		X			Odd numbered exercises. Compare with solutions (*3)	1,66
5		CHAPTER 3: Rolle's and mean-value theorems - L'Hôpital's rule (8.7) - Taylor Polynomial (9.7)	X				(*1, see Notes at the end)	1,66
		Selected exercises (*2, see Notes at the end)		X			Odd numbered exercises. Compare with solutions (*3)	1,66
6		CHAPTER 4: Applications of differentiation - Curve sketching (3.6) - Optimization problems (3.7)	X				(*1, see Notes at the end)	1,66
		Selected exercises (*2, see Notes at the end)		X			Odd numbered exercises. Compare with solutions (*3)	1,66
7		CHAPTER 4: Applications of differentiation - Optimization problems (3.7) - Introduction to differential equations	X				(*1, see Notes at the end)	1,66
		Selected exercises (*2, see Notes at the end)		X			Odd numbered exercises. Compare with solutions (*3)	1,66
8		CHAPTER 5: Indefinite Integrals - Antiderivatives and indefinite integration (4.1) - Basic integration rules (8.1) - Integration by substitution (4.5) - Integration by parts (8.2) - Trigonometric integrals (8.3, 8.4) - Partial fractions (8.5)	X				(*1, see Notes at the end)	1,66
		Selected exercises (*2, see Notes at the end)		X			Odd numbered exercises. Compare with solutions (*3)	1,66
9		CHAPTER 6: Definite Integrals - Area (4.2) - Riemann sums and definite integrals (4.3) - The Fundamental Theorem of Calculus (4.4) - Improper integrals (8.8)	X				(*1, see Notes at the end)	1,66
		Selected exercises (*2, see Notes at the end)		X			Odd numbered exercises. Compare with solutions (*3)	1,66

10	CHAPTER 7: Logarithmic, exponential and other transcendental functions <ul style="list-style-type: none"> - The natural logarithmic function: Differentiation (5.1) - The natural logarithmic function: Integration (5.2) - Inverse functions (5.3) - Exponential functions (5.4, 5.5) - Inverse trigonometric functions (5.6, 5.7) - Hyperbolic functions (5.8) 	X			(*1, see Notes at the end)	1,66	7
	Selected exercises (*2, see Notes at the end)		X		Odd numbered exercises. Compare with solutions (*3)	1,66	
11	CHAPTER 8: Applications of Integration <ul style="list-style-type: none"> - Area of a region between two curves (7.1) - Volume: The disk method (7.2) - Volume: The shell method (7.3) 	X			(*1, see Notes at the end)	1,66	7
	Selected exercises (*2, see Notes at the end)		X		Odd numbered exercises. Compare with solutions (*3)	1,66	
12	<ul style="list-style-type: none"> - Arc length and surfaces of revolution (7.4) - Applications to Physics (7.5, 7.6, 7.7) 	X			(*1, see Notes at the end)	1,66	7
	Selected exercises (*2, see Notes at the end)		X		Odd numbered exercises. Compare with solutions (*3)	1,66	
13	CHAPTER 9: Sequences and Series <ul style="list-style-type: none"> - Sequences (9.1) - Series and convergence (9.2) 	X			(*1, see Notes at the end)	1,66	7
	Selected exercises (*2, see Notes at the end)		X		Odd numbered exercises. Compare with solutions (*3)	1,66	
14	CHAPTER 9: Sequences and Series <ul style="list-style-type: none"> - The integral test and p-series (9.3) - Comparison of series (9.4) - Alternating series (9.5) - The ratio and root tests (9.6) 	X			(*1, see Notes at the end)	1,66	7
	Selected exercises (*2, see Notes at the end)		X		Odd numbered exercises. Compare with solutions (*3)	1,66	
15	CHAPTER 10: Power and Taylor series	X			(*1, see Notes at the end)	1,66	7

		- Power series (9.8) - Representation of functions by power series (9.9) - Taylor and Maclaurin series (9.10) - Applications of power series to differential equations						
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Subtotal 1 **48,33** **98**

Total 1 (Hours of class plus student homework hours between weeks 1-14)							146,33	
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15		Extra sessions Tutorials, handling in, etc						4
16		Assessment, evaluation preparation					3,66	6
17		Final Test						
18								

Subtotal 2 **3,66** **10**

Total 2 (Hours of class plus student homework hours between weeks 15-18)								
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TOTAL (Total 1 + Total 2)							160	
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Notes:

- (*0) All chapters and sections numbers refer to the textbook by Larson&Edwards "Calculus I (single variable)" ed. Cengage Learning (9th edition).
- (*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.
- (*4) There are 30 sessions. 15 of theory, 15 of exercises.
- (*5) 1,66 hours (in fact 10/6) corresponds to 100 minutes each session.

- #1 SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)
- #2 Indicate YES/NO If the session needs 2 teachers