

## Course: Mathematics 2

credits: 4

<b>Course code</b>	ELVP18AMATH2	<b>Modes of delivery</b>	Lecture
<b>Name</b>	Mathematics 2	<b>Assessments</b>	Mathematics 2 - Assignment
<b>Study year</b>	2020-2021		
<b>ECTS credits</b>	4		
<b>Language</b>	English		
<b>Coordinator</b>	J.M. Wilson		

### Learning outcomes

- The student explains, understands and uses the basic concepts of derivatives and differentiation, such as the geometric interpretation of the derivative as the slope of the curve at a point, and also as the rate of change of a function at a point.
- The student calculates derivatives of common functions (powers of  $x$ , exponentials, logarithms and trigonometric) using a table, and can differentiate combinations of common functions using linearity, the product rule, the quotient rule, and the chain rule. The same methods can also be applied to finding higher order derivatives.
- The student finds the maxima, minima and points of inflexion (if any) of a function using the first and second derivatives.
- The student calculates integrals of common functions (powers of  $x$ , exponentials, logarithms and trigonometric) using a table.
- The student integrates combinations of common functions using linearity, integration by parts, and by substitution
- The student calculates definite integrals, applies them to calculate the area of a region under a curve and bounded areas under curves and between curves.

### Content

Analysis of engineering problems is one of the most important functions of an engineer. Mathematics, in particular calculus, is arguably the most important and most commonly used tool in order to analyse problems. In this course, the basic tools of calculus are developed that are often required in engineering.

### Included in programme(s)

Electrical Engineering Major Sensor Technology

### School(s)

Institute of Engineering

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