

Academic Year: ( 2020 / 2021 )

Review date: 08-06-2018

Department assigned to the subject:

Coordinating teacher: BRANDLE CERQUEIRA, CRISTINA

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

**OBJECTIVES**

To identify functions, their dependence on variables and their basic properties

To understand the concept of limit and compute easy limits.

To understand the definition of derivative and use its interpretation as tangent line. TO compute derivatives

To understand the difference between indefinite and definite integral and compute easy integrals

**DESCRIPTION OF CONTENTS: PROGRAMME**

Functions and their graphs (4 lessons)

↳ Lines and quadratic functions

↳ Functions

↳ Combinations of functions

Inverse functions

Polynomial and rational functions (4 Lessons)

Polynomial functions of Higher Degree

Polynomial division

Rational functions

Inequalities and absolute values

Limits and their properties. Continuous functions (4 lessons)

↳ Evaluating limits analytically

↳ Infinite limits

↳ Limits at infinity

↳ Continuity and one-side limits

Definition and basic differentiation rule (4 lessons)

↳ The derivative and tangent line

↳ Basic differentiation rules

↳ Product and quotient rules and higher-order derivatives

↳ The Chain rule

L'Hôpital's rule

Primitives (4 lessons)

↳ Antiderivatives and indefinite integration

↳ Area and definite integrals

↳ Integration by substitution

↳ Integration by parts

**ASSESSMENT SYSTEM**

Tests (50%)

Final exam (50%)

#### BASIC BIBLIOGRAPHY

- Larson, R., Edwards, B. H. Calculus of a single variable, Cengage.
- Larson R; Hostetler, R.P Precalculus, Cengage, 2014