



Course catalogue

TTF-PB101 Mathematics 1

Programme	Food Technology and Biotechnology
Level	Bachelor's programme
Academic year	1 year
Semester	Autumn Semester
ECTS credits	6 credits
Lecturers	Assoc. Prof. Dr.sc Vesna Knights
Language	Macedonian/English

Objective	The course objectives are for the student to have a necessary knowledge of the required mathematical skills, the ability to think logically and apply the correct applications of mathematical models to the problems of technical-technology science.
Content	Set of real numbers, intervals; absolute value. Elements of linear algebra, elements of vector algebra. Determinate and matrix. Limits and Continuity. Functions, Functions and Their Graphs, Combining Functions; Shifting and Scaling Graphs, Trigonometric Functions, Graphing with Software. Derivatives, Tangents and the Derivative at a Point, The Derivative as a Function, Differentiation Rules, The Derivative as a Rate of Change, Derivatives of Trigonometric Functions, The Chain Rule, Implicit Differentiation, Related Rates, Linearization and Differentials. Applications of Derivatives, Extreme Values of Functions, The Mean Value Theorem, Monotonic Functions and the First Derivative Test, Concavity and Curve Sketching, Applied Optimization. Techniques of Integration, Undefined integrals.
Learning materials	Reading from the primary literature are referenced in class and posted to the course website. <ol style="list-style-type: none">1. Bill Cox, Understanding Engineering Mathematics, 2001, ISBN: 0-7506-5098-22. Thomas, G. B.: Thomas' Calculus, (Pearson Addison-Wesley). ISBN-10: 0-321-87896-5 ISBN-13: 978-0-321-87896-03. Bretscher, O.: Linear Algebra with Applications (Pearson Prentice Hall).