Tallinn University of Technology
School of Business and Governance

MEM3010 Refresher Course in Mathematics for Business Students

Extended syllabus
Autumn 2025

Course aims/objectives:	Repeating of the main concepts of secondary mathematics, which are necessary for the learning of business mathematics, microeconomics and macroeconomics.
Learning outcomes:	the student will 1) know the elementary functions, ranges and domains of the elementary functions; 2) be able to draw the graphs of the elementary functions; 3) be able to transform algebraic expressions; 4) be able to solve the equations, inequalities, and system of equations considered in the course; 5) know the differentiation rules, and be able to differentiate functions, including the composite function; 6) know the basic type of percentage exercises, and be able to solve them.
Brief description of the course (topics):	Elementary functions. Range and domain of the functions. Algebraic expressions. Equations and systems of equations. Inequalities. The derivative of a function. Percentage.
Language of the course:	English
ECTS credits:	3 ECTS
Students:	This is an elective course for students studying on TVTB programme.
Special needs:	Persons with disabilities can participate in this course. Please inform the professor(s) in the beginning of the course of any special instruction, or assessments of this course that may be necessary to enable you to fully participate in this course.
Registration:	Students who would like to take the course should declare the course in the ÕIS (Study Information System) by deadlines set in the academic calendar.
Prerequisite courses and/or knowledge:	Passed upper secondary mathematics courses.
Prerequisite resources:	No
Teacher:	***Lecturer Jelena Matina*** e-mail: jelena.matina@taltech.ee office: SOC-482 phone nr: 620 4068 office hours: *with pre-registration via e-mail*
Contacting Teacher:	Preferred means of contact are ***e-mails***, responses provided within ***3*** workdays.
Schedule for classes:	

Study process description:	During this course the students solve tasks to repeat the concepts of secondary mathematics and complete 10 Moodle quizzes and Final test.
Course's e-support:	Course materials can be accessed via the e-learning environment Moodle under the course title ``MEM3010 Refresher Course in Mathematics for Business Students (autumn 2024)``https://moodle.taltech.ee/course/view.php?id=33875 Students can enrol to the course themselves using the **password:** If you have no Moodle account yet, please create it by filling in the registration form at https://confluence.ttu.ee/it-info/uus-toeoetaja-opilane-new-employee-student/koondjuhend-ueliopilasele-general-guide-for-students
Study literature:	Fisher, R. W. (2011). No-Nonsense Algebra: Part of the Mastering Essential Math Skills. Math Essentials. Li, R. (2018). A Quick Guide to Derivatives. Stewart, J., Redlin, L., Watson, S. (2015). Precalculus: Mathematics for Calculus, 7th edition. Cengage Learning. Additional literature: Lea Lepmann, Tiit Lepmann, Kalle Velsker. Matemaatika õpik 10 klassile. Koolibri, 2011 All textbooks are available in the TalTech library.
Continuous assessment and evaluation criteria for continuous assessment:	*Ten individual Moodle quizzes*. Individual Moodle quiz comprises of four numerical exercises (*a* 0.25 points), thus every quiz gives 1 point in total. The quiz is open in Moodle after the classes: on Friday at 8:00 until Sunday at 8:00 (thus it is open for 48h). The quiz is open for 60 minutes, and it is not possible to complete the quiz other times. One can complete the quiz only once. All 10 individual quizzes give 10 additional points.
Final test and evaluation criteria for the final test:	*Final test.* *In the end of the course, a Moodle Final test takes place. The Final test includes solving exercises, theoretical questions are not asked. In the Final test, the appropriateness of the chosen solving strategy as well as the correct solution is graded.*
Final grade:	The collected points are graded as follows: 26 points or more - "pass" (P); less than 26 points - "fail" (F).
Academic integrity:	As a student at Tallinn University of Technology, you have an obligation to conduct your academic work with honesty and integrity according to TalTech standards. It is expected that all work that you submit will be your own, and that you have actually done the work that you are submitting. Plagiarism and cheating will not be tolerated. Should you be found to be guilty of such activities, it will be followed with grade "0" for the assignment/exam and a notice will be filed to the School's Committee for Handling Violations of Academic Practice and Contemptible Behaviour. Depending on the Committee's proposal, it may lead to Dean issuing a letter of reprimand or in case of repeated or very severe misconduct, exarticulation from the University.

Detailed schedule and topics

The semester plan is preliminary and might be changed in case of cancellations, changes in available reading material, etc.

Week 1

Tutorial 1. Simplifications: Algebraic Expressions and Polynomials.
Tutorial 2. Powers and Roots.
Tutorial 3. Equations.
Tutorial 1 and Tutorial 2
In class Solving exercises on Tutorial 1.
Solving exercises on Tutorial 2.
5th of September: Tutorial 3
In class – Solving exercises on Tutorial 3.
Solving exercises on of Tutorial 3.
After-class: Read material provided in Moodle and do Quiz 1, Quiz 2 and Quiz 3
Expected hours of work: 8 hours per week in a classroom and 11.5 hours of self-employment.

Week 2

Tutorial 4. Equations 2.
Tutorial 5. Systems of Equations
Tutorial 6. Inequalities and Systems of Linear Inequalities.
11th of September: Tutorial 4 and Tutorial 5
In class – Solving exercises on Tutorial 4.
Solving exercises on Tutorial 5.
12th of September: Tutorial 6
In class – Solving exercises on Tutorial 6.
Solving exercises on of Tutorial 6.
After-class: Read material provided in Moodle and do Quiz 4, Quiz 5 and Quiz 6
Expected hours of work: 8 hours per week in a classroom and 11.5 hours of self-employment.

Week 3

Tutorial 7. Functions.
Tutorial 8. Derivatives.
18th of September: Tutorial 7
In class – Solving exercises on Tutorial 7.
Solving exercises on Tutorial 7.
19th of September: Tutorial 8
In class – Solving exercises on Tutorial 8.
Solving exercises on of Tutorial 8.
After-class: Read material provided in Moodle and do Quiz 7 and Quiz 8
Expected hours of work: 8 hours per week in a classroom and 11.5 hours of self-employment.

Week 4

Tutorial 9. Relative Extrema of the Function.
Tutorial 10. Percentage.
25th of September: Tutorial
In class – Solving exercises on Tutorial 9.
Solving exercises on Tutorial 10.
26th of September: Repetition and Final test
In class – Repetition before Final test.
Final test.
After-class: Read material provided in Moodle and do Quiz 9 and Quiz 10
Expected hours of work: 8 hours per week in a classroom and 11.5 hours of self-employment.