BUS 104 Business Mathematics II

Course Name	Course Code	Period	Hours	Application	Laboratory	Credit	ECTS
Business Mathematics II	BUS 104	2	3	0	0	3	5

Language of Instruction	English
Course Status	Compulsory
Course Level	Bachelor
Learning and Teaching Techniques of the Course	Lecture, Discussion, Question Answer, Problem Solving

Course Objective

This course introduces students to the mathematical concepts and applications necessary for successful business careers. the contents of the course include partial derivative of a function, chain rule, finite and infinite series, integral calculus, indefinite calculus, definite calculus and some business applications with derivatives and integral.

Learning Outcomes

The students who succeeded in this course will be able to
1. understand the derivatives and learn the chain rule
2. learn definite and indefinite series
3. understand the basic concepts of the integral calculus

Course Outline

Limits and Continuity, Derivatives, Integral Calculus, Indefinite Calculus, Definite Calculus and Some Business Applications

Weekly Topics and Related Preparation Studies		
Weeks	**Topics**	**Preparation Studies**
1	Limits and Continuity	Limits, Continuity, Continuity Applied to Inequalities
2	Limits and Continuity	Continuity Applied to Inequalities
3	Derivatives	Derivative of a function
4	Derivatives	Rules for Differentiation, The Derivative as a Rate of Change
5	Derivatives	The Product Rule and the Quotient Rule
6	Derivatives	Chain Rule, Derivatives of Logarithmic Functions, Derivatives of Exponential Functions
7	Business Applications for Derivatives	Elasticity of Demand, Revenue
8	**Mid-term Exam**	
9	Derivatives	Implicit Differentiation, Logarithmic Differentiation, Higher-Order Derivatives, The Second-Derivative Test
10	Business Applications for Derivatives	Maximum and Minimum Problems (Profit, Cost etc.)
11	Integral	Basic concepts of Integral
12	Integral	The Indefinite Integral, Integration with Initial Conditions
13	Integral	Power Rule, Specific Functions (Natural Exponential, Logarithmic)
14	Integral	Techniques of Integral, The Definite Integral
15	Business Applications for Integral	Marginal and Total (Cost, Revenue etc.)
16	**Final Exam**	

Textbook(s)/References/Materials:
Main Text Book:

Haeussler, E.F., Paul, R., Wood, R. Introductory Mathematical Analysis. Pearson, 2022.

Supplemantry Documents:
1. Calaway S., Hoffman D., Lippman D. Business Calculus. Opentextbookstore.com, 2013.
2. J.Oliver. Business Math: A-Step-by-Step Handbook. Lyryx Version 2021-B, 2021.
3. Marecek L., Intermediate Algebra, OpenStax, 2017.

Assessment		
Studies	**Number**	**Contribution margin (%)**
Attendance	16	%0
Lab	0	%0
Classroom application and performance	0	%0
Field Study	0	%0
Course-Specific Internship (if any)	0	%0
Quizzes / Studio / Critical	0	%0
Homework	0	%0
Presentation	0	%0
Projects	0	%0
Report		%0
Seminar		%0
Midterm Exam / Midterm Jury	1	%40
General Exam / Final Jury	1	%60
Total		**%100**
Success Grade Contribution of Semester Studies		%40
Success Grade Contribution of End of Term		%60
Total		%100

ECTS / Workload Table

Activities	Number	Duration (Hours)	Total Workload
Course hours (Including the exam week: 16 x total course hours)	16	3	48
Laboratory			
Application			
Course-Specific Internship			
Field Study			
Study Time Out of Class	16	4	64
Presentation / Seminar Preparation			
Projects			
Reports			
Homework			
Quizzes / Studio Review			
Preparation Time for Midterm Exam / Midterm Jury	1	4	4
Preparation Period for the Final Exam / General Jury	1	4	4
Total Workload/25 hours		**(120/25 = 4.8)**	
ECTS		**5**	

Relationship Between Course Learning Outcomes and Program Competencies

No	Learning Outcomes	Contribution Level				
		1	2	3	4	5
LO1	Understand the derivatives and learn the chain rule					X
LO2	Learn definite and indefinite series					X
LO3	Understand the basic concepts of the integral calculus					X

No	Program Competencies	LO1	LO2	LO3	Total Effect (1-5)
	Relationship Between Course Learning Outcomes and Program Competencies				
	Program Competencies	**Learning Outcomes**			**Total Effect (1-5)**
		LO1	**LO2**	**LO3**	
1	Have advanced theoretical and up-to-date knowledge in discipline-specific areas such as international trade, finance, logistics, and general business and international business such as economics, marketing, management, accounting.	X	X	X	3
2	Evaluate, follow, absorb and transfer new information in the field of international trade.	X	X	X	3
3	Conduct market research, carry out projects and develop strategies for a business to open up to international markets.			X	1
4	Use knowledge of national and international trade law and legislation in the management of international commercial operation processes.		X	X	2
5	Work independently and within an organization, using the knowledge and skills acquired in the field and adopting continuous learning.	X	X		2
6	Have the ability to apply her theoretical knowledge in real life, with the experience she will gain through practice in departments such as marketing, accounting, foreign trade, finance, logistics.		X	X	3
7	Have the theoretical knowledge to carry out export, import, customs clearance, logistics, taxation and other international trade activities within the scope of global and regional commercial and economic organizations.	X	X	X	3
8	Can develop a business idea, commercialize the business idea, and design and manage their own venture using their entrepreneurial knowledge.	X	X	X	3
9	Using strategic, critical, innovative and analytical thinking skills, actively take part in the decision-making processes of the enterprise in the field of foreign trade and finance.	X	X		2
10	Act in accordance with ethical values, respectful to the environment, social and universal values in all activities it will carry out in its field.	X	X		2
11	Have the skills to follow up-to-date information at national and international level, to gather information about field, and to communicate with international institutions / organizations using her/him knowledge of English.	X	X		2
12	Gain professional competencies to take charge in national and international businesses, public and private sector organizations	X	X		2
13	Can evaluate the problems and conflicts encountered in all areas related to international trade from different perspectives with a holistic approach and produce value-based solutions.	X	X		2
	Total Effect				30

Policies and Procedures

Web page: https://www.ostimteknik.edu.tr/uluslararasi-ticaret-ve-finansman-bolumu-209 https://www.ostimteknik.edu.tr/international-trade-and-finance-232
Exams: The exams aim at assessing various dimensions of learning: knowledge of concepts and theories and the ability to apply this knowledge to real-world phenomena, through analyzing the situation, distinguishing problems, and suggesting solutions. The written exams can be of two types,ie. open-ended questions, which can also be in the form of problems or multiple-choice questions. Examinations are individual and must be completed without any outside assistance. Students who attempt to cheat during exams will receive a failing grade from that exam. The case could also be carried to the Dean's Office for additional disciplinary action.
Assignments: Not applicable.
Missed exams: Any student missing an exam needs to bring an official medical report to be able to take a make-up exam. The medical report must be from a state hospital.
Projects: Not applicable.
Attendance: Attendance requirements are announced at the beginning of the term. Students are usually expected to attend at least 70% of the classes during each term.
Objections: If the student observes a material error in his/her grade, he/she has the right toplace an objection to the Faculty or the Department. The claim is examined and the student is notified about its outcome.