THE AMERICAN UNIVERSITY GIRNE CYPRUS

MTHS102 Calculus I Course Syllabus

Course Name	Calculus II
Course Code	MTHS 102
Type of Course	COMPULSORY
Course Level	UNDERGRADUATE
ECTS Credits	6
Weekly Theory Hour	2
Weekly Practice Hour	2
Year	2013-2014
Term	SPRING
Instructor (s)	Assist. Prof. Dr. Seren Başaran
Teaching System	Lecturing; This course utilizes the Moodle course management system to share information and resources. To access the course site, log on to this link: http://elearning.gau.edu.tr and select the course from list of courses. All course materials will be posted here.
Education Language	ENGLISH
Prerequisite course	MTHS101
Other recommended matters	-
Training status	-
Course Objectives	
Learning Outcomes	Students will; 1. develop mathematical proficiency that will enable them to efficiently use mathematics to make sense of and improve the world around them. 2. Develop positive attitudes toward mathematics, including the confidence, creativity, enjoyment, and perseverance that come from achievement. 3. Become proficient problem-solvers by posing appropriate questions, selecting appropriate methods, employing a variety of strategies, and exploring alternative approaches. 4. Think logically, using inductive reasoning to formulate reasonable conjectures and using deductive reasoning for justification, formally or informally. 5. Cooperatively and independently explore mathematics, using inquiry and technological skills. 6. Make connections between mathematical ideas, between mathematics and other disciplines, and to life. 7. Communicate mathematics through writing, modeling, and visualizing, using precise mathematical language and symbolic notation.
Course content	Exponential and logarithmic functions. Limits and derivatives, derivatives of exponential and logarithmic functions. Applications of exponential functions and anti-derivatives. Techniques of integration, definite integral, functions of several variables, partial derivatives.

Weekly detailed plan	WEEK	TOPICS	
		Theoretical	**Practical**
	1	Review of functions, Rational Functions, Curve sketching	Students solve problems On functions and curve sketching
	2	Trigonometric Functions Exponential Functions Logarithmic Functions and their graphs Sequences and Sums	Students solve problems on trigonometric, exponential, natural logarithmic functions and inspect the nature of their graphs
	3	The concept of Limit Finding Limits graphically, numerically and algebraically	Students are asked to find limits of the given functions in three ways
	4	Limits at Infinity Limits of Sequences Limits of exponential, logarithmic and trigonometric functions	Problems regarding sequences, series and their limits are inspected during the session
	5	The concept of derivative Rates of change Tangent Lines and Derivative Limit Definition of Derivative	Students are encouraged to identify the relation between rates of change of a function and its derivative through problems
	6	REVISION	Quiz 1
	7	MIDTERM	
	8	Derivative and Continuity	Assignment 1
	9	Differentiation Rules Chain rule, product rule, quotient rule Derivatives of rational, trigonometric, exponential, logarithmic functions	Exercises on differentiation are presented
	10	Applications of differentiation Finding minimum, maximum values Mean Value theorem Curve sketching	Interpretive exercises on curve sketching, limit, continuity and derivative
	11	Anti-derivative Areas and distances The definite Integral The indefinite integral The fundamental Theorem of Calculus The substitution rule	Assignment 2
	12	Applications of integration Techniques of integration Integration by parts	Students solve problems on integration

	13	Functions of several variables Partial derivatives	
	14	REVISION	Quiz2
	15	**FINAL**	

Textbook/ Recommended Reading Materials	Thomas, G., B., Weir, M., D., Hass, J. (2009) Thomas' Calculus.12th Edition. Pearson. ISBN 9780321587992 Stewart,J.(2012)Calculus,7th Edition. ISBN-10: 0538497815 ISBN-13: 9780538497817 Stewart,J.,Redlin,L.,Watson.S.(2009) Precalculus.Mathematics for Calculus.5th Edition:Brooks-Cole.Cengage-Learning. Adams,R.A. Calculus, A Complete Course 5th ed Larson. Calculus:An Applied Approach,8th Edition

Assessment Methods

Term Activities	Number	Percentage
Assignment1	**1**	**16**
Assignment2	**1**	**16**
Quiz	**2**	**10**
Interpretive Exercise	**1**	**5**
Midterm	**1**	**18**
Final	**1**	**35**
TOTAL		100
Percentage of Term activities		60
Percentage of Final Exam		40
TOTAL		100

Calculation work load within the framework of learning, teaching and evaluation activities

Activities	Number	Time (hour)	Total work load (hour)
Weekly Theory Hour	14	2	28
Weekly Application Time	14	2	28
Assignment 1	1	30	30
Assignment2	1	20	20
Exercise	1	10	10
Quiz	2	10	20
Midterm	1	15	15
Final	1	30	30
TOTAL WORK LOAD(hour)= 181			
COURSE ECTS CREDIT= Total work load(hour)/(30 hours/ECTS)= 181/ 30 = 6			

Program and Learning Outcomes

Learning Outcomes	Program Outcomes																
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15	PO 16	PO 17
LO 1	2					5											
LO 2		2				5											
LO 3	2					5				5	5						
LO 4				5		5				5	5						
LO 5		2		5		5	5				5						
LO 6						5					5						
LO7						5											

*Contribution Level: **1** Very low **2** Low **3** Medium **4** High **5** Very High

Additional Information about assignments: (100 points each)
Students should complete each assignment individually.
Assignment 1: This assignment includes problems related to the concepts of limit, derivative and differentiation rules.
Assignment 2: This homework consists of questions regarding integration

CITT Department Programme Outcomes

1. Having adequate level of knowledge and skills in current/new computing and educational technologies.
2. Having sufficient communication and teaching skills in teaching profession.
3. Being able to teach updated computing technologies efficiently in English.
4. Being able to identify information technology problems through using various analysis and synthesis.
5. Being pragmatic to develop and apply persistent information technology solutions to educational and business problems.
6. Being able to use critical and computational thinking skills to produce alternative solutions at every level of project development life-cycle.
7. Being capable to work in disciplinary and interdisciplinary teamwork.
8. Being sensitive, reactive and responsive to professional, social and ethical issues. Having social and ethical awareness in teaching and in providing solutions to problems.
9. Having adequate level of knowledge and skills in current/new computer hardware, operating systems and computer networks.
10. Adequate level of knowledge and skills in current/new programming languages, programming paradigms (procedural and object-oriented) and programming environments (visual, console-based programming).
11. Being able to analyse, plan and manage educational software design and project development.

12. Having the capability of evaluating and criticising educational software design and development.

13. Adequate level of knowledge in using and integrating current/new e-learning and distance education systems such as learning management systems (LMS).

14. Having sufficient skills and knowledge in using instructional technology and material design.

15. Having skills to apply and use special teaching approaches, theories, teaching strategies, methods and techniques (such as to those people with disabilities).

16. Using appropriate measurement and evaluation techniques to assess students' learning and development in addition to supporting them with good level of feedback.

17. Having sufficient knowledge in the process of establishment of Republic of Turkey. Identifying social, cultural, political and economic problems through understanding Ataturk's principles and revolution.