



Course Syllabus Form

1. College: Science						
2. Department: Mathematics						
3. Program: B.Sc. (Engineering and IT students only)						
4. Course code: MATHS102						
5. Course title: Calculus II						
6. Course credits: 3 credit hours (3-0-3)						
7. Pre-requisites: MATHS101						
8. Lectures Timing & Location:						
9. Course web-page: www.bb.uob.edu.bh						
10. Course coordinator: Dr. Abdulla Eid						
11. Academic year: 2019/2020						
12. Semester:		First	✓	Second	Summer	
13. Textbook(s):						
James Stewart, Calculus, Early Transcendentals, 2017, 8th Edition, Brooks/Cole Cengage Learning, ISBN-13: 978-0538498876						
14. References:						
1) Calculus, by Smith and Minton. 4 th edition (McGraw-Hill).						
2) Thomas Calculus (Early Transcendentals), 13 th edition (Pearson)						
15. Other resources used (e.g. e-Learning, field visits, periodicals, software, etc.):						
16. Course description (from the catalog):						
Applications of definite integrals, including areas, volumes and surface areas of solids of revolution, arc length and centroids. Transcendental functions, indeterminate form and L'Hopital's Rule. Techniques of integration and improper integrals. Infinite series, power series. Maclaurin and Taylor Theorem.						

17. Course Intended Learning Outcomes (CILOs):											
	<i>Mapping to PILOs</i>										
<i>CILOs</i>	a	b	c	d	e	f	g	h	i	j	k
1. Use definite integrals to evaluate area and volumes between curves.											

1 University of Bahrain – Quality Assurance & Accreditation Center - Course Specification
Note: Additional information could be added as required by the Instructor, (eg, Policies)
Note: Items shown underlined cannot be changed without the department consent.

2. Use L'Hopital's rule to evaluate the limits involving indeterminate forms.																				
3. Evaluate proper and improper integrals using integration techniques																				
4. Determine the convergence or divergence of an infinite series.																				
5. Derive power series for functions and use it to approximate limits, differentiation, and integration.																				

18. Course assessment:				
Assessment Type	Details/ Explanation of Assessment in relation to CILOs	Number	Weight	Date(s)
Quizzes			%	
Midterms	1-4	2	50 %	
Laboratory/Practical			%	
Assignments	1-5	10	10 %	
Projects/Case Studies			%	
Final	1-5	1	40%	
Total		13	100%	

19. Description of Topics Covered	
Topic Title (e.g. chapter/experiment title)	Description
Chapter 4: applications of derivatives	Indeterminate Forms and L'Hopital rule
Chapter 5: Integration	Evaluation the area between different types of curves,
Chapter 6: Application of Definite Integrals	Volumes of rotating area about a given axis by using disks, Washer and cylindrical shell methods.
Chapter 7: Techniques of integration	Integration by parts, Trigonometric integration, Trigonometric substitutions, Integration of rational functions by partial fractions, Improper Integration,
Chapter11: Infinite sequence and series	Sequences. Infinite series- investigating the convergence and divergence of a given series by using different types of tests; Integral test, Comparison test,- the ratio test. Alternating series, absolute and conditional test. Power series. Taylor and Maclaurain series, Convergence of Taylor series, Application of Taylor series.

Week	Date	Topics covered	CIL Os	Teaching Method	Assessment	Examples	Suggested Problems
1	11 / 2 / 2020	4.4 L'hopitals rule	2	Lecture & Problem solving	Test 1, HW3 & final exam	1-10	1-4, 8-68, 73-76
2	16 / 2 / 2020	5.5 Substitution Methods	1	Lecture & Problem solving	Test 1, HW1 & final exam	1 – 11	1-48, 53-73, 87-94
3	23 / 2 / 2020	6.1 Area 6.2 Volume	1	Lecture & Problem solving	Test 1, HW1 & final exam	1,2,6,7 2-6	1-29, 33, 34, 56, 59 1-30
4	1 / 3 / 2020	6.2 Volume 6.3 Volumes using cylindrical shells	1	Lecture & Problem solving	Test 1, HW2 & final exam	1-4	1-20, 37-43
5	8 / 3 / 2020	7.1 Integration by parts	3 3	Lecture & Problem solving	Test 2, HW4 & final exam	1-5	1-42, 61-65, 71
6	15 / 3 / 2020	7.2 Trigonometric Integrals 7.3 Trigonometric Substitutions	3 3	Lecture & Problem solving	Test 2, HW5 & final exam	1-9 1,3-7	1-49, 61-64 1-30
7	22 / 3 / 2020	7.4 Integral of Rational functions 7.7 Numerical Integration	3	Lecture & Problem solving	Test 2 & final exam	1-9 1, 3(a), 4, 7(a)	1-52 7-18
8	29 / 3 / 2020	7.8 Improper integrals	3	Lecture & Problem solving	Test 2, HW6 & final exam	1-10	1,2,5-40,49-54, 55-59, 63
9	5 / 4 / 2020	Midterm Break					
10	12 / 4 / 2020	11.1 Sequences 11.2 Infinite Series	4	Lecture & Problem solving	Test 2, HW7 & final exam	1-9, 11-13 1-11	1-56 1-8, 15-63, 75,76,81,82
11	19 / 4 / 2020	11.2 Infinite Series 11.3 The Integral Test	4	Lecture & Problem solving	HW7 & final exam	1-6	3-40
12	26 / 4 / 2020	11.4 Comparison Tests 11.5 Alternating Series	4	Lecture & Problem solving	HW8 & Final exam	1-5 1-4	1-36, 38,39,40(b),41(b) 1-20, 23-30, 31-34
13	3 / 5 / 2020	11.6 Absolute and conditional convergence and The Ratio and Root Tests	4 4	Lecture & Problem solving	HW9 & Final exam	1-6 1-6	1-40, 44,45 1-35
14	10 / 5 / 2020	11.6 Absolute and conditional convergence and The Ratio and Root Tests 11.7 Strategy for Testing series	4 4	Lecture & Problem solving	HW10 & Final exam	1-6 1-6	1-40, 44,45 1-35
15	17 / 5 / 2020	11.8 Power Series	5	Lecture & Problem solving	Final exam	1-5	1-32

16	24/ 5 /2020	11.9 Representing of functions as power series 11.10 Taylor and Maclaurin Series Last day of classes (May 30, 2019)	5	Lecture & Problem solving	Final exam	1-8 1,3-13	1-20, 25-32 1, 3-26, 31-43, 49-80
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ONLINE HOMEWORK'S

H.W #	Assignment coverage	Date "Start" (D/M/Y) 1:00 am	Date "Due" (D/M/Y) 11:59 pm
1	Section 4.4	16/2/2019	22/2/2019
2	Section 5.6	23/2/2019	1/3/2019
3	Sections 6.1 , 6.2, 6.3	23/2/2019	8/3/2019
4	Section 7.1	2/3/2019	22/3/2019
5	Sections 7.2 , 7.3	9/3/2019	19/4/2019
6	Section 7.4 , 7.7, 7.8	13/4/2019	3/5/2019
7	Sections 11.1 , 11.2	20/4/2019	10/5/2019
8	Sections 11.3 , 11.4	27/4/2019	17/5/2019
9	Sections 11.5 , 11.6	2/5/2019	24/5/2019
10	Sections 11.7, 11.8	2/5/2019	24/5/2019

There will be **three bonus** homework during the semester

2019 students

WebAssign account

Section(s)	System	Enrollment
All Sections	WebAssign www.webassign.com	Same username and password that were used in MATHS 101

2018 or previous students

the online homework policy is one of the following two options:

- 1- Doing the online homework through WebAssign by buying the textbook OR
- 2- Doing an open-book quiz (time will be announced later in the course).

