



المركز الوطني للتقويم والاعتماد الأكاديمي
National Center for Academic Accreditation and Evaluation

Kingdom of Saudi Arabia

**The National Commission for Academic Accreditation &
Assessment**

**T6. Course Specifications
(Calculus II, Math 219)**



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Course Specifications

Institution	King Khalid University
College/Department	Department of Mathematics, College of Sciences

A. Course Identification and General Information

1. Course title and code:	Calculus II, Math 219		
2. Credit hours	3 Credit		
3. Program(s) in which the course is offered.	Bachelor in Engineering		
(If general elective available in many programs indicate this rather than list programs)			
4. Name of faculty member responsible for the course	Dr. Mohamed Ahmed Hassan		
5. Level/year at which this course is offered	Second year – Third level		
6. Pre-requisites for this course (if any)	MATH 119		
7. Co-requisites for this course (if any)			
8. Location if not on main campus	Main Campus, Mahala		
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="70%"/>
b. blended (traditional and online)	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="10%"/>
c. e-learning	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="10%"/>
d. correspondence	<input type="checkbox"/>	What percentage?	<input type="text"/>
f. other	<input type="checkbox"/>	What percentage?	<input type="text" value="10%"/>
Comments:			



B Objectives

<p>1. What is the main purpose for this course? By the end of this course the students will be able to :</p> <ol style="list-style-type: none">1. Understand the concept of integration as an opposite process to the differentiation.2. Identify the correct rule to integrate.3. Use rules to integrate.4. Identify non-algebraic integrals.5. Analyze rounding methods and numerical integration.
<p>2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)</p> <ol style="list-style-type: none">1. Encourage students to use the Internet to extend their knowledge using electronic references related to the course subject.2. Training students to implement algorithms using a computer3. Increase the use of E-learning (Blackboard)



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C. Course Description (Note: General description in the form used in Bulletin or handbook)

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Anti-derivatives, indefinite integrals	2	6
Properties of definite integrals, fundamental theorem of calculus	1	3
Applications of definite integrals: Area, Solids and Surface of revolution, Arc Length and surface of revolution	3	9
The inverse function and its derivative, the natural logarithm function	1	3
The exponential function, integration using logarithmic and exponential functions	2	6
General exponential function and logarithm functions, Inverse of trigonometric functions, Hyperbolic and inverse hyperbolic functions, integration by parts	3	9
Trigonometric integrals, trigonometric substitutions, Integration of rational functions, Quadratic expressions	3	9



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2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	45	--	--	--	--	45
Credit	3	--	--	--	--	3

3. Additional private study/learning hours expected for students per week.	2-4 hrs/wk
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy			
On the table below are the five NQF Learning Domains, numbered in the left column.			
<p>First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). Second, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. Third, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)</p>			
Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	<p>By the end of this course the students will be able to : Anti-derivatives, indefinite integrals; Applications of definite integrals: Area, Solids ad Surface of revolution, Arc Length and surface of revolution , The inverse function and its derivative, the natural logarithm function , The exponential function, integration using natural logarithm and exponential</p>	<p>Lectures, Practical sessions, Discussion during Lectures and Practical sessions Self-study through homework</p>	<p>Homeworks, Quizzes, Midterm and final exams</p>



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	functions, General exponential function and logarithm functions, Inverse of trigonometric functions, Hyperbolic and inverse hyperbolic functions, integration by parts, Trigonometric integrals, trigonometric substitutions, Integration of rational functions, Quadratic expressions		
1.2			
2.0	Cognitive Skills		
2	1. Ability to differentiate between integration rules 2. Ability to choose and use different methods 3. Use functions properties to compute integrals 4. Ability to write and implement algorithms to solve different issues	Lectures, Practical sessions, Discussion during Lectures and Practical sessions Self-study through homework	Homeworks, Quizzes, Midterm and final exams
3.0	Interpersonal Skills & Responsibility		
3.1	Discussion, work in a team, Time management , self-reliance	Scientific discussion, Collective Homeworks , Homeworks and self-learning , Timely accomplished tasks	Encourage dialogue; Induction to teamwork; Induction to time-management; Encourage self-reliance.
3.2			
4.0	Communication, Information Technology, Numerical		
4.1	1. Ability to discuss and compare results. 2. Ability to handle ICT issues (Math's programs, net, etc. ...). 3. Ability to use the e-learning at the support level. 4. Ability to write and implement algorithms of numerical methods.	Use of e-learning and available ICT; Dialogue.	Follow-up on homework and discussions with students; Dialogue
5.0	Psychomotor		
5.1		Does not apply	
5.2			



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5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)																				
	1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3	3.4	3.5	3.6	4.1	4.2	4.3	4.4
1.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓			
2.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓			
2.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓			
2.3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓			
2.4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3.1												✓	✓	✓	✓	✓	✓	✓	✓	✓	
4.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Practical applications (solutions exercises), quizzes, and homework	Weekly starting from the 3rd week	10%
2	First partial exam	6th week	20%
3	Second partial exam	13th week	20%
4	Final exam	16th week	50%



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D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

**Continuous monitoring from the lectures.
Make available all possible staff for the lecturer to benefit from his stay at the office.
Fixing weekly office hours to meet with students.**

E Learning Resources

1. List Required Textbooks

**E.W.Swokowski, M.Olinich, D.Pena, J.A.Cole,
Calculus. Pws pub. Co. ,1994**

2. List Essential References Materials (Journals, Reports, etc.)

3. List Recommended Textbooks and Reference Material (Journals, Reports, [eteetc.](#))

4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.



F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) Lecture room equipped with normal or smart whiteboard accommodated for 25 students. Well-equipped computer lab.
2. Computing resources (AV, data show, Smart Board, software, etc.) Does not apply
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Does not apply

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Through Student Assessment dedicated questionnaire at the end of the semester.
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department Analysis of the feedback from student's course assessment. Discussion of the course observations. Periodic review of the course.



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<p>3 Processes for Improvement of Teaching</p> <p>Workshops on teaching methods and education. Course teachers' discussion at the beginning of each semester.</p>
<p>4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)</p> <p>Examination of a sample of students' final exam copies exam by the program coordinator or any other designed faculty member (s)</p>
<p>5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.</p> <p>Scheduled review of the content every five years and when reviewing the program. Updating learning resources.</p>

Name of Instructor: *Dr. Mohamed Ahmed Hassan*

Signature: _____ Date Report Completed : **October 10, 2019**

Name of Field Experience Teaching Staff _____

Program Coordinator: *Dr. Mohamed H.A. Suleiman*

Signature: _____ Date Received: _____