



ATTACHMENT 5.

Kingdom of Saudi Arabia

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

**T6. Course Specifications
(CS)**

Course Specifications

Institution	King Khalid University	Date	23/01/1438
College/Department	Faculty of science, Department of Mathematics		

A. Course Identification and General Information

1. Course title and code:	Differentiation and Integration- 113 math		
2. Credit hours	3 credit		
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs)	Computer Science students		
4. Name of faculty member responsible for the course	Dr. Ali Talhan, Dr. Anis, Dr. Amjad, Abdulkhader momin, Mohammed Nisar		
5. Level/year at which this course is offered	Second year		
6. Pre-requisites for this course (if any)			
7. Co-requisites for this course (if any)	NA		
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="90%"/>
b. blended (traditional and online)	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="5%"/>
c. e-learning	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="5%"/>
d. correspondence	<input type="checkbox"/>	What percentage?	<input type="text"/>
f. other	<input type="checkbox"/>	What percentage?	<input type="text"/>
Comments:			

B Objectives

<p>1. What is the main purpose for this course? By the end of this course the student will be able to:</p> <ul style="list-style-type: none"> • Introduce material for integration and differentiation • Evaluate integrals with different methods and techniques • Evaluate derivatives of a wide panel of functions and their inverses.
<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> <ul style="list-style-type: none"> □ Encourage students to study the concept of functions, limits and continuity using direct interaction with course instructors through elearning. □ Encourage students to use the Internet to extend their knowledge using electronic references related to the course subject.

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	1 week	3
Definite integral	1 week	3
Properties of definite integrals, fundamental theorem of calculus	1 week	3
Applications of definite integrals: Area, Solids and Surface of revolution, Arc Length and surface of revolution	2 weeks	6
The inverse function and its derivative, the natural logarithm function	2 weeks	6
The exponential function, integration using natural logarithm and exponential functions	2 weeks	6
General exponential function and logarithm functions	1 week	3
Inverse of trigonometric functions, Hyperbolic and inverse hyperbolic functions	1 week	3
integration by parts	1 week	3
Trigonometric integrals, trigonometric substitutions,	1 week	3
Integration of rational functions	1 week	3
Quadratic expressions	1 week	3

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.	
	3 hrs/wk

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	By the end of this course student must be able to recall appropriate technique to evaluate integral of a given function	Interactive lectures	1- Problem solving
1.2	Students must know to differentiate a given function	2- Interactive lectures 3- Problem solving	4- Problem solving
2.0	Cognitive Skills		
2.1	Ability to evaluate a problem by direct integration and graphs and compare results	Interactive lectures Home work Independent studies	Notes
2.2	Ability to understand apply substitution method wherever applicable		
2.3	Ability to understand various application of definite integrals		

3.0	Interpersonal Skills & Responsibility		
3.1	Discussions; Work in a team; Time management; <i>Self-reliance</i>	Collective homework; Homework and self-learning; Timely accomplished tasks.	Encourage dialogue; Induction to teamwork; Induction to time-management; Encourage self-reliance.
4.0	Communication, Information Technology		
4.1	Ability to use the e-learning at the support level.	Lectures Homeworks E-learning	Written and practical tests
4.2	Solve multiple choice questions on elearning blackboard		
5.0	Psychomotor		
5.1	Does not apply		

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	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓
1.2	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓
2.1	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓
2.2	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓
2.3	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓
3.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
4.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
4.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓

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, laboratory and homework	Weekly starting from the 3rd week	0-10%
2	First partial exam	6th week	20-25%
3	Second partial exam	13th week	20-25%
4	Final exam	16th week	50%

D. Student Academic Counseling and Support

<p>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)</p> <ul style="list-style-type: none"> • Continuous monitoring from the lectures. • Make available all possible stuff for the lecturer to benefit from his stay at the office. • Fixing weekly office hours to meet with students.

E Learning Resources

<p>1. List Required Textbooks E. W. Swokowski, M. Olinick, D. Pence & J. A. Cole, <i>Calculus</i>, 6th Edition, PWS Publishing Company, Boston. 1994.</p>
<p>List Essential References Materials (Journals, Reports, etc.) Any book on basic calculus</p>
<p>3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Any book on Calculus 1 and 2 available at the Central Library.</p>
<p>4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. <ul style="list-style-type: none"> • Computer programs websites: MATLAB, MAPLE, MATHEMATICA. • Calculus websites </p>
<p>5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. students might use available ICT to accomplish their computer duties using: MATLAB, MAPLE, MATHEMATICA.</p>

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.) <ul style="list-style-type: none"> • Lecture room equipped with normal or smart whiteboard accommodated for 25 students.
2. Computing resources (AV, data show, Smart Board, software, etc.)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) <p style="text-align: center;">Does not apply</p>

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 <ul style="list-style-type: none"> • Analysis of the feedback from students course assessment. • Discussion of the course's teachers' observations. • Periodic review of the course.
3 Processes for Improvement of Teaching <ul style="list-style-type: none"> • Workshops on teaching methods and education. • Course teachers' discussion at the beginning of each semester.
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) Examination of a sample of students' final exam copies exam by the program coordinator or any other designed faculty member (s)
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. <ul style="list-style-type: none"> • Scheduled review of the content every five years and when reviewing the program. • Updating learning resources.

Name of Instructor: **Dr. Anis, Dr. Amjad, Abdulkhader Momin, Mohammed Nisar**

Signature: _____ Date Report opleted: 20/04/1438

Name of Field Experience Teaching Staff _____

Program Coordinator: Mohammed Nisar

Signature: _____ Date Received: _____