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

ATTACHMENT 5.

T6. COURSE SPECIFICATIONS
(Calculus 1 (Math001))

Course Specifications

Institution :King Khalid University
College/Department : **Sciences/ Mathematics**

A. Course Identification and General Information

1. Course title and code: **Calculus 1 (Math001)**
2. Credit hours: **3**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course:
5. Level/year at which this course is offered: **First semester, First year**
6. Pre-requisites for this course (if any) **No**
7. Co-requisites for this course (if any) **No**
8. Location if not on main campus: **Mahala**
9. Mode of Instruction (mark all that apply)

a. traditional classroom	**yes**	What percentage?	**100%**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
f. other		What percentage?	

Comments:

B Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

Our main focus in this course is to

1) Highlight the importance of mathematics in overall curriculum and variety of discipline.
2) Build a strong mathematical background for future study in computer science.
3) Help students to develop their mathematical skills by using the proper logical thinking.
4) Train students to know methods and solution strategies.
5) Give a basic background in analysis.
6) Study calculus and its applications.

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)

- **The use of e-learning until to cover the overall program.**
- **assigning students some homework and follow-up of teachers through the network.**
- **Encourage students to read from a variety of sources.**

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

Course Description: n

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
1. **Mathematical Preliminaries**: Numbers, inequalities, and absolute values, coordinate geometry and lines, graphs of second-degree equations and trigonometry.	**2**	**6**
2. Functions and Models four ways to represent a function, mathematical models, new functions from old functions, inverse functions and logarithms	**3**	**9**
3. Limits and Derivatives The tangent and velocity problems, the limit of a function, calculating limits using the limit laws, continuity limits at infinity, horizontal asymptotes, derivative and rate of change, the derivative as a function	**3**	**9**
4. Differentiation Rules derivatives of polynomial and exponential functions, the product and quotient rules, derivatives of trigonometric functions, Chain rule, Implicit differentiation, derivatives of logarithmic functions, rates of change in the sciences, exponential approximations and and differentials hyperbolic functions.	**3**	**9**
5. Applications of Differentiation	**3**	**9**

Maximum and minimum values, the mean value theorem, how derivative affect the shape of a graph, intermediate forms and L'Hospital rule, summary of curve sketching, graphing with calculus and calculators, optimization problems, antiderivatives.		
6. General Review	**1**	**3**

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.

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.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	**Mentioning related mathematical definitions and theorems**	**1- Interactive lectures 2- Self-studing 3- Lecture 4- Problem solving**	**Homework; Quizzes; Midterm and final exams**
1.2	**Recognition of mathematical assumptions and theorems.**		
2.0	**Cognitive Skills**		
2.1	**Differentiate between various definitions and theorems**	**Self-learning through homework Problem solving**	**Homework; Quizzes; Midterm and final exams**
2.2	**Use of mathematical definitions and theorems in resolving issues.**		
3.0	**Interpersonal Skills & Responsibility**		
3.1	**Enhancement of self-learning.**	**Interactive lectures Discussions Lecture Self-learning**	**Homework; Quizzes; Midterm and final exams**
3.2	**Effective communication skills.**		
4.0	**Communication, Information Technology, Numerical**		
4.1			
4.2			
5.0	**Psychomotor**		
5.1			

5.2			

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. 3Hrs/week

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	**First exam**	6th week	20%
2	**Second exam**	12th week	20%
3	**Quizzes**	Each week	5%

4	**Homework**	week 5 & week 11	5%
5	**Final exam**	16th week	50%

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)

E. Learning Resources

1. List Required Textbooks **حساب التفاضل و التكامل-مدخل في حساب التفاضل- الجزء الأول- د. محمد عادل سودان و أخرون- جامعة الملك سعود.**
2. List Essential References Materials (Journals, Reports, etc.) **Any book on calculus**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
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.) **Classrooms**

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's teachers' observations.** • **Periodic review of the course.**
3 Processes for Improvement of Teaching • **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. • **Scheduled review of the content every five years and when reviewing the program.** • **Updating learning resources.**

Name of Instructor: Dr. Ahmed Elwan

Signature:_____Date Report Completed: September 9, 2019

Name of Field Experience Teaching Staff _____

Program Coordinator: Dr. Mohamed H.A. Suleiman

Signature: _____ Date Received:_____