

## Course Specification

Institution	Najran University	Date	4-5-1439
College/Department	القسم / College of Science and Arts / Department of Mathematics		

### A. Course Identification and General Information:

1. Course title and code : <b>Calculus I– 101-Math-3</b>	
2. Credit hours : <b>3</b>	
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) <b>Mathematics</b>	
4. Name of faculty member responsible for the course <b>Associate Prof. Dr. AbdulGawad Al-Qubati</b>	
5. Level/year at which this course is offered <b>1/year 1</b>	
6. Pre-requisites for this course (if any) <b>None</b>	
7. Co-requisites for this course (if any) <b>None</b>	
8. Location if not on main campus <b>college of Science and Arts –Najran –Dept. of Math. /Male-Female</b> <b>Sharoura :college of Science and Arts –Najran –Dept. of Math. /Male-Female</b>	
9. Mode of Instruction (mark all that apply)	
a. Traditional classroom	<input type="checkbox"/> What percentage ? <input type="checkbox"/>
b. Blended (traditional and online)	<input checked="" type="checkbox"/> What percentage? <input type="text" value="100"/>
c. e-learning	<input type="checkbox"/> What percentage ? <input type="text"/>
d. Correspondence	<input type="checkbox"/> What percentage? <input type="text"/>
f. Other	<input type="checkbox"/> What percentage ? <input type="text"/>
Comments التعليق:	

### B. Objectives الأهداف

<p>1. What is the main purpose for this course ?</p> <ul style="list-style-type: none"> <li>Finding the solutions of algebraic equations and inequalities and knowing the differences between them and their various forms by applying the properties of real set numbers .</li> <li>Knows the real functions with one variable, and them inverse and basic types (linear - forces - exponential - trigonometric- logarithmic) and determines their domain and rang and algebraic operations on functions, and their compositions.</li> <li>Finding a terminal values (Critical - maximum - Minimum) and the middle values of the functions using derivation applications.</li> <li>Prove theories under study according to mathematical logic</li> <li>The student acquires the scientific tendencies and interests through appropriate activities, experiences and tasks that will help them develop these tendencies.</li> <li>Recruitment theorems and results and mathematical techniques to understand and interpret and analyze the phenomena of life.</li> </ul>
<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"> <li>Review the plan at the Council of the department of each academic year for the purpose of development and improvement.</li> <li>Study the learning difficulties faced by students while studying the course.</li> <li>Review the results of the students and analyzed qualitatively out the most important recommendations about the course.</li> <li>Encourage students to use the Internet and the site of the Professor of the course.</li> <li>Using e-learning system such as Blackboard, e-examination system.</li> <li>Compare syllabus are presented with other sections of local, regional and global. Update learning resources for course regularly using the Internet.</li> </ul>

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

**Course Description :**

The course contains the basics of differentiation and integration such as: real numbers, relations and functions, Limits, continuity and curves.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours

<ul style="list-style-type: none"> <li>Line and properties of real numbers.</li> <li>Types of real intervals.</li> </ul>	1	3
<ul style="list-style-type: none"> <li>absolute value and their properties</li> <li>real inequalities of first-and second-degree and methods of solution</li> </ul>	1	3
<ul style="list-style-type: none"> <li>real functions</li> <li>The domain and range of the real functions.</li> <li>Inverse of the real function.</li> <li>Composition of functions.</li> </ul>	1	3
<ul style="list-style-type: none"> <li>Different types of primary functions.</li> <li>Marital function and individuality.</li> <li>Polynomial functions.</li> <li>Trigonometric, exponential and logarithmic functions.</li> <li>Graphic of the previous functions.</li> </ul>	2	6
<ul style="list-style-type: none"> <li>The concept of the limit of the function at the point.</li> <li>The left limit the right limit of the function.</li> <li>General theories limits</li> </ul>	1	3
<ul style="list-style-type: none"> <li>The concept of continuous function.</li> <li>Continuous functions.</li> <li>Non-continuous points.</li> <li>Continuous theories.</li> <li>continuous function over an intervals</li> </ul>	1	3
<ul style="list-style-type: none"> <li>The concept of derivative of a function.</li> <li>Theories in the derivation.</li> <li>Calculate the derivative of a function using the initial definition and laws.</li> <li>Derivation relationship to continue</li> </ul>	2	6
<ul style="list-style-type: none"> <li>Derivatives of exponential and logarithmic functions.</li> <li>Derivatives of trigonometric functions.</li> <li>derivatives of inverse trigonometric functions</li> </ul>	2	6
<ul style="list-style-type: none"> <li>Derivatives implicit functions.</li> <li>Equations associated with - the critical points and the maximum values of the function.</li> </ul>	2	6
<ul style="list-style-type: none"> <li>Test first derivative and second derivative test for critical points and points coup</li> <li>Convergent lines.</li> <li>Curves graphic.</li> <li>Applied problems of Maximum values</li> </ul>	2	6

1.Course components (total contact hours and credits per semester):						
	Lecture المحاضرة	Tutorial مجموعات صغيرة	Laboratory or studio المعمل أو الاستديو	Practical التطبيقي	Other: أخرى	Total الاجمالي
Contact Hours الساعات الفعلية	45					45
Credit الوحدات المعتمدة	3					3

3-Additional private study/learning hours expected for students per week ساعات الدراسة الخاصة /ساعات التعلم الإضافية المتوقعة من الطالب أسبوعياً	6
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy.
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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
<b>1.0</b>	<b>Knowledge</b> By the end of the semester, the students will be able to		
1.1	Define the elementary concepts (function ,limits,continuity,differentiation )	Method of discussion	Exams, homework, and quizzes.
1.2	knows how to choose the appropriate method for the differential function	problem solving methods	Training reports
1.3	knows the types of function and properties of limits and differentiation	Class motivations and discussions	Homework assignments
<b>2.0</b>	<b>Cognitive Skills</b> By the end of the semester, the students will be able to		
	<b>Training the student to</b>		
2.1	draw functions	Class discussions	Training reports
2.2	create real and periods represented on the number line	Examples and problems	Quizzes
2.3	build a mathematical model of a natural phenomenon	Oral presentation	Summary reports
2.4	Determine the differences between the types of continuation of functions and their	Discussions through the lecture.	Quizzes

Code	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	<b>derivatives.</b>		
2.5	apply differentiation linked with various other sciences	Discussions through the lecture.	Quizzes
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b> By the end of the semester, the students will be able to		
3.1	Work collectively with peers in an atmosphere of cordiality and mutual understanding with respect to the positions semi -real	Discussion	- Evaluation methods is optional (note - the interview questionnaire - Standards appreciation
3.2	Acquire social skills and appropriate communication by talking and to express their opinions and respect for the ideas and experiences of their colleagues.	Method of observation. and collaborative learning	Evaluate the student's works
3.3	Acquire necessary social skills and appropriate communication.	Method of observation. and collaborative learning	Oral presentation
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
4.1	Use the Mathematical programs for solving the problems in differentiation	Laboratory exercises- Using computers	Direct observation
4.2	Use the Internet.	Use Websites	Direct observation and exams -Observation and continuous evaluation.- questionnaires students to know the opinion of the student.
4.3	Use Mathematical programs (Mathematica - Matlab - Mabel - Mathkad).	Training courses for mathematics programs.	student work program to solve problems in differentiation
<b>5.0</b>	<b>Psychomotor</b>		
5.1	Not applicable	Not applicable	Not applicable
5.2			

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, Quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Midterm Exam1	6	25%

2	Midterm Exam I	12	25%
3	Final Exam	16	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)
  - Action of faculty members for advice and guidance of a student's academic.
  - Office hours 3hr/ week.
  - Follow-up of the academic advisor.

#### E. Learning Resources

1. List Required Textbooks:  
Calculus, Author: Taylor - Lioyd, translated by Muhammad Sudan and Ali Defense, Part I
2. List Essential References Materials (Journals, Reports, etc.)  
Mohamed Adel Sudan and others, calculus, King Saud University.
3. List Electronic Materials Web Sites, Facebook, Twitter, etc.  
<http://www.mathmontada.net/vb/upload...1378728470.rar>  
[pages.towson.edu/akumchev/math275lecturenotes.pdf](http://pages.towson.edu/akumchev/math275lecturenotes.pdf)  
<http://www.ms.uky.edu/~123/>  
<http://www.mathmontada.net/vb/upload...1378730791.pdf>  
<http://www.mathmontada.net/vb/upload...1378732798.pdf>  
<http://www.mathmontada.net/vb/upload...1378734522.pdf>
4. Other learning material such as computer-based programs/CD, professional standards or regulations and software.  
CD-ROM containing the scientific subjects in the course

#### 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 number of seats = 20 seat
- Computer rooms containing at most 30 PCs
- Rooms equipped with modern teaching techniques and different display devices.

2. Computing resources (AV, data show, Smart Board, software, etc.)

- Data show
- Smart Board

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

Coloured pens.

### G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Distribute questionnaires to students at the end of the semester to get a special assessment for the course.
- Interview a sample of students enrolled in the course to take their views.
- Follow-up over the performance of the students interact with the course through attendance and tests.

2. Other Strategies for Evaluation of Teaching by the Instructor or by the department.

- Presentation of the results of a sample of students on an external reviewer.
- Qualitative analysis of the results of the students.
- Box-mail suggestions.

3. Processes for Improvement of Teaching:

- Training programs and workshops for faculty members on the most important teaching methods based around the learner.
- Self-assessment by course teacher.
- Creating the right atmosphere for students through social programs, entertainment, and so on.
- Upgrading of the relationship between teacher and student to be a human relationship.
- Follow the new teaching strategies.

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)

- Check and correct sample of student work by faculty members are independent.
- Exchange periodically to correct or sample tests with a faculty member of the same specialty in other faculties.

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement

- Hosting a visiting teacher for evaluating and developing the course with teacher of the course.
- Periodic meetings with outstanding students to see the positive and negative aspects in the course.
- Comparison between this course with similar courses in the corresponding faculties of other universities.
- Assisted by specialists in the design and planning of programs and courses.
- Update the sources of learning of the course to make sure to keep abreast of developments in the field.
- Statistical results to assess the students' course and to benefit from its results in the improvement and development of the course.



Name of instructor: **Associate Prof. Dr. AbdulGawad Al-Qubati** \_\_\_\_\_

Signature \_\_\_\_\_ Date Report Completed: **4-5-1439** \_\_\_\_\_

Name of field experience teaching staff : \_\_\_\_\_

Program coordinator : **Dr:Hamoud Al0-Hadad** \_\_\_\_\_

Signature: \_\_\_\_\_ Date received: \_\_\_\_\_