



Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

COURSE SPECIFICATION

**MATHEMATICS 1 (MATH 111)
1435 / 1436**

Course Specification

Institution : University of Dammam
College/Department : Deanship of Preparatory & Supporting Studies / Basic Sciences Department

A Course Identification and General Information

1. Course title and code: Mathematics 1 (MATH-111)			
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)			
Engineering and Scientific tracks at the Preparatory Year Program			
4. Name of faculty member responsible for the course Dr. Mohamed Fahmi Ben Hassen			
5. Level/year at which this course is offered: The Preparatory Year			
6. Pre-requisites for this course (if any): Admission at the program			
7. Co-requisites for this course (if any): No			
8. Location if not on main campus: Main campus			
9. Mode of Instruction (mark all that apply)			
a. traditional classroom	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="100%"/>
b. blended (traditional and online)	<input type="checkbox"/>	What percentage?	<input type="text"/>
c. e-learning	<input checked="" 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: Students are supposed to spend some time outside lectures times to do some activities on the learning management system (BlackBoard).			

B Objectives

<p>1. Summary of the main learning outcomes for students enrolled in the course.</p> <p>Upon successful completion of the course, students will:</p> <ul style="list-style-type: none"> • Have the basic mathematics skills which are used in calculus and their relevance to everyday applications. • Have the ability to formulate problems in a logical manner. This logical way of thinking can be also applied to his real life. • Have problem solving capabilities • develop the comprehension of the course material in English • Have formal way of thinking • Analyze and solve some mathematical problems using computer software
<p>2. Briefly describe any plans for developing and improving the course that are being implemented. (eg increased use of IT or web based reference material, changes in content as a result of new research in the field)</p> <p><u>IT</u></p> <ul style="list-style-type: none"> • Use of Smart/Interactive Board. • Use an e- learning management system (BlackBoard). • Use of the electronic course content which is the best complement of the text-book through the editor website. • Use of DBS Smart system. <p><u>Material</u></p> <ul style="list-style-type: none"> • More advanced presentations. • More illustrative examples. • More Applications. • More assignments.

C. Course Description (Note: General description in the form to be used for the Bulletin or Handbook should be attached)

1. Topics to be Covered		
Topics	No of Weeks	Contact hours
Basic Algebraic Operations (Algebra and real numbers, Exponents, Radicals, ...)	4	12
Equations and Inequalities(Linear equations and applications, Linear inequalities, Absolute value in equations and inequalities, Complex numbers, ...)	3	9

Graphs (Cartesian coordinate system, Distance in the plane, Equations of a line)	2	6
Functions (Functions, Graphing functions, Transformations of functions, Quadratic functions, Operations of functions; Composition, Inverse functions)	3	9
Exponential and logarithmic functions. Equations involving exponential and logarithmic functions.	1	3
Revision	1	3

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	28	14	No	No	6 Interm Test	48
Credit	3					3

3. Additional private study/learning hours expected for students per week. (This should be an average: for the semester not a specific requirement in each week)

45 hours per semester

4. Development of Learning Outcomes in Domains of Learning

For each of the domains of learning shown below indicate:

- A brief summary of the knowledge or skill the course is intended to develop;
- A description of the teaching strategies to be used in the course to develop that knowledge or skill;
- The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.

a. Knowledge

(i) Description of the knowledge to be acquired

On completing the course the student will be able to:

- **Describe a problem formally and formulate it in a logical manner.**
- **Recognize different methods to tackle a problem**
- **Use basic mathematics skills to solve problems.**
- **Solve equations.**
- **Know if a given graph corresponds to a function or not. If so, does that function has an inverse.**
- **Plot the graphs of a line, a circle and a quadratic function.**
- **Use function transformations such that horizontal and vertical shifts and reflections through the x-axis, y axis and the origin.**
- **develop the comprehension of the course material in English**

(ii) Teaching strategies to be used to develop that knowledge

- **Combine the use of the traditional white board with visual presentations and animations (PowerPoint and videos).**
- **More Illustrative Examples**
- **More self-reading**
- **Tutorial and homework assignments**
- **Increased use of web based reference material (e-book, videos, ...)**

(iii) Methods of assessment of knowledge acquired

- **Solve some examples during the lecture.**
- **Tutorials.**
- **Exams:**
 - **Quizzes: Three short Quizzes.**
 - **Two tests.**
 - **Homeworks.**
 - **Final Exam.**
- **Discussions with the students.**
- **Ask the student to clear the misunderstanding of some results or methods.**

<p>b. Cognitive Skills</p>
<p>(i) Cognitive skills to be developed</p> <p>On completing the course, the students will be able to</p> <ul style="list-style-type: none"> • Analyze and test a problem • Plan how to solve a problem • Organize the relationships between this problem and other objects • Assess different alternative solutions to solve a problem and select the optimal one • Evaluate the solution's efficiency and effectiveness to solve that problem
<p>(ii) Teaching strategies to be used to develop these cognitive skills</p> <ul style="list-style-type: none"> • Tutorials • Oral discussions with the students. • More reading hours in the library and at home • Web-Searching based assignments
<p>(iii) Methods of assessment of students cognitive skills</p> <ul style="list-style-type: none"> • Quizzes and tests • Well-reported web searches. • Tutorials
<p>c. Interpersonal Skills and Responsibility</p>
<p>(i) Description of the interpersonal skills and capacity to carry responsibility to be developed</p> <p>On completing the course, the students will be able to</p> <ul style="list-style-type: none"> • Prepare a plan to solve a problem • Work individually or within a team. • Learn the initiative spirit and bear responsibility for different situations • Encourage students to attend lectures. • Summarize lectures and collect materials from the course.
<p>(ii) Teaching strategies to be used to develop these skills and abilities</p> <ul style="list-style-type: none"> • Oral discussions through the lectures. • Team work tutorials and assignments

<p>(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility</p> <ul style="list-style-type: none"> • Tutorial and Homework assignments • Evaluate the students respect for assignments or project deadlines • Open discussions and asking questions through the lectures
<p>d. Communication, Information Technology and Numerical Skills</p>
<p>(i) Description of the skills to be developed in this domain.</p> <p>Competency will be developed in:</p> <ul style="list-style-type: none"> • Team working skills • Oral skills • Communication skills • Ability to use web-ressources
<p>(ii) Teaching strategies to be used to develop these skills</p> <ul style="list-style-type: none"> • Presentation • Oral discussions • Achieving tasks within Team works
<p>(iii) Methods of assessment of students numerical and communication skills</p> <ul style="list-style-type: none"> • Evaluate the students participation during lectures • Office hours meetings • Follow up of achieved tasks within Team works
<p>e. Psychomotor Skills (not applicable)</p>
<p>(i) Description of the psychomotor skills to be developed and the level of performance required</p>
<p>(ii) Teaching strategies to be used to develop these skills</p>
<p>(iii) Methods of assessment of students psychomotor skills</p>

5. Schedule of Assessment Tasks for Students During the Semester			
Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	Quiz 1	6	5%
2	Test 1	7	10%
3	Quiz 2	10	5%
4	Test 2	12	10%
5	Quiz 3	14	5%
6	Attendance+Tutorial+ Participation	All weeks	15%
7	Final Exam	16	50%

D. Student Support

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

- **At least 10 well-declared office hours per week are available for all the students.**

E Learning Resources

1. Required Text(s) Text Book: College Algebra and Trigonometry, Mathematics-1 (MATH-111), 4th edition 2013. Custom Edition for University of Dammam, Publisher: McGraw-Hill. Author: Barnett-Ziegler-Byleen
2. Essential References
3. Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)
4. Electronic Materials, Web Sites etc <ul style="list-style-type: none"> • Web site of the text book http://connect.mheducation.com/connect/login/index.htm • E-learning management system https://vle.uod.edu.sa/webapps/login/?action=login • Web sites dealing with Mathematics
5. Other learning material such as computer-based programs/CD, professional standards/regulations

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (ie number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Lecture rooms, laboratories, etc.) Well established with: <ul style="list-style-type: none">• Lecture room are air conditioned with at most 40 seats• Smart Board connected to a computer and a data show• White board
2. Computing resources <ul style="list-style-type: none">• Computer rooms containing at most 40 PCs• DBS Smart Systems• Smart Board• Laptop
3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list) <ul style="list-style-type: none">• Update latest software versions regularly• Internet inside the classroom• Malware protection

G Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching <ul style="list-style-type: none">• Discussions within the team teaching the course• Tests and quizzes evaluation feed-back form to increase instructor's awareness of the weak and strength points of the class.• Course evaluation by students• Students-faculty meetings and seminars
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department <ul style="list-style-type: none">• Periodic meetings within the department for discussion• Workshops and training sessions• Encouraging faculty members to attend professional development conferences• A committee to review the text-books and the progams• Follow up of teaching process using Outside review of the course

3. Processes for Improvement of Teaching

- **Workshops and training sessions**
- **Encouraging faculty members to attend professional development conferences**
- **Periodical departmental and outside revisions of teaching methods**
- **Monitoring of teaching activates by senior faculty members**
- **Encourage the use of modern technology in the teaching process**
- **Encourage self-learning process**

4. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent faculty member of a sample of student work, periodic exchange and remarking of a sample of assignments with a faculty member in another institution)

- **Competitions between students within the department and outside (with other departments)**
- **Conducting standard exams from other department and institutions**

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

- **The course material and learning outcomes are periodically reviewed internally and externally.**
- **Comparing course content and teaching methodologies with similar courses offered at other departments and universities.**
- **Studying the outcomes of the students' evaluations of the course and using these outcomes to improve teaching strategies.**