

**Kingdom of Saudi Arabia**  
**The National Commission for Academic Accreditation**  
**&**  
**Assessment**

**Course Specification**

Institution: **University of Dammam**

College/Department: **College of Sciences / Department of Mathematics**

A. Course Identification and General Information

1. Course title and code: <b>General Math, Math 101N</b>
2. Credit hours: <b>3</b>
3. Program(s) in which the course is offered: <b>Mathematics program</b>
4. Name of faculty member responsible for the course: <b>A specific team from the Mathematics department</b>
5. Level/year at which this course is offered: <b>first level/first year</b>
6. Pre-requisites for this course (if any):
7. Co-requisites for this course (if any): <b>N/A</b>
8. Location if not on main campus: <b>College of Sciences – Girls Campus – Rayan City</b>

9. Mode of Instruction (mark all that apply)

a. traditional classroom	X	What percentage?	75%
b. blended (traditional and online)		What percentage?	
c. e-learning	X	What percentage?	25%
d. correspondence		What percentage?	
f. other		What percentage?	

Comments: **The e-learning concerns the use of blackboard, flip teaching, online assessment, ect.**

B Objectives

1. What is the main purpose for this course?

**On successful completion of this course students will be able**

**to: Calculating algebraic and numeric expressions in accuracy.**

**Solving in different ways Linear , quadratic and absolute value equations with applications in modeling.**

**Solving Inequalities and absolute value inequalities in different ways . Evaluating expressions containing exponential and logarithmic functions. Evaluating circular and trigonometric functions and their graphs.**

**Knowing fundamental identities in algebra and trigonometric calculus and use it in solutions**

**Comparing between lines , circles and conic sections**

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)

- **Create, improve and complete (beamer or power point) presentations.**
- **Update the course by comparing to the contents at other universities.**
- **Follow up on the latest books to select the most appropriate to update the contents.**

- Create a question bank.
- Find web sites related to the topic.

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

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Real numbers and their properties . factoring polynomials , simplifying rational expressions and radical expressions	2	6
Solving Linear , quadratic , absolute value and auther types of equations with applications in modelling Inequalities and absolute value inequalities	3	9
Equations of line , Graphs of basic function , Graphing techniques, Functions operation and composition	2	6
Inverse, exponential and logarithmic functions Solving exponential and logarithmic equations	2	6
Angles, evaluating trigonometric and circular functions, solving right triangles	1	3
Fundamental , sum , difference and double angle trigonometric identities	2	6
Verifying trigonometric identities, Inverse circular functions	2	6
Parabolas , Ellipses and Hyperbolas	1	3

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other : Office hours	Total

Contact Hours	2*15=30	0	0	2*15=30	4*15=60	120
Credit	2*15	0	0	1*15	0	45

3. Additional private study/learning hours expected for students per week.  
60

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	<b>Knowledge</b>		
	<p><b>To calculate algebraic and numerical expressions in accuracy</b></p> <p><b>To know equations , inequalities and identities .</b></p> <p><b>To graph basic functions</b></p> <p><b>To remember properties of exponents , radicals and logarithm</b></p> <p><b>To know and evaluate circular and trigonometric functions and their graphs</b></p> <p><b>To know equations of conic sections</b></p>	<p>Interactive learning process through questions and answers in class.</p> <p>Worked examples through a sequential delivery of surveying lectures.</p> <p>Homework consisting in solving selected exercises.</p>	<p>Exams and homework are used to assess the acquired knowledge on the subject.</p>
2.0	<b>Cognitive Skills</b>		
	<p><b>To evaluate expression involving exponents</b></p> <p><b>To evaluate expression by using order of operation</b></p>	<p>Lectures are covered by different worked examples.</p>	<p>Homework include problems, solution of which requires scientific thinking, and</p>

	<p>To characterize types of polynomials</p> <p>To multiply, divide and factoring polynomials . To perform operations with radicals</p> <p>To write rational expressions in lowest form . To Identify the domain of rational expressions To simplify radical expressions</p> <p>To solve linear equations and quadratic equations by using zero-factor ,square root, completing the squares and by using the quadratic formula .</p> <p>To solve absolute value and author types of equations with applications in modeling</p> <p>To match inequalities with intervals</p> <p>To solve polynomial , rational and absolute value inequalities</p> <p>To identify circles and give the radius and center</p> <p>To decide whether a relation defines a function and evaluate functions</p> <p>To write the equation of a line passing through given points or given a slope</p> <p>To write the equation of a parallel and perpendicular lines</p> <p>To graph functions using translating</p> <p>To find composition of Functions</p> <p>To decide whether a function is one to one and find inverse of one –one functions</p> <p>To compare and solve exponential and logarithmic equations</p> <p>To evaluate circular and trigonometric functions and their graphs</p> <p>To use fundamental trigonometric identities in solutions</p> <p>To verify trigonometric identities</p> <p>To compare between parabolas,ellipses and parabolas .</p>	<p>Engage students in discussions with questions and answers.</p> <p>Homework consisting in solving selected exercises.</p> <p>Encourage and develop self education.</p>	<p>applications of essential theorems and results of the course</p> <p>Oral and written tests.</p> <p>Explain and communicate the corrected answers of the exams and quizzes.</p> <p>Research projects.</p>
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		
	<p>Punctual attendance of classes is required.</p> <p>Students should demonstrate their sense of responsibility for learning by completing both reading and writing assignments in due time.</p> <p>Students learn to manage their time.</p> <p>Accustom students to take responsibility of self learning</p> <p>Students should act responsibly and ethically in carrying out individual as well as group projects.</p>	<p>Discussion.</p> <p>Explanation.</p> <p>Guidance and supervision of the group assignments for research projects.</p> <p>Assignments are given to the students at regular intervals for them to solve and submit on time.</p>	<p>Class attendance of students at the beginning of the lecture is recorded.</p> <p>Recording of submission of assignment</p> <p>Observations, interviews, and peer evaluations.</p>
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
	<p>Ability to communicate in written and in oral.</p>	<p>Research projects.</p>	<p>Periodic written and oral tests.</p>

	<p>Ability to write reports in English</p> <p>Ability to explain each step in the problem solving process.</p> <p>Ability to apply course concepts to mathematical problem solving model.</p> <p>Ability to use information technology in communication and research projects.</p> <p>Interact with life problems using different methods of thinking and problem solving.</p>	Oral presentations.	<p>Discussion.</p> <p>Observation.</p>
<b>5.0</b>	<b>Psychomotor</b>		
	N/A	N/A	N/A

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)						
	factorin g polyno mials , simplify ing rational expressi ons and radical expressi ons	Solving Linear , quadra tic , absolut e value equatio ns , Inequal ities and absolut e value inequal ities	Equatio ns of line , Graphs of basic functio n , Graphi ng techniq ues, Functio ns operati on and composi tion	Inverse, expone ntial and logarith mic functio ns  Solve ing expone ntial and logarith mic equatio ns	trigonom etric and circular functions, solving right triangles	trigono metric identitie s, Inverse circular functio ns	Parabolas , Ellipses and Hyperbola s
Knowledge	Recall	Recall	Recall	Remember	Remember	Recall	Recall
Comprehension	Discuss	Discuss	Discuss	Summarize	Summarize	Discuss	Explain
Application	Assess	Assess	Assess	Use	Use	Assess	Utilize
Analysis	Conclude	Conclude	Conclude	Conclude	Conclude	Conclude	Conclude
Synthesis	Categorize	Categorize	Categorize	Validate	Validate	Categorize	Categorize
Evaluation	Judge	Judge	Judge	Judge	Judge	Judge	Judge

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	Lab exams	5, 7, 11	15%
2	Mid-term1	10	10%
3	Mid-term2	10	10%
4	Mid-term3	10	10%

5	Homework book	Every week	5%
6	Quizzes	Every week	5%
7	Final exam	As scheduled	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)

**4 hrs/week for students' consultation and academic advice.**

E Learning Resources

1. List Required Textbooks

**Guntram Mueller, Ronald I. Brent: "Just-in-Time Algebra and Trigonometry for Students of Calculus" Addison Wesley, 3<sup>rd</sup> edition 2005**  
**Jeffery Cole and E.W. Sowkowski: "Algebra and Trigonometry with Analytic Geometry" Thomson Learning 10<sup>th</sup> edition 2002.**  
**Margaret L. Lial, John Hornsby & David I. Schneider: "College Algebra & Trigonometry" Pearson Addison Wesley, 4<sup>th</sup> edition 2010**

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

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
<p><b>Guntram Mueller, Ronald I. Brent: "Just-in-Time Algebra and Trigonometry for Students of Calculus" Addison Wesley, 3<sup>rd</sup> edition 2005</b>  <b>Margaret L. Lial, John Hornsby &amp; David I. Schneider: "College Algebra &amp; Trigonometry" Pearson Addison Wesley, 4<sup>th</sup> edition 2010</b></p>
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
<p>Pearson Addison Wesley  Mymathlab</p>

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

**Mathematica program**

#### 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 with  
20 seats. Smart  
class.**

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

**Computer room with at least 10 systems  
Computer room with 20 seats**

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

#### G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching

**Student course evaluation at the conclusion of the  
course. Sample of assignments and tests.  
Observations and discussions during the semester.**

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department

**Faculty assessment of the course and effectiveness of teaching  
delivery. Periodic self-assessment of the program.**

3 Processes for Improvement of Teaching

**Participate to workshops on evaluation approaches and effective teaching  
methods to enable instructors to improve their teaching skill.  
Teaching method will focus on students' learning and on course learning  
outcomes.**



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)

**A Committee reviews samples of student work in this course to check on the standard of grades and achievements.**

**An external faculty member evaluates the course material and the students' work to compare the standard of grades and achievements with those at his university.**

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

**Carry out Self- assessment at every two years and external assessment invited faculty members every four years. The feedback received from these assessments will be used to plan for further improvement in the course syllabus, teaching method, and delivery of course materials.**