



Course Specifications

Course Title:	Ethics for Mathematicians
Course Code:	MATH 4620
Program:	BACHELOR OF SCIENCE IN MATHEMATICS
Department:	MATHEMATICS
College:	COLLEGE OF SCIENCE AND HUMANITIES STUDIES
Institution:	PRINCE SATTAM BIN ABDULAZIZ UNIVERSITY

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A. Course Identification

1. Credit hours: 02 credit hours
2. Course type
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input type="checkbox"/> Elective <input checked="" type="checkbox"/>
3. Level/year at which this course is offered: Level 10
4. Pre-requisites for this course (if any): Math 3460
5. Co-requisites for this course (if any): NIL

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	Weekly 2 hrs	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture (12X2)	24
2	Laboratory/Studio	
3	Tutorial (14 x 2)	00
4	Others (specify) - Office Hours (14 X 5)	60
	Total	84

B. Course Objectives and Learning Outcomes

1. Course Description

Concept of Ethics in Islam – Manners of Mathematicians - Difference between Mathematical Ethics and Manners – Ethics and General Welfare – Ethics in General jobs – Duties in General job - Manners of the Mathematical Employee – Illegal Manners of the Mathematical Employee – Deviation of Authority or job – Bribery – Gifts and Tips - Favoritism – Embezzlement – Forgery – Using the Authority or job.

2. Course Main Objective

The Objective is to make the students understand values of Ethics to Mathematicians and ways to adopt in their professional career and personal life so that they become responsible citizens on their graduation.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	Knowledge and Understanding	

CLOs		Aligned PLOs
1.1	Understand the ethical principles that must be followed to work in the fields of mathematics and its full conviction	K1
1.2	Understand the relationship between ethics and Math	K4
2	Skills :	
2.1	Acquire the ability to read and think, and write clearly in philosophical way and present before audience	S1
3	Values:	
3.1	Apprise the contribution of mathematics to the society in various fields	V1
3.2	Acquire professional responsibilities coupled with Islamic belief and practice	V2
3.3	Make defense on a topic before forums of public interest.	V3

C. Course Content

No	List of Topics	Contact Hours
1	Concepts of Ethics in Islam – Manners of Mathematicians	2
2	Difference between Mathematical Ethics and Manners	2
3	Ethics and General Welfare	2
4	Ethics in General Jobs – Duties in general jobs	2
5	Manners of Mathematical Employee	2
6	Illegal Manners	2
7	Deviation of Authority or Job	2
8	Bribery	2
9	Gift and Tips	2
10	Favoritism	2
11	Embezzlement	2
12	Using Authority of Job	2
Total		24

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Have a thorough understanding about Iterative Method and Multigrid method of solving PDEs	1. Class Room Lectures 2. Interactive sessions	1. Two Internal Exams 2. Atleast two Quiz
1.2	Understand the concept of finite element method	3. Exclusive Office Hours for clearing doubts in small groups	3. End Semester Exam
2.0	Skills		
2.1	Able to solve problems such as Hyperbolic problems, finite volumes, Linear problems with conservation laws.	1. Application oriented exercises during tutorial session. 2. Homework to improve the analytical skills	1. Homework 2. Assignments 3. Quiz
2.2	Solve integral equations using Collocation and Galerkin methods.		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
...			
3.0	Values		
3.1	Appreciate the contribution of mathematics to the society in various fields.	Group Discussion Value based questions in exams and discussions	1. Internal Exams 2. End Semester Exam 3. Assignments Homework
...			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Mid Term Exam I	6	20%
2	Quiz	4 & 10	5%
3	Mid Term Exam II	13	20%
4	Continuous Assessment – Homework, Assignment, Attendance etc.	--	5%
5	End Semester Exam (Practical 10%, Theory 40%)	15	50%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

1. Exclusive Office Hours – 5 Hours per week
2. Academic Advising for Students – 1 Hour per week

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Trefethen L. N. and Bau D., " Numerical Linear Algebra", Philadelphia, PA: SIAM, (1997). ISBN: 9780898713619. - Leveque R., "Numerical Methods for Conservation Laws", Lectures in Mathematics, ETH Zurich, Birkhauser. - Quarteroni A. and Valli A., " Numerical Approximation of Partial Differential Equations", Berlin; New York, NY: Springer– Verlag, (1997), ISBN: 9783540571117. - Atkinson K. E., "The Numerical Solution of Integral Equations of the Second Kind", Cambridge, UK: Cambridge University Press (1997), ISBN: 9780521583916.
Essential References Materials	Higher Engineering Mathematics by BS Grewal – SS Chand – Delhi – India
Electronic Materials	NIL
Other Learning Materials	Lecture Notes Prepared by the Department of Mathematics

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	1. Classrooms with Smart boards with seating facilities for atleast 30 students
Technology Resources (AV, data show, Smart Board, software, etc.)	Smartboard, Internet Connection for Blackboard
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	NIL

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students, Graduates	Course Evaluation and Program Evaluation Survey (Indirect)
	Program Leaders	Peer Review (Direct)
Achievement of CLOs	Faculty and Quality Personnel	Direct (Tests and Quiz) and Review of Course Report
Quality of Learning Resources	Students	Course Evaluation (Indirect)
	Graduates	Program Evaluation (Indirect)
Facilities	Students / Graduates	Course and Program Evaluation (Indirect)
	Faculty	Faculty Survey (Indirect), Course Reports (Direct)

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	