Course Specification
(Postgraduate)

Course Title: Partial Differential Equations (II)	
Course Code: Math 616	
Program: MSc Mathematics	
Department: Mathematics	
College: College of Science and Humanities	
Institution: Prince Sattam bin Abdulaziz university	
Version: 2	
Last Revision Date: Oct 2022	

Table of Contents

A. General information about the course:

1. Course Identification:

1. Credit hours: (2)

2. Course type

A.	☐University	☐College	☒ Department	☐Track	
B.	☒ Required			☐Elective	

3. Level/year at which this course is offered: (……….)

4. Course general Description:

Treatment of the theory of partial differential equations with emphasis of fundamental features of elliptic equations. Existence and Uniqueness of solution for various types of boundary conditions. Discussion of representative examples of elliptic, parabolic and hyperbolic equations.

5. Pre-requirements for this course (if any):

6. Pre-requirements for this course (if any):

7. Course Main Objective(s):

Upon completion of the course, the student is expected to have a comprehensive understanding of the following:
- Methods for solving partial differential equations.
- Fundamental features of elliptic, parabolic and Hyperbolic equations.
- Application of partial differential equations

2. Teaching Mode: (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3	100
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours: (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures (16 X 2)	32
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial (16 x1)	16
5.	Others (specify)......(Office Hours – 16 X1)	16
	Total	64

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods:

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Distinguishing mathematical concepts relevant to differentiation, first order PDE, second order PDE	K1		
1.2	Recall various structures and features of Mathematics problems involving differentiation, first order PDE, second order PDE and describe the various methods for solving boundary problem of PDEs.	K2	Class Room Lectures Interactive Session Exclusive Office hours to clear doubts	Quiz Homework Mid Term exam Final Exam
1.3	Outline required notations and concepts in differentiation, first order PDE, second order PDE and	K1		

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	solution of boundary problem of PDEs.			
2.0	**Skills**			
2.1	Apply various math rules, techniques and theorems in differentiation, first order PDE, second order PDE and solving boundary problem of PDEs	S1	Application oriented exercise to be solved in lectures and tutorials	Quiz Assignment/HW Mid and Final exams
3.0	**Values, autonomy, and responsibility**			
3.1	Ability to practice mathematics knowledge and skills in different situations during interactive discussion, group assignments, and web-based activities.	V1	Group task in class Brain storming	Continuous assessment
3.3	Ability to exhibit ethical traits in real-life during class discussion, participation in the department, college and university activities .	V2		Continuous assessment

C. Course Content:

No	List of Topics	Contact Hours
1.	**Treatment of the theory of partial differential equations.**	12
2.	**Fundamental features of elliptic equations.**	12
3	**Existence and Uniqueness of solution for various types of boundary conditions.**	12

4	Discussion of representative examples of elliptic, parabolic and hyperbolic equations	12
Total		**48**

D. Students Assessment Activities:

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz	4,10	10%
2.	Mid Exam 1	6	15%
3.	Continuous Assessment	--	10%
4.	Mid Exam 2	13	15%
5.	Final Exam	17	50%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities:

1. References and Learning Resources:

Essential References	
Supportive References	
Electronic Materials	
Other Learning Materials	

2. Educational and Research Facilities and Equipment Required:

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	**Class room to accommodate atleast 30 students**
Technology equipment (Projector, smart board, software)	**Smart Board, Projector with internet facilities**
Other equipment (Depending on the nature of the specialty)	--

F. Assessment of Course Quality:

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students, Peer and program leader	Indirect (Course Evaluation Survey)- Indirect peer

Assessment Areas/Issues	Assessor		Assessment Methods	
			evaluation	
Effectiveness of students assessment	Instructor		Diret	
Quality of learning resources	Students, Faculty members		Indirect	
The extent to which CLOs have been achieved	Instructor, attainment committee	CLO-PLO evaluation	CLO evaluation	Attainment
Other				

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

Assessment Methods (Direct, Indirect)

G. Specification Approval Data:

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	