



Course Specification

(Postgraduate)

Course Title: Complex Analysis

Course Code: Math629

Program: Mathematics

Department: Mathematics

College: College of Science and Humanities, Alkharj

Institution: Prince Sattam Bin Abdulaziz University

Version: : 1/2024

Last Revision Date: *Pick Revision Date.*



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A. General information about the course:

1. Course Identification:

1. Credit hours: (2 hours)

2. Course type

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

3. Level/year at which this course is offered: (: 2 (2,2,0))

4. Course general Description:

Harmonic function, the general form of Cauchy's Theorem, Normal families, Conformal mapping. Analytic continuation, univalent function theory.

5. Pre-requirements for this course (if any): None

6. Pre-requirements for this course (if any): None

7. Course Main Objective(s):

The main purpose of this course that the students gain better understanding about various concepts of contemporary complex analysis and their applications in solving mathematical problems.

2. Teaching Mode: (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	4 hours a week	100%
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 	E-learning: In case of suspension of regular classes due to any unforeseen eventualities	Not applicable
4	Distance learning		



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

No	Activity	Contact Hours
1.	Lectures	32
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	16
5.	Others (specify).....	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	Demonstrate a thorough understanding of various theories and concepts of contemporary complex analysis, in particular spaces of analytic functions, quasi-conformal mappings, univalent functions	K1	1. Class Room Lectures 2. Interactive sessions 3. Exclusive Office Hours for clearing doubts in small groups	1. Two Internal Exams 2. At least two Quiz 3. End Semester Exam
1.2	Able to describe the use of complex analysis in other areas of mathematics such as harmonic analysis, differential equations	K2		
2.0	Skills			
2.1	Acquire skills to apply various techniques of contemporary complex analysis in solving mathematical problems	S1	Application oriented exercises during lecture and tutorial session	1. Homework 2. Assignments 3. Quiz 4. Mid Term and Final Exam



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.2	Able to participate in discussions	S3	Group discussion Interactive session	Group Discussion / Assignment
3.0	Values, autonomy, and responsibility			
3.1	Appreciate the contribution of mathematics to the society in various fields.	V1	Group Discussion during lectures and Interactive Session and Exercises during Lecture and Tutorials	1.Oral Presentation 2. Continuous assessment 4. Group Assignment
3.2	Work independently and in groups			

C. Course Content:

No	List of Topics	Contact Hours
1.	Harmonic function.	6
2.	The general form of Cauchy's Theorem.	6
3.	Normal families.	6
4.	Conformal mapping.	8
5.	Analytic continuation.	8
6.	Univalent function theory	8
7.	Revision	6
Total		48

D. Students Assessment Activities:

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Mid Term Exam I	6	15%
2.	Quiz (At least 2 quiz)	4 & 10	10%
3.	Mid Term Exam II	13	15%
4.	Continuous Assessment – Homework, Assignment, Attendance etc.	--	10%
5.	End Semester 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	<p>-Schaum's Outline Series, McGRAW-HILL , Complex Variables with an introduction to CONFORMAL MAPPING and its applications, Second Edition Murray R. Spiegel, Ph.D. Former Professor and Chairman, Mathematics Department Rensselaer Polytechnic Institute, Hartford Graduate Center Seymour Lipschutz, Ph.D. Mathematics Department, Temple University John J. Schiller, Ph.D. Mathematics Department, Temple University Dennis Spellman, Ph.D. Mathematics Department, Temple University</p> <p>- COMPLEX VARIABLES AND APPLICATIONS, SEVENTH EDITION, James Ward Brown, Professor of Mathematics, The University of Michigan-Dearborn-Rue1 V. Churchill, Late Professor of Mathematics, The University of Michigan</p>
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.)	Classrooms with Smartboards with seating facilities for at least 30 students
Technology equipment (Projector, smart board, software)	<ul style="list-style-type: none"> Smartboard, Internet Connection for Blackboard
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 Review/Classroom Observation	Indirect
Effectiveness of students assessment	Independent member teaching staff	Check marking by an independent member teaching staff of samples of student work.
Quality of learning resources	Students	Indirect
The extent to which CLOs have been achieved	Faculty Member	Direct



Assessment Areas/Issues	Assessor	Assessment Methods
	Quality Unit of College and department	Learning outcomes assessment.
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval Data:

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	

