

NOTICE

Ref No: UCC/BS/MAT/01/2025-26.

Date: 25.03.2025

Subject: Board of Studies Meeting for the Academic Year 2025-2026

It is hereby notified that the **Board of Studies Meeting** of the Mathematics Department of **Union Christian College, Aluva (Autonomous)** for the academic year **2025-2026** is scheduled to be held as per the following details:

- **Date:** 25.03.2025
- **Time:** 11 AM Hybrid mode
- **Venue:** MLP Hall

All members are requested to attend the meeting without fail.

Agenda

1. Introductory remarks by the Chairman
2. Selection of member secretary
3. UG Syllabus (Minor if applicable)
4. PG Syllabus-Adaptation of new/ restructured scheme and syllabus for the academic year 2025-26 onwards.
5. Teaching Methodology (Teachers Specific content/Signature course/CCA methodology for each course)
6. Any other matter with the permission of the Chair

Members are requested to confirm their availability and be present on time.

Dr. Anu Nuthan Joshua

Chairperson, Board of Studies

Mathematics Department

Union Christian College, Aluva

Copy:

1. Dr. Aparna Lakshmanan S.
2. Dr. Lakshmi Sankar K.
3. Dr. K.P. Jose
4. Dr. Manju K. Menon
5. Mr. Anoop Thomas
6. All the faculty of the Department

Minutes of the meeting

The first meeting of BoS of Mathematics was held on 25th April 2025 at 11.00 am in hybrid mode. The meeting was presided over by Dr. Anu Nuthan Joshua, Chairperson, BoS.

Following members have attended the meeting in offline.

- Dr. Lakshmi Sankar K
- Mr. Anoop Thomas
- Mr. Eldo Varghese
- Dr. Geena Joy
- Ms. Mily Mary Sleeba K
- Ms. Susmi Skaria
- Mr. Kurian C. Soman
- Ms. Bithiyah Joy

Following members participated in the meeting online.

- Dr. Aparna Lakshmanan S
- Dr. K.P. Jose
- Dr. Manju K. Menon

Following decisions were taken in the meeting.

1. The meeting selected Mr. Kurian C Soman as member secretary.
2. The meeting decided to follow FYUGP syllabus and regulations of MG University for BSc Mathematics (Honours).
3. The meeting decided to follow PGCSS2019 syllabus and regulations of MG University for MSc Mathematics with following changes.

SEMESTER I

COURSE CODE: UCME010101

COURSE TITLE: ABSTRACT ALGEBRA

PAGE NO.	MODULE	COURSE CONTENT	
		EXISTING	MODIFIED

25		Text Book: John B. Fraleigh, A First Course in Abstract Algebra, 7th edition, Pearson Education.	Text Book: John B. Fraleigh, Neal Brand, A First Course in Abstract Algebra, Eighth Edition, Pearson Education.
25	3	Section 20 (Fermat's and Euler Theorems) included	Sections 20 (Fermat's and Euler Theorems) excluded
25	4	Section 24 (Non commutative examples) included	Section 24 (Non commutative examples) excluded
25	1,2	The contents of Module 1 (Sections 16 & 17) and Module 2 (Section 34) are interchanged.	

SEMESTER II

COURSE CODE: UCME010201

COURSE TITLE: ADVANCED ABSTRACT ALGEBRA

PAGE NO.	MODULE	COURSE CONTENT	
		EXISTING	MODIFIED
33		Text Book: John B. Fraleigh, A First Course in Abstract Algebra, 7th edition, Pearson Education.	Text Book: John B. Fraleigh, Neal Brand, A First Course in Abstract Algebra, Eighth Edition, Pearson Education.
33	2	Section 47: 47.6-47.10 (Multiplicative norms) included	Section 47: 47.6-47.10 (Multiplicative norms) excluded
33	4	Section 54 (Illustrations of Galois Theory) included	Section 54 (Illustrations of Galois Theory) excluded
33	1, 2	The contents of Module 1 and Module 2 are interchanged.	

COURSE CODE: UCME010202

COURSE TITLE: ADVANCED TOPOLOGY

PAGE NO.	MODULE	COURSE CONTENT	
		EXISTING	MODIFIED
34		Text 2 :James R. Munkres , Topology(second edition) , Pearson	Text 2 in References. Also the text - Stephen Willard, General Topology, Addison- Wesley - added as reference
34	3	Chapter 11: Section1-Proof of 1.4 included	Chapter 11: Section1-Proof of 1.4 excluded
34	4	Homotopy of paths - Chapter 9 :Section 1 of text 2	Topology and Convergence of Nets, Filters and their Convergence - Chapter 10: Section 2, Section 3; 3.1 to 3.11 (Proofs of 3.8 and 3.9 excluded)

COURSE CODE:UCME010205

COURSE TITLE: MEASURE THEORY AND INTEGRATION

PAGE NO.	MODULE	COURSE CONTENT	
		EXISTING	MODIFIED
40	3	Chapter 17, Section 17.3 Caratheodory measure induced by an Outer measure included	Chapter 17, Section 17.3 Caratheodory measure induced by an Outer measure excluded

SEMESTER III

COURSE CODE: UCME010301

COURSE TITLE: Advanced Complex Analysis

PAGE NO.	MODULE	COURSE CONTENT	
		EXISTING	MODIFIED
43	1	Chapter 6, Section 4 : 4.2 (Solution of Dirichlet's Problem) included	Chapter 6, Section 4 : 4.2 (Solution of Dirichlet's Problem) excluded
43	3, 4	Chapter 5: Section 5 : 5.2-5.3 (Normal Families – Normality and Compactness, Arzela's Theorem) included Chapter 6 : Section 1: 1.2-1.3 (Boundary Behaviour, Use of the Reflection Principle) included	Chapter 5: Section 5 : 5.2-5.3 (Normal Families – Normality and Compactness, Arzela's Theorem) excluded Chapter 6 : Section 1: 1.2-1.3 (Boundary Behaviour, Use of the Reflection Principle) excluded Chapter 7 : Sections 2 : 2.1-2.4 (Doubly Periodic functions - The Period Module, Unimodular Transformations, The Canonical Basis, General Properties of Elliptic Functions) included

COURSE CODE:UCME010303

COURSE TITLE: Multivariate Calculus and Integral Transforms

PAGE NO.	MODULE	COURSE CONTENT	
		EXISTING	MODIFIED
47	1	<p>The Weirstrass theorem, other forms of Fourier series, the Fourier integral theorem, the exponential form of the Fourier integral theorem, integral transforms and convolutions, the convolution theorem for Fourier transforms.</p> <p>(Chapter 11 Sections 11.15 to 11.21 of Text 1)</p>	<p>Functions of Several variables</p> <p>Euclidean Space R^n, Open balls and sets in R^n, Closed sets, Adherent points, Accumulation points, closed sets and adherent points, The Bolzano Weierstrass Theorem, limits of complex valued functions, limits of vector valued functions, continuous complex valued and vector valued functions, Derivatives of vector valued functions, Partial Derivatives</p> <p>(Sections 3.1-3.3, 3.5-3.8 Sections 4.6, 4.7,4.10,4.11 Section 5.13, 5.14 of Text 1).</p>

COURSE CODE: UCME010304

COURSE TITLE: FUNCTIONAL ANALYSIS

PAGE NO.	MODULE	COURSE CONTENT	
		EXISTING	MODIFIED
49	1	Section 1.2 Further Examples of Metric Spaces excluded	Section 1.2 Further Examples of Metric Spaces included
49	3	Section 3.6 Total Orthonormal sets and sequences included.	Section 3.6 Total Orthonormal sets and sequences excluded.

49	4	Section 4.5 Adjoint Operators included.	Section 4.5 Adjoint Operators excluded.
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SEMESTER IV

COURSE CODE: UCME010401

COURSE TITLE: SPECTRAL THEORY

PAGE NO.	MODULE	COURSE CONTENT	
		EXISTING	MODIFIED
54	2	Section 7.5 Use of Complex Analysis in Spectral Theory included.	Section 7.5 Use of Complex Analysis in Spectral Theory excluded.
54	3	Section 8.4 Further Spectral Properties of Compact Linear Operators included.	Section 8.4 Further Spectral Properties of Compact Linear Operators excluded.

COURSE CODE:UCME010402

COURSE TITLE: ANALYTIC NUMBER THEORY

PAGE NO.	MODULE	COURSE CONTENT	
		EXISTING	MODIFIED
56	4	Chapter 10: 10.1 - 10.5 (Primitive Roots: The exponent of a number mod m, Primitive roots, Primitive roots and reduced residue systems, The nonexistence of primitive roots mod 2^α for $\alpha \geq 3$, The existence of primitive root mod p for odd primes p, Primitive roots and quadratic residues) included	Chapter 10: 10.1 - 10.5 (Primitive Roots: The exponent of a number mod m, Primitive roots, Primitive roots and reduced residue systems, The nonexistence of primitive roots mod 2^α for $\alpha \geq 3$, The existence of primitive root mod p for odd primes p, Primitive roots and quadratic residues) excluded

4. Meeting approved following as the Teacher specific content for the paper Ground Roots of Mathematics (UC1DSCMAT100).

Module	Units	Content Description	CO No.
5	5.1	Construct combinatorial circuits using basic logic gates (Inverter, OR gate, AND gate) that produces the required output.	1
	5.2	Using a graphing calculator, visualize the effect of stretching and scaling (horizontal & vertical) of functions.	2, 7
	5.3	Using a graphing calculator, understand the geometric relationship between the graphs of a function and its inverse	3, 7
	5.4	Using a graphing calculator, determine whether a given function is injective or surjective.	2, 7
	5.5	Using a graphing calculator, find rough estimates of the locations of all horizontal tangent lines of a function.	4, 7
	5.6	Match the graphs of functions with the graphs of their derivatives.	4
	5.7	Using a graphing calculator, find rough estimates of the intervals on which $f(x) > 0$.	5, 7

MODE OF ASSESSMENT

Continuous Comprehensive Assessment (CCA)

Particulars	Marks
Assignment	10
Practical Record	5
Practical Examination	10
Total	25

5. Meeting approved following as the Teacher specific content for the paper A Gateway to Mathematics (UC2DSCMAT100).

Module	Units	Content Description	CO No.
5	5.1	Demonstrate how to visualize tangent planes to surfaces at a specific point using partial derivatives.	1
	5.2	Find the integrals using integration by parts (Problem Solving).	2
	5.3	Use Microsoft excel or spreadsheet to performs basic matrix operations.	3
	5.4	Find the adjacency and incidence matrices of some familiar graphs	4

MODE OF ASSESSMENT

Continuous Comprehensive Assessment (CCA)

Particulars	Marks
Assignment	5
Practicum	5
Total	10

6. Meeting approved following as the Teacher specific content for the paper Mathematics for Competitive Examinations (UC1MDCMAT100).

Module	Units	Content Description	CO No.
4	4.1	Using LCM and HCF simplify fractions, add and subtract fractions, solve equations	1
	4.2	Ratios and proportions in real life situations	2
	4.3	Profit and loss situations in business, trading, and investment scenarios	2
	4.4	Difference between simple interest and compound interest and their effects on total amount	3
	4.5	Problem-solving strategies for analysing profit and loss situations and determining the best course of action	2

MODE OF ASSESSMENT

Continuous Comprehensive Assessment (CCA)

Particulars	Marks
Assignment	10
Practical Record	5
Practical Examination	10
Total	25

7. Meeting approved following as the Teacher specific content for the paper Applicable Mathematics (UC2MDCMAT100).

Module	Units	Content Description	CO No.
4	4.1	Determinant Calculation	1
	4.2	Graphical Representation of Polynomial Equations	2
	4.3	Real-life application problems involving permutations and combinations, such as probability, arrangements, and selections.	3
	4.4	Applications of derivatives in various fields	4

MODE OF ASSESSMENT

Continuous Comprehensive Assessment (CCA)

Particulars	Marks
Assignment	10
Practical Record	5
Practical Examination	10
Total	25

The meeting was over by 01.00 pm.