



**UNIVERSITY OF CALICUT**

**Abstract**

General & Academic - CBCSS PG Regulations 2019 - Scheme and Syllabus of M.Sc Mathematics Programme w.e.f 2020 Admission onwards -Incorporating Outcome Based Education - Implemented - Subject to ratification of Academic Council - Orders Issued.

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**G & A - IV - J**

U.O.No. 5335/2021/Admn

Dated, Calicut University.P.O, 17.05.2021

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- Read:-* 1) U.O.No. 8953/2019/Admn Dated 06.07.2019.  
2) U.O.No. 1336/2020/Admn Dated 31.01.2020.  
3) Item no.2 in the minutes of the meeting of Board of Studies in Mathematics PG, Dated 09.04.2021.  
4) Remarks of the Dean, Faculty of Science, Dated 08.05.2021.  
5) Orders of the Vice Chancellor in the file of even no, Dated 10.05.2021.

**ORDER**

1. The scheme and syllabus of M.Sc Mathematics Programme under CBCSS PG Regulations 2019 in the affiliated Colleges of the University, w.e.f 2019 admission onwards has been implemented, vide paper read (1) above and same has been modified, vide paper read (2) above.
2. The Board of Studies in Mathematics PG has resolved to incorporate Outcome Based Education (OBE) in the scheme and syllabus of M.Sc Mathematics Programme under affiliated colleges of the University, in tune with the new CBCSS PG Regulations 2019 with effect from 2020 Admission onwards, Vide paper read (3) above.
3. The Dean, Faculty of Science, vide paper read (4) above, has approved to implement the scheme and syllabus of M.Sc Mathematics Programme (CBCSS-PG-2019) incorporating Outcome Based Education (OBE) , in the syllabus forwarded by the Chairperson, Board of Studies in Mathematics PG, in tune with the new CBCSS PG Regulations 2019 with effect from 2020 Admission onwards.
4. Considering the urgency, the Vice Chancellor has accorded sanction to implement the scheme and syllabus of M.Sc Mathematics Programme incorporating Outcome Based Education (OBE) ,in the syllabus forwarded by the Chairperson,Board of Studies in Mathematics in tune with the new CBCSS PG Regulations under affiliated colleges of the University with effect from 2020 Admission onwards, subject to ratification by the Academic Council.
5. Scheme and syllabus of M.Sc Mathematics Programme (CBCSS) incorporating Outcome Based Education (OBE) is therefore implemented with effect from 2020 Admission onwards under affiliated colleges of the University, subject to ratification by the Academic Council.
6. Orders are issued accordingly.
7. U.O.No.1336/2020/Admn Dated 31.01.2020, is modified to this extend.( syllabus appended )

Arsad M

Assistant Registrar

To

The Principals of all Affiliated Colleges  
Copy to: PS to VC/PA to PVC/ PA to Registrar/PA to CE/DR, SDE/JCE I/JCE V/DoA/EX and EG  
Sections/GA I F/CHMK Library/Information Centres/SF/DF/FC

Forwarded / By Order

Section Officer

**UNIVERSITY OF CALICUT**



**SYLLABUS FOR MSc MATHEMATICS (CBCSS) PG PROGRAMME**

EFFECTIVE FROM 2020 ADMISSION ONWARDS

Total Credits :80

## PROGRAMME OUTCOME:

Upon completing the M. Sc degree in the field of Mathematics, students have/capable of:

- A solid understanding of graduate level algebra, analysis and topology.
- Using their mathematical knowledge to analyze certain problems in day to day life.
- Identifying unsolved yet relevant problems in a specific field.
- Undertaking original research on a particular topic.
- Communicate mathematics accurately and effectively in both written and oral form.
- Conducting scholarly or professional activities in an ethical manner.

### SEMESTER 1

Course Code	Title of the Course	No. of Credits	Work Load Hrs./week	Core/Audit Course
MTH1C01	Algebra- I	4	5	Core
MTH1C02	Linear Algebra	4	5	Core
MTH1C03	Real Analysis I	4	5	Core
MTH1C04	Discrete Mathematics	4	5	Core
MTH1C05	Number Theory	4	5	Core
MTH1A01	Ability Enhancement Course <sup>a</sup>	4	0	Audit Course

### SEMESTER 2

Course Code	Title of the Course	No. of Credits	Work Load Hrs./week	Core/Elective
MTH2C06	Algebra- II	4	5	Core
MTH2C07	Real Analysis II	4	5	Core
MTH2C08	Topology	4	5	Core
MTH2C09	ODE & Calculus of Variations	4	5	Core
MTH2C10	Operations Research	4	5	Core
	Professional Competency Course <sup>a</sup>	4	0	Audit Course

### SEMESTER 3

Course Code	Title of the Course	No. of Credits	Work Load Hrs./week	Core/Elective
MTH 3C11	Multivariable Calculus & Geometry	4	5	Core
MTH3C12	Complex Analysis	4	5	Core
MTH3C13	Functional Analysis	4	5	Core
MTH3C14	PDE & Integral Equations	4	5	Core
	Elective I*	3	5	Elec.

### SEMESTER 4

Course Code	Title of the Course	No. of Credits	Work Load Hrs./week	Core/Elective
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MTH4C15	Advanced Functional Analysis	4	5	Core
	Elective II**	3	5	Elec.
	Elective III**	3	5	Elec.
	Elective IV**	3	5	Elec.
MTH4P01	Project	4	5	Core
MTH4 V01	Viva Voce	4		Core

<sup>a</sup> Evaluation of these courses will be as per the latest PG regulations.

\* This Elective is to be selected from list of elective courses in third semester

\*\* This Elective is to be selected from list of elective courses in fourth semester

#### List of Elective Courses in Third Semester

1. MTH3E01 Coding theory
2. MTH3E02 Cryptography
3. MTH3E03 Measure and Integration
4. MTH3E04 Probability Theory

#### List of Elective Courses in Fourth Semester

1. MTH4E05 Advanced Complex Analysis
2. MTH4E06 Algebraic Number Theory
3. MTH4E07 Algebraic Topology
4. MTH4E08 Commutative Algebra
5. MTH4E09 Differential Geometry
6. MTH4E10 Fluid Dynamics
7. MTH4E11 Graph Theory
8. MTH4E12 Representation Theory
9. MTH4E13 Wavelet Theory

#### ABILITY ENHANCEMENT COURSE(AEC)

Successful fulfilment of any one of the following shall be considered as the completion of AEC. (i) Internship, (ii) Class room seminar presentation, (iii) Publications, (iv) Case study analysis, (v) Paper presentation, (vi) Book reviews. A student can select any one of these as AEC.

**Internship:** Internship of duration 5 days under the guidance of a faculty in an institution/department other than the parent department. A certificate of the same should be obtained and submitted to the parent department.