SACRED HEART COLLEGE, CHALAKUDY

Railway Station Road, Thrissur Dt., Kerala - 680 307, India

(Affiliated to University of Calicut & **Re-acredited with A+ Grade by NAAC, CGPA 3.55**

E-mail ; shcollegecky@gmail.com   Website : www.sacredheartcollege.ac.in.

Date 29/09/2022

**Sub- Clarification regarding the Add-on/Certificate courses of the year 2020-21
Metric - (1.2.2)**

I certify that the four Add-on/Certificate courses offered during the academic year 2020-21 listed below are not part of the curricula offered by the University. The Course Codes and syllabi of these Add-on/Certificate courses are also not the same with the Course codes, titles and syllabi of Courses as part of the curriculum. We have attached the list of the Course Codes and syllabi of the normal curricula for clarification. The syllabi, attendance, certificates of the Add-on/Certificate courses are also provided in the other link so that NAAC can verify that the courses are not part of the normal curricula.

In the DVV, you have apparently accepted all the Add-on/Certificate courses but the number of students enrolled for the course has been reduced. Thank you for giving us an opportunity to clarify this. I hope you will accept all the four Add-on/Certificate courses offered during the year 2020-21 and the corresponding number of students who pursued this course into consideration.

Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
Certificate Course on Human Rights and Duties Education		2020-21	1	30 hours	50	50
Certificate Course An Introduction to Latex		2020-21	1	100 hrs	15	15
Add on course on communication Skills	ADENG01	2020-21	1	140hrs	31	31
Certificate Course on Quantitative Aptitude and Analytical Skills		2020-21	1	30 hours	16	16

PRINCIPAL
SACRED HEART COLLEGE
CHALAKUDY

File Ref.No.24320/GA - IV - J2/2013/CU

UNIVERSITY OF CALICUT

Abstract

B.Sc in Mathematics-CUCBCSS UG 2014-Scheme and Syllabus-Implemented-w.e.f. 2014 Admissions-Erratum issued.

G & A - IV - J

U.O.No. 7790/2016/Admn   Dated, Calicut University.P.O, 22.06.2016

Read:-1. U.O. No. 3797/2013/CU, dated 07.09.2013 (CBCSS UG Modified

Regulations)(File.ref.no. 13752/GA IV J SO/2013/CU).

2. U.O. No. 5180/2014/Admn, dated 29.05.2014 (CBCSS UG Revised

Regulations)(File.ref.no. 13752/GA IV J SO/2013/CU).

3. Item no. 1 of the minutes of the meeting of the Board of Studies in Mathematics

UG held on 03.04.2014.

4. Item no. 19 of the minutes of the meeting of the Faculty of Science held on

27.06.2014.

5. U.O.No. 6841/2014/Admn dtd. 16.07.2014.

6. U.O.No. 3073/2016/Admn dtd. 19.03.2016.

7. U.O.No. 5290/2016/Admn dtd. 26.04.2016.

8. Circular No. No. 13725/GA - IV - J - SO/2013/CU

9. Letter dtd. 03.06.2016 from Chaiman Board of Studies in Mathematics UG.

10. Orders of the VC in the file of even No. dtd. 17.06.2016.

ORDER

The Modified Regulations of Choice Based Credit Semester System for UG Curriculum w.e.f 2014 under the University of Calicut was implemented vide paper read as (1).

The Revised CUCBCSS UG Regulations has been implemented w.e.f 2014 admission, for all UG programmes under CUCBCSS in the University, vide paper read as (2).

The Board of Studies in Mathematics UG resolved to submit the revised syllabus, by including marks instead of weightage as per the new Regulations vide paper read as (3).

The Faculty of Science has also approved the minutes of the Board vide paper read as (4).

Vide paper read as (5), the Scheme and Syllabus of B.Sc in Mathematics under CUCBCSS UG 2014 has been implemented in the University, w.e.f. 2014 Admissions.

the scheme of evaluation:

Total marks 100 for the core papers in the 5th & 6th semesters have been changed to 150 marks,so that the total marks for B.Sc mathematics Programme w.e.f from 2014 admission has been changed to 3600 marks from 3200 marks.

Vide paper read as (7), another erratum has been issued in the Syllabus of B.Sc Mathematics by including the following changes in the pattern of question paper.

In the scheme of evaluation attached to syllabus, Column 4 in Part D under the Title PATTERN OF QUESTION PAPER FOR UNIVERSITY EXAMINATIONS is modified as 2 out of 3 instead of 6 out of 9.

Vide paper read as (8), it has been clarified by Steering Committee on CUCBCSS UG 2014 that as per CUCBCSS UG Regulations 2014, Open Course shall have 2 Credits and shall be allotted 2 hours for teaching.

The Chairman Board Of Studies in Mathematics UG vide paper read as (9), pointed out that in the approved syllabus of B.Sc Mathematics, Open Course syllabus prepared for 3 hrs per week and hence requested to make modifications in the syllabus **reducing the workload for open course to 2 hours per week.**

Vide paper read as (10), permission has been granted by the Hon'ble Vice Chancellor to modify the Syllabus of B.Sc Mathematics as requested by the Chairman.

Sanction has, therefore, been accorded for implementing the modified Scheme and Syllabus of B.Sc in Mathematics under CUCBCSS UG 2014, in the University, w.e.f. 2014 Admissions.

Orders are issued accordingly.

(The syllabus is available in the website: www.universityofcalicut.info)

Anuja Balakrishnan
Deputy Registrar

To

    1. All Affiliated Colleges/SDE/Dept.s/Institutions under University of Calicut.

    2. The Controller of Examinations, University of Calicut.

    3. The Director SDE, University of Calicut.

Forwarded / By Order

Section Officer

UNIVERSITY OF CALICUT

B.Sc. DEGREE PROGRAMME
CHOICE BASED CREDIT SEMESTER SYSTEM (CBCSS UG)

MATHEMATICS (CORE, OPEN& COMPLEMENTARY COURSES)

SYLLABUS

(Effective from 2014 admission onwards)

DETAILS OF CORE COURSES

Sl No.	Code	Name Of The Course	Semester	No. of Contact Weeks /	Credits	Max. Marks			Duration of University Examinations
						Internal	External	Total	
1	MAT1B01	Foundations of mathematics	I	4	4	20	80	100	3 Hrs
2	MAT2B02	Calculus	II	4	4	20	80	100	3 Hrs
3	MAT3B03	Calculus and analytic geometry	III	5	4	20	80	100	3 Hrs
4	MAT4B04	Theory of equations, matrices and vector calculus	IV	5	4	20	80	100	3 Hrs
5	MAT5B05	Vector calculus	V	5	4	30	120	150	3 Hrs
6	MAT5B06	Abstract algebra		5	5	30	120	150	3 Hrs
7	MAT5B07	Basic mathematical analysis		6	5	30	120	150	3 Hrs
8	MAT5B08	Differential equations		5	4	30	120	150	3 Hrs
9		Open Course (Offered by Other Departments)		2	2	10	40	50	2 Hrs
10		Project/viva		2	---	---	---	---	---
11	MAT6B09	Real analysis	VI	5	5	30	120	150	3 Hrs
12	MAT6B10	Complex analysis		5	5	30	120	150	3 Hrs
13	MAT6B11	Numerical methods		5	4	30	120	150	3 Hrs
14	MAT6B12	Number theory and linear algebra		5	4	30	120	150	3 Hrs
Elective Course*									
15	MAT6B13(E01)	Graph Theory	VI	3	2	20	80	100	3 Hrs
	MAT6B13(E02)	Linear Programming**							
	MAT6B13(E03)	C Programming For Mathematical Computing***							
	MAT6B13(E04)	Informatics and Mathematical Softwares							
16	MAT6P14(PR)	Project/viva	VI	2	2	10	40	50	---

*In the VI th semester an elective course shall be chosen among the four courses

(Code MAT6B13(E01), MAT6B13(E02), MAT6B13(E03) , MAT6B13(E04)).

**Students who have chosen Mathematical Economics as a Complementary Course in the first 4 semesters shall not choose Linear Programming MM6B13(E02) as the elective course.

*** Students who have chosen Computer Science / Computer Applications as a Complementary Course during the first 4 semesters shall not choose C Programming for Mathematical Computing (MM6B13(E03)) as the electivecourse.

DETAILS OF OPEN COURSES

Sl No.	Code	Name Of The Course	Semester	No. of Contact Hours / Week	Credits	Max. Marks			Duration of University Examinations
						Internal	External	Total	
1	MAT5D01	Mathematics For Physical Sciences	V	2	2	10	40	50	2 Hrs
2	MAT5D02	Mathematics For Natural Sciences							
3	MAT5D03	Mathematics For Social Sciences							

DETAILS OF COMPLEMENTARY COURSES

Sl No.	Code	Name Of The Course	Semester	No. of Contact Hours / Week	Credits	Max. Marks			Duration of University Examinations
						Internal	External	Total	
1	MAT1C01	Mathematics	I	4	3	20	80	100	3 Hrs
2	MAT2C02	Mathematics	II	4	3	20	80	100	3 Hrs
3	MAT3C03	Mathematics	III	5	3	20	80	100	3 Hrs
4	MAT4C04	Mathematics	IV	5	3	20	80	100	3 Hrs

File Ref.No.59902/GA - IV - J3/2019/Admn

UNIVERSITY OF CALICUT

Abstract

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

G & A - IV - J

U.O.No. 5657/2021/Admn	Dated, Calicut University.P.O, 27.05.2021

> *Read:-*1) U.O.No. 9389/2020/Admn Dated,13.10.2020.
> 2) Item no.3 in the minutes of the meeting of Board of Studies in Mathematics, Dated 31.03.2021.
> 3) Remarks of the Dean, Faculty of Science, Dated 16.04.2021.
> 4) Orders of the Vice Chancellor in the file of even no, Dated 17.04.2021.

ORDER

1. The scheme and syllabus of B.Sc Mathematics Programme under CBCSS UG Regulations 2019 of the University, w.e.f 2020 admission onwards has been implemented, vide paper read (1) above.

2. The Board of Studies in Mathematics UG has resolved to incorpate Outcome Based Education (OBE) in the scheme and syllabus of B.Sc Mathematics Programme, in tune with the new CBCSS UG Regulations 2019 with effect from 2020 Admission onwards, vide paper read (2) above.

3. The Dean, Faculty of Science, vide paper read (3) above, has approved to implement the scheme and syllabus of B.Sc Mathematics Programme (CBCSS-UG-2019) incorporating Outcome Based Education (OBE), in the existing syllabus forwarded by the Chairperson, Board of Studies in Mathematics, in tune with the new CBCSS UG 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 B.Sc Mathematics Programme incorporating Outcome Based Education (OBE), in the existing syllabus forwarded by the Chairperson, Board of Studies in Mathematics UG in tune with the new CBCSS UG Regulations 2019 of the University with effect from 2020 Admission onwards, subject to ratification by the Academic Council.

5. Scheme and syllabus of B.Sc Mathematics (CBCSS) programme incorporating Outcome Based Education (OBE) in the existing syllabus, in tune with CBCSS UG Regulations 2019, is therefore implemented with effect from 2020 Admission onwards, subject to ratification by the Academic Council.

6. Orders are issued accordingly.

7. U.O.No. 9389/2020/Admn, Dated13.10.2020 is modified to this extend.(syllabus appended).

Ajitha P.P

Joint Registrar

To

Principals of all affiliated colleges
Copy to: PS to VC/PA to PVC/ PA to Registrar/PA to CE/DR, DOA/JCE I/JCE IV/DoA/EX and EG Sections/GA I F/CHMK Library/Information Centres/SF/DF/FC

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Section Officer

B.Sc. DEGREE PROGRAMME

CHOICE BASED CREDIT
SEMESTER SYSTEM

(CBCSS-UG Regulations 2019)

B.Sc. MATHEMATICS
(CORE, OPEN & COMPLEMENTARY COURSES)

OBE implemented SYLLABUS

(Effective from 2020 admission onwards)

UNIVERSITY OF CALICUT

Core Courses

The following courses are compulsory for BSc Mathematics programme.

Sl. No	Code	Name of the course	Semester	No of contact hours/Week	Credits	Max. Marks			Exam dur.(Hrs)
						Internal	External	Total	
1	MTS1B01	Basic Logic and Number Theory	1	4	4	20	80	100	2.5
2	MTS2B02	Calculus of Single Variable-1	2	4	4	20	80	100	2.5
3	MTS3B03	Calculus of Single Variable-2	3	5	4	20	80	100	2.5
4	MTS4B04	Linear Algebra	4	5	4	20	80	100	2.5
5	MTS5B05	Abstract Algebra	5	5	4	20	80	100	2.5
6	MTS5B06	Basic Analysis	5	5	4	20	80	100	2.5
7	MTS5B07	Numerical Analysis	5	4	3	15	60	75	2
8	MTS5B08	Linear Programming	5	3	3	15	60	75	2
9	MTS5B09	Introduction to Geometry and Theory of Equations	5	3	3	15	60	75	2
		Project **OR** Research Methodology	5	2					
10		Open Course (Offered by Other Departments)	5	3	3	15	60	75	2
11	MTS6B10	Real Analysis	6	5	5	20	80	100	2.5
12	MTS6B11	Complex Analysis	6	5	5	20	80	100	2.5
13	MTS6B12	Calculus of Multi variable	6	5	4	20	80	100	2.5
14	MTS6B13	Differential Equations	6	5	4	20	80	100	2.5
15	MTS6B14	Elective	6	3	2	15	60	75	2
16	MTS6P15(PR) MTS6P15	Project Viva **OR** Research Methodology	6	2	2	15	60	75	2
				34	58			1450	

Elective Courses

One of the following three courses (Code MTS6B14(E01), MTS6B14(E02) and MTS6B14(E03)) can be offered in the sixth semester as an elective course.

Sl. No	Code	Name of the course	Semester	No of contact hours/Week	Credits	Max. Marks			Exam dur.(Hrs)
						Internal	External	Total	
1	MTS6B14(E01)	Graph Theory	6	3	2	15	60	75	2
2	MTS6B14(E02)	Topology of Metric Spaces	6	3	2	15	60	75	2
3	MTS6B14(E03)	Mathematical Programming with Python and LaTeX	6	3	2	15	60	75	2

Open Courses

One of the following four courses (MTS5D01, MTS5D02, MTS5D03 and MTS5D04) can be offered in the fifth semester as an open course for the students not having Mathematics as Core Course and Mathematics and Physics dual Core programme.

Sl. No	Code	Name of the course	Semester	No of contact hours/Week	Credits	Max. Marks			Unty. exam Dur. (Hrs)
						Internal	External	Total	
1	MTS5D01	Applied Calculus	5	3	3	15	60	75	2
2	MTS5D02	Discrete Mathematics for Basic and Applied Sciences	5	3	3	15	60	75	2
3	MTS5D03	Linear Mathematical Models	5	3	3	15	60	75	2
4	MTS5D04	Mathematics for Decision Making	5	3	3	15	60	75	2

Complementary Courses

Sl. No	Code	Name of the course	Semester	No of contact hours/Week	Credits	Internal	External	Total	Unty. exam Dur. (Hrs)
						Max. Marks			
1	MTS1C01	Mathematics – 1	1	4	3	15	60	75	2
2	MTS2C02	Mathematics – 2	2	4	3	15	60	75	2
3	MTS3C03	Mathematics – 3	3	5	3	15	60	75	2
4	MTS4C04	Mathematics – 4	4	5	3	15	60	75	2
		Mathematical Economics							
1	MEC1C01	Mathematical Economics	1	4	3	15	60	75	2
2	MEC2C02	Mathematical Economics	2	4	3	15	60	75	2
3	MEC3C03	Mathematical Economics	3	5	3	15	60	75	2
4	MEC4C04	Mathematical Economics	4	5	3	15	60	75	2

Credit Distribution of BSc Mathematics Programme

Sl. No	Course		Credits	
1	English		22	
2	Additional Language		16	
3	Core Course	13 Courses	51	
		1 Elective	2	55
		Project **OR** Research Methodology	2	
4	Complementary course - I		12	
5	Complementary course - II		12	
6	Open Course		3	
Total			120	

UNIVERSITY OF CALICUT
(Abstract)

MSc programme in Mathematics under Credit Semester System (PG)-Scheme and Syllabus -approved –implemented with effect from 2010 admn onwards- Orders issued

GENERAL & ACADEMIC BRANCH-IV 'J' SECTION

No. GA IV/J2/ 4477/10   Dated, Calicut University PO, 02.08.2010

Read:1. U.O.No. GAIV/J1/1373/08 dated, 23.07.2010.
      2. Item no.2 of the minutes of the meeting of the Board of Studies in Mathematics (PG) held on 22.06.2010
      3. Orders of the Vice-Chancellor in file of even no.dtd 02.08.2010

O R D E R

As per University Order read as first, Credit Semester System was implemented to PG programmes in affiliated Arts and Science Colleges and Self Financing Centres of the University with effect from 2010 admission onwards.

The Board of Studies in Mathematics (PG),vide paper read as second, discussed the implementation of Credit Semester System at PG level in the affiliated colleges and the Board decided to implement the same and approved the syllabus of the first Semester of the Programme and resolved that the programme will have a total of 80 credits.

The Vice Chancellor approved the minutes subject to ratification by the Academic Council,vide paper read as 3 above.

Sanction has therefore been accorded for implementing the Syllabus of Ist Semester of MSc programme in Mathematics under CSS for affiliated Colleges with effect from 2010 admission.

Orders are issued accordingly. Scheme and Syllabus appended.

Sd/-
ASSISTANT REGISTRAR (G & A-IV)
For

REGISTRAR

To

The Principals of affiliated Colleges offering MSc programme in Mathematics

Copy to:

PS to VC/PA to Registrar/Chairman,B/S in Mathematics/CE/EX/DRIII/ DR-PG/EGI/Enquiry/System Administrator(with a request to upload in the University website)/Information Centres/GAI`F``G`Sections GAII/III

Forwarded/By Order

Sd/-

SECTION OFFICER.

APPENDIX - I

UNIVERSITY OF CALICUT

SYLLABUS FOR THE M.Sc. (MATHEMATICS) PROGRAMME
UNDER CUCSS – PG – 2010
(Total Credits : 80)

EFFECTIVE FROM 2010 ADMISSIONS

Semester I

Course Code	Title of the Course	No. of Credits	Work Load Hrs.	Core/ Elective
MT1C01	Algebra 1	4	5	Core
MT1C02	Linear Algebra	4	5	Core
MT1C03	Real Analysis - I	4	5	Core
MT1C04	ODE and Calculus of Variations	4	5	Core
MT1C05	Discrete Mathematics	4	5	Core

Semester II

Course Code	Title of the Course	No. of Credits	Work Load Hrs.	Core/ Elective
MT2C06	Algebra II	4	5	Core
MT2C07	Real Analysis II	4	5	Core
MT2C08	Topology I	4	5	Core
MT2C09	PDE and Integral Equations	4	5	Core
MT2C10	Number Theory	4	5	Core

Semester III

Course Code	Title of the Course	No. of Credits	Work Load Hrs.	Core/ Elective
MT3C11	Complex Analysis	4	5	Core
MT3C12	Functional Analysis I	4	5	Core
MT3C13	Topology II	4	5	Core
MT3C14	Linear Programming and its Applications	4	5	Core
	Project		5	Core

Semester IV

Course Code	Title of the Course	No. of Credits	Work Load Hrs.	Core/ Elective
MT4C15	Functional Analysis II	4	5	Core
MT4C16	Differential Geometry	4	5	Core
	Elective I	4	5	Elective
	Elective II	4	5	Elective
MT4C17	Project	5	5	Core
MT4V01	General Viva	3		Core

CREDITS
Accumulated minimum credit required for successful completion of course shall be 80.

LIST OF ELECTIVES
MT4E01   COMMUTATIVE ALGEBRA
MT4E02   ALGEBRAIC NUMBER THEORY
MT4E03   MEASURE AND INTEGRATION
MT4E04   FLUID DYNAMICS
MT4E05   OPERATIONS RESEARCH
MT4E06   PROBABILITY THEORY
MT4E07   COMPUTER ORIENTED NUMERICAL ANALYSIS

PROJECT

The Project in this Programme is to be done in the III & IV Semesters with a total credit of 5 including Project Viva. (The general viva is given 3 credits). The work load of the Project is 5 hours each in III & IV Semesters.

The Project Report (Dissertation) should be self contained.   It should contain an introduction, necessary background and a reference list in addition to the main content. The main content may be of length not less than 30 pages in the A4 format with one and half line spacing.

Evaluation and Grading
The evaluation scheme for each course shall contain two parts.
(a) Internal Evaluation – 25% Weightage
(b) External Evaluation – 75% Weightage

Both Internal and External evaluation shall be carried out using direct grading system as per the general guidelines.

In the case of the Elective Course MT4E07: Computer Oriental Numerical Analysis, the external examination will consist of a written examination and a practical examination each of duration one and half hours. Each will carry a weightage of 18. Thus the total weightage is 36 as in the case of other courses. The details are appended to the syllabus of the course.

Question Paper Pattern for the written examination of the Elective Course:
MT4E07 Computer Oriental Numerical Analysis
For the Elective Course MT4E07: Computer Oriental Numerical Analysis there will be a Theory written examination and a practical examination each of duration one and half hours. The valuation will be done by Direct Grading System.   The question paper for the written examination will consists of 6 short answer questions, each of weightage 1, 6 paragraph type questions each of weightage 2 and 2 essay type questions, each of weightage 4. All short answer questions are to be answered while 4 paragraph type questions and 1 essay type questions are to be answered with a total weightage of 18. The questions are to be evenly distributed over the entire syllabus.
Question Paper Pattern for the written examinations of all other courses
For each course there will be an external examination of duration 3 hours. The valuation will be done by Direct Grading System. Each question paper will consists of 14 short answer questions, each of weightage 1, 10 paragraph type questions each of weightage 2 and 4 essay type questions, each of weightage 4. All short answer questions are to be answered while 7 paragraph type questions and 2 essay type questions are to be answered with a total weightage of 36. The questions are to be evenly distributed over the entire syllabus.

File Ref.No.70516/GA - IV - J3/2019/Admn

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.

G & A - IV - J	
U.O.No. 5335/2021/Admn	Dated, Calicut University.P.O, 17.05.2021

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 incorpate 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
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Section Officer

UNIVERSITY OF CALICUT

SYLLABUS FOR MSc MATHEMATICS (CBCSS) PG PROGRAMME

EFECTIVE 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^a	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^a	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

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

[a] 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.