

UNIVERSITY OF CALICUT

**B.Sc. DEGREE PROGRAMME
CHOICE BASED CREDIT SEMESTER SYSTEM (CCSS UG)
MATHEMATICS (CORE COURSE)**

SYLLABUS

(effective from 2009 admission onwards)

The courses for the UG Programme are framed using time tested and internationally popular text books so that the courses are at par with the courses offered by any other reputed universities around the world.

Only those concepts that can be introduced at the UG level are selected and instead of cramming the course with too many ideas the stress is given in doing the selected concepts rigorously. The idea is to make learning mathematics meaningful and an enjoyable activity rather than acquiring manipulative skills and reducing the whole thing an exercise in using thumb rules.

As learning Mathematics is doing Mathematics, to this end, some activities are prescribed to increase students participation in learning.

Duration of the degree programme shall be six semesters distributed in a period of three academic years. Each semester shall have a minimum of 90 working days inclusive of all examinations.

Some topics in the theory of equations are selected and left for students to learn by themselves. These are given at the end of the syllabus for the courses (MM1B01, MM3B03, MM4B04 of first, third and fourth semesters) as seminar topics. Students can make use of books and materials available in the web to prepare for the presentation. It is imperative that these are taken as part of the syllabus. These should be included in the internal examination. However they are not to be included for the university examinations. Few topics are listed at the end of the syllabus of some courses, which are complementary to the respective courses. They are to be treated similarly.

Every student has to do a project during the 5th and 6th semester. The topics for the project can be selected as early as the beginning of the 3rd semester. It is mandatory that the students use the softwares they learned in the second semester for documentation. The project report shall be submitted at the end of the 6th semester.

EVALUATION

The evaluation scheme for each course shall contain two parts: (i) Internal evaluation (ii) External evaluation. 25% weight shall be given to internal evaluation and 75% weight for external evaluation.

Weightage of internal and external evaluation

Evaluation	Weightage
Internal	1 (25%)
External	3 (75%)

Both internal and external evaluation will be carried out using direct grading system.

Components of internal evaluation

	Weightage	Grading
Assignment	1	Graded as A, B, C, D, E depending on quality.
Test paper (Best 2 out of 3)	2	Graded as A, B, C, D, E
Attendance	1	90% and above : A, 85-89% : B, 80-84% : C, 75-79% : D, Below 75% : E.
Seminar	1	Graded as A, B, C, D, E depending on presentation.

To ensure transparency of the evaluation process the internal assessment grade awarded to the student in each course in a semester shall be notified in the notice board at least one week before the commencement of the external examination. There shall not be any chance for improvement for internal grade.

The course teacher(s) shall maintain the academic record of each student registered for the course which shall be forwarded to the university (with the signature of the course teacher and HOD) through the Principal of the college.

The external evaluation of each course will be based on the university examination at the end of each semester.

The minimum requirement of attendance during a semester shall be 75% for each course. Attendance shall be maintained by the concerned course teacher. Condonation of shortage of attendance to a maximum of 10 days in a semester subject to a maximum of two times during the whole period of the degree programme may be granted by the university.

Benefits of attendance may be granted to students who attend University Union activities, meetings of University Bodies and participation in extra curricular activities by treating as present for the days of their absence for the above purpose on production of participation / attendance certificate in such activities issued by the University authorities / Principals subject to a maximum of 10 days in a semester.

There shall be a Department level Grievance Redressal Committee comprising of course teacher and one senior teacher as members and the HOD as the Chairman. This Committee shall address all grievances relating to the internal assessment grading of the students.

There shall be a college level Grievance Redressal Committee comprising of two senior teachers and two staff council members (one shall be elected member) as members and Principal as the Chairman.

An aggregate of C grade (external and internal put together) is required in each course for a pass and also for awarding degree. A student who fails to secure a minimum grade for a pass in a course is permitted to write the examination along with the next batch.

A student who registered for the degree programme shall complete the programme within six years from the year of Registration.

In all other matters the Calicut University regulations for Choice Based Credit Semester System for under graduate curriculum shall apply.

DETAILS OF MATHEMATICS (CORE COURSE)

Sl. No.	Code	Semester	Title of the Course	Contact Hrs/Week	No. of Credit	Duration of Exam	Weightage
1	MM1B01	1	Foundations of Mathematics	4	4	3 hrs	30
2	MM2B02	2	Informatics and Mathematical Softwares	4	4	3 hrs	30
3	MM3B03	3	Calculus	5	4	3 hrs	30
4	MM4B04	4	Calculus and Analytic Geometry	5	4	3 hrs	30
5	MM5B05	5	Vector Calculus	5	4	3 hrs	30
6	MM5B06	5	Abstract Algebra	5	4	3 hrs	30
7	MM5B07	5	Basic Mathematical Analysis	5	4	3 hrs	30
8	MM5B08	5	Numerical Methods	5	4	3 hrs	30
9		5	Open Course offered by other department	3	4	3 hrs	30
10		5	Project	2	--	--	--
11	MM6B09	6	Real Analysis	5	4	3 hrs	30
12	MM6B10	6	Complex Analysis	5	4	3 hrs	30
13	MM6B11	6	Differential Equations	5	4	3 hrs	30
14	MM6B12	6	Number Theory and Linear Algebra	5	4	3 hrs	30

Sl. No.	Code	Semester	Title of the Course	Contact Hrs/Week	No. of Credit	Duration of Exam	Weightage
15	ELECTIVE COURSE*						
	MM6B13(E01)	6	Graph Theory	3	2	3 hrs	30
	MM6B13(E02)		Linear Programming and Game Theory**				
	MM6B13(E03)		C Programming for Mathematical Computing***				
16	MM6B14(PR)	6	Project	2	4	--	--

* In the 6th semester an elective course shall be chosen among the three courses (Code MM6B13(E01), MM6B13(E02), MM6B13(E03)).

** Students who have chosen Mathematical Economics as a Complementary Course in the first 4 semesters shall not choose Linear Programming and Game Theory 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 elective course.

Open Course for students of other departments during the Fifth Semester

Code	Title of the Course	No. of contact hrs/week	No. of Credit	Duration of Exam	Weightage
MM5D01	Mathematics for Physical Sciences	3	4	3 hrs	30
MM5D02	Mathematics for Natural Sciences	3	4	3 hrs	30
MM5D03	Mathematics for Social Sciences	3	4	3 hrs	30

PATTERN OF QUESTION PAPER

For each course the external examination is of 3 hours duration and has maximum weightage 30. The question paper has 4 parts. Part I is compulsory which contains 12 objective type / fill in the blanks multiple choice type questions set into 3 bunches of four questions. Each bunch has weightage 1. Part II is compulsory and contains 9 short answer type questions and each has weightage 1. Part III has 7 short essay type/paragraph questions of which 5 are to be answered and each has a weightage 2. Part IV contains three essay type questions of which 2 are to be answered and each has weightage 4.

Part	No. of Questions	No. of questions to be answered	Weightage
I (Objective type)	3 bunches of 4 questions	All	$3 \times 1 = 3$
II (Short Answer)	9	All	$9 \times 1 = 9$
III (Short Essay)	7	5	$5 \times 2 = 10$
IV (Long Essay)	3	2	$2 \times 4 = 8$