



**St Aloysius College (Autonomous)
Mangaluru**

**Re-accredited by NAAC “A” Grade
Course structure and syllabus of
B.Sc.**

MATHEMATICS

Under NEP Regulations, 2021

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(ಸ್ವಾಯತ್ತ)

ಮಂಗಳೂರು- 575 003, ಕರ್ನಾಟಕ

www.stalloysius.edu.in



ST ALOYSIUS COLLEGE
(AUTONOMOUS)

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Re-accredited by NAAC with 'A++' Grade with CGPA 3.67/4 (Cycle 4)
Recognised as Centre for Research Capacity Building under UGC-STRIDE Scheme
Recognised under DBT - BUILDER Scheme, Government of India
College with "STAR STATUS" Conferred by DBT, Government of India
Recognised by UGC as "College with Potential for Excellence"

Date: 21-02-2022

Sub: Syllabus of **B.Sc. MATHEMATICS** under NEP Regulations, 2020.
(As per Mangalore University guidelines)

- Ref: 1. Decision of the Academic Council meeting held on 18-12-2021 vide
Agenda No: 6
2. Decision of the Academic Council meeting held on 09-07-2022 vide
Agenda No: 14
3. Decision of the Academic Council meeting held on 25-02-2023 vide
Agenda No. 12
4. Decision of the Academic Council meeting held on 02-09-2024 vide
Agenda No. 3
5. Office Notification dated 21-02-2022
6. Office Notification dated 17-08-2022
7. Office Notification dated 30-03-2023
8. Office Notification dated 26-09-2023

Pursuant to the above, the Syllabus of **B.Sc. MATHEMATICS** under NEP Regulations, 2020 which was approved by the Academic Council at its meeting held on 18-12-2021, 09-07-2021, 25-02-2023 & 02-09-2023 is hereby notified for implementation with effect from the academic year 2021-22.

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PRINCIPAL



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REGISTRAR

To:

1. The Chairman/Dean/HOD. ✓
2. The Registrar Office
3. Library

Board of Studies meeting was held on June 14th, 2023 chaired by Ms Priya Monteiro, Head of the Department.

Members present:

1. Dr Chandru Hegde, Assistant Professor, Department of Mathematics, Mangalore University, Mangalagangothri (University Nominee).
2. Dr Adelaide Saldanha, Former HOD, Department of Mathematics, St Agnes College (Autonomous), Mangaluru (Subject Expert).
3. Mr Udaya K, Former HOD of Mathematics, St Philomena College, Puttur (Subject Expert).
4. Ms Melvita Leema Baretto
5. Ms Rollin Preetha Vaz
6. Ms Tinu John
7. Ms Anisha Jean Mathias

Programme Outcomes (PO):

By the end of the program it is expected that the students will be benefited by the following:

PO 1	Disciplinary Knowledge: Bachelor degree in Mathematics is the culmination of in-depth knowledge of Algebra, Calculus, Geometry, differential equations and several other branches of pure and applied mathematics. This also leads to study the related areas such as computer science and other allied subjects
PO 2	Communication Skills: Ability to communicate various mathematical concepts effectively using examples and their geometrical visualization. The skills and knowledge gained in this program will lead to the proficiency in analytical reasoning which can be used for modeling and solving of real life problems.
PO 3	Critical thinking and analytical reasoning: The students undergoing the programme acquire ability of critical thinking and logical reasoning and capability of recognizing and distinguishing the various aspects of real life

	problems.
PO 4	Problem Solving: The Mathematical knowledge gained by the students through the programme develop an ability to analyze the problems, identify and define appropriate computing requirements for its solutions. This programme enhances students overall development and also equip them with mathematical modelling ability, problem solving skills.
PO 5	Research related skills: Student completing the program will develop the capability of inquiring about appropriate questions relating to the Mathematical concepts in different areas of Mathematics.
PO 6	Information/digital Literacy: The completion of the programme will enable the learner to use appropriate softwares to solve system of algebraic equation and differential equations.
PO 7	Self - directed learning: Student completing the program will develop an ability of working independently and to make an in-depth study of various notions of Mathematics.
PO 8	Moral and ethical awareness/reasoning: The student completing the program will develop an ability to identify unethical behavior such as fabrication, falsification or misinterpretation of data and adopting objectives, unbiased and truthful actions in all aspects of life, in general and Mathematical studies, in particular.
PO 9	Lifelong learning: The programme provides self-directed learning and lifelong learning skills. The programme helps the learner to think independently and develop algorithms and computational skills for solving real word problems.
PO 10	Ability to peruse advanced studies and research in pure and applied Mathematical sciences.

Assessment

Weightage for the Assessments (in percentage)

Type of Course	Formative Assessment/ I.A.	Summative Assessment (S.A.)
Theory	40%	60 %
Practical	50%	50 %
Projects	40%	60 %
Experiential Learning (Internship etc.)	--	--

Structure under NEP

Course Code	Title of course	Category of course	Teaching hours per week	SEE	CIE	Total Marks	Credits
SEMESTER I							
G 503 DC1.1	Number Theory - I, Algebra - I and Calculus - I	DSC	4	60	40	100	4
G 503 DC2.1P	Theory based practicals on Number Theory - I, Algebra - I and Calculus - I	DSC	4	25	25	50	2
G 503 OE1.1	Mathematics - I	OEC	3	60	40	100	3
Total credit							9
SEMESTER II							
G 503 DC1.2	Number Theory - II, Algebra - II and Calculus - II	DSC	4	60	40	100	4
G 503 DC2.2P	Theory based practicals on Number Theory - II, Algebra - II and Calculus - II	DSC	4	25	25	50	2
G 503 OE1.2	Mathematics - II	OEC	3	60	40	100	3
Total credit							9

Course Code	Title of course	Category of course	Teaching hours per week	SEE	CIE	Total Marks	Credits
SEMESTER III							
G 503 DC1.3	Ordinary Differential Equations and Real Analysis - I	DSC	4	60	40	100	4
G 503 DC2.3P	Theory based practicals on Ordinary Differential Equations and Real Analysis - I	DSC	4	25	25	50	2
G 503 OE1.3	Ordinary Differential Equations	OEC	3	60	40	100	3
Total credit							9
SEMESTER IV							
G 503 DC1.4	Partial Differential Equations and Integral Transforms	DSC	4	60	40	100	4
G 503 DC2.4P	Theory based practicals on Partial Differential Equations and Integral Transforms	DSC	4	25	25	50	2
G 503 OE1.4	Partial Differential Equations	OEC	3	60	40	100	3
Total credit							9

Course Code	Title of course	Category of course	Teaching hours per week	SEE	CIE	Total Marks	Credits
SEMESTER V							
G 503 DC1.5	Real Analysis-II and Complex Analysis	DSC	4	60	40	100	4
G 503 DC2.5P	Theory based practicals on Real Analysis-II and Complex Analysis	DSC	4	25	25	50	2
G 503 DC3.5	Vector Calculus and Graph Theory	DSC	4	60	40	100	4
G 503 DC4.5P	Theory based practicals on Vector Calculus and Graph Theory	DSC	4	25	25	50	2
Total credit							12
SEMESTER VI							
G 503 DC1.6	Linear Algebra	DSC	4	60	40	100	4
G 503 DC2.6P	Theory based practicals on Linear Algebra	DSC	4	25	25	50	2
G 503 DC3.6	Numerical Analysis	DSC	4	60	40	100	4
G 503 DC4.6P	Theory based practicals on Numerical Analysis	DSC	4	25	25	50	2
Total credit							12
INTERNSHIP							