



Sai College®

PROGRAMME & COURSE OUTCOMES
OF
BACHELOR OF SCIENCE
(B.Sc.)

VISION

Imparting of quality mathematics education and the inculcating of the spirit of research through innovative teaching and research methodologies.

MISSION

- To provide an environment where students can become competent users of mathematics and under the use of mathematics in other disciplines.
- To achieve high standard of excellence in generating and propagating knowledge in mathematics.

SAI COLLEGE***Department of SCIENCE***

PROGRAMME OUTCOMES OF B.SC (MATHEMATICS)
COURSE

PO-1.	Understand the basic concepts and tools of mathematical logic, methods of proofs, set theory ,Number theory ,abstract structures and algebra.
PO-2.	Acquire knowledge in calculus & Geometry.
PO-3.	Apply mathematical theories and principles accurately ,precisely and effectively.
PO-4.	Analyze and solve real and wordproblems applying mathematical models.
PO-5.	Ability to communicate mathematics effectively by written ,computation and graphic means.
PO-6.	Create mathematical idea from basic axioms.

COURSE OBJECTIVES

Formulate and develop mathematical arguments in a logical manner. and statistics, chosen by the student from the given courses. Understand, formulate and use quantitative models arising in social science, Business and other contexts.

SYLLABUS**B.Sc. Ist year**

Paper	Name of Paper
Paper I	Algebra and trigonometry
Paper II	Differential Equations
Paper III	Abstract algebra

Course Outcomes

Paper	Name of Paper	Course Outcomes
Paper I	Algebra and trigonometry	CO-1. Find the inverse of matrixs. CO-2. Solve the consistency of matrix using row & column operations. CO-3. Present concepts of the relationships between operations satisfying various properties . CO-4. Discuss the importance of algebraic properties relative to working within various number systems. CO-5. Expansion of trigonometric functions .
Paper II	Calculus	CO-1. Students will be able to solved limit and continuity. CO-2. Students will be able to solve differentiability of function of one variable . CO-3. Students will be able to solve x &y intercepts any undefined points and any asymptotes. CO-4. Student will be able to solve first order differential equations utilizing tandard techniques for separable ,exact ,linear homogeneous and bernoulli cases. CO-5. Students will have a working knowledge of basic application problems describes by second order linear differential equation with constant cofficents.

Paper III	Vector Analysis & Geometry	CO-1. Use vector product ,directional derivative and gradient and divergent and curl. CO-2. Use vector Integral ,Gauss,Green's and stoke's theorem. CO-3. Its converts geometric part and confocal conics and polar equation of conic. CO-4. Its covers sphere ,cone ,cylinder. CO-5. Use central conicoids ,paratoloid.
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SYLLABUS

B.Sc.-2nd year

Paper	Name of Paper
Paper I	Advanced calculus
Paper II	Differential Equations
Paper III	Mechanics

Course Outcomes

Paper	Name of Paper	Course Outcomes
Paper I	Advanced calculus	CO-1. Its covers a basic part of set ,series and convergent and divergent and absolutely convergent. CO-2. To have full knowledge of calculus involving the fundamental tools such as continuity and differentiability. CO-3. Students will be able to solve limit and continuity of functions of two variable and change of variable and jacobians. CO-4. Students will be able to solve Maxima ,minima and saddle points of functions of two variable . CO-5. It's covered of a Beta and Gamma functions.
Paper II	Differential equations	CO-1. Evaluate first order differential

		equations including separable, homogeneous exact and linear. CO-2. Show existence and uniqueness of solution.. CO-3. Introduce students to how to solve linear partial differential with different method. CO-4. Extract information from partial derivative models in order to interpret reality. CO-5. Solve differential equation using variation of calculus.
Paper III	Mechanics	CO-1. Understand necessary conditions for the equilibrium of particles acted upon by various forces and learn the principle of virtual work for a system of coplanar forces acting on a rigid body. CO-2. Use forces in three dimensions, Poinsot's central axis, Null lines and planes. CO-3. Use simple harmonic motion, Elastic strings, projectile, central orbits. CO-4. Students will be able to solve Kepler's laws of motion on smooth and rough plane curves CO-5. Its covered motion in a resisting medium and motion of a particle in three dimensions.

SYLLABUS

B.Sc.-3rd year

Paper	Name of Paper
Paper I	Real Analysis
Paper II	Abstract Algebra
Paper III	Discrete Mathematics

Course Outcomes

Paper	Name of Paper	Course Outcomes
Paper I	Real Analysis	CO-1. Appreciate how abstract ideas and rigorous methods in mathematical analysis can be applied to important partial problems. CO-2. Find the limit inferior ,limit superior & limit of a sequence ,convergent ,divergent of solutely convergent series. CO-3. Students will be able to solve complex number ,analytic function ,mobius Transformation and conformal mapping. CO-4. Students will be able to solve Riemann Integral Improper integral and their test of convergence. CO-5. Its covered of compactness.
Paper II	Abstract Algebra	CO-1. Knowledge of congruence relation ,normalizer & sylow's theorem. CO-2. Concept of ring theory & modules CO-3. Solve linear systems represented as a linear transforms. CO-4. Express linear transforms in other forms ,such as a matrix equations and vector equations. CO-5. Knowledge of derivatives of polynomial separable and separable extension perfect field and finite field.
Paper III	Discrete Mathematical	CO-1. Study the concept of formal reasoning. CO-2. Ability to communicate knowledge ,capabilities and skills related to the computer engineer profession CO-3. Analysis special Lattices complete complemented and distributed. CO-4. Develops knowledge of graph theory ,walks paths and circuits. CO-5. Get the knowledge of tree and its properties.



Sai College[®]

PROGRAMME & COURSE OUTCOMES

OF

BACHELORSIN COMPUTER

APPLICATION

(BCA)

SAI COLLEGE***DEPARTMENT OF COMPUTER SCIENCE*****PROGRAMME OUTCOMES OF BCA COURSE**

PO1: Knowledge: Able to understand and apply the fundamental principles, concepts and methods in diverse areas of computer applications, mathematics, statistics etc.

PO2: Reasoning: Understand data-based reasoning through translation of data into abstract concepts using computing technology-based tools and develops real life applications.

PO3: Problem analysis and development of Solutions: Identify, formulate, research and analyse real- time problems. Attain substantiated conclusions to solve the problems using fundamental principles of mathematics, computing sciences by adopting various tools and techniques.

PO 4: Life-long Learning: Recognize the need and have the ability, to engage in continuous reflective learning in the context of technological advancement. Create, select, adapt and apply appropriate techniques, resources, and computing tools to complex computing activities. Able to learn, adapt and apply emerging tools and technologies to meet the demand.

PO 5: Entrepreneurial skills Development: Become an entrepreneur by acquiring technical, communicative, problem solving, intellectual skills.

COURSE OBJECTIVES

The course is intended to **introduce the students to the basics of grammar, usage and effective communication**. After completion of course students are expected to be able to: Understand, analyze and create mathematical arguments. Understand sets, perform operations and algebra on sets, describe sequences and summations.

SYLLABUS**BCA Part-I**

Paper	Name of Paper
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I	Discrete Mathematics
II	Bridge Course (Only for Non-Mathematics Students)

Course Outcomes

Paper	Name of Paper	Course Outcomes
I	Discrete Mathematics	CO 1 Developing formal reasoning and logical notation. CO 2 Perform logical proofs. CO 3 Apply recursive function and solve recurrence relation. CO 4 Understand the concept of Sets and their relations. CO 5 Understand the concept tree and graph representation.
II	Bridge Course (Only for Non-Mathematics Students)	CO 1 Develop basic concepts about mathematics. CO 2 Learn about permutation, combination, and series. CO 3 Learn about basics of trigonometry. CO 4 Understand the representation of straight line, parabola, ellipse, and hyperbola in coordinate system. CO 5 Understand the statistics like mean, mode and median.

SYLLABUS

BCA Part-II

Paper	Name of Paper
BCA 201	Calculus and Differential Equations

Course Outcomes

Paper	Name of Paper	Course Outcomes
BCA 201	Calculus and Differential Equations	CO 1 Able to solve limit and continuity. CO 2 Able to solve differentiation of function. CO 3 Able to solve trigonometric integrals and integration by parts and substitution. CO 4 Able to solve problems based on definite integrals. CO 5 Able to solve differential equations.

SYLLABUS**BCA Part-III**

Paper	Name of Paper
BCA 301	Statistical Analysis

Course Outcomes

Paper	Name of Paper	Course Outcomes
BCA 301	Statistical Analysis	CO 1 Understand the concept of permutation and combination. CO 2 Learn to analyse statistical data using measure of central tendency CO 3 Learn to recognise and apply common probability distributions. CO 4 Learn about correlation, regression, and curve fitting. CO 5 Learn about basics of sampling theory.



Sai College®

PROGRAMME & COURSE OUTCOMES

OF

BACHELORS OF COMMERCE

(B.Com/BBA)

*SAI COLLEGE***DEPARTMENT OF COMMERCE & MANAGEMENT****PROGRAMME OUTCOMES OF B.COM COURSE**

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| ● <u>PO 1.</u> To develop a strong foundation for the students in the different areas of commerce |
| ● <u>PO 2.</u> To develop the skills required for applying the concepts and techniques in the field of
Commerce |
| ● <u>PO 3.</u> To build a strong attitude in the minds of students to work efficiently and effectively |
| ● <u>PO 4.</u> Students will be able to do their higher education and can research in the field of
commerce and management. |
| ● <u>PO 5.</u> To develop the students to work efficiently in different business environment |
| ● <u>PO 6.</u> To develop entrepreneurial skills in students. |
| ● <u>PO 7.</u> The capability of the students to make decisions at personal & professional level will
increase after completion of this course. |

COURSE OBJECTIVES

Mathematics is the study of uantity, structure, space, and change. Mathematicians seek out patterns and formulate new conjectures. **B.Com. & BBA (Mathematics)** is generally three academic year courses and it may be provided on a part-time basis by certain institutes. The degree course is very important and career orienting in nature. It is being provided by many colleges/universities in the country. After completing the course candidates have a lot of job scopes in various areas.

SYLLABUS

Compulsory Paper	Business Mathematics
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		B.com – 1st Year	BBA – 1st Sem
Paper I	Business Mathematics	CO 1: Calculate Measures of Central Tendency for the given data. CO 2: Obtain the solutions of Measures of Dispersion with simple problems. CO 3: Understand the concept of Correlation in distribution. CO 4: Study the concept of Regression and Properties of correlation and regression coefficients. CO 5: Understand the concept of Matrixs and Determinants	CO 1: Calculate Measures of Central Tendency for the given data. CO 2: Obtain the solutions of Measures of Dispersion with simple problems. CO 3: Understand the concept of Correlation in distribution. CO 4: Study the concept of Regression and Properties of correlation and regression coefficients. CO 5: Understand the concept of Matrixs and Determinants



Sai College®

PROGRAMME & COURSE OUTCOMES
OF
MASTERS OF COMPUTER SCIENCE
(M.Sc Computer Science)

*SAI COLLEGE***DEPARTMENT OF COMPUTER SCIENCE****PROGRAMME OUTCOMES OF M.SC COURSE**

PO 1: Domain Expertise: Understand computer science concepts, designs, and solutions effectively and professionally
PO2: Computing Skills and Ethics: Apply knowledge of computing to produce effective designs and solutions for specific problems
PO3: Lifelong Learning and Research: Identify, analyse, and synthesize scholarly literature relating to the field of computer science
PO4: Modern Tool Usage: Use software development tools, software systems, and modern computing platforms.
PO5: Social Contribution: An understanding of professional, ethical, legal, security and social issues and responsibilities

COURSE OBJECTIVES

The M.Sc. Mathematics programme aims to prepare students with a deep understanding of mathematical concepts, research oriented attitude and skill of application of mathematical and computational tools and techniques in formulation and solution of real world problem.

SYLLABUS**M.Sc (Computer Science)-1stSemester**

Paper	Name of Paper
Paper I	Mathematical Foundation of Computer Science

Course Outcomes

Paper	Name of Paper	Course Outcomes
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Paper I	Mathematical Foundation of Computer Science	CO 1 Understand mathematical logic set relation and functions. CO 2 Understand lattice and Boolean algebra. CO 3 Develop the knowledge of groups, fields and rings. CO 4 Develop the knowledge of graph representation. CO 5 Understand about tree representation.
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SYLLABUS

M.Sc (Computer Science) - 2nd Semester

Paper I

Numerical Analysis

Course Outcomes

Paper	Name of Paper	Course Outcomes
Paper I	Numerical Analysis	CO 1 Learn about solutions of polynomial and transcendental algebraic equations. CO 2 Learn about simultaneous equations and matrix. CO 3 Learn about curve fitting from observed data. CO 4 Learn about numerical differentiation and integration. CO 5 Learn about solution of differential equations.