SKILL ENHANCEMENT COURSE
Scheme for Choice Based Credit System (CBCS)

B.A/B.Sc. Applied Mathematics

From Year 2016 and onwards

Semester	Name of the course	Course No.	Nature of course	Credits
1	Calculus	BAMM-CR-16101	Core	6
2	Differential Equations	BAMM-CR-16201	Core	6
3	Real Analysis	BAMM-CR-16301	Core	6
	Complex Trigonometry	BAMM-SEC-16301	SEC	2
	Logic and Sets	BAMM-SEC-16302	SEC	2
4	Algebra	BAMM-CR-16401	Core	6
	Theory of Equations	BAMM-SEC-16401	SEC	2
	Linear Programming	BAMM-SEC-16402	SEC	2
5	Methods of Applied Mathematics–I	BAMM-DSE-16501	DSE	6
	Advanced calculus	BAMM-SEC-16501	SEC	2
	Mathematics Finance	BAMM-SEC-16502	SEC	2
6	Methods of Applied Mathematics–II	BAMM-DSE-16601	DSE	6
	Mathematical Modeling	BAMM-SEC-16601	SEC	2
	Transportation and Game Theory	BAMM-SEC-16602	SEC	2

Note: The students have to opt one course from SEC in each of the semester III, IV, V & VI.

Syllabus for B.A/B.Sc., Applied Mathematics, Semester -III

Course Name : Complex Trigonometry (2 credits)

Course o: BAMM-SEC-16301

Unit-I
Review of complex number system, triangle inequality, equation of a circle and ellipse in complex form, De Moivere's theorem and its applications, expansion of sin $n\theta$, cos $n\theta$ etc. in terms of powers of sin θ, cos θ and expansion of $\sin^n \theta$ and $sos^n \theta$ in terms of multiples of θ.

Unit-II

Functions of a complex variable, exponential, circular, hyperbolic, inverse hyperbolic and logarithmic functions of a complex C + iS method, C-R equations, definition of analytic functions.

Text Books Recommended

1.S.D. Chopra and M.L. Kochar and A.Aziz-ul-Auzeem, Differential Calculus

(Thoroughly revised and enlarged new edition- 2004).

2. A.Aziz and N.A.Rather, Complex Trigonometry, KBS.

Syllabus for B.A/B.Sc., Applied Mathematics, Semester -III

Course Name : Logic and Sets (2 credits)

Course No: BAMM-SEC-16302

Unit-I
Introduction, propositons, truth table, negation, conjuction and disjunction. Implications biconditional propositions, converse, contra positive and inverse propositions and precedence of logical operators, propositional equivalence, logical equivalences, predicates and quantifiers, introduction, Quantifiers, Binding variables and negations. Sets, subsets, set operations, the laws of set theory and Venn diagrams, examples of finite and infinite sets, finite sets and counting principle, empty set, properties of empty set, standard set operations, classes of sets, power set of a set.

Unit-II
Difference and symmetric difference of two sets, set identities, generalized union and intersections. Relation: product set, composition of relations, types of relations, partitions, equivalence relations with example of congruence modulo relation.

Books recommended

1. R.P.Grimaldi, Discrete Mathematics and Combinatorial Mathematics, Pearson Education, 1998.
2. P.R.Halmos, Native Set Theory, Springer, 1974.
3. E.Kamke, Theory of Sets, Dover Publishers, 1950.