FATIMA COLLEGE (AUTONOMOUS), MADURAI – 625018

NAME OF THE PROGRAMME: B.SC. MATHEMATICS **PROGRAMME CODE: UAMA**

PROGRAMME OUTCOMES:

The learners will be able to

PO1: Apply acquired scientific knowledge to solve complex issues.

PO2: Attain Analytical skills to solve complex cultural, societal and environmental issues.

PO3: Employ latest and updated tools and technologies to analyse complex issues.

PO4: Demonstrate Professional Ethics that foster Community, Nation and Environment Building Initiatives.

PROGRAMME SPECIFIC OUTCOMES:

PSO 1: Gain broad knowledge and understanding in pure Mathematics and applications of Mathematics.

PSO 2: Demonstrate a computational ability and apply logical thinking skills to solve problems that can be modelled Mathematically.

PSO 3: Read, understand, analyse and formulate Mathematical theorems.

PSO 4: Acquire proficiency in the use of technology to assist in learning and investigating, Mathematical ideas and in problem solving.

PSO 5: Communicate Mathematical concepts accurately, precisely and effectively with clarity and coherence both verbal and in written form.

2019 - 2020

COURSE CODE	COURSE TITLE	COURSE OUTCOMES
19M1CC1 / 19G1CC1	Calculus	CO1: Explain higher derivatives and apply Leibnitz theorem to find the n^{th} derivative of functions. CO2: Solve problems on curvature, envelopes, asymptotes and curve tracing. CO3: Construct reduction formula for trigonometric functions. CO4: Define Jacobian, double & triple integrals and apply the knowledge of change of variables to solve the problems in double and triple integrals. CO5: Construct Fourier series by recalling integration.
19M1CC2/19G1CC2	Classical Algebra	CO1: Explain sets, relations and functions CO2: Define binomial series, logarithmic and exponential series and solve problems. CO3: Identify Relations between the roots and coefficients of equations.

		CO4: Explain the transformations of equations. CO5: Recognize the important Methods in finding roots.
19M1AC1 / 19G1AC1	Statistics	CO1: Solve problems on moments, skewness, kurtosis and correlation. CO2: Construct regression line and curve equation. CO3: Explain random variables and probability density function CO4: Solve problems on expectation. CO5: Define and explain analysis of time series and index numbers.
19P1ACM1	Allied Mathematics – I	CO 1: Find summation of any series. CO 2: Explain the concepts of theory of equations. CO 3: Calculate roots of equations using different methods. CO 4: Expand trigonometric functions CO 5: Apply the Leibnitz's theorem to find the n^{th} derivative
19M1NME / 19M2NME/19G1NME/19G2NME	Quantitative Aptitude	CO1: Solve problems on ages CO2: Illustrate profit and loss with examples

		CO3: Explain partnership and related problems CO4: Discuss problems on time and work CO5: Solve problems on time and distance
19M2CC3 / 19G2CC3	Differential Equations	CO 1: Solve problems in differential equations of first order. CO 2: Classify homogeneous and Non homogeneous differential equations of second order and solve problems. CO 3: Solve differential equation problems using Laplace transform. CO 4: Define Partial differential equations and solve problems. CO 5: Solve problems on Growth, decay and chemical reactions
9M2CC4/19G2CC4	Numerical Methods	CO1: Solve algebraic and transcendental equations using various methods. CO2: Identify the various methods of solving simultaneous linear algebraic equations. CO3: Recognize difference operators and apply the concept of interpolation. CO4: Compute the values of the derivatives at some point using

		numerical differentiation and integration. CO5: Solve problems on higher order differential equations using Euler's, Runge- kutta and Predictor-Corrector methods.
19M2AC2 / 19G2AC2	Advanced Statistics	CO1: Classify discrete and continuous random variables and characteristics of Binomial distribution and Poisson distribution CO2: Explain and illustrate the properties of Normal distribution and solve variety of problems. CO3: Distinguish between a population and a sample and explain testing of hypothesis. CO4: Explain chi square distribution, t- distribution and describe their various applications is Statistics. CO5: Define F- distribution and apply it to solve problems in analysis of variance.
19P2ACM2	Allied Mathematics – II	CO 1: Solve linear differential equations. CO 2: Solve second order linear differential equations with variable coefficient. CO 3: Define Laplace transform and apply it to solve differential

		equation. CO 4: Explain the concepts of gradient, divergence, curl and their properties CO 5: Apply line, volume and surface integrals to verify the Gauss divergence and Stoke's theorem.
COURSE CODE	**COURSE TITLE**	**COURSE OBJECTIVES**
M3CC5/G3CC5	Modern Algebra	• The advent of modern approach to Mathematical Logic started with the study of set theory. Set theory later developed into Groups, Rings and Fields with various conditions imposed on sets. Application of these find place in different fields of science. The objective of this paper is to expose the students to these concepts.
M3CC6/G3CC6	Analytical Geometry & Vector Calculus	• To know the fundamentals of vector calculus and polar equations.
SKILL BASED: M3SB1/G3SB1	Applications of Calculus and Differential	• The objective of this course is to discuss several applications of the Calculus and Differential Equations to Geometry, Physics, Chemistry, Mechanics and Astronomy, etc.

	Equations	
M4CC7/G4CC7	Sequence and series	• To enable the students to learn theorems and problems in sequences and series which is essential for learning higher Mathematics.
M4CC8/G4CC8	Linear Algebra	• Vector Space is a new class of Algebraic system. Fields like Graph theory, Physics, Chemistry and Economics etc extensively use the applications of Matrices and their properties. Hence the students are exposed to these important topics.
Skill Based: M4SB2/G4SB2	Foundations of Mathematics	• To enable the students to have ideas in Discrete Mathematics
C3ACM1	Allied Mathematics-I	• To develop Mathematical skills in students so as to understand their Mathematical related papers.
C4ACM2	Allied Mathematics-II	• To develop Mathematical skills in students so as to understand their Mathematical related papers.
B3ACM1	Linear Programming	• To enable the students to convert real problems into a Mathematical

		model and solve them using different techniques.
B4ACM2	Algebra and Graph Theory	• Abstract concepts in Mathematics, in all branches of Science and Technology and in Social and Natural sciences find representations in graph theory. This paper is to enable the students to have better application of abstract concepts through graph theory.
MAJOR M5CC9/G5CC9	Real Analysis	• To introduce the basic concepts in Analysis and to enable the students to understand fundamental ideas and theorems on Metric spaces
M5CC10/G5CC10	Mechanics	• Enable the students to apply the laws, principles, postulates, governing the statics of the system and to apply the laws and principles governing dynamics of the system, in physical reality.
M5CC11/G5CC11	Computer Programming in C	• C language is one of the most popular computer languages today and the programs written in C are powerful, efficient, fast and compact. Realizing the need for educating our students in the various applications of mathematics, we have introduced this course.

MAJOR ELECTIVE M5ME1/G5ME1	Graph Theory	• Abstract concepts in Mathematics, in all branches of Science and Technology, even in Social and Natural sciences find representations in graph theory. There is hardly any field where graph theory does not find application. This paper is to enable the students to have better application of abstract concepts through graph theory.
M5ME2/G5ME2	Fuzzy Mathematics	• The objective of this course is to introduce to the students the concepts of Fuzzy Sets, Fuzzy Logic, Fuzzy Operations and Fuzzy Relations.
SKILL BASED-Mathematics Skill Development M5SB3/G5SB3	Fourier Transforms	• Enable the students to apply Fourier transforms which plays an important role in the study of continuous time signals.
M5SB4/G5SB4	Advanced Linear Programming	• To enable the students to convert real problems into a Mathematical model and solve them using different techniques. That is through method of duality, Gomory's method, Branch and Bound Technique, Dynamic programming method .

MAJOR M6CC12/G6CC12	Complex Analysis	• To provide the student with an introduction to Complex Analysis of one variable since it has its application in almost every branch of Mathematics.
M6CC13/G6CC13	Numerical Methods	• To give basic knowledge in Numerical methods and to solve problems purely mathematical in nature so that the students develop the confidence of solving research level problems.
M6CC14/G6CC14	Operations Research	• This course deals with sequencing problem, Game theory, Inventory Control, Queuing theory and Network scheduling by PERT/CPM and it emphasis the students to convert real problem into a mathematical model and solve them using these techniques.
MAJOR ELECTIVE-I M6ME3/G6ME3	Object Oriented Programming with C++	• In the expanding field of computer education, one of the fastest growing, versatile and much sought after languages is C++. This course enables the students to understand the fundamentals of the language, the concepts related to the syntax of the language.
M6ME4/G6ME4	Astronomy	• To introduce the concepts about the celestial bodies such as Earth, Moon and Planets and to import the knowledge on duration of day

		and night, lunar and solar eclipses, maximum number of eclipses.
MAJOR ELECTIVE-II M6ME5/G6ME5	Lattices and Boolean Algebra	• To enable the students to know more about lattices and Boolean Algebra and their usefulness in other areas of Mathematics.
M6ME6/G6ME6	Automata Theory	• It provides techniques useful in a wide variety of applications and helps to develop a way of thinking that leads to understanding of the structure behavior and limitations and capabilities of logical machines.
M6ME7/G6ME7	Theory of Numbers	• The objective of this course to present the students an introduction to an area of Pure mathematics which has intrigued non professionals as well as the greatest minds of human kind since the dawn of history. A brief history of the development of numbers and some of the influential number theorist will be presented. Some application will also be considered.
SKILL BASED- Mathematics Skill Development	MATLAB	• To learn the MATLAB tools and its applications in various areas of Mathematics.

M6SB5/G6SB5		
M6SB6/G6SB6	Applied Dynamics	• To enable the students to apply the laws and principles governing dynamics of the system in physical reality.

2018 - 2019

COURSE CODE	COURSE TITLE	COURSE OBJECTIVE
MAJOR M1CC1/G1CC1	Calculus	• To enable the students to learn Higher derivatives, Curvature, Singular points, Envelopes, Asymptotes, Reduction formula, Multiple integrals and Fourier series in Calculus.
M1CC2/G1CC2	Classical Algebra & Trigonometry	• To enable the students to learn the fundamentals of Algebra & Trigonometry. That is Binomial series, Exponential and Logarithmic series, Theory of Equations and Expansions sinnx cosnx etc

ALLIED M1AC1/GIAC1	Statistics I	• To provide a strong background in statistical methods and random processes which will be used in various social sciences, business management, public administration, etc.
NON MAJOR ELECTIVE M1NME / M2NME/ G1NME/G2NME	Mathematics in day to day life	• To enable the students to know the facts and formulae and to get trained in the objective type questions and its solutions by short cut methods on the topics – Profit & Loss, Partnership, Time & Work and Time & Distance.
MAJOR M2CC3/G2CC3	Differential Equations	• To enable the students to get thorough knowledge of solving Differential Equations of first order, second order, Laplace transforms Partial differential equations and its applications.
M2CC4/G2CC4	Linear Programming	• To enable the students to convert real problems into a Mathematical model and solve them

		using different techniques. That is through graphical method, simplex method, Big – M and Two - phase method, Transportation and Assignment problem
ALLIED M2AC2/G2AC2	Statistics II	• To provide a strong background in statistical tools which will be used in various physical and social sciences, also to enable the students to know the concepts of discrete distributions, continuous distribution, test of significance for large and small samples and analysis of variance.
P1ACM1	Allied Mathematics -I	• To enable the Physics major students to develop the skills of Mathematical reasoning and Analytical thinking in Algebra, Theory of equations, Trigonometry and Differential Calculus.
P2ACM2	Allied Mathematics -II	• To enable the Physics major students to develop the skills of Mathematical reasoning

		and Analytical thinking in differential equations, laplace transforms & fourier series and vector calculus.
M3CC5/G3CC5	Modern Algebra	• The advent of modern approach to Mathematical Logic started with the study of set theory. Set theory later developed into Groups, Rings and Fields with various conditions imposed on sets. Application of these find place in different fields of science. The objective of this paper is to expose the students to these concepts.
M3CC6/G3CC6	Analytical Geometry & Vector Calculus	• To know the fundamentals of vector calculus and polar equations.
SKILL BASED: M3SB1/G3SB1	Applications of Calculus and Differential Equations	• The objective of this course is to discuss several applications of the Calculus and Differential Equations to Geometry, Physics, Chemistry, Mechanics and Astronomy, etc.

M4CC7/G4CC7	Sequence and series	• To enable the students to learn theorems and problems in sequences and series which is essential for learning higher Mathematics.
M4CC8/G4CC8	Linear Algebra	• Vector Space is a new class of Algebraic system. Fields like Graph theory, Physics, Chemistry and Economics etc extensively use the applications of Matrices and their properties. Hence the students are exposed to these important topics.
SKILL BASED: M4SB2/G4SB2	Foundations of Mathematics	• To enable the students to have ideas in Discrete Mathematics
C3ACM1	Allied Mathematics-I	• To develop Mathematical skills in students so as to understand their Mathematical related papers.
C4ACM2	Allied Mathematics-II	• To develop Mathematical skills in students so as to understand their Mathematical related

		papers.
B3ACM1	Linear Programming	• To enable the students to convert real problems into a Mathematical model and solve them using different techniques.
B4ACM2	Algebra and Graph Theory	• Abstract concepts in Mathematics, in all branches of Science and Technology and in Social and Natural sciences find representations in graph theory. This paper is to enable the students to have better application of abstract concepts through graph theory.
MAJOR M5CC9/G5CC9	Real Analysis	• To introduce the basic concepts in Analysis and to enable the students to understand fundamental ideas and theorems on Metric spaces
M5CC10/G5CC10	Mechanics	• Enable the students to apply the laws, principles, postulates, governing the statics of

		the system and to apply the laws and principles governing dynamics of the system, in physical reality.
M5CC11/G5CC11	Computer Programming in C	• C language is one of the most popular computer languages today and the programs written in C are powerful, efficient, fast and compact. Realizing the need for educating our students in the various applications of mathematics, we have introduced this course.
MAJOR ELECTIVE M5ME1/G5ME1	Graph Theory	• Abstract concepts in Mathematics, in all branches of Science and Technology, even in Social and Natural sciences find representations in graph theory. There is hardly any field where graph theory does not find application. This paper is to enable the students to have better application of abstract concepts through graph theory.

M5ME2/G5ME2	Fuzzy Mathematics	• The objective of this course is to introduce to the students the concepts of Fuzzy Sets, Fuzzy Logic, Fuzzy Operations and Fuzzy Relations.
SKILL BASED- Mathematics Skill Development M5SB3/G5SB3	Fourier Transforms	• Enable the students to apply Fourier transforms which plays an important role in the study of continuous time signals.
M5SB4/G5SB4	Advanced Linear Programming	• To enable the students to convert real problems into a Mathematical model and solve them using different techniques. That is through method of duality, Gomory's method, Branch and Bound Technique, Dynamic programming method .
MAJOR M6CC12/G6CC12	Complex Analysis	• To provide the student with an introduction to Complex Analysis of one variable since it has its application in almost every branch of Mathematics.

M6CC13/G6CC13	Numerical Methods	• To give basic knowledge in Numerical methods and to solve problems purely mathematical in nature so that the students develop the confidence of solving research level problems.
M6CC14/G6CC14	Operations Research	• This course deals with sequencing problem, Game theory, Inventory Control, Queuing theory and Network scheduling by PERT/CPM and it emphasis the students to convert real problem into a mathematical model and solve them using these techniques.
MAJOR ELECTIVE-I M6ME3/G6ME3	Object Oriented Programming with C++	• In the expanding field of computer education, one of the fastest growing, versatile and much sought after languages is C++. This course enables the students to understand the fundamentals of the language, the concepts related to the syntax of the language.
M6ME4/G6ME4	Astronomy	• To introduce the concepts about the celestial

		bodies such as Earth, Moon and Planets and to import the knowledge on duration of day and night, lunar and solar eclipses, maximum number of eclipses.
MAJOR ELECTIVE-II M6ME5/G6ME5	Lattices and Boolean Algebra	• To enable the students to know more about lattices and Boolean Algebra and their usefulness in other areas of Mathematics.
M6ME6/G6ME6	Automata Theory	• It provides techniques useful in a wide variety of applications and helps to develop a way of thinking that leads to understanding of the structure behavior and limitations and capabilities of logical machines.
M6ME7/G6ME7	Theory of Numbers	• The objective of this course to present the students an introduction to an area of Pure mathematics which has intrigued non professionals as well as the greatest minds of human kind since the dawn of history. A brief history of the development of numbers and

		some of the influential number theorist will be presented. Some application will also be considered.
SKILL BASED- Mathematics Skill Development M6SB5/G6SB5	Matlab	• To learn the MATLAB tools and its applications in various areas of Mathematics.
M6SB6/G6SB6	Applied Dynamics	• To enable the students to apply the laws and principles governing dynamics of the system in physical reality.

2017 - 2018

COURSE CODE	COURSE TITLE	COURSE OBJECTIVE
MAJOR M1CC1/G1CC1	Calculus	• To enable the students to learn Higher derivatives, Curvature, Singular points, Envelopes, Asymptotes, Reduction formula, Multiple integrals and Fourier series in Calculus
M1CC2/G1CC2	Classical Algebra & Trigonometry	• To enable the students to learn the fundamentals of Algebra & Trigonometry. That is Binomial series, Exponential and Logarithmic series, Theory of Equations and Expansions sinnx cosnx etc
ALLIED M1AC1/GIAC1	Statistics I	• To provide a strong background in statistical methods and random processes which will be used in various social sciences, business management, public administration, etc.
NON MAJOR	Mathematics in day to day life	• To enable the students to know the facts and

ELECTIVE M1NME1/ G1NME1		formulae and to get trained in the objective type questions and its solutions by short cut methods on the topics – Profit & Loss, Partnership, Time & Work and Time & Distance.
MAJOR M2CC3/G2CC3	Differential Equations	• To enable the students to get thorough knowledge of solving Differential Equations of first order, second order, Laplace transforms Partial differential equations and its applications.
M2CC4/G2CC4	Linear Programming	• To enable the students to convert real problems into a Mathematical model and solve them using different techniques. That is through graphical method, simplex method, Big – M and Two - phase method, Transportation and Assignment problem
ALLIED M2AC2/G2AC2	Statistics II	• To provide a strong background in statistical tools which will be used in various physical and social sciences, also to enable the students to know the concepts of discrete distributions, continuous

		distribution, test of significance for large and small samples and analysis of variance.
P1ACM1	Allied Mathematics -I	• To enable the Physics major students to develop the skills of Mathematical reasoning and Analytical thinking in Algebra, Theory of equations, Trigonometry and Differential Calculus.
P2ACM2	Allied Mathematics -II	• To enable the Physics major students to develop the skills of Mathematical reasoning and Analytical thinking in differential equations, laplace transforms & fourier series and vector calculus.
M3CC5/G3CC5	Modern Algebra	• The advent of modern approach to Mathematical Logic started with the study of set theory. Set theory later developed into Groups, Rings and Fields with various conditions imposed on sets. Application of these find place in different fields of science. The objective of this paper is to expose the students to these concepts.

M3CC6/G3CC6	Analytical Geometry & Vector Calculus	• To know the fundamentals of vector calculus and polar equations
SKILL BASED: M3SB1/G3SB1	Applications of Calculus and Differential Equations	• The objective of this course is to discuss several applications of the Calculus and Differential Equations to Geometry, Physics, Chemistry, Mechanics and Astronomy, etc.
M4CC7/G4CC7	Sequence and series	• To enable the students to learn theorems and problems in sequences and series which is essential for learning higher Mathematics.
M4CC8/G4CC8	Linear Algebra	• Vector Space is a new class of Algebraic system. Fields like Graph theory, Physics, Chemistry and Economics etc extensively use the applications of Matrices and their properties. Hence the students are exposed to these important topics.
SKILL BASED: M4SB2/G4SB2	Foundations of Mathematics	• To enable the students to have ideas in Discrete Mathematics

C3ACM1	Allied Mathematics-I	• To develop Mathematical skills in students so as to understand their Mathematical related papers.
C4ACM2	Allied Mathematics-II	• To develop Mathematical skills in students so as to understand their Mathematical related papers.
B3ACM1	Linear Programming	• To enable the students to convert real problems into a Mathematical model and solve them using different techniques.
B4ACM2	Algebra and Graph Theory	• Abstract concepts in Mathematics, in all branches of Science and Technology and in Social and Natural sciences find representations in graph theory. This paper is to enable the students to have better application of abstract concepts through graph theory.
MAJOR M5CC9/G5CC9	Real Analysis	• To introduce the basic concepts in Analysis and to enable the students to understand fundamental ideas and theorems on Metric spaces

M5CC10/G5CC10	Mechanics	• Enable the students to apply the laws, principles, postulates, governing the Statics of the system and to apply the laws and principles Governing Dynamics of the system, in Physical reality.
M5CC11/G5CC11	Computer Programming in C	• C language is one of the most popular computer languages today and the programs written in C are powerful, efficient, fast and compact. Realizing the need for educating our students in the various applications of mathematics, we have introduced this course.
MAJOR ELECTIVE M5ME1/G5ME1	Graph Theory	• Abstract concepts in Mathematics, in all branches of Science and Technology, even in Social and Natural sciences find representations in graph theory. There is hardly any field where graph theory does not find application. This paper is to enable the students to have better application of abstract concepts through graph theory.

M5ME2/G5ME2	Fuzzy Mathematics	• The objective of this course is to introduce to the students the concepts of Fuzzy Sets, Fuzzy Logic, Fuzzy Operations and Fuzzy Relations.
SKILL BASED-Mathematics Skill Development M5SB3/G5SB3	Fourier Transforms	• Enable the students to apply Fourier transforms which plays an important role in the study of continuous time signals.
M5SB4/G5SB4	Advanced Linear Programming	• To enable the students to convert real problems into a Mathematical model and solve them using different techniques. That is through method of duality, Gomory's method, Branch and Bound Technique, Dynamic programming method .
MAJOR M6CC12/G6CC12	Complex Analysis	• To provide the student with an introduction to Complex Analysis of one variable since it has its application in almost every branch of Mathematics
M6CC13/G6CC13	Numerical Methods	• To give basic knowledge in Numerical methods and to solve problems purely mathematical in nature so

		that the students develop the confidence of solving research level problems.
M6CC14/G6CC14	Operations Research	• This course deals with sequencing problem, Game theory, Inventory Control, Queuing theory and Network scheduling by PERT/CPM and it emphasis the students to convert real problem into a mathematical model and solve them using these techniques
MAJOR ELECTIVE-I M6ME3/G6ME3	Object Oriented Programming with C++	• In the expanding field of computer education, one of the fastest growing, versatile and much sought after languages is C++. This course enables the students to understand the fundamentals of the language, the concepts related to the syntax of the language.
M6ME4/G6ME4	Astronomy	• To introduce the concepts about the celestial bodies such as Earth, Moon and Planets and to import the knowledge on duration of day and night, lunar and solar eclipses, maximum number of eclipses.

MAJOR ELECTIVE-II M6ME5/G6ME5	Lattices and Boolean Algebra	• To enable the students to know more about lattices and Boolean Algebra and their usefulness in other areas of Mathematics.
M6ME6/G6ME6	Automata Theory	• It provides techniques useful in a wide variety of applications and helps to develop a way of thinking that leads to understanding of the structure behavior and limitations and capabilities of logical machines.
M6ME7/G6ME7	Theory of Numbers	• The objective of this course to present the students an introduction to an area of Pure mathematics which has intrigued nonprofessionals as well as the greatest minds of human kind since the dawn of history. A brief history of the development of numbers and some of the influential number theorist will be presented. Some application will also be considered.
SKILL BASED-	Matlab	• To learn the MATLAB tools and its applications in

Mathematics Skill Development M6SB5/G6SB5		various areas of Mathematics.
M6SB6/G6SB6	Applied Dynamics	• To enable the students to apply the laws and principles Governing Dynamics of the system in Physical reality.

2016 - 2017

COURSE CODE	COURSE TITLE	COURSE OBJECTIVE
MAJOR M1CC1/G1CC1	Calculus	• To enable the students to learn Higher derivatives, Curvature, Singular points, Envelopes, Asymptotes, Reduction formula, Multiple integrals and Fourier series in Calculus.
M1CC2/G1CC2	Classical Algebra & Trigonometry	• To enable the students to learn the fundamentals of Algebra & Trigonometry.

		• That is Binomial series , Exponential and Logarithmic series, Theory of Equations and Expansions sinnx cosnx etc
ALLIED M1AC1/GIAC1	Statistics I	• To provide a strong background in statistical methods and random processes which will be used in various social sciences, business management, public administration, etc .
NON MAJOR ELECTIVE M1NME1/ G1NME1	Mathematics in day to day life	• To enable the students to know the facts and formulae and to get trained in the objective type questions and its solutions by short cut methods on the topics – Profit & Loss, Partnership, Time & Work and Time & Distance.
MAJOR M2CC3/G2CC3	Differential Equations	• To enable the students to get thorough knowledge of solving Differential Equations of first order, second order, Laplace transforms, Partial differential equations and its applications.
M2CC4/G2CC4	Linear Programming	• To enable the students to convert real problems into a

		Mathematical model and solve them using different techniques. That is through graphical method, simplex method, Big – M and Two - phase method, Transportation and Assignment problem
ALLIED M2AC2/G2AC2	Statistics II	• To provide a strong background in statistical tools which will be used in various physical and social sciences, also to enable the students to know the concepts of discrete distributions, continuous distribution, test of significance for large and small samples and analysis of variance.
P1ACM1	Allied Mathematics -I	• To enable the Physics major students to develop the skills of Mathematical reasoning and Analytical thinking in Algebra, Theory of equations, Trigonometry and Differential Calculus.
P2ACM2	Allied Mathematics -II	• To enable the Physics major students to develop the skills of Mathematical reasoning and Analytical thinking in differential equations, laplace transforms

		& fourier series and vector calculus.
M3CC5/G3CC5	Modern Algebra	• The advent of modern approach to Mathematical Logic started with the study of set theory. Set theory later developed into Groups, Rings and Fields with various conditions imposed on sets. Application of these find place in different fields of science. The objective of this paper is to expose the students to these concepts
M3CC6/G3CC6	Analytical Geometry & Vector Calculus	• To know the fundamentals of vector calculus and polar equations.
SKILL BASED: M3SB1/G3SB1	Foundations of Mathematics	• To enable the students to have ideas in Discrete Mathematics.
M4CC7/G4CC7	Sequence and series	• To enable the students to learn theorems and problems in sequences and series which is essential for learning higher Mathematics.
M4CC8/G4CC8	Linear Algebra	• Vector Space is a new class of Algebraic system. Fields like Graph theory, Physics, Chemistry and

		Economics etc extensively use the applications of Matrices and their properties. Hence the students are exposed to these important topics.
SKILL BASED: M4SB2/G4SB2	Applications of Calculus and Differential Equations	• The objective of this course is to discuss several applications of the Calculus and Differential Equations to Geometry, Physics, Chemistry, Mechanics and Astronomy, etc.
C3ACM1	Allied Mathematics-I	• To develop Mathematical skills in students so as to understand their Mathematical related papers.
C4ACM2	Allied Mathematics-II	• To develop Mathematical skills in students so as to understand their Mathematical related papers.
B3ACM1	*Linear Programming*	• To enable the students to convert real problems into a Mathematical model and solve them using different techniques.
B4ACM2	Algebra and Graph Theory	• Abstract concepts in Mathematics, in all branches of Science

		• and Technology, even in Social and Natural sciences find • representations in graph theory. This paper is to enable the • students to have better application of abstract concepts • through graph theory.
MAJOR M5CC9/G5CC9	Real Analysis	• To introduce the basic concepts in Analysis and to enable the students to understand fundamental ideas and theorems on Metric spaces
M5CC10/G5CC10	Mechanics	• Enable the students to apply the laws, principles, postulates, governing the Statics of the system and to apply the laws and principles Governing Dynamics of the system, in Physical reality.
M5CC11/G5CC11	Computer Programming in C	• C language is one of the most popular computer languages today and the programs written in C are powerful, efficient, fast and compact. Realizing the

		need for educating our students in the various applications of mathematics, we have introduced this course.
MAJOR ELECTIVE M5ME1/G5ME1	Graph Theory	• Abstract concepts in Mathematics, in all branches of Science and Technology, even in Social and Natural sciences find representations in graph theory. There is hardly any field where graph theory does not find application. This paper is to enable the students to have better application of abstract concepts through graph theory.
M5ME2/G5ME2	Fuzzy Mathematics	• The objective of this course is to introduce to the students the concepts of Fuzzy Sets, Fuzzy Logic, Fuzzy Operations and Fuzzy Relations.
SKILL BASED- Mathematics Skill Development M5SB3/G5SB3	Fourier Transforms	• Enable the students to apply Fourier transforms which plays an important role in the study of continuous time signals.

M5SB4/G5SB4	Advanced Linear Programming	• To enable the students to convert real problems into a Mathematical model and solve them using different techniques. That is through method of duality, Gomory's method, Branch and Bound Technique, Dynamic programming method
MAJOR M6CC12/G6CC12	Complex Analysis	• To provide the student with an introduction to Complex Analysis of one variable since it has its application in almost every branch of Mathematics
M6CC13/G6CC13	Numerical Methods	• To give basic knowledge in Numerical methods and to solve problems purely mathematical in nature so that the students develop the confidence of solving research level problems.
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		techniques.
MAJOR ELECTIVE-I M6ME3/G6ME3	Object Oriented Programming with C++	• In the expanding field of computer education, one of the fastest growing, versatile and much sought after languages is C++. This course enables the students to understand the fundamentals of the language, the concepts related to the syntax of the language.
M6ME4/G6ME4	Astronomy	• To introduce the concepts about the celestial bodies such as Earth, Moon and Planets and to import the knowledge on duration of day and night, lunar and solar eclipses, maximum number of eclipses.
MAJOR ELECTIVE-II M6ME5/G6ME5	Lattices and Boolean Algebra	• To enable the students to know more about lattices and Boolean Algebra and their usefulness in other areas of Mathematics.
M6ME6/G6ME6	Automata Theory	• It provides techniques useful in a wide variety of applications and helps to develop a way of thinking that leads to understanding of the structure behavior and limitations and capabilities of logical machines.

SKILL BASED-Mathematics Skill Development M6SB5/G6SB5	Elements of Topology	• To enable the students to understand the fundamental concepts in topological spaces.
M6SB6/G6SB6	Applied Dynamics	• To enable the students to apply the laws and principles Governing Dynamics of the system in Physical reality.

2015 – 2016

COURSE CODE	COURSE TITLE	COURSE OBJECTIVE
MAJOR M1CC1/G1CC1	Calculus	• To enable the students to learn Higher derivatives, Curvature, Singular points, Envelopes, Asymptotes, Reduction formula, Multiple integrals and Fourier series in Calculus.
M1CC2/G1CC2	Classical Algebra & Trigonometry	• To enable the students to learn the fundamentals of Algebra & Trigonometry. • That is Binomial series , Exponential and Logarithmic series, Theory of Equations and Expansions sinnx cosnx etc
ALLIED M1AC1/GIAC1	Statistics I	• To provide a strong background in statistical methods and random processes which will be used in various social sciences, business management, public administration, etc .

NON MAJOR ELECTIVE M1NME1/ G1NME1	Mathematics in day to day life	• To enable the students to know the facts and formulae and to get trained in the objective type questions and its solutions by short cut methods on the topics – Profit & Loss, Partnership, Time & Work and Time & Distance.
MAJOR M2CC3/G2CC3	Differential Equations	• To enable the students to get thorough knowledge of solving Differential Equations of first order, second order, Laplace transforms, Partial differential equations and its applications.
M2CC4/G2CC4	Linear Programming	• To enable the students to convert real problems into a Mathematical model and solve them using different techniques. That is through graphical method, simplex method, Big – M and Two - phase method, Transportation and Assignment problem
ALLIED M2AC2/G2AC2	Statistics II	• To provide a strong background in statistical tools which will be used in various physical and social sciences, also to enable the students to know the

		concepts of discrete distributions, continuous distribution, test of significance for large and small samples and analysis of variance.
P1ACM1	Allied Mathematics -I	• To enable the Physics major students to develop the skills of Mathematical reasoning and Analytical thinking in Algebra, Theory of equations, Trigonometry and Differential Calculus.
P2ACM2	Allied Mathematics -II	• To enable the Physics major students to develop the skills of Mathematical reasoning and Analytical thinking in differential equations, laplace transforms & fourier series and vector calculus.
M3CC5/G3CC5	Modern Algebra	• The advent of modern approach to Mathematical Logic started with the study of set theory. Set theory later developed into Groups, Rings and Fields with various conditions imposed on sets. Application of these find place in different fields of science. The objective of this paper is to expose the students to these concepts

M3CC6/G3CC6	Analytical Geometry & Vector Calculus	• To know the fundamentals of vector calculus and polar equations.
SKILL BASED: M3SB1/G3SB1	Fractals	• To know the fundamentals of fractals and its applications.
M4CC7/G4CC7	Sequence and series	• To enable the students to learn theorems and problems in sequences and series which is essential for learning higher Mathematics.
M4CC8/G4CC8	Linear Algebra	• Vector Space is a new class of Algebraic system. Fields like Graph theory, Physics, Chemistry and Economics etc extensively use the applications of Matrices and their properties. Hence the students are exposed to these important topics.
SKILL BASED: M4SB2/G4SB2	Applications of Calculus and Differential Equations	• The objective of this course is to discuss several applications of the Calculus and Differential Equations to Geometry, Physics, Chemistry, Mechanics and Astronomy, etc.

C3ACM1	Allied Mathematics-I	• To develop Mathematical skills in students so as to understand their Mathematical related papers.
C4ACM2	Allied Mathematics-II	• To develop Mathematical skills in students so as to understand their Mathematical related papers.
B3ACM1	Allied Mathematics-I	• To enable the students to convert real problems into a Mathematical model and solve them using different techniques.
B4ACM2	Allied Mathematics-II	• Abstract concepts in Mathematics, in all branches • of Science and Technology, even in Social and • Natural sciences find representations in graph • theory. This paper is to enable the students to have • better application of abstract concepts through • graph theory.
MAJOR M5CC9/G5CC9	Real Analysis	• To introduce the basic concepts in Analysis and to enable the students to understand fundamental ideas and theorems on Metric spaces

M5CC10/G5CC10	Mechanics	• Enable the students to apply the laws, principles, postulates, governing the Statics of the system and to apply the laws and principles Governing Dynamics of the system, in Physical reality.
M5CC11/G5CC11	Computer Programming in C	• C language is one of the most popular computer languages today and the programs written in C are powerful, efficient, fast and compact. Realizing the need for educating our students in the various applications of mathematics, we have introduced this course.
MAJOR ELECTIVE M5ME1/G5ME1	Graph Theory	• Abstract concepts in Mathematics, in all branches • of Science and Technology, even in Social and • Natural sciences find representations in graph • theory. There is hardly any field where graph • theory does not find application. This paper is to • enable the students to have better application of • abstract concepts through graph theory.

M5ME2/G5ME2	Fuzzy Mathematics	• The objective of this course is to introduce to the students the concepts of Fuzzy Sets, Fuzzy Logic, Fuzzy Operations and Fuzzy Relations.
SKILL BASED- Mathematics Skill Development M5SB3/G5SB3	Fourier Transforms	• Enable the students to apply Fourier transforms which plays an important role in the study of continuous time signals.
M5SB4/G5SB4	Advanced Linear Programming	• To enable the students to convert real problems into a Mathematical model and solve them using different techniques. That is through method of duality, Gomory's method, Branch and Bound Technique, Dynamic programming method .
MAJOR M6CC12/G6CC12	Complex Analysis	• To provide the student with an introduction to Complex Analysis of one variable since it has its application in almost every branch of Mathematics
M6CC13/G6CC13	Numerical Methods	• To give basic knowledge in Numerical methods and to solve problems purely mathematical in nature so that

		the students develop the confidence of solving research level problems.
M6CC14/G6CC14	Operations Research	• This course deals with sequencing problem, Game theory, Inventory Control, Queuing theory and Network scheduling by PERT/CPM and it emphasis the students to convert real problem into a mathematical model and solve them using these techniques.
MAJOR ELECTIVE-I M6ME3/G6ME3	Object Oriented Programming with C++	• In the expanding field of computer education, one of the fastest growing, versatile and much sought after languages is C++. This course enables the students to understand the fundamentals of the language, the concepts related to the syntax of the language.
M6ME4/G6ME4	Astronomy	• To introduce the concepts about the celestial bodies such as Earth, Moon and Planets and to import the knowledge on duration of day and night, lunar and solar eclipses, maximum number of eclipses.
MAJOR ELECTIVE-II	Lattices and Boolean Algebra	• To enable the students to know more about lattices

M6ME5/G6ME5		and Boolean Algebra and their usefulness in other areas of Mathematics.
M6ME6/G6ME6	Automata Theory	• It provides techniques useful in a wide variety of applications and helps to develop a way of thinking that leads to understanding of the structure behavior and limitations and capabilities of logical machines.
SKILL BASED-Mathematics Skill Development M6SB5/G6SB5	Elements of Topology	• To enable the students to understand the fundamental concepts in topological spaces.
M6SB6/G6SB6	Applied Dynamics	• To enable the students to apply the laws and principles Governing Dynamics of the system in Physical reality.