



**Department of Mathematics, Kakatiya University, Warangal. T.S.**

<b>Academic Year</b>	<b>Name of the Course</b>	<b>Course Code</b>	<b>Name of the Programme</b>	<b>Course outcomes/ Activities with direct bearing on Employability/ Entrepreneurship/Skill development</b>
2021-2022	Algebra	M1CP1	M.Sc. (Mathematics)	By studying this course, students will be exposed to the concepts of normal series, solvable groups, nilpotent groups, group action on a set sylow theorems and they will get the knowledge of irreducible polynomials, PID, UFD, ED.
2021-2022	Real Analysis	M1CP2	M.Sc. (Mathematics)	By studying this course, the student will be exposed to various concepts of real analysis and its applications.
2021-2022	Ordinary Differential Equations	M1CP3	M.Sc. (Mathematics)	After completion of this course, students will get the knowledge on solving of differential equations in series methods. They will get the techniques to find eigen values, eigen vectors of BVP and extreme values of various functionals.
2021-2022	Discrete Mathematics	M1CP4	M.Sc. (Mathematics)	After studying this course, the students will understand the concept of basic, and Boolean algebra. The various applications to modelling and computer science can be learnt.
2021-2022	Fundamentals of Statistics	M1CP5	M.Sc. (Mathematics)	After studying this course, basics of statistics will be learnt and probability theory, theoretical probability discrete and continuous distributions will be learnt. Applications of random experiments can be understood.
2021-2022	Seminar	M1CP6	M.Sc. (Mathematics)	Seminar presentation will develops the analytical knowledge and skills on the subject. Also student will build self confident for facing on interviews.



Department of Mathematics, Kakatiya University, Warangal. T.S.

Academic Year	Name of the Course	Course Code	Name of the Programme	Course outcomes/Activities with direct bearing on Employability/ Entrepreneurship/Skill development
2021-2022	Field Extensions and Galois Theory	M2CP1	M.Sc. (Mathematics)	
2021-2022	Mathematical Analysis	M2CP2	M.Sc. (Mathematics)	By studying this course the student will be exposed to the knowledge and applications of Fourier series. The student can discriminate between the study of functions of a single variable and two variable concepts.
2021-2022	Topology	M2CP3	M.Sc. (Mathematics)	After studying of this course, students will get theoretical concepts with applications on topological spaces, compact spaces, separation and connected spaces.
2021-2022	Complex Analysis	M2CP4	M.Sc. (Mathematics)	The student will be able to understand the concepts and development of complex number system. The applications of contour integration, zeros and singularities are well understood by the student at the end of the course.
2021-2022	Special Functions	M2CP5	M.Sc. (Mathematics)	By studying this course, student will get the knowledge of Legendre polynomials, Bessels function, Hermite polynomials and Laguerre polynomials and the applications of the said polynomials.
2021-2022	Seminar	M2CP6	M.Sc. (Mathematics)	Seminar presentation will develop the analytical knowledge and skills on the subject. Also student will build self confidence for facing on interviews.



Department of Mathematics, Kakatiya University, Warangal. T.S.

Academic Year	Name of the Course	Course Code	Name of the Programme	Course outcomes/Activities with direct bearing on Employability/ Entrepreneurship/Skill development
2021-2022	Measure and Integration	M3CP1	M.Sc. (Mathematics)	This course will give theoretical knowledge with applications on Measurable sets, Lebesgue integrals of different types measurable functions and functions of Bounded variation.
2021-2022	Functional Analysis	M3CP2	M.Sc. (Mathematics)	After studying this course the student will be exposed to the knowledge of linear spaces, metric spaces, and inner product space to linear will be well understand.
2021-2022	Partial Differential Equations	M3CP3	M.Sc. (Mathematics)	The student will be able to understand the various applications of partial differential equations in other branches of science like physics, Engineering and allied science.
2021-2022	Mathematical Programming	M30P4(1)	M.Sc. (Mathematics)	After studying this course, students will get the knowledge of formulation of LLP with real time applications. By getting the knowledge of transportation and assignment problems, students will be able to solve the real time problems.
2021-2022	Numerical Analysis	M30P4(2)	M.Sc. (Mathematics)	After study of this course, students will get an idea on solving IVP, linear systems, non-linear systems and BVP with different techniques.
2021-2022	Automata and Languages	M30P4(3)	M.Sc. (Mathematics)	Gaining knowledge and understanding the properties of languages, grammar with formal mathematical methods.



**Department of Mathematics, Kakatiya University, Warangal. T.S.**

<b>Academic Year</b>	<b>Name of the Course</b>	<b>Course Code</b>	<b>Name of the Programme</b>	<b>Course outcomes/Activities with direct bearing on Employability/ Entrepreneurship/Skill development</b>
2021-2022	Advanced Complex Analysis	M30P4(4)	M.Sc. (Mathematics)	At the end of this course the student will be motivated towards the research in complex analysis.
2021-2022	Commutative Rings and Modules	M30P4(5)	M.Sc. (Mathematics)	After this course, students will get a knowledge on different types of modules and Ideals.
2021-2022	Mechanics of Solids	M30P4(6)	M.Sc. (Mathematics)	After doing this course, students would realize the physical quantities tensors, which are more than one direction, understand strains and stresses, and how the relations between them (constitutive relations) involve elastic constants which in turn give strength of materials.
2021-2022	Computer Fundamentals and Programming in C	M30P5(1)	M.Sc. (Mathematics)	This course is designed to provide knowledge on computer and C language. The students will be able to develop logics which will help them to create programs and applications through C.
2021-2022	Office Automation and C Language	M30P5(2)	M.Sc. (Mathematics)	This course is designed to provide knowledge on office Automation with MS- Word, MS-Excel and C language. The student will be able to develop logic, which will help them to create programs and applications through C.
2021-2022	Numerical Analysis using C	M30P5(3)	M.Sc. (Mathematics)	After completion of the course, the students will be able to solve the problems using Numerical Techniques and with the learning the logics using C language, we will be writing.



**Department of Mathematics, Kakatiya University, Warangal. T.S.**

<b>Academic Year</b>	<b>Name of the Course</b>	<b>Course Code</b>	<b>Name of the Programme</b>	<b>Course outcomes/Activities with direct bearing on Employability/ Entrepreneurship/Skill development</b>
2021-2022	Seminar	M3CP4	M.Sc. (Mathematics)	Seminar presentation will develops the analytical knowledge and skills on the subject. Also student will build self confident for facing on interviews.
2021-2022	Advanced Linear Algebra	M4CP1	M.Sc. (Mathematics)	At the end of this course students will get theoretical and computational knowledge on different types of linear transformations, with matrix of a linear transformation and vice-versa. Also this course helps to get a fundamental concepts on companion matrices, rational forms and bilinear forms.
2021-2022	Graph Theory	M4CP2	M.Sc. (Mathematics)	At the end of this course the student will understand the applications of Graph theory to various other branches of science in particular to Statistics, Computer Science, Operation Research etc.
2021-2022	Integral Equations and Transforms	M4CP3	M.Sc. (Mathematics)	This course is designed the learnt transformations and solving of integral equations.
2021-2022	Near Rings	M40P4(1)	M.Sc. (Mathematics)	This course gives fundamental concepts on different types near rings, modules, sub-modules, Ranks and minimal and maximal conditions.
2021-2022	Theory of Ordinary Differential Equations	M40P4(2)	M.Sc. (Mathematics)	After completion of this course, students will get the knowledge on solving of linear systems and behavior of their solutions. Also this course gives stability of Linear, Quasi-linear, Autonomous and Non- Autonomous systems.



**Department of Mathematics, Kakatiya University, Warangal. T.S.**

<b>Academic Year</b>	<b>Name of the Course</b>	<b>Course Code</b>	<b>Name of the Programme</b>	<b>Course outcomes/Activities with direct bearing on Employability/ Entrepreneurship/Skill development</b>
2021-2022	Operations Research	M40P4(3)	M.Sc. (Mathematics)	After studying this course, students will be motivated to do, research in queuing theory and nonlinear programming and they will get the knowledge of the construction of a network diagram, solving the problems by using network diagrams and dynamic programming.
2021-2022	Computational Methods for Partial Differential Equations	M40P4(4)	M.Sc. (Mathematics)	At the end of this course the student will gain the knowledge of Numerical techniques in solving partial differential equations and applications of these in solving Boundary value problems.
2021-2022	Automata and Machines	M40P4(5)	M.Sc. (Mathematics)	After completion of the course, the student will be able to understand and has the knowledge on how the machines will compute functions and solve the problems.
2021-2022	Theory of Reliability	M40P4(6)	M.Sc. (Mathematics)	This course is designed to learn fundamentals and more applications on Reliability.
2021-2022	Programming Methodology	M40P5(1)	M.Sc. (Mathematics)	This course is designed to provide the knowledge to analyze a problem and to design algorithms, implement and evaluate a computing solution.
2021-2022	Programming in C++	M40P5(2)	M.Sc. (Mathematics)	The student will be able to understand how C++ improves C with object oriented features. It is also helps to learn how to use functions for efficiency and performance.



**Department of Mathematics, Kakatiya University, Warangal. T.S.**

<b>Academic Year</b>	<b>Name of the Course</b>	<b>Course Code</b>	<b>Name of the Programme</b>	<b>Course outcomes/Activities with direct bearing on Employability/ Entrepreneurship/Skill development</b>
2021-2022	Applied Stochastic Process with MATLAB	M40P5(3)	M.Sc. (Mathematics)	After doing this course, student would understand how to model some real time problem which are Stochastic in nature. Moreover, exposing to many techniques and capabilities in MATLAB, the student will enhance the ability to use computer tools and languages to solve problems for academic and professional career.
2021-2022	Algebra	M1CP1	M.Sc.(Applied Mathematics)	By studying this course, students will be exposed to the concepts of normal series, solvable groups, nilpotent groups, group action on a set sylow theorems and they will get the knowledge of irreducible polynomials, PID, UFD, ED.
2021-2022	Real Analysis	M1CP2	M.Sc.(Applied Mathematics)	By studying this course, the student will be exposed to various concepts of real analysis and its applications.
2021-2022	Ordinary Differential Equations	M1CP3	M.Sc.(Applied Mathematics)	After completion of this course, students will get the knowledge on solving of differential equations in series methods. They will get the techniques to find eigen values, eigen vectors of BVP and extreme values of various functionals.
2021-2022	Discrete Mathematics	M1CP4	M.Sc.(Applied Mathematics)	After studying this course, the students will understand the concept of basic, and Boolean algebra. The various applications to modelling and computer science can be learnt.
2021-2022	Fundamentals of Statistics	M1CP5	M.Sc.(Applied Mathematics)	After studying this course, basics of statistics will be learnt and probability theory, theoretical probability discrete and continuous distributions will be learnt. Applications of random experiments can be understood.



**Department of Mathematics, Kakatiya University, Warangal. T.S.**

<b>Academic Year</b>	<b>Name of the Course</b>	<b>Course Code</b>	<b>Name of the Programme</b>	<b>Course outcomes/Activities with direct bearing on Employability/ Entrepreneurship/Skill development</b>
2021-2022	Seminar	M1CP6	M.Sc.(Applied Mathematics)	Seminar presentation will develops the analytical knowledge and skills on the subject. Also student will build self confident for facing on interviews.
2021-2022	Classical Mechanics	M2CP1	M.Sc.(Applied Mathematics)	After doing this course, students would understand how the variational principles are useful in the derivation of governing equations in mechanics.
2021-2022	Mathematical Analysis	M2CP2	M.Sc.(Applied Mathematics)	By studying this course the student will be exposed to the knowledge and applications of Fourier series. The student can discriminate between the study of functions of a single variable and two variable concepts.
2021-2022	Topology	M2CP3	M.Sc.(Applied Mathematics)	After studying of this course, students will get theoretical concepts with applications on topological spaces, compact spaces, separation and connected spaces.
2021-2022	Complex Analysis	M2CP4	M.Sc.(Applied Mathematics)	The student will be able to understand the concepts and development of complex number system. The applications of contour integration, zeros and singularities are well understood by the student at the end of the course.
2021-2022	Special Functions	M2CP5	M.Sc.(Applied Mathematics)	By studying this course, student will get the knowledge of legendre polynomials, Bessels function, Hermite polynomials and Laguerre polynomials and the applications of the said polynomials.





**Department of Mathematics, Kakatiya University, Warangal. T.S.**

<b>Academic Year</b>	<b>Name of the Course</b>	<b>Course Code</b>	<b>Name of the Programme</b>	<b>Course outcomes/Activities with direct bearing on Employability/ Entrepreneurship/Skill development</b>
2021-2022	Seminar	M2CP6	M.Sc.(Applied Mathematics)	Seminar presentation will develops the analytical knowledge and skills on the subject. Also student will build self confident for facing on interviews.
2021-2022	Measure and Integration	M3CP1	M.Sc.(Applied Mathematics)	This course will gives theoretical knowledge with applications on Measurable sets, Lebesgue integrals of different types measurable functions and functions of Bounded variation.
2021-2022	Mechanics of Solids	M3CP2	M.Sc.(Applied Mathematics)	After doing this course, students would realize the physical quantities Tensors, which are more than one direction, understand strains and stresses, and how the relations between them (constitutive relations) involve elastic constants which in turn give strength of materials.
2021-2022	Partial Differential Equations	M3CP3	M.Sc.(Applied Mathematics)	The student will be able to understand the various applications of partial differential equations in other branches of science like Physics, Engineering and allied science.
2021-2022	Mathematical Programming	M30P4(1)	M.Sc.(Applied Mathematics)	After studying this course, students will get the knowledge of formulation of LLP with real time applications. By getting the knowledge of transportation and assignment problems, students will be able to solve the real time problems.
2021-2022	Numerical Analysis	M30P4(2)	M.Sc.(Applied Mathematics)	After study of this course, students will get an idea on solving IVP, linear systems, non-linear systems and BVP with different techniques.



Department of Mathematics, Kakatiya University, Warangal. T.S.

Academic Year	Name of the Course	Course Code	Name of the Programme	Course outcomes/Activities with direct bearing on Employability/ Entrepreneurship/Skill development
2021-2022	Automata and Languages	M30P4(3)	M.Sc.(Applied Mathematics)	Gaining knowledge and understanding the properties of languages, grammar with formal mathematical methods.
2021-2022	Advanced Complex Analysis	M30P4(4)	M.Sc.(Applied Mathematics)	At the end of this course the student will be motivated towards the research in complex analysis.
2021-2022	Computer Fundamentals and Programming in C	M30P5(1)	M.Sc.(Applied Mathematics)	This course is designed to provide knowledge on computer and C language. The students will be able to develop logics which will help them to create programs and applications through C.
2021-2022	Office Automation and C Language	M30P5(2)	M.Sc.(Applied Mathematics)	This course is designed to provide knowledge on office Automation with MS- Word, MS-Excel and C language. The student will be able to develop logic, which will help them to create programs and applications through C.
2021-2022	Numerical Analysis using C	M30P5(3)	M.Sc.(Applied Mathematics)	After completion of the course, the students will be able to solve the problems using Numerical Techniques and with the learning the logics using C language, we will be writing.
2021-2022	Seminar	M3CP4	M.Sc.(Applied Mathematics)	Seminar presentation will develops the analytical knowledge and skills on the subject. Also student will build self confident for facing on interviews.



Department of Mathematics, Kakatiya University, Warangal. T.S.

Academic Year	Name of the Course	Course Code	Name of the Programme	Course outcomes/Activities with direct bearing on Employability/ Entrepreneurship/Skill development
2021-2022	Functional Analysis	M4CP1	M.Sc.(Applied Mathematics)	After studying this course the student will be exposed to the knowledge of linear spaces, metric spaces, and inner product spaces. The applications of fixed point theorem to linear expansions will be well understand.
2021-2022	Fluid Dynamics	M4CP2	M.Sc.(Applied Mathematics)	After doing this course, student would know various types fluids, applications of fluids, and how constitutive relation and the solutions of equations of motion of fluids are useful in real time problems.
2021-2022	Integral Equations and Transforms	M4CP3	M.Sc.(Applied Mathematics)	This course is designed the learnt transformations and solving of integral equations.
2021-2022	Bio Mechanics	M40CP4(1)	M.Sc.(Applied Mathematics)	By the end of the course, students would know how to model the molecules, cells, osseous tissues, and bones in the framework of Mechanics. Moreover, they would know how these models are the tools of Non Destructives Evaluation (NDE) in the destructive areas and health care applications.
2021-2022	Graph Theory	M40CP4(2)	M.Sc.(Applied Mathematics)	At the end of this course the student will understand the applications of Graph Theory to various other branches of science in particular to Statistics, Computer Science, Operations Research etc.



**Department of Mathematics, Kakatiya University, Warangal. T.S.**

<b>Academic Year</b>	<b>Name of the Course</b>	<b>Course Code</b>	<b>Name of the Programme</b>	<b>Course outcomes/Activities with direct bearing on Employability/ Entrepreneurship/Skill development</b>
2021-2022	Operations Research	M40P4(3)	M.Sc.(Applied Mathematics)	After studying this course, students will be motivated to do, research in queuing theory and nonlinear programming and they will get the knowledge of the construction of a network diagram, solving the problems by using network diagrams and dynamic programming.
2021-2022	Computational Methods for Partial Differential Equations	M40P4(4)	M.Sc.(Applied Mathematics)	At the end of this course the student will gain the knowledge of Numerical techniques in solving partial differential equations and applications of these in solving Boundary value problems.
2021-2022	Automata and Machines	M40P4(5)	M.Sc.(Applied Mathematics)	After completion of the course, the student will be able to understand and has the knowledge on how the machines will compute functions and solve the problems.
2021-2022	Theory of Reliability	M40P4(6)	M.Sc.(Applied Mathematics)	This course is designed to learn fundamentals and more applications on Reliability.
2021-2022	Programming Methodology	M40P5(1)	M.Sc.(Applied Mathematics)	This course is designed to provide the knowledge to analyze a problem and to design algorithms, implement and evaluate a computing solution.



**Department of Mathematics, Kakatiya University, Warangal. T.S.**

<b>Academic Year</b>	<b>Name of the Course</b>	<b>Course Code</b>	<b>Name of the Programme</b>	<b>Course outcomes/Activities with direct bearing on Employability/ Entrepreneurship/Skill development</b>
2021-2022	Programming in C++	M40P5(2)	M.Sc.(Applied Mathematics)	The student will be able to understand how C++ improves C with object oriented features. It is also helps to learn how to use functions for efficiency and performance.
2021-2022	Applied Stochastic Process with MATLAB	M40P5(3)	M.Sc.(Applied Mathematics)	After doing this course, student would understand how to model some real time problem which are Stochastic in nature. Moreover, exposing to many techniques and capabilities in MATLAB, the student will enhance the ability to use computer tools and languages to solve problems for academic and professional career.