UNDERGRADUATE PROGRAMME COURSE OUTCOMES

Name of the Programme: B.Sc. Computer Science (Mathematics)

Name of the Class	Course Code	Course Title	Course Outcomes				
SEMESTER I							
F.Y.B. Sc (CS)	MTC- 111	Matrix Algebra	CO1	A students should be able to calculate operations on matrices.			
			CO2	The student should able to solve the system of linear equation by various methods.			
			CO3	A student should know the various properties of vector spaces.			
			CO4	A student should be able to study different properties of determinant with its application.			
F.Y.B.Sc (CS)	MTC- 112	Discrete Mathematics	CO1	Student should be familiar with mathematical logic.			
			CO2	Student should know the Boolean functions, DNF and CNF.			
			CO3	Using counting principals' student should be able to solve real life problems.			
			CO4	Through recurrence relation student should develop problem solving skills.			
	MTC- 113	Mathematics Practical	CO1	Student should know about basic of maxima software.			
F.Y.B. Sc (CS)			CO2	Using Maxima software student should be able to solve complex problems.			
			CO3	Student gains confidence in solving the problems.			
SEMESTER II							
F.Y.B. Sc (CS)	MTC- 121	Linear Algebra	CO1	Student should able to study null space, column space, linearly independent set, linearly dependent set, basis, rank and nullity.			
			CO2	Student should be able to find eigenvalues and eigenvectors.			
			CO3	Student should able to study orthogonal projection, diagonalization of symmetric matrices and various types of quadratic forms.			
			CO4	Student should know geometry of vector spaces.			
F.Y.B. Sc (CS)	MTC- 122	Graph Theory	CO1	A students should be able to work with graphs and identify certain parameters and properties			

CO2 Student should know connected graph with its properties.					of the given graphs
F.Y.B. Sc (CS) MITC- (CS) Mathematics Practical Mathematics (CS) MITC- (CS			G0.4		
CO2 Student should able to study trees with its properties and application.			CO2	_ = =	
CO4 Student should able to study trees with its properties and application. Student should know about basic of maxima software.				CO3	
F.Y.B. Sc (CS) 123 Practical Practical Using Maxima software student should be able to solve complex problems. CO1				CO4	Student should able to study trees with its
F.Y.B. Sc (CS) Mathematics Practical				CO1	Student should know about basic of maxima
SEMESTER III Student should know divisibility of integers, its theorems and properties and able to find G.C.D and L.C.M using it. Student should know and identify groups, types of groups and able to solve problems based on it. Co3 Student should know and identify groups, types of groups and able to solve problems based on it. Student should be able to code and de-code information using various crypto-techniques and should also be able to detect and correct errors in the message. Co1 The mathematical maturity of students in their current and future courses shall develop. Co2 The student develops theoretical, applied and computational skills. Co3 The student gains confidence in proving theorems and solving problems. Student should able to solve algebraic and transcendal equations by using different numerical methods. Student should able to know different interpolate the given data. Co6 Student should able to differentiate and integrate by different numerical methods. Student should able to solve ODE by various numerical methods. The student should able to solve ODE by various numerical methods. The student should able to solve ODE by various numerical methods. The student should how installation of python programming in solving mathematical problem.				CO2	Using Maxima software student should be able
S.Y.B.Sc (CS) MTC- 231 Student should know divisibility of integers, its theorems and properties and able to find G.C.D and L.C.M using it. Student should know and identify groups, types of groups and able to solve problems based on it. Student should be able to code and de-code information using various crypto-techniques and should also be able to detect and correct errors in the message. CO1 The mathematical maturity of students in their current and future courses shall develop. The student develops theoretical, applied and computational skills. CO3 Student should able to solve algebraic and transcendal equations by using different numerical methods. Student should able to know different interpolation formulae and apply them to interpolate the given data. CO6 Student should able to differentiate and integrate by different numerical methods. Student should able to solve ODE by various numerical methods. The student should know installation of python programming in solving mathematical problem.				CO3	Student gains confidence in solving the
S.Y.B.Sc (CS) MTC- (CS) MTC- (CS) Groups and Coding Theory Groups and Coding Theory CO2 Student should know and identify groups, types of groups and able to solve problems based on it. Student should be able to code and de-code information using various crypto-techniques and should also be able to detect and correct errors in the message. CO2 The mathematical maturity of students in their current and future courses shall develop. CO3 The student develops theoretical, applied and computational skills. CO3 The student gains confidence in proving theorems and solving problems. Student should able to solve algebraic and transcendal equations by using different numerical methods. Student should able to know different interpolate the given data. CO3 Student should able to differentiate and integrate by different numerical methods. Student should able to solve ODE by various numerical methods. Student should able to solve ODE by various numerical methods. The student should able to solve one of the continual methods and integrate by different numerical methods. Student should able to solve ODE by various numerical methods. The student should how installation of python/app and various basic commands of it. The student will be able to develop skill of python programming in solving mathematical problem.			SEN	MEST	
S.Y.B.Sc (CS) MTC- (COS) MTC- (COS) MTC- (COS) MTC- (COS) MTC- (COS) MT			SE	ATEST	
S.Y.B.Sc (CS) MTC- 231 Groups and Coding Theory CO3 Student should know and identify groups, types of groups and able to solve problems based on it. Student should be able to code and de-code information using various crypto-techniques and should also be able to detect and correct errors in the message. CO1 The mathematical maturity of students in their current and future courses shall develop. The student develops theoretical, applied and computational skills. CO3 The student gains confidence in proving theorems and solving problems. Student should able to solve algebraic and transcendal equations by using different numerical methods. Student should able to know different interpolation formulae and apply them to interpolate the given data. CO6 Student should able to differentiate and integrate by different numerical methods. CO7 Student should able to solve ODE by various numerical methods. The student should able to solve ODE by various numerical methods. The student should able to develop skill of python/app and various basic commands of it. The student will be able to develop skill of python programming in solving mathematical problem.			_	CO1	theorems and properties and able to find G.C.D
CO3 information using various crypto-techniques and should also be able to detect and correct errors in the message. CO1 The mathematical maturity of students in their current and future courses shall develop. CO2 The student develops theoretical, applied and computational skills. CO3 The student gains confidence in proving theorems and solving problems. Student should able to solve algebraic and transcendal equations by using different numerical methods. Student should able to know different interpolation formulae and apply them to interpolate the given data. CO4 Student should able to solve ODE by various numerical methods. Student should able to solve ODE by various numerical methods. The student should know installation of python/ app and various basic commands of it. The student will be able to develop skill of python programming in solving mathematical problem.				CO2	Student should know and identify groups, types of groups and able to solve problems based on
CO1 The mathematical maturity of students in their current and future courses shall develop. CO2 The student develops theoretical, applied and computational skills. CO3 The student gains confidence in proving theorems and solving problems. Student should able to solve algebraic and transcendal equations by using different numerical methods. CO4 Student should able to know different interpolation formulae and apply them to interpolate the given data. CO6 Student should able to differentiate and integrate by different numerical methods. Student should able to differentiate and integrate by different numerical methods. CO7 Student should able to solve ODE by various numerical methods. CO7 The student should know installation of python/app and various basic commands of it. The student will be able to develop skill of python programming in solving mathematical problem.				CO3	information using various crypto-techniques and should also be able to detect and correct
CO2 current and future courses shall develop. CO2 The student develops theoretical, applied and computational skills. CO3 The student gains confidence in proving theorems and solving problems. Student should able to solve algebraic and transcendal equations by using different numerical methods. Student should able to know different interpolation formulae and apply them to interpolate the given data. CO6 Student should able to differentiate and integrate by different numerical methods. Student should able to solve ODE by various numerical methods. CO7 Student should able to solve ODE by various numerical methods. CO8 The student should able to differentiate and integrate by different numerical methods. CO9 The student should able to develop skill of python/app and various basic commands of it. The student will be able to develop skill of python programming in solving mathematical problem.					Š
S.Y.B.Sc (CS) MTC- 232 Numerical Techniques CO3 The student develops theoretical, applied and computational skills. CO3 The student gains confidence in proving theorems and solving problems. Student should able to solve algebraic and transcendal equations by using different numerical methods. Student should able to know different interpolation formulae and apply them to interpolate the given data. CO6 Student should able to differentiate and integrate by different numerical methods. Student should able to solve ODE by various numerical methods. CO7 Student should able to solve ODE by various numerical methods. The student should know installation of python/app and various basic commands of it. The student will be able to develop skill of python programming in solving mathematical problem.				CO1	
S.Y.B.Sc (CS) MTC- 232 Numerical Techniques CO4 Techniques CO5 Student should able to solve algebraic and transcendal equations by using different numerical methods. Student should able to know different interpolation formulae and apply them to interpolate the given data. CO6 Student should able to differentiate and integrate by different numerical methods. CO7 Student should able to solve ODE by various numerical methods. CO7 Student should able to solve ODE by various numerical methods. CO7 The student should know installation of python/app and various basic commands of it. The student will be able to develop skill of python programming in solving mathematical problem.				CO2	The student develops theoretical, applied and
S.Y.B.Sc (CS) MTC- 232 Techniques CO4 Techniques Student should able to know different interpolation formulae and apply them to interpolate the given data. CO6 Student should able to differentiate and integrate by different numerical methods. CO7 Student should able to differentiate and integrate by different numerical methods. Student should able to solve ODE by various numerical methods. CO7 Mathematics Practical: Python Programming Language-I CO2 The student should know installation of python/app and various basic commands of it. The student will be able to develop skill of python programming in solving mathematical problem.				CO3	theorems and solving problems.
Student should able to know different interpolation formulae and apply them to interpolate the given data. CO6 Student should able to differentiate and integrate by different numerical methods. CO7 Student should able to solve ODE by various numerical methods. CO7 Student should able to solve ODE by various numerical methods. The student should know installation of python/app and various basic commands of it. The student will be able to develop skill of python programming in solving mathematical problem.				CO4	transcendal equations by using different
CO6 Student should able to differentiate and integrate by different numerical methods. CO7 Student should able to solve ODE by various numerical methods. CO8 Student should able to solve ODE by various numerical methods. CO9 The student should know installation of python/app and various basic commands of it. CO9 The student will be able to develop skill of python programming in solving mathematical problem.				CO5	Student should able to know different interpolation formulae and apply them to
CO7 Student should able to solve ODE by various numerical methods. S.Y.B.Sc (CS) MTC- 233 Mathematics Practical: Python Programming Language-I CO2 The student should know installation of python/app and various basic commands of it. The student will be able to develop skill of python programming in solving mathematical problem.				CO6	Student should able to differentiate and
S.Y.B.Sc (CS) Mathematics Practical: Python Programming Language-I Mathematics Practical: Python Programming Longuage-I CO1 The student should know installation of python/ app and various basic commands of it. The student will be able to develop skill of python programming in solving mathematical problem.				CO7	Student should able to solve ODE by various
(CS) Programming Language-I CO2 The student will be able to develop skill of python programming in solving mathematical problem.			Practical: Python Programming	CO1	The student should know installation of
				CO2	The student will be able to develop skill of python programming in solving mathematical
SEMESTER IV					

S.Y.B.Sc (CS)	MTC- 242	Operations Research	CO1	Student should able to formulate different life problems into LPP and solve them by using graphical method and simplex method.
			CO2	Student should able to solve and optimize transportation problems.
			CO3	Student should able to solve assignment problems.
			CO4	Student should know game problems and find value of the game using optimum strategies.
S.Y.B.Sc (CS)	MTC- 243	Mathematics Practical: Python Programming Language-II	CO1	The student should know installation of various packages used in python.
			CO2	The student will be able to develop skill of python programming in solving mathematical problem.