



KONGU ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)

ERODE – 638 107

M.Sc (Mathematics)



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2021-2022



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ERODE – 638 107

SYLLABUS

Sem	Course Code	Core - II REAL ANALYSIS	Total Marks:100		Hours Per Week	Credits
			CIA : 50	ESE :50		
I	21PBECT102				7	4

Course Objectives:

1. To give a systematic study in Real Analysis about Riemann Stieltjes Integral, Linear Transformations, Lebesgue Measure and Lebesgue Integral.
2. To obtain knowledge in analysis of real numbers to meet out employability.

Course Outcomes (CO): On completion of the course, students should be able to

CO 1	Outline the concepts of the Riemann-Stieltjes Integral.	K1- K5
CO 2	Analyse Uniform Convergence and Continuity.	K1- K5
CO 3	Discuss about Linear transformations, Contraction mapping principle, Inverse function and Implicit function theorems.	K1- K5
CO 4	Analyse Lebesgue measure.	K1- K5
CO 5	Discuss about Lebesgue integral.	K1- K5

K1 :Recall; K2: Understand; K3 :Apply; K4: Analyze; K5 : Evaluate

Unit – I : The Riemann-Stieltjes Integral

Definition and Existence of the Integral – Properties of the Integral – Integration and Differentiation – Integration of Vector-valued Functions – Rectifiable Curves.

Text Book 1: Chapter 6 (Page No. 120 - 142)

Unit – II : Sequences and Series of Functions

Uniform Convergence - Uniform Convergence and Continuity – Uniform Convergence and Integration - Uniform Convergence and Differentiation- Equicontinuous Families of Functions – The Stone -Weierstrass Theorem.

Text Book 1: Chapter 7 (Page No. 147 - 171)

Unit – III : Functions of Several Variables

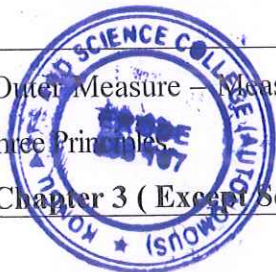
Linear Transformations - Differentiation– The Contraction Principle – The Inverse Function Theorem–The Implicit Function Theorem.

Text Book 1: Chapter 9 (Page No. 204 – 227)

Unit – IV : Lebesgue Measure



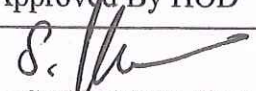
Introduction - Outer Measure – Measurable Sets and Lebesgue Measure – Measurable Functions – Littlewood's Three Principles

Text Book 2: Chapter 3 (Except Section 4)(Page No. 54 – 64, 66 - 74)




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Unit – V :	Lebesgue Integral
The Lebesgue Integral of Bounded Function over a Set of Finite Measure – The Integral of a Non – negative Function – The General Lebesgue Integral.	
Text Book 2: Chapter 4 (Section 2, 3 and 4 only) (Page No. 77 - 94)	
SKILL DEVELOPMENT ACTIVITIES	
<ol style="list-style-type: none"> 1. Brief the applications of Riemann – Stieltjes integral through a power point presentation. 2. Solve and submit any 10 questions from previous year CSIR/ SET. 3. Verify that Lebesgue outer measure is translation invariant and find the measure of Cantor ternary set. 	
TEXT BOOKS	
1	Walter Rudin, “Principles of Mathematical Analysis”, 3 rd Edition, McGraw Hill Book Company, New Delhi, 1976.
2	H.L.Roydon, “Real Analysis”, 3 rd Edition, Prentice-Hall of India Pvt. Ltd, New Delhi, 2001.

REFERENCE BOOKS		
1	R.G.Bartle, “Elements of Real Analysis”, 2 nd Edition, John Wily and Sons, New York, 1976.	
2	T.M.Apostol, “Mathematical Analysis”, 2 nd Edition, Narosa Publishing Company, Chennai, 1990.	
Web Resources		
1	http://www.maths.lth.se/matematiklu/personal/olofsson/CompHT06.pdf	
2	www.pdfdrive.net	
3	www.bookfi.net	
Course Designed By	Verified By	Approved By HOD
 Ms.C.RADHAMANI	 Dr.S.SURESH	 Dr.S.NAGARAJAN




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QUESTION PAPER PATTERN		
Time: 3 hours	Max. Marks: 50	
SECTION-A(10 X 1 = 10 Marks) Answer ALL the questions Choose the correct answer	SECTION-B (5 X 3 = 15 Marks) Answer ALL the questions Either or type Two questions from each unit	SECTION-C (5 X 5 = 25 Marks) Answer ALL questions Question Number: 16 to 19 (Either or type) Question Number 20 is Compulsory-Case Study

Mapping of COs with POs and PSOs												
PO/PSO CO	PO							PSO				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	M	M	M	M	M	M	S	S	M	M	M	M
CO2	M	M	M	M	M	M	S	S	M	M	M	M
CO3	S	M	M	M	M	M	S	S	S	S	S	M
CO4	S	M	M	M	M	M	S	S	M	S	S	M
CO5	S	M	M	M	M	M	S	S	M	S	S	M
S - Strong, M - Medium, L - Low												



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Sem	Course Code	Core - III ORDINARY DIFFERENTIAL EQUATIONS	Total Marks:100		Hours Per Week	Credits
			CIA : 50	ESE :50	6	4
I	21PBECT103					

Course Objectives:

- To impart knowledge in the concepts of Picard's theorem, Simultaneous differential equations of the form $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$, Legendre equation and Legendre polynomials, Bessel equation, Existence and Uniqueness theorems.
- To develop employability opportunities by obtaining knowledge in solving ordinary differential equations.

Course Outcomes (CO): On completion of the course, students should be able to

CO 1	Determine the Picard's method of successive approximation and Problems of existence and uniqueness.	K1 – K5
CO 2	Solve the Simultaneous differential equations.	K1 – K5
CO 3	Find the solution of Legendre equation, Legendre polynomials and Bessel functions.	K1 – K5
CO 4	Solve the Existence and uniqueness theorem and Fundamental matrix.	K1 – K5
CO 5	Determine the general solution of linear systems.	K1 – K5

K1 :Recall; K2: Understand; K3 :Apply; K4: Analyze; K5 : Evaluate

Unit –I :**Picard's Iterative Method. Uniqueness and Existence Theorem**

Introduction - Picard's method of successive approximation -Working rule for Picard's method of solving simultaneous differential equations with initial conditions - Problems of existence and Uniqueness - Lipschitz condition - Picard's Theorem . Existence and Uniqueness theorem –An important theorem- Solved examples.

Text Book : 1- Chapter 1 : Sections 1.1 – 1.8 (Page No: 1.3 – 1.26)

Unit – II:**Simultaneous differential equations of the form $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$**

Introduction -The nature of solution of $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ - Geometrical interpretation of $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$
 - Rule I for solving $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ - Rule II for solving $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ - Rule III for solving $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$
 - Rule IV for solving $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ - Orthogonal trajectories of a system of curves on a surface
 - Solved examples.

Text Book : 1- Chapter 2 : Sections 2.1 – 2.12 (Page No: 2.1 – 2.24)

Unit – III :**Solutions in Power Series**

Second order linear equations with ordinary points – Legendre equation and Legendre polynomials

Second order equation with regular singular point – Properties of Bessel functions.



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Text Book : 2- Chapter 3 : Sections 3.2 – 3.5 (Page No: 69 - 91)

Unit – IV : System of Linear Differential Equations

Introduction – Systems of first order equations– Existence and uniqueness theorem– Fundamental matrix.

Text Book : 2- Chapter 4 : Sections 4.1, 4.2, 4.4, 4.5 (Page No: 92 – 96, 99 - 108)

Unit – V : System of Linear Differential Equations

Non-homogeneous linear systems – Linear systems with constant coefficients –Linear systems with periodic coefficients.

Text Book : 2- Chapter 4 : Sections 4.6– 4.8(Page No: 108- 128)

SKILL DEVELOPMENT ACTIVITIES

1. Give a power point presentation of existence and uniqueness theorems and their applications.
2. Solve and submit any 10 questions from previous year CSIR/ SET.
3. Chart out and explain the applications of Bessel’s Recurrence relation in Engineering Mathematics.

TEXT BOOKS

1	Dr.M.D.Raisinghania, “ Advanced Differential Equations”, S.Chand & Company Ltd., New Delhi , 2016.
2	S.G.Deo , V. Lakshmikantham and V.Raghavendra. “Ordinary Differential Equations”, 2 nd Edition, Tata McGraw-Hill Publishing Company Ltd, New Delhi, 1997.

REFERENCE BOOKS


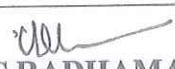
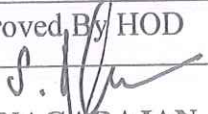
1	Earl A.Coddington and N.Levinson, “Theory of Ordinary Differential Equations”, McGraw Hill, NewYork,1972.
2	S.G.Venkatachalapathy, “Ordinary Differential Equations(for M.Sc. Mathematics)”, Margham Publications, Chennai, 2005.

Web Resources

1	https://users.math.msu.edu/users/gnagy/teaching/ode.pdf
2	https://www.math.ucla.edu/~yanovsky/handbooks/ODEs.pdf
3	www.bookfi.net



Dr. N. RAMAN
 . PRINCIPAL.
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 Dr.S.SURESH	 Ms.C.RADHAMANI	 Dr.S.NAGARAJAN

QUESTION PAPER PATTERN		
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Mapping of COs with POs and PSOs												
PO/PSO CO	PO							PSO				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	M	M	M	M	M	S	S	M	S	M	S
CO2	S	M	M	M	M	M	S	S	M	S	M	S
CO3	S	M	M	M	S	M	S	S	M	S	M	S
CO4	S	M	M	M	S	M	S	S	M	S	M	S
CO5	S	M	M	M	S	M	S	S	M	S	M	S

S - Strong, M - Medium, L - Low



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Sem	Course Code	Core - IV	Total Marks:100		Hours Per Week	Credits
I	21PBECT104	NUMERICAL ANALYSIS	CIA : 50	ESE :50	6	4

Course Objectives:

- To make the students understand and solve Algebraic and Transcendental Equations, Interpolation, Numerical Differentiation and Integration, Ordinary Differential Equations and Partial Differential Equations.
- To impart the skills of numerical methods in finding approximate solutions.

Course Outcomes (CO): On completion of the course, students should be able to

CO 1	Find the solution of algebraic and transcendental equations.	K1 – K5
CO 2	Solve Interpolation problems.	K1 – K5
CO 3	Find the Numerical solution of Differentiation and Integration problems.	K1 – K5
CO 4	Compute Numerical Solution of Ordinary Differential Equations.	K1 – K5
CO 5	Classify and find the Numerical Solution of Partial Differential Equations.	K1 – K5

K1 :Recall; K2: Understand; K3 :Apply; K4: Analyze; K5 : Evaluate

Unit –I : Solution of Algebraic and Transcendental Equations

Introduction - Iteration Method- Newton-Raphson Method – Ramanujan’s Method - Secant Method - Muller’s Method - Graeffe’s Root -Squaring Method.

Chapter II - Sections 2.1, 2.4 -2.9 (Page No: 22, 31-56)

Unit – II: Interpolation

Introduction - Errors in Polynomial Interpolation. Finite Differences : Forward Difference - Backward Difference - Central Difference - Symbolic Relations and Separation of Symbols- Detection of Errors by Use of Difference Tables - Difference of a polynomial - Newton’s Formulae for Interpolation.

Central Difference Interpolation Formulae : Gauss’s Central Difference Formulae - Stirling’s Formula - Bessel’s Formula - Everett’s Formula- Relation between Bessel’s and Everett’s Formulae.

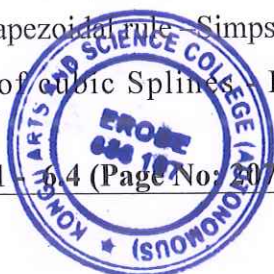
Chapter III - Sections 3.1 - 3.7 (Page No: 73 – 97)

Unit – III : Numerical Differentiation and Integration

Introduction – Numerical Differentiation: Errors in Numerical Differentiation - Cubic Spline Method - Differentiation Formulae with Function Values - Maximum and Minimum values of a tabulated Function

Numerical Integration: Trapezoidal rule - Simpson’s 1/3 Rule - Simpson’s 3/8 Rule -Boole’s and Weddle’s Rules - Use of cubic Splines - Romberg integration–Newton-Cotes integration Formulae.

Chapter VI - Sections 6.1 - 6.4 (Page No: 207-232)



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PRINCIPAL
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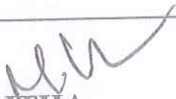

Unit – IV :	Numerical Solution of Ordinary Differential Equations
Introduction - Solution by Taylorseries - Picard’s Method of Successive Approximations -Euler’s Method: Error Estimates for the Euler Method – Modified Euler’s Method - Runge – Kutta Methods - Predictor - Corrector Methods : Adams- MoultonMethod - Milne’sMethod.	
Chapter VIII - Sections 8.1 - 8.6 (Page No: 302 - 321)	
Unit – V :	Numerical Solution of Partial Differential Equations
Introduction – Laplace’s Equation - Finite-difference Approximations to Derivatives - Solution of Laplace’s Equation : Jacobi’s Method - Gauss- Seidel Method - Successive Over -Relaxation Method - ADI Method - Heat Equations in One Dimension : Finite -difference Approximations - Iterative Methods for the Solution of Equations.	
Chapter IX - Sections 9.1 - 9.6 (Page No: 342 - 368)	
SKILL DEVELOPMENT ACTIVITIES	
<ol style="list-style-type: none"> 1. Chart out and explain few situations where numerical methods can be applied? 2. Prepare an analysis report based on direct and indirect method in solving linear algebraic equations. 3. List out and explain the methods available to solve ordinary and partial differential equations. 	
TEXT BOOK	
1	S.S.Sastry, “ Introductory Methods of Numerical Analysis”, 5 th Edition, PHI Learning Private Limited, Delhi, 2013.

REFERENCE BOOKS	
1	P.Kandasamy, K.Thilagavathy and K.Gunavathi, “NUMERICAL METHODS”, S.Chand&Company pvt. Ltd., Reprint 2015
2	R.L.Burdenand J.Douglas Faires,“Numerical Analysis”, 4 th EditionP.W.S.Kent Publishing Company,Boston,1989.
3	M.K.Venkataraman,“Numerical Methods in science and Engineering” NationalPublishing company 5 th Edition 1999.

Web Resources	
1	https://lecturenotes.in/notes/7810-notes-for-numerical-methods-nm-by-ranu-singh?reading=true
2	https://examstime.in/numerical-analysis-study-materials/#Numerical-Analysis-Books
3	www.bookfi.net



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 Dr.S.SURESH	 Dr.M.LALITHA	 Dr.S.NAGARAJAN

QUESTION PAPER PATTERN		
Time: 3 hours	Max. Marks: 50	
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Mapping of COs with POs and PSOs												
PO/PSO CO	PO							PSO				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	M	M	M	M	M	S	S	M	S	M	S
CO2	S	M	M	M	M	M	S	S	M	S	M	S
CO3	S	M	M	M	S	M	S	S	M	S	M	S
CO4	S	M	M	M	S	M	S	S	M	S	M	S
CO5	S	M	M	M	S	M	S	S	M	S	M	S
S - Strong, M - Medium, L - Low												




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PRINCIPAL
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Sem	Course Code	Elective I OBJECT ORIENTED PROGRAMMING IN C++	Total Marks:100		Hours Per Week	Credits
I	21PBEET106			CIA : 50	ESE :50	4

Course Objectives:

- To enable the students to understand the concepts of C++ Programming structures, Classes and Objects, Control statements, Functions, Operators, and Inheritance properties.
- To learn the skills in C++ programming language.

Course Outcomes (CO): On completion of the course, students should be able to

CO1	Know about basic concepts of Object Oriented Programming.	K1 – K5
CO2	Understand Tokens, Expressions and Control structure.	K1 – K5
CO3	Know about functions Manage in C++ and Console I/O operations.	K1 – K5
CO4	Understand classes, objects, constructors and destructors.	K1 – K5
CO5	Utilize Operators overloading and Inheritance.	K1 – K5

K1 :Recall; K2: Understand; K3 :Apply; K4: Analyze; K5 : Evaluate

Unit –I :**Principles of object-Oriented Programming**

Software evolution – A look at procedure-oriented Programming – Object-oriented Programming Paradigm– Basic Concept of Object-Oriented Programming – Benefits of OOP – Object-Oriented languages – Applications of OOP.


Chapter 1 : Sections 1.2-1.8(Page No: 3 – 13)

Unit – II:**Tokens, Expressions and Control structures**

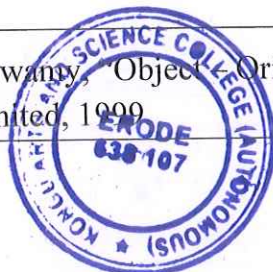
Introduction – Tokens – Keywords – Identifiers and constants – basic data types – User defined data types – Storage Classes - Derived data types – Symbolic constants – Type Compatibility - Declaration of variables – Dynamic initialization of variables – Reference variables – operations in C++ - Scope resolution operator –Member Dereferencing Operators - Memory management operators –Manipulators – Type cast Operator - Expressions and their types – Control structures.

Chapter 3-Sections: 3.1 – 3.21, 3.25 (Page No: 30 – 58, 60-64)




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Unit – III :	Functions in C++
Introduction – The main function – Function prototyping – Call by reference – Return by reference - Inline functions – Default arguments – Constant arguments – Function over loading. Managing Console I/O operations: Introduction – C++ streams – C++ stream classes – Unformatted I/O operations - Formatted I/O operations – Managing output with manipulators.	
Chapter 3- Sections:4.1 – 4.10, 10.1- 10.6 (Page No: 71 – 84, 261 - 285)	
Unit – IV :	Classes and Objects
Introduction – Specifying a class – Defining Member Functions – A C++ Program with class – Making an outside Function Inline – Nesting of Member Functions – Private Member Functions – Arrays within a class – Memory Allocation for Objects – Static Data members – static member Functions - Arrays of Objects – Objects as Function Arguments – Friendly functions – Returning Objects – Constant Member Functions. Constructors and Destructors: Introduction – Constructors – Parameterized Constructors – Multiple Constructors in a class - Constructors with Default Arguments - Copy Constructor – Dynamic Constructors – Constructing Two-Dimensional Arrays- Const Objects - Destructors.	
Chapter 5- Sections: 5.1 - 5.17(Page No: 90-122), Chapter 6- Sections: 6.1 – 6.11 (Page No:131-150)	
Unit – V :	Operators overloading
Introduction – Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators. Inheritance: Defining Derived Classes – Single inheritance – Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance.	
Chapter 7 – Section 7.1-7.4 (Page No: 155-161), Chapter 8 - Section: 8.1- 8.8 (Page No: 182- 205)	
SKILL DEVELOPMENT ACTIVITIES	
<ol style="list-style-type: none"> 1. Develop a coding for a real time problem. 2. Debug errors in the given program. 3. Prepare a mark statement on your own using C++. 	
TEXT BOOK	
1	E. Balaguruswamy, "Object Oriented Programming with C++", Tata McGraw-Hill Publishing Company limited, 1000



REFERENCE BOOKS		
1	Ashok N Kamthane , “Object-Oriented Programming with ANSI and TURBOC C++,” Pearson Education publication. 2003.	
2	Maria Litvin & Gray Litvin , “C++ for you”, Vikaspublication, 2002.	
Web Resources		
1	http://www.ddegjust.ac.in/studymaterial/mca-3/ms-17.pdf	
2	https://lecturenotes.in/notes/6206-notes-for-object-oriented-programming-using-cpp-oop-by-swarnalata-rath	
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QUESTION PAPER PATTERN		
Time: 3 hours	Max. Marks: 50	
SECTION-A(10 X 1 = 10 Marks) Answer ALL the questions Choose the correct answer	SECTION-B (5 X 3 = 15 Marks) Answer ALL the questions Either or type Two questions from each unit	SECTION-C (5 X 5 = 25 Marks) Answer ALL questions Question Number: 16 to 19 (Either or type) Question Number 20 is Compulsory- Case Study




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Mapping of COs with POs and PSOs												
PO/PSO CO	PO							PSO				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	M	M	M	M	M	M	M	S	M	M	M	M
CO2	M	M	M	M	M	M	M	S	M	M	M	M
CO3	M	M	M	M	M	M	M	S	M	M	M	M
CO4	S	S	M	M	M	M	M	S	M	M	M	M
CO5	M	M	M	M	M	M	M	S	M	M	M	M

S - Strong, M - Medium, L - Low




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Sem	Course Code	Core - VII CLASSICAL MECHANICS	Total Marks:100		Hours Per Week	Credits
			CIA : 50	ESE :50		
II	21PBECT203				6	4

Course Objectives:

1. To impart knowledge among the students in the concepts of D'Alembert principle, Lagrange's equations, Hamilton equations of motion, Canonical transformations and Hamilton Jacobi theory.
2. To gain knowledge in combining Mathematical and Physical concepts for getting employability skills.

Course Outcomes (CO): On completion of the course, students should be able to

CO 1	Analyze mechanical behavior of particle.	K1 – K5
CO 2	Study Lagrange's equations for various systems.	K1 – K5
CO 3	Solve the Hamilton Equations of Motion.	K1 – K5
CO 4	Understand the concepts of Canonical transformation and Poisson brackets.	K1 – K5
CO 5	Solve Hamilton – Jacobi theory and the Harmonic Oscillator problem.	K1 – K5

K1 :Recall; K2: Understand; K3 :Apply; K4: Analyze; K5 : Evaluate

Unit –I :**Survey of the Elementary Principles**

Mechanics of a particle - Mechanics of a system of particles - Constraints – D'Alembert's Principle and Lagrange's equations - Simple applications of the Lagrangian formulation.

Chapter I : Sections 1.1 – 1.4 , 1.6 (Page No: 1-20, 25-34)

Unit – II:**Variational Principles and Lagrange's Equations**

Hamilton's principle -Some techniques of the calculus of variations- Derivation of Lagrange's equations from Hamilton's principle -Extension of Hamilton's principle to non holonomic systems.

Chapter II : Sections 2.1 – 2.4 (Page No: 35 - 51)

Unit – III :**The Hamilton Equations of Motion**



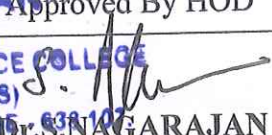

Legendre transformations and the Hamilton equations of motion - Cyclic coordinates and Conservation theorems - Routh's procedure and oscillations about steady motion- Derivation of Hamilton's equations from a variational principle - The principle of least action.

Chapter VIII : Sections 8.1 – 8.3, 8.5 - 8.6 (Page No: 339-356, 362-377)



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Unit – IV :	Canonical Transformations
The equations of Canonical transformation – Examples of Canonical transformations- Poisson brackets and other Canonical invariants.	
Chapter IX : Sections 9.1 , 9.2 and 9.4 (Page No: 378-390, 397-405)	
Unit – V :	Hamilton – Jacobi theory
The Hamilton – Jacobi equation for Hamilton’s principal function - The Harmonic Oscillator problem as an example of Hamilton – Jacobi method - The Hamilton – Jacobi equation for Hamilton’s characteristics function – Separation of variables in the Hamilton –Jacobi equation.	
Chapter X : Sections 10.1 - 10.4 (Page No: 438-457)	
SKILL DEVELOPMENT ACTIVITIES	
<ol style="list-style-type: none"> 1. Prepare any one physical model related to the syllabus. 2. Solve and submit any 10 questions from previous year CSIR/ SET. 3. Give few real time examples for principle of conservation energy. 	
TEXT BOOK	
1	Herbert Goldstein, “Classical Mechanics”, Second Edition, Narosa Publishing House , New Delhi, 2001.

REFERENCE BOOKS		
1	S.G.Venkatachalapathy, “Classical Mechanics (for M.Sc. Mathematics)”, Margham, Publications, Chennai, 2006.	
2	Donald T.Greenwood, “Classical Dynamics”, Dover Publication, New York, 1977.	
Web Resources		
1	http://www.thphys.nuim.ie/Notes/MP350/MP350-lectures.pdf ; http://www.freebookcentre.net/physics-books-download/Classical-Mechanics-Course-Material.html	
2	www.pdfdrive.net	
3	www.bookfi.net	
Course Designed By	Verified By	Approved By HOD
 Dr.S.SURESH	 Ms.C.RADHAMANI	 Dr.S.NAGARAJAN
		

QUESTION PAPER PATTERN		
Time: 3 hours	Max. Marks: 50	
SECTION-A(10 X 1 = 10 Marks) Answer ALL the questions Choose the correct answer	SECTION-B (5 X 3 = 15 Marks) Answer ALL the questions Either or type Two questions from each unit	SECTION-C (5 X 5 = 25 Marks) Answer ALL questions Question Number: 16 to 19 (Either or type) Question Number 20 is Compulsory-Case Study

Mapping of COs with POs and PSOs												
PO/PSO CO	PO							PSO				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	M	M	S	M	M	S	S	M	S	M	S
CO2	S	M	M	S	M	M	S	S	M	S	M	S
CO3	S	M	M	S	S	M	S	S	M	S	M	S
CO4	S	M	M	S	S	M	S	S	M	S	M	S
CO5	S	M	M	S	S	M	S	S	M	S	M	S
S - Strong, M - Medium, L - Low												



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Sem	Course Code	Core - VIII	Total Marks:100		Hours Per Week	Credits
			CIA : 50	ESE :50		
I	21PBECT204	OPERATIONS RESEARCH			7	4

Course Objectives:

1. To introduce the basic concepts of Linear Programming problems, Network models, advanced linear programming and the measures of performance for some queueing models.
2. To inculcate entrepreneurial skills in business decision making by using operations research.

Course Outcomes (CO): On completion of the course, students should be able to

CO1	Learn the concepts of Linear Programming problems and find its solution.	K1 – K5
CO2	Gain knowledge about duality and post-Optimal Analysis Transportation Model.	K1 – K5
CO3	Learn Network Models.	K1 – K5
CO4	Gain knowledge in Queueing systems.	K1 – K5
CO5	Gain knowledge of Poisson Queues and Queueing models.	K1 – K5

K1 :Recall; K2: Understand; K3 :Apply; K4: Analyze; K5 : Evaluate

Unit –I : Operations Research

What is Operations Research?: - Operations research Models – Solving the OR Model – Queuing and Simulation Models- Art of Modeling.
 Modeling with Linear Programming:- Two variable LP Model – Graphical LP Solution.
 The Simplex Method and Sensitivity Analysis:- LP Model in equation form - The Simplex method:- Iterative Nature of the Simplex method – Computational Details of the Simplex Algorithm - Artificial starting solution - Special cases in the simplex method.

Chapter 1: Sections 1.1-1.4(Page No: 1 – 6), Chapter 2 : Sections 2.1, 2.2 (Page No: 12 – 26)

Chapter 3 : Sections 3.1 (Page No: 82 – 85), 3.3(Page No: 90 – 99), 3.4, 3.5 (Page No: 103 – 122)



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Unit – II:	Duality and Post-Optimal Analysis
<p>Duality and Post-Optimal Analysis: -Definition of the dual problem- primal – Dual relationships. Additional simplex algorithms:- Dual Simplex Method. Transportation Model and its variants:- Definition of the transportation model- Nontraditional transportation models- The transportation algorithm- The Assignment model. Chapter 4 : Sections 4.1, 4.2,4.2.1,4.2.2,4.2.3 (Page No: 151 – 165), 4.4.1 (Page No: 174 – 179) Chapter 5 : Sections 5.1-5.4(Page No: 193 –229)</p>	
Unit – III :	Network Models
<p>Network Models:- Scope and definition of Network models– Minimal Spanning Tree Algorithm – Shortest Route Problem . Chapter 6: Sections 6.1-6.3 (Page No: 235 – 262)</p>	
Unit – IV :	Queuing Systems
<p>Queueing Systems: Why Study Queues? – Elements of a Queueing Model – Role of Exponential Distribution – Pure Birth and Death Models (Relationship between the Exponential and Poisson Distributions). Chapter 15: Sections 15.1- 15.4 (Page No: 549-563)</p>	
Unit – V :	Queuing Model
<p>Generalized Poisson Queueing Model -Specialized Poisson Queues - (M/G/1): (GD/ /)- Pollaczek- Khintchine (P-K) Formula Chapter 15 : Sections 15.5-15.7(Page No: 563 – 597)</p>	
SKILL DEVELOPMENT ACTIVITIES	
<ol style="list-style-type: none"> 1. Real Life applications of Transportation and Assignment model. 2. Brief the applications of network models through a power point presentation. 3. Real Life applications of Queueing Theory. 	




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 PRINCIPAL,
 KONGU ARTS AND SCIENCE COLLEGE
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TEXT BOOK

1	Hamdy A. Taha “Operations Research: An Introduction”, 8th Edition, Prentice Hall of India Pvt. Ltd, New Delhi, 2008.
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REFERENCE BOOKS

1	KantiSwarup, P.K.Gupta, Man Mohan, “Operations Research”, Sultan Chand and Sons, New Delhi, Sixteenth Edition 2012.
2	Er. Premkumar Gupta and D.S.Kira, “Problems in Operations Research”, S.Chand and Company Ltd, New Delhi, 2012.

Web Resources

1	https://thalis.math.upatras.gr/~tsantas/DownloadFiles/Taha%20-%20Operation%20Research%208Ed.pdf
2	http://home.ustc.edu.cn/~liweiyu/documents/Operations%20Research.%20An%20Introduction-%20H.A.%20Taha-%20Pearson%202007.pdf

Course Designed By	Verified By	Approved By HOD
Dr.M.LALITHA	Ms.C.RADHAMANI	Dr.S.NAGARAJAN

QUESTION PAPER PATTERN

Time: 3 hours		Max. Marks: 50
SECTION-A(10 X 1 = 10 Marks) Answer ALL the questions Choose the correct answer	SECTION-B (5 X 3 = 15 Marks) Answer ALL the questions Either or type Two questions from each unit	SECTION-C (5 X 5 = 25 Marks) Answer ALL questions Question Number: 16 to 19 (Either or type) Question Number 20 is Compulsory-Case Study



Dr. N. RAJAN
 PRINCIPAL
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Mapping of COs with POs and PSOs												
PO/PSO CO	PO							PSO				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	M	M	M	M	M	S	S	M	S	M	S
CO2	S	M	M	M	M	M	S	S	M	S	M	S
CO3	S	M	M	M	S	M	S	S	M	S	M	S
CO4	S	M	M	M	S	M	S	S	M	S	M	S
CO5	S	M	M	M	S	M	S	S	M	S	M	S

S - Strong, M - Medium, L - Low



Dr. N. RAMAN
 PRINCIPAL.
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Sem	Course Code	Elective I LaTeX	Total Marks:100		Hours Per Week	Credits
			CIA : 50	ESE :50		
I	21PBEET105				4	4

Course Objectives:

1. To introduce the Mathematical typesetting tool LaTeX for high-performance mathematical notations and visualization.
2. To apply LaTeX built-in functions for mathematical notations and equations.
3. To develop the skills in LaTeX for scientific documentation.

Course Outcomes (CO): On completion of the course, students should be able to

CO1	Know about Text formatting and Basics of a LaTeX file.	K1 – K5
CO2	Know about commands and environments.	K1 – K5
CO3	Do document Layout and Organization.	K1 – K5
CO4	Draw pictures in LaTeX.	K1 – K5
CO5	Create tables and type mathematical formulas, environments and symbols in LaTeX.	K1 – K5

K1 :Recall; K2: Understand; K3 :Apply; K4: Analyze; K5 : Evaluate

Unit –I :**Commands and Environments**

Command names and arguments – Environments- Declarations – Lengths – Special characters – Fragile commands

Chapter 2 : Sections : 2.1 – 2.6 (Page No : 15 – 23)

Unit – II:**Document Layout and Organization**

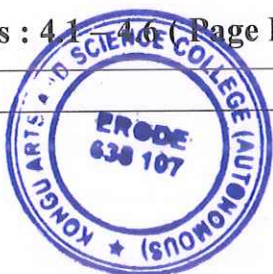
Document class – Page style – Parts of the document – Table of contents– Fine- tuning text – Word Division.

Chapter 3 : Sections : 3.1 – 3.6 (Page No : 25 – 56)

Unit – III :**Displayed Text**

Changing font – Centering and indenting – Lists – Generalized lists –Theorem like declarations – Tabulator stops.

Chapter 4 : Sections : 4.1 – 4.6 (Page No : 57 – 84)



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Unit – IV :	Displayed Text (Continued)
Boxes – Tables – Printing literal text – Footnotes and marginal notes – Comments within text. Chapter 4 : Sections : 4.7 – 4.11(Page No : 84 - 116)	
Unit – V :	Mathematical Formulas
Mathematical environments - Main elements of Math mode - Mathematical symbols – Additional elements – Fine tuning Mathematics. Chapter 5: Sections : 5.1 – 5.5 (Page No : 117 - 149)	
SKILL DEVELOPMENT ACTIVITIES	
<ol style="list-style-type: none"> 1. Create a document in book format 2. Covert a LaTeX file to a power point presentation using Beamer Software. 3. Prepare a sample article for a Mathematical journal. 	
TEXT BOOK	
1	H. Kopka and P.W. Daly, “A Guide to LaTeX”, Third Edition, Addison –Wesley, London, 1999.

REFERENCE BOOKS	
1	Leslie Lamport, “ A Document Preparation system”, second Edition, Addison – Wesley, 1994.
2	Tobias Oetiker, Hubert Part, Irene Hyna and Elisabeth Schlegl, “LaTeX 2e” Cambridge, USA, 2007.

Web Resources	
1	https://www.maths.ox.ac.uk/system/files/legacy/2875/TexLaTeX_Intro2012MT-Ver2_1.pdf
2	http://g2pc1.bu.edu/~qzpeng/manual/latex-guide.pdf

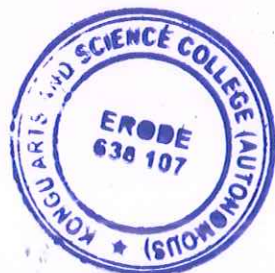
Course Designed By	Verified By	Approved By HOD
Dr.M.LALITHA	Dr.S.NAGARAJAN	Dr.S.NAGARAJAN



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 PRINCIPAL
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QUESTION PAPER PATTERN		
Time: 3 hours	Max. Marks: 50	
SECTION-A(10 X 1 = 10 Marks) Answer ALL the questions Choose the correct answer	SECTION-B (5 X 3 = 15 Marks) Answer ALL the questions Either or type Two questions from each unit	SECTION-C (5 X 5 = 25 Marks) Answer ALL questions Question Number: 16 to 19 (Either or type) Question Number 20 is Compulsory-Case Study

Mapping of COs with POs and PSOs												
PO/PSO CO	PO							PSO				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	M	M	M	M	S	M	M	M	S	M	M	M
CO2	M	M	M	M	S	M	M	M	S	M	M	M
CO3	M	M	M	M	S	M	M	M	S	M	M	M
CO4	M	M	M	M	S	M	M	M	S	M	M	M
CO5	M	M	M	M	S	M	M	M	S	M	M	M
S - Strong, M - Medium, L - Low												



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 PRINCIPAL,
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Sem	Course Code	Elective II	Total Marks:100		Hours Per Week	Credits
II	21PBEEP206	OBJECT ORIENTED PROGRAMMING IN C++ PRACTICAL	CIA : 25	ESE:75	4	4

Objective:

To apply the skills in coding and debugging using C++ programming language.

Course Outcomes(CO): On the successful completion of the course, students will be able to

CO1	create a class FLOAT.
CO2	represent points in the polar and rectangle systems.
CO3	create a class MAT of size M*N.
CO4	find Area Computation using Derived Class.
CO5	apply overloading concepts for vector addition, Multiplication of a vector by a scalar quantity

LIST OF EXPERIMENTS :

1. Overloading Objects: Create a class FLOAT that contains one float data member overload all the four arithmetic operators so that operate on the objects of FLOAT.
2. Polar Conversion: Define two classes polar and rectangular to represent points in the polar and rectangle systems. Use conversion routines to convert from one system to another.
3. Overloading Matrix: Create a class MAT of size M*N. Define all possible matrix operations for MAT type objects. Verify the identity. $(A-B)^2 = A^2+B^2 - 2*A*B$
4. Area Computation using Derived Class: Area of rectangle = $X*Y$
Area of triangle = $\frac{1}{2} * X * Y$
5. Vector Problem: Define a class for vector containing scalar values. Apply overloading concepts for vector addition, Multiplication of a vector by a scalar quantity, replace the values in a position vector.



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Mapping of COs with POs and PSOs												
PO/PSO CO	PO							PSO				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	L	M	L	M	M	M	M	S	M	M	L	M
CO2	M	M	L	M	M	M	M	S	M	M	L	M
CO3	L	M	L	M	M	M	M	S	M	M	L	M
CO4	S	S	L	M	M	M	M	S	M	M	L	M
CO5	L	M	L	M	M	M	M	S	M	M	L	M
S - Strong, M - Medium, L - Low												

S. N. Ram

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ERODE - 638 107.



Dr. N. RAMAN
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Sem	Course Code	Elective II	Total Marks:100		Hours Per Week	Credits
			CIA : 50	ESE:50		
II	21PBEEP205	LaTeX Practical			4	4

Objectives

To apply the skills in LaTeX for scientific documentation.

Course Outcomes

On the successful completion of the course, students will be able to

CO1	Fix foot note, margin note, end note and to prepare bio-data using LaTeX.	K1 – K5
CO2	Draw tables and graphs using LaTeX.	K1 – K5
CO3	Write mathematical expressions using LaTeX.	K1 – K5
CO4	Write mathematical equations using LaTeX.	K1 – K5
CO5	Prepare model question paper, conference invitation and power point presentation using LaTeX.	K1 – K5

LIST OF EXPERIMENTS:

- 1) Write a passage and make footnote, margin note and end notes using LaTeX.
- 2) Draw the various table structures for the end semester results.
- 3) Type your Bio-Data.
- 4) Draw the graph of $y = x^2$, $y = \cos x$ and $y = \sin x$.
- 5) Type the following expressions using LaTeX.

$$(i) (x + y).(x - y) = x^2 - y^2$$

$$(ii) (x - y)^2 = x^2 - 2xy + y^2$$

$$(iii) (x + a)^n = x^n + nC_1 x^{n-1} a + nC_2 x^{n-2} a^2 + \dots + nC_r x^{n-r} a^r.$$

$$(iv) e^x = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots + \frac{x^r}{r!}$$

$$(v) \log(1 + x) = x - \frac{x^2}{2!} + \frac{x^3}{3!} - \dots + (-1)^n \frac{x^n}{n!} + \dots$$

- 6) Type the following expressions

$$(i) x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$



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(ii) $\lim_{x \rightarrow 0} \frac{\sin x}{x} = 1$

(iii) $\Delta x, \Delta^2 y, \nabla x, \nabla^2 y$

(iv) $\frac{f(x+\Delta x) - f(x)}{\Delta x}$

7) Express the following equations:

(i) $\frac{dy}{dx}, \frac{d^2y}{dx^2}, Dy, y', \dot{y}, \ddot{y}$

(ii) $\frac{\partial w}{\partial x}, \frac{\partial^2 w}{\partial t^2}, \frac{\partial^2 w}{\partial x \partial y}$

(iii) $x^2 \frac{d^2y}{dx^2} + 4x \frac{dy}{dx} + 2y = x \log x$

(iv) $\frac{\partial^2 z}{\partial x^2} - 5z \frac{\partial z}{\partial x} + 6z = 12x$

8) Express the following integrals:

(i) $\Gamma(x) = \int_0^t e^{-t} t^{x-1} dt, \operatorname{Re}(x) > 0$

(ii) $\iint_s F(x, y) dx dy$ and $\iiint_v F(x, y, z) dx dy dz$

(iii) $\oint F \cdot dr = \iint_s (\Delta \times F) ds$

(iv) $x^n J_n(x) = \int x^n J_{n-1}(x) dx$

9) Type the following

(i) $\sum |x_i y_i| \leq (\sum |x_i|^p)^{\frac{1}{p}} (\sum |y_i|^q)^{\frac{1}{q}}$

(ii) $\sum_{n=1}^{\infty} x_n$

(iii) $(A \cup B)' = A' \cap B'$

(iv) $\prod_{j=0}^j K_j$


(v) $|u \cdot v| \leq \|u\| \|v\|$

10) Prepare a model question paper as per your department pattern.

11) Make your department conference invitation using LaTeX.

12) Make a PowerPoint presentation of your own topic of interest.

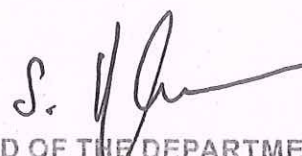



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 PRINCIPAL,
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Mapping of COs with POs and PSOs

PO/PSO CO	PO							PSO				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	M	M	M	M	S	M	M	M	S	M	M	M
CO2	M	M	M	M	S	M	M	M	S	M	M	M
CO3	M	M	M	M	S	M	M	M	S	M	M	M
CO4	M	M	M	M	S	M	M	M	S	M	M	M
CO5	M	M	M	M	S	M	M	M	S	M	M	M

S - Strong, M - Medium, L - Low


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KONGU ARTS AND SCIENCE COLLEGE

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ERODE – 638 107

ACTIVITIES



KONGU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

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DEPARTMENT OF MATHEMATICS AND PHYSICS

A Two Day Inter Disciplinary Programme on “Aptitude Made Easy” – 22.11.2021 & 23.11.2021

KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107

DEPARTMENT OF MATHEMATICS AND PHYSICS
(Recognized and Funded under DBT Star College Scheme)

A Two Day Inter Disciplinary Programme on Aptitude Made Easy

Resource Person

Mr.N.Loganathan,
Managing Director,
Mullai Academy,
Karur.


Programme Objective : To improve problem solving, analytical and number crunching capabilities of students appearing for competitive exams.

Date : 22.11.2021 & 23.11.2021
Time : 9.30 a.m. to 4.15 p.m.
Venue : Ramanujan Hall


KONGU
Answering the Best

A Two Day Inter Disciplinary Programme on “Aptitude Made Easy” was organized under DBT Star College Scheme with Mr.N.Loganathan, Managing Director, Mullai Academy, Karur, for our I B. Sc., Mathematics and I & II B. Sc., Physics students. During the training, the trainer addressed the gathering on aptitude. Students were taught about problem solving, analytical and number crunching capabilities. Further, students were motivated to attend competitive exams by solving problems in an easy manner. 72 students (Physics-40 & Mathematics-32) gained the knowledge on problem solving skills.




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KONGU ARTS AND SCIENCE COLLEGE(AUTONOMOUS), ERODE.

DEPARTMENT OF MATHEMATICS


WORKSHOP -27.12.2021

KONGU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)
 ERODE - 638 107
DBT STAR COLLEGE SCHEME

DEPARTMENT OF MATHEMATICS
 (Recognized and Funded under DBT Star College Scheme)

Workshop on
Mathematical Modeling in Business Decision Making

Resource Person


 Dr.P.Mariappan
 Associate Professor and Head
 PG and Research Department of Mathematics
 Bishop Heber College
 Trichy

Programme Objective:

- To accomplish a secure and sure environment in business through a good decision making by using Mathematical Model.
- Able to Judge the right choice for the benefit of the organization.

Date : 27.12.2021
Time : 9.30 a.m. to 4 p.m.
Venue : Ramanujan Hall

KONGU
 Pursuing the Best

Workshop on Mathematical Modelling in Business Decision Making was organized by PG and Research Department of Mathematics of Kongu Arts and Science College (Autonomous) on 27.12.2021. Students were trained by Dr.P.Mariappan, Associate Professor and Head, PG and Research Department of Mathematics, Bishop Heber College, Trichy. This workshop was organized for students to have better knowledge in Business through a good decision making by using Mathematical Model. Dr.P.Mariappan interacted with students to bring students area of interest.

Beneficiaries: 202



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 DEPARTMENT OF MATHEMATICS
 KONGU ARTS AND SCIENCE COLLEGE
 (AUTONOMOUS)
 ERODE - 638 107.



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DEPARTMENT OF MATHEMATICS

National Level Online E-Quiz(29.06.2021-03.07.2021)

KONGU ARTS AND SCIENCE COLLEGE
An Autonomous Institution Affiliated to Bharathiar University, Coimbatore
Re-accredited by NAAC, DBT STAR College Scheme
Erode, Tamilnadu.

DEPARTMENT OF MATHEMATICS
(Recognized and funded by DBT, New Delhi)

Organizes a
National Level Online E-Quiz
On
National Statistics Day 2021

Date of Quiz
JUNE 29 → JULY 3

Through

Google Forms

Interested participants can take part in the quiz using the following link: <https://forms.gle/vCnGipNtvnHTEgym8>

KONGU
Achieving the Best

National Level Online E-Quiz was organized by PG and Research Department of Mathematics of Kongu Arts and Science College (Autonomous) from June 29,2021 to July 03,2021 on the birth anniversary of late Professor Prasanta Chandra Mahalanobis, Often referred to as the 'Father of Indian statistics'. This quiz was organized to bring out awareness on Statistics and to know about contributions by Professor Prasanta Chandra Mahalanobis to the Mathematics.

Participants : 860

KONGU ARTS AND SCIENCE COLLEGE
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Re-accredited by NAAC, DBT STAR College Scheme
Erode, Tamilnadu.

Certificate of Participation

This to certify that {{full name}}, {{other identifier}} of {{other identifier2}} has participated in the National Level online Quiz on National Statistics Day 2021 organized by the PG and Research Department of Mathematics on {{date2}}.

Dr.S.Nagarajan
Head of the Department

Dr.N.Raman
Principal

Thiru. K.Palanisamy
Correspondent

KONGU
Achieving the Best

HEAD OF THE DEPARTMENT
DEPARTMENT OF MATHEMATICS
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ERODE - 638 107.



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DBT STAR COLLEGE SCHEME



Faculty Development Programme-27.01.2022

"IMPLEMENTATION OF OUTCOME BASED CURRICULUM FRAME WORK"

KONGU ARTS AND SCIENCE COLLEGE
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Nanjanapuram, Erode - 638 107

DBT STAR COLLEGE SCHEME

DBT Star Departments in Association
with OBE Monitoring Committee
Cordially invites you to the
One Day Faculty Development Programme cum Workshop
on
**"Implementation of Outcome Based Curriculum
Frame Work"**

Thiru.K.Palanisamy
Correspondent
has graciously consented to preside over the function

Dr.N.Raman
Principal
has kindly consented to felicitate the function

Date: 27.01.2022
Time: 10.00 am
Venue: Ramaswamy Hall

Dr.N.Muthumani
Principal
PPG College of Arts and Science
Coimbatore
has kindly consented to be the Resource Person

KONGU
Nurturing the Best

One Day Faculty Development Programme cum Workshop on "Implementation of Outcome Based Curriculum Frame Work" was organized by DBT Star Departments in Association with OBE Monitoring Committee on 27.01.2022. Faculty members were trained by Dr.N.Muthumani, Principal, PPG College of Arts and Science ,Coimbatore. This programme was organized to guide the implementation of OBE. Faculty members interacted with the resource person and raised many queries regarding OBE.

Beneficiaries: 170



S. N. R.
HEAD OF THE DEPARTMENT
DEPARTMENT OF MATHEMATICS
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.



N
Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.



KONGU ARTS AND SCIENCE COLLEGE(AUTONOMOUS),ERODE.

DEPARTMENT OF MATHEMATICS

Personality Development Programme-03.12.2021



KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107
DBT STAR COLLEGE SCHEME



DEPARTMENT OF MATHEMATICS
(Recognized and Funded under DBT Star College Scheme)
Personality Development Programme
on
Professional Ethics and Career Guidance

Resource Persons



Ms. Hemalatha
Freelance Trainer and Entrepreneur
Coimbatore



Dr.V.Umarani
Freelance Trainer (Technical and Life Skills)
Coimbatore

Programme Objective :

- To improve and develop a specific skill
- To change the behaviour
- To cultivate strong teamwork and productivity.

Date : 03.12.2021
Time : 9.30 a.m. to 4.15 p.m.
Venue : Ramanujan Hall



Personality Development Programme on Professional Ethics and Career Guidance was organized by PG and Research Department of Mathematics of Kongu Arts and Science College (Autonomous) on 03.12.2021. Students were trained by Dr.V.Umarani and Ms. Hemalatha, Freelance Trainers (Technical and Life Skills),Coimbatore. This programme was organized for first and second year students to improve and develop their specific skill, to change their behaviour and to cultivate strong teamwork among them. Trainers were interacted with students and conducted various activities to bring out skills of the students.

Beneficiaries: 86



S. Ramani
HEAD OF THE DEPARTMENT
DEPARTMENT OF MATHEMATICS
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107



Dr. N. Ramani
Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.



KONGU ARTS AND SCIENCE COLLEGE(AUTONOMOUS), ERODE.

DEPARTMENT OF MATHEMATICS

National Mathematics Day-22.12.2021

KONGU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)
ERODE - 638 107
DBT STAR COLLEGE SCHEME

DEPARTMENT OF MATHEMATICS
(Recognized and Funded under DBT Star College Scheme)

134th RAMANUJAN DAY CELEBRATION
(National Mathematics Day)

Special Lecture
on
Srinivasa Ramanujan's Contributions to Mathematics

Resource Person

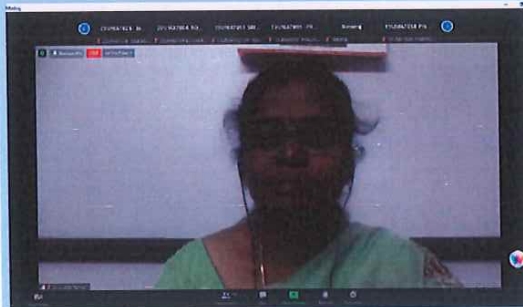
Dr.S.Jagatheswari
Assistant Professor of Mathematics
School of Advanced Sciences
Vellore Institute of Technology
Vellore

Programme Objective :

- To know about Ramanujan's Contributions to Mathematics
- To know the recent advancements in Mathematics

Date : 22.12.2021
Time : 6.00 p.m.
Platform : Zoom
Link : <https://us02web.zoom.us/j/82017716507>
pwd=AWVRUZYVWGSDaDVst0pmUEkZE0GUT09
Meeting ID : 628 177 1650
Passcode : KASCIIC

National Mathematics Day was celebrated on 22.12.2021 by PG and Research Department of Mathematics of Kongu Arts and Science College (Autonomous) to commemorate the 134th birth anniversary of great Mathematician Srinivas Ramanujan . A special lecture was given by Dr.S.Jagatheswari, Assistant Professor of Mathematics, School of Advanced Sciences, Vellore Institute of Technology, Vellore. This programme was organized for students to know about Ramanujan's contributions to Mathematics and to bring out knowledge on recent advancements in Mathematics.



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KONGU ARTS AND SCIENCE COLLEGE

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DEPARTMENT OF MATHEMATICS


INTER DISCIPLINARY PROGRAMME - 8 OCTOBER 2021


DEPARTMENT OF MATHEMATICS
(Recognized and Funded under DGT Star College Scheme)


INTER DISCIPLINARY PROGRAMME
(Jointly Organized by Department of Mathematics and Physics)


Ethical Values - The Need of the Hour

Resource Person:

Dr. D.Aarthi,
 Motivational Speaker,
 Mentora. Skills for an Enriched Life,
 Erode.

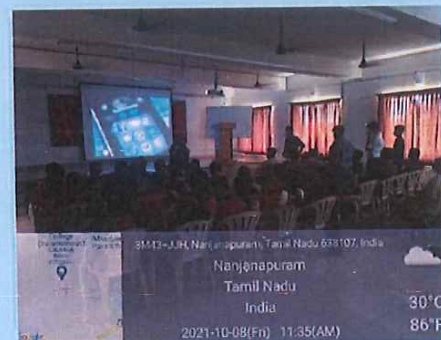
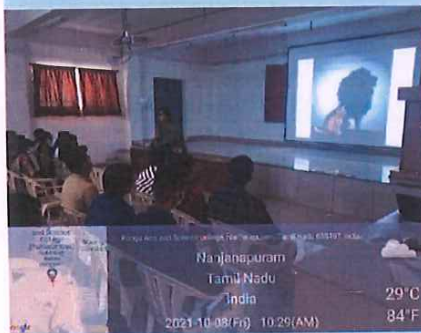
 **Time: 9.30 AM**

 **08**
October

 **Venue**
Ramanujan Hall




An Inter Disciplinary programme on "Ethical Values- The Need of the Hour" was organized by the Departments of Mathematics and Physics on 08.10.2021. The aim of the programme was to made students to get self motivated and to get aware of Moral values. She motivated the students to achieve and to get aware on ISR(Individual Social Responsibilities). Dr.D.Aarthi answered the queries raised by the participants.



Beneficiaries :



64 Students


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KONGU ARTS AND SCIENCE COLLEGE
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Dr. N. RAMAN
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DEPARTMENT OF MATHEMATICS


WORKSHOP -04.04.2022 & 05.04.2022

KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107

DEPARTMENT OF MATHEMATICS
(Recognized and Funded under DBT Star College Scheme)

Workshop
on
Python with Math



Resource Person



Dr. V. Parthiban
ASSISTANT PROFESSOR, GRADE 2
VIT UNIVERSITY
CHENNAI

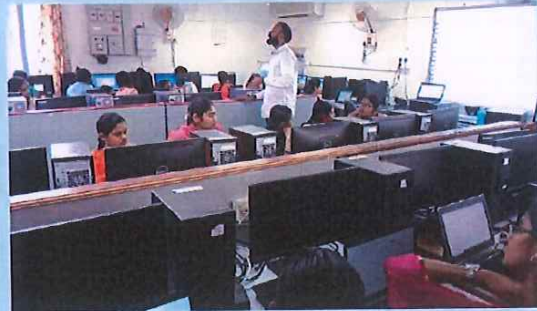
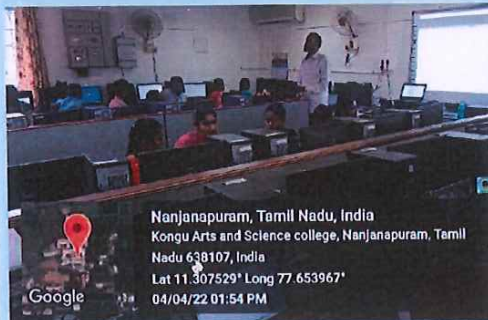
Programme Objective : To perform various Mathematical task using the Python Programming Language


Date : 04.04.2022 & 05.04.2022
Time : 9.30 a.m. to 4.15 p.m.
Venue : CC - IV




Workshop on Python with Math was organized by PG and Research Department of Mathematics of Kongu Arts and Science College (Autonomous) on 04.04.2022 & 05.04.2022. Students were trained by Dr.V.Parthiban, Assistant Professor , Grade 2, PG and Research Department of Mathematics, VIT University , Chennai. This workshop was organized for students to have better practice for using the Python Programming Language. More techniques were learned by the students on Python Programming.

Beneficiaries: 48




HEAD OF THE DEPARTMENT
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KONGU ARTS AND SCIENCE COLLEGE
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Dr. N. RAMAN
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KONGU ARTS AND SCIENCE COLLEGE

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ERODE – 638 107

DEPARTMENT OF MATHEMATICS

INTER DISCIPLINARY PROGRAMME - 25&26 OCTOBER 2021

KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107
DEPARTMENT OF MATHEMATICS
(Recognized and Funded under DBT Star College Scheme)

Two Days Workshop
ON
LaTeX for Technical Writing

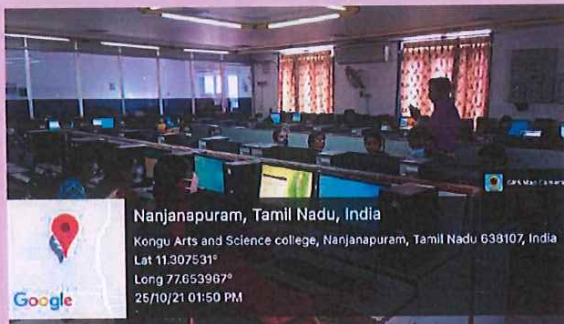
Resource Person

Dr. A. Sebastian Selvaraj,
Assistant Professor,
Government Arts and Science College,
Vedasandur,
Dindigul.

Programme Objective : To introduce the open source typesetting tool LaTeX for high-quality scientific documents containing Mathematical formulae.

Date : 25.10.2021 & 26.10.2021
Time : 9.30 a.m. to 4.15 p.m.
Venue : CC - IV

A Two Day Workshop on "Latex for Technical Writing" was organized by the Department of Mathematics on 25.10.2021 and 26.10.2021. The main objective of the programme was to make students to use the open source typesetting tool Latex for the future use. Dr.A.Sebastian Selvaraj trained the students on LaTeX and asked them to improve their Mathematical Software skills.



Beneficiaries : 150 Students

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DEPARTMENT OF MATHEMATICS

INTER DISCIPLINARY PROGRAMME - 28&29 OCTOBER 2021

KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
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DEPARTMENT OF MATHEMATICS, BIOCHEMISTRY AND PHYSICS
(Recognized and Funded under DBT Star College Scheme)

**A Two Day
Inter Disciplinary Workshop on
Project Based Learning with MATLAB**

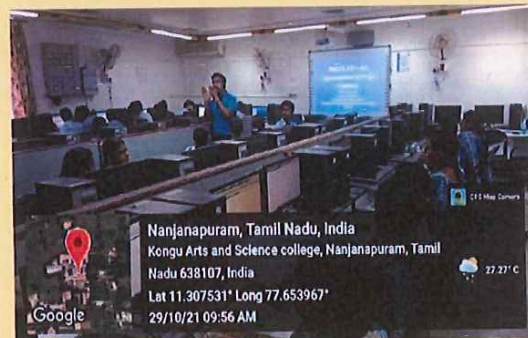
Resource Person

Dr.S.Hariharan,
Assistant Professor,
Dwaraka Doss Goverdhan Doss Vaishnav College,
Chennai.

Programme Objective : To carry out simple Numerical computations,
Analyses and Graphics in Matlab environment.

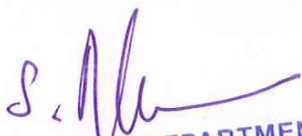
Date : 28.10.2021 & 29.10.2021
Time : 9.30 a.m. to 4.15 p.m.
Venue : CC - IV LAB




A Two Day Inter Disciplinary Workshop on "Project Based Learning with MATLAB" was organized by the Department of Mathematics on 28.10.2021 and 29.10.2021. Final year students of Mathematics, Bio Chemistry and Physics were participated. The main objective of the programme was to make students to use the open source typesetting tool MATLAB for their future use. Dr.S.Hariharan, Assistant Professor from Chennai trained the students on MATLAB and asked them to improve their Mathematical Software skills.



Beneficiaries : 200 Students


**HEAD OF THE DEPARTMENT
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KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.**




**Dr. N. RAMAN
PRINCIPAL,
KONGU ARTS AND SCIENCE COLLEGE
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KONGU ARTS AND SCIENCE COLLEGE

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DEPARTMENT OF MATHEMATICS

INDUCTION PROGRAMME - 8 SEPTEMBER 2021

Kongu Arts and Science College
(An Autonomous Institution Affiliated to Bharathiar University, Coimbatore)
Erode - 638 107, Tamilnadu

DBT STAR COLLEGE SCHEME
STUDENTS INDUCTION PROGRAMME

08.09.2021
10.00 am

Technology & Science
- A Boon or a Bane

Resource Person



Dr. V.P. Moula Devi
Dean of B.Ed Colleges
Vivekanandha Institutions
Principal
Vivekanandha Vidya Bhavan Matriculation
Higher Secondary School, Tiruchengode.

KONGU
Assuring the Best

An Induction programme on "Technology and Science - A Boon or a Bane" was organized by the Departments of Bio Chemistry, Bio Technology, Mathematics, Physics, Psychology and CDF on 08.09.2021. The aim of the programme was to make students to get aware of Science and Technology field. She motivated the students to make new inventions and to improve their knowledge on Science concepts. Dr.V.P.Moula Devi answered the queries raised by the participants.

Beneficiaries




82 Students




100 Students




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DEPARTMENT OF MATHEMATICS

INTER DISCIPLINARY PROGRAMME - 12&13 OCTOBER 2021



KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE -638 107

DEPARTMENT OF MATHEMATICS
(Recognized and Funded under DDT Star College Scheme)



INTER DISCIPLINARY PROGRAMME

Workshop on
Biostatistical Design and Data Analysis Using R



Resource Person

Dr.V.Parthiban
ASSISTANT PROFESSOR, GRADE 2
VIT UNIVERSITY
CHENNAI

Programme Objective : To introduce the Open Source Software R for analysing and applying statistical concepts in Biology

Date : 12.10.2021 & 13.10.2021
Time : 9.30 a.m. to 4.15 p.m.
Venue : CC - IV

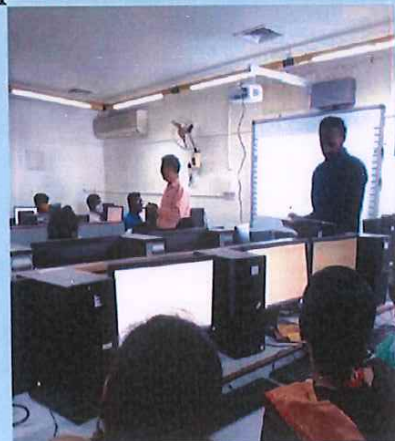



An Inter Disciplinary programme on "Biostatistical Design and Data Analysis Using R" was organized by the Department of Mathematics on 12.10.2021 and 13.10.2021. The aim of the programme was to made students to gain knowledge on R Software in the field of Data Analysis . Dr.V.Parthiban motivated the students to improve their Mathematical Software skills. He answered the queries raised by the participants.

Beneficiaries :




120 Students




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KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
ERODE - 638 107.




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KONGU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
NANJANAPURAM, ERODE - 638 107.