



**PSGR
Krishnammal College for Women**



DEPARTMENT OF MATHEMATICS

**CHOICE BASED CREDIT SYSTEM (CBCS)
LEARNING OUTCOMES-BASED CURRICULUM FRAMEWORK (LOCF)**

**MASTER OF SCIENCE - MATHEMATICS
2025-2027 BATCH
SEMESTER I**



MASTER OF SCIENCE - MATHEMATICS

**CHOICE BASED CREDIT SYSTEM (CBCS)&
LEARNING OUTCOMES-BASED CURRICULUM FRAMEWORK (LOCF)
SCHEME AND SYLLABUS OF 2025-2027 BATCH
SEMESTER I**

Sem	Course Code	Title of the Course	Course Type	Instruction hours/ week	Contact Hrs	Tutorial Hrs	Duration of Examination	Examination Marks			Credits
								CA	ESE	Total	
I	MTH2301	Algebra	CC	6	88	2	3	25	75	100	4
	MTH2502	Real Analysis	CC	6	88	2	3	25	75	100	4
	MTH2503	Ordinary Differential Equations	CC	6	88	2	3	25	75	100	4
	MTH2504	Mechanics	CC	6	88	2	3	25	75	100	4
	MTH23E1 MTH23E2	Financial Mathematics/ Mathematical Statistics	DSE	6	88	2	3	25	75	100	4
I - III	17MONL1	Online Course	ACC	SS	-	-	-	-	-	-	Gr.

CC - Core Courses

DSE - Discipline Specific Elective

ACC - Additional Credit Courses

SS - Self study

Gr. - Grade

CA - Continuous Assessment

ESE - End Semester Examination

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MTH2301	ALGEBRA	THEORY	88	2	-	4

Preamble

- To develop the capability among students for handling abstract concepts and to provide the students with experience in axiomatic mathematics while keeping in close touch with the computational aspects of the subject.
- To prepare students to understand principles, concepts necessary to formulate, solve and analyze Algebra
- To prepare the students for further course in higher mathematics and related disciplines

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand competence with the basic ideas of algebra including the concepts of direct products, finitely generated abelian groups	K2
CLO2	Apply knowledge of the structures of fields, extension fields and finite fields	K3
CLO3	Analyze the significance Sylow's theorem and Galois theory	K4
CLO4	Evaluate clear and accurate proofs using the concepts of Algebra	K5
CLO5	Create competence with the basic ideas of linear Algebra including the concepts of modules and linear transformations	K6

Mapping with Programme Learning Outcomes

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	S	S
CLO2	S	S	S	M	S
CLO3	S	S	S	S	S
CLO4	S	S	M	S	S
CLO5	S	S	S	S	M

S- Strong; M-Medium; L-Low

Syllabus

ALGEBRA (MTH2301)

Unit I

18 Hrs

Group Theory: Another Counting principle - Sylow's theorem - Application of Sylow's theorem - Direct products – Finite Abelian Group.

Unit II

18 Hrs

Vector spaces and modules: elementary basic concepts – linear independence and bases – dual spaces – inner product spaces – modules

Unit III

17 Hrs

Fields: Extension Fields - Roots of Polynomials - More about root-Elements of Galois Theory - Solvability by radicals -Finite fields

Unit IV

18 Hrs

Linear Transformation: The algebra of linear transformations - Characteristic roots – Matrices - Canonical Forms -Triangular Form - Nilpotent Transformation

Unit V

17 Hrs

Canonical Forms: A Decomposition of V: Jordan form - Rational Canonical Form- Trace and Transpose - Determinants – Hermitian - Unitary and Normal transformations –Real quadratic forms.

Text book

S. No	Author	Title of the book	Publishers	Year & Edition
1.	I.N. Herstein	Topics in Algebra	John Wiley & Sons	2016, 2 nd Edn.
	Unit I : Chapter 2 – 2.11,2.12,2.13,2.14			
	Unit II : Chapter 4- 4.1,4.2,4.3,4.4,4.5			
	Unit III: Chapter 5 – 5.1,5.3,5.5 ,5.6,5.7 Chapter 7-7.1			
	Unit IV: Chapter 6-6.1,6.2,6.3,6.4,6.5			
	Unit V : Chapter 6 – 6.6,6.7,6.8,6.9,6.10,6.11			

References

S. No	Author	Title of the book	Publishers	Year & Edition
1.	Lang Serge	Algebra	Addison-Wesley	2002, 3 rd Edn
2.	P. B. Bhattacharya, S. K. Jain and S. R. Noyapal	Basic Abstract Algebra	Cambridge University	2009, 2 nd Edn
3.	Rao & Bhimsankaran	Linear Algebra	Hindustan book	2000, 2 nd Edn
4.	Serge Lang	Linear Algebra	Addison-Wesley	2004, 1 st Edn
5.	S. Kumaresan	Linear Algebra	Prentice Hall	2000, 1 st Edn
6.	T. W. Hungerford	Algebra	Springer	2000, 1 st Edn

Course Designers

1. Dr. C.R. Parvathy
2. Dr. R. Sasirekha

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MTH2502	REAL ANALYSIS	THEORY	88	2	-	4

Preamble

- To present students the elements and importance of the real analysis.
- To define and recognize the basic properties of the field of real numbers.
- To enable the students to the differentiability of real functions and its related theorems.

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand fundamental properties of the real numbers that lead to the formal development of real analysis	K2
CLO2	Apply rigorous arguments developing the theory underpinning real analysis	K3
CLO3	Analysis an understanding of limits and how they are used in sequences, series, differentiation and integration	K4
CLO4	Evaluate the various mathematical proofs of basic results in real analysis	K5
CLO5	Create how abstract ideas and various methods in mathematical analysis can be applied to important practical problems. Exhibits rigorous mathematical proofs in real analysis like inverse function theorem and the implicit function theorem	K6

Mapping with Programme Learning Outcomes

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	M	S
CLO2	S	S	S	S	S
CLO3	S	S	M	S	M
CLO4	S	M	S	S	M
CLO5	S	S	M	S	S

S- Strong; M-Medium; L-Low

Syllabus

REAL ANALYSIS (MTH2502)

Unit I 18 Hrs

Riemann Stieltjes Integral: Definition and Existence of the integral - Properties of the integral - Integration and differentiation - Integration of vector valued function - Rectifiable curves. Simple problems using Geogebra.

Unit II 18 Hrs

Uniform convergence and Continuity - Uniform convergence and Integration - Uniform convergence and Differentiation - Equi continuous Families of Functions- The Stone-Weierstrass theorem

Unit III 18 Hrs

Power Series - The Exponential and Logarithmic Functions - The Trigonometric Functions – The Algebraic completeness of the complex field- Fourier series- The Gamma Functions. Simple problems using Geogebra.

Unit IV 17 Hrs

Functions of Several Variables - Linear Transformation - Differentiation - The Contraction Principle. The inverse function Theorem

Unit V 17 Hrs

The implicit Function Theorem -The Rank theorem-Determinants - Derivatives of higher order - Differentiation of Integrals. Simple problems using Geogebra.

Text Book

S. No	Author	Title of the book	Publishers	Year& Edition
1.	W. Rudin	Principles of Mathematical Analysis	McGraw Hill	1976, 3 rd Edn.
UNIT: I – Chapter 6 – Sections: 6.1 – 6.27 UNIT: II – Chapter 7 – Sections: 7.7 – 7.26 UNIT: III – Chapter 8 – Sections: 8.1 – 8.22 UNIT: IV – Chapter 9 – Sections: 9.1 – 9.25 UNIT: V – Chapter 9 – Sections: 9.26 – 9.42				

Reference Books

S. No	Author	Title of the book	Publishers	Year & Edition
1.	R.G. Bartle	Elements of real Analysis	John Wiley and Sons	2006, 2 nd Edn.
2.	R. Goldberg Richard	Methods of real analysis	Oxford and IBH Publishing company	2014, 1 st Edn.
3.	Siri Krishan Wasan	Real Analysis	Tata McGraw Hill	2000, 1 st Edn.
4.	H.L. Royden	Real Analysis	PHI Learning Private limited	2009, 4 th Edn.

Course Designers

1. Dr. M. Deepa
2. Dr. P. Vidhyapriya

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MTH2503	ORDINARY DIFFERENTIAL EQUATIONS	THEORY	88	2	-	4

Preamble

- Differential equations arise for many problems in oscillations of mechanical and electrical systems
- It plays a very important role in all modern scientific and engineering studies.

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand a variety of first order differential equations selecting from a variety of techniques	K2
CLO2	Apply a variety of second order differential equations, selecting from several techniques	K3
CLO3	Analysis the second order linear differential equations, both at ordinary points and at regular singular points	K4
CLO4	Evaluate and be able to use various theoretical ideas and results that underlie the mathematics in this course covered in the syllabus (including various existence/uniqueness results, ideas of linear independence and the Wronskian, and convergence properties of Fourier series).	K5
CLO5	Create the symbolic and graphical representations of functions	K6

Mapping with Programme Learning Outcomes

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	S	S
CLO2	S	M	S	S	S
CLO3	S	S	M	S	S
CLO4	S	S	S	S	S
CLO5	S	S	M	S	M

S- Strong; M-Medium; L-Low

ORDINARY DIFFERENTIAL EQUATIONS (MTH2503)

Unit I **17 Hrs**

Second order linear equations with ordinary points - Legendre equation and Legendre polynomials - Second order equations with regular singular points - Bessel equation.

Unit II **17 Hrs**

Systems of first order equation - Existence and uniqueness theorem - Fundamental matrix.

Unit III **17 Hrs**

Non-homogeneous linear systems - Linear systems with constant co-efficient - Linear systems with periodic co-efficients.

Unit IV **18 Hrs**

Successive approximation - Picard's theorem - non-uniqueness of solutions - continuation and dependence on initial conditions - Existence of solutions in the large - existence and uniqueness of solutions of systems.

Unit V **18 Hrs**

Fundamental results - Sturm's comparison theorem - Elementary linear oscillations - Comparison theorem of Hille-Winter oscillations of $X'' + A(t)X = 0$. Elementary non-linear oscillations.

Simple problems using math gpt - <https://math-gpt.org/>

Note : AI Tool integration is restricted to assignments only

Text book

S. No	Author	Title of the book	Publishers	Year & Edition
1.	S.G. Deo and V. Raghavendra	Ordinary differential equations and Stability theory	Tata Mc Graw hill publishing company (P) Ltd, New Delhi,	2002, 2 nd Edn.
	Unit I : Chapter 3 - Section 3.2 - 3.5 Unit II : Chapter 4 - Section 4.1 - 4.4 Unit III: Chapter 4 - Section 4.5 - 4.7 Unit IV: Chapter 5 - Section 5.3 - 5.8 Unit V : Chapter 6 - Section 6.1 - 6.6			

References

S.No	Author	Title of Book	Publishers	Year & Edition
1	Harry Pollard	Ordinary Differential Equations	Dover publication Newyork.	2012
2	Edward L. Ince	Ordinary Differential Equations	Dover publication Newyork.	2012, 1 st Edn.
3	Wolfgang Walter	Ordinary Differential Equations	Springer Verlag , Newyork INc	2013
4	Earl A Coddington	An Introduction to Ordinary Differential Equations	Earl A. Coddington Prentice-Hall	2012, 1 st Edn.
5	Refaat El Attar	Ordinary Differential Equations	LULU press incorporated Morrisville USA	2006

Course Designers

1. Dr. R. Sasirekha
2. Dr. M. Nila

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MTH2504	MECHANICS	THEORY	88	2	-	4

Preamble

- To develop familiarity with the physical concepts and facility with the mathematical methods of classical mechanics.
- To represent the equations of motion for complicated mechanical systems using the Lagrangian and Hamiltonian formulation of classical mechanics.
- To develop skills in formulating and solving physics problems

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand the knowledge of the principles in mechanics	K2
CLO2	Apply complex and difficult problems of classical dynamics in a systematic way	K3
CLO3	Analysis the variation principle for real physical situations	K4
CLO4	Evaluate the existing symmetries and the corresponding integrals of motion and analyze the qualitative nature of dynamics	K5
CLO5	Create problem solving skills (approach, estimation, computation, and analysis) of classical mechanics in various contexts such as mechanical engineering, astrophysics, and biophysics.	K6

Mapping with Programme Learning Outcomes

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	M	S	S	S	M
CLO2	S	S	S	M	S
CLO3	S	S	M	S	S
CLO4	S	M	S	S	S
CLO5	S	S	S	S	M

S-Strong; M-Medium; L-Low

Syllabus

MECHANICS (MTH2504)

UNIT I

19 Hrs

Introductory concepts: Mechanical system - generalized coordinates – constraints - virtual work - energy and Ayurvedic concepts of Energy: Ayurvedic concepts like "Prana"(life force) and "Tejas"(radiant energy) to understand energy and momentum.

UNIT II

17 Hrs

Lagrange's equations: Derivations of Lagrange's equations – examples - integrals of motion.

UNIT III

17 Hrs

Hamilton's equations: Hamilton's principles - Hamilton's equations - other variational principles.

UNIT IV

18 Hrs

Hamilton – Jacobi theory: Hamilton's principle function - Hamilton - Jacobi equation - Separability.

UNIT V

17 Hrs

Canonical transformations: Differential forms and generating functions - Lagrange and Poisson brackets.

<https://www.youtube.com/watch?v=DkWpo4Js86g>

Note : IKS topics are restricted to Assignments only.

Text Book

S. No	Author	Title of the book	Publishers	Year & Edition
1.	Donald T. Greenwood	Classical Dynamics	Dover Publications	1997, 1 st Edn.
	UNIT I: Chapter 1 UNIT II: Chapter 2: Sections 2.1-2.3. UNIT III: Chapter 4: Sections: 4.1-4.3. UNIT IV: Chapter 5 UNIT V: Chapter 6: Sections: 6.1-6.3.			

Reference Books

S. No	Author	Title of the book	Publishers	Year & Edition
1.	H. Goldstein	Classical Mechanics	Narosa Publishing House, New Delhi	2001, 2 nd Edn.
2.	David Morin	Introduction to classical mechanics	Cambridge Press	2008, 1 st Edn.
3.	Takwal R G and Puranik P S	Introduction to classical mechanics	McGraw Hill Education Private Limited	2010, 1 st Edn.
4.	Sankara Rao K	Classical mechanics	Phi Learning Pvt Ltd	2011, 1 st Edn.
5.	Rajneesh Goel	Classical mechanics	Anmol Publication Pvt Limited, 1 st edition	2014, 1 st Edn.

Course Designers

1. Dr. K. Krishnaveni
2. Dr. R. Anitha Cruz

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MTH23E1	FINANCIAL MATHEMATICS	THEORY	88	2	-	4

Preamble

- To derive price-yield relationship and understand convexity
- To understand about the decomposition of matrices in statistics (and probability) point of view, e.g. principle component analysis.
- To understand the applications of financial mathematics.

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand the advanced knowledge in probability, statistics, stochastic calculus and numerical methods for financial applications	K2
CLO2	Demonstrate a broad knowledge of the financial securities as well as practical aspects of risk management.	K3
CLO3	Construct quantitative models for derivative pricing, quantitative and trading strategies, risk management and scenario simulations.	K4
CLO4	Communicate effectively with potential clients and peers	K5
CLO5	Use statistical techniques and methods in data analysis; understand the advantages and limitations of different methods.	K5

Mapping with Programme Learning Outcomes

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	M	S
CLO2	S	S	S	S	S
CLO3	S	S	M	S	M
CLO4	S	M	S	S	M
CLO5	S	S	M	S	S

S- Strong; M-Medium; L-Low

Syllabus

FINANCIAL MATHEMATICS (MTH23E1)

Unit I

17Hrs

Single period models : Some definitions from finance - Pricing a forward -The one-step binary model - A ternary model - A characterization of no arbitrage - The risk-neutral probability measure.

Unit II

17 Hrs

Binomial trees and discrete parameter martingales : The multi period binary model - American options - Discrete parameter martingales and Markov processes - Some important martingale theorems The Binomial Representation Theorem - Overture to CLO continuous models.

Unit III

18 Hrs

Brownian motion : Definition of the process - Levy's construction of Brownian motion - The reflection principle and scaling - Martingales in continuous time.

Unit IV

17 Hrs

Stochastic calculus: Stock prices are not differentiable - Stochastic integration - Ito's formula - Integration by parts and a stochastic Fubini Theorem - The Girsanov Theorem -The Brownian Martingale Representation Theorem - Why geometric Brownian motion- The Feynman–Kac representation.

Unit V

19 Hrs

The Black – Scholes model - The basic Black – Scholes model -Black–Scholes price and hedge for European options - Foreign exchange -Dividends -Bonds - Market price of risk.

Text Book

S. No	Author	Title of the book	Publishers	Year & Edition
1	Alison Etheridge	A Course in Financial Calculus	University of Oxford	2002
		Unit I		
		Chapter I: 1.1 to 1.6		
		Unit II		
		Chapter II : 2.1 to 2.6		
		Unit III		
		Chapter III: 3.1 to 3.4		
		Unit IV		
		Chapter IV: 4.1 to 4.8		
		Unit V		
		Chapter V : 5.1 to 5.6		

Reference Books

S. No	Author	Title of the book	Publishers	Year & Edition
1	Robert J. Elliott, P. Ekkehard Kopp	Mathematics of Financial Markets	Springer-Verlag New York	1999, 2 nd Edn.
2	Steven Roman	Introduction to the Mathematics of Finance	Springer-Verlag New York	2012, 1 st Edn.

Course Designers

1. Mrs. K. Sharmilaa
2. Dr. K. Krishnaveni

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MTH23E2	MATHEMATICAL STATISTICS	THEORY	88	2	-	4

Preamble

- To enable the students to learn the different aspects of statistics.
- To provide them a systematic knowledge to analyze, organize, present and interpret any information effectively.

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand the basic concepts of statistics, probability and random variables	K2
CLO2	Apply the concepts in finding the moments of the distributions	K3
CLO3	Analysis the type of the distribution	K4
CLO4	Evaluate the basics of sampling distribution theory	K5
CLO5	Creating a good estimate using unbiased, sufficient, efficient estimates	K6

Mapping with Programme Learning Outcomes

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	M	S	S	S
CLO2	S	S	S	M	S
CLO3	S	S	M	S	S
CLO4	M	S	S	S	S
CLO5	S	S	M	S	S

S- Strong; M-Medium; L-Low

Syllabus

MATHEMATICAL STATISTICS (MTH23E2)

Unit I

17 Hrs

Limit Theorems: Preliminary remarks - Stochastic convergence - Bernoulli's law of large numbers - The convergence of a sequence of distribution functions - Levy Cramer theorem - De-Moivre Laplace theorem - Lindberg Levy theorem - Lapunov theorem.

Unit II

17 Hrs

Markov chains: Preliminary remarks - Homogeneous Markov chains - The transition matrix - The Ergodic theorem - Random variables forming a homogenous Markov chain.

Unit III

19 Hrs

Stochastic process: The notion of a stochastic process - Markov process and processes with independent increments - The Poisson process - The Furry - Yule process - Birth and death process - The Polya process - Kolmogorov equations.

Unit IV

18 Hrs

Sample moments and their functions - The notion of the sample - The notion of a statistic - The distribution of the arithmetic mean of independent normally distributed random variables - The chi square distribution - The distribution of the statistic (X, S) - Student's t distribution - Significance tests - The concept of a statistical test - Parametric tests for small samples - Parametric tests for large samples - The chi square test - Independence test by contingency tables.

Unit V

17 Hrs

Theory of estimation - Preliminary notions – Consistent – unbiased - sufficient and efficient estimates - asymptotically most efficient estimates - methods of finding estimates - Confidence intervals - Theory of hypothesis testing.

Text Book

S. No	Author	Title of the book	Publishers	Year & Edition
1	Marek Fisz	Probability Theory and Mathematical Statistics	Robert E. Krieger Publisher	1980, 3 rd Edn.
	Unit I : Chapter 6 : 6.1-6.4, 6.6-6.9, Unit II : Chapter 7 : 7.1-7.5. Unit III: Chapter 8 : 8.1-8.7 Unit IV: Chapter 9 : 9.1-9.6 , Chapter 12:12.1-12.4,12.7 Unit V : Chapter 13: 13.1-13.8			

References

S. No	Author	Title of the book	Publishers	Year & Edition
1.	Ajai Gaur	Statistical methods for practice and research	Sage Publications	2010, 2 nd Edn.
2.	John, A. Rice	Mathematical and statistics and data analysis	Cengage Learning	2013, 3 rd Edn.
3.	Robert V. Hoff and Allen T.Craig	Introduction to Mathematical Statistics	Pearson	2012, 7 th Edn..
4.	S..C.Gupta	Fundamentals of mathematical statistics	Sultan Chand And Sons	2014, 1 st Edn.

Course Designers

1. Dr. C. R. Parvathy
2. Mrs. M. Mohanapriya



PSGR
Krishnammal College for Women



Affiliated to Bharathiar University \ Autonomous \ College of Excellence \ Accredited with A++ Grade \ Ranked 9th in NIRF

DEPARTMENT OF MATHEMATICS

CHOICE BASED CREDIT SYSTEM (CBCS) LEARNING OUTCOMES-BASED CURRICULUM FRAMEWORK (LOCF)

MASTER OF SCIENCE - MATHEMATICS
2025-2027 BATCH

SEMESTER II



MASTER OF SCIENCE - MATHEMATICS

**CHOICE BASED CREDIT SYSTEM (CBCS)&
LEARNING OUTCOMES-BASED CURRICULUM FRAMEWORK (LOCF)
SCHEME AND SYLLABUS OF EXAMINATION
2025-2027 BATCH
SEMESTER II**

Sem	Course Code	Title of the Course	Course Type	Instruction hours/ week	Contact hours	Tutorial hours	Duration of Examination	Examination Marks			Credits
								CA	ESE	Total	
II	MTH2405	Number Theory	CC	5	73	2	3	25	75	100	4
II	MTH2506	Lebesgue Measure Theory	CC	5	73	2	3	25	75	100	4
II	MTH2507	Partial Differential Equations	CC	5	73	2	3	25	75	100	4
II	MTH23CEA	Graph Theory	CC	6	88	2	-	100	-	100	5
II	MTH25E3	Control theory	DSE	4	58	2	3	25	75	100	3
	MTH23E4	Stochastic Processes									
II	MCM18A3	Financial and Management Accounting	GC	5	75	-	3	-	100	100	3
I - III	17MONL1	Online Course	ACC	SS	-	-	-	-	-	-	Gr.
	Total									600	23

SS - Self study
CC- Core Courses
DSE- Discipline Specific Elective
ACC- Additional Credit Courses
GC- General Courses

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MTH2405	NUMBER THEORY	THEORY	73	2	-	4

Preamble

- To expose the students to the charm, niceties and nuances in the world of numbers.
- To present a rigorous development of Number Theory using axioms, definitions, examples, theorems and their proofs.
- To highlight some of the applications of the theory of Numbers.

Course Learning Outcomes

Upon the successful completion of the course students will able to

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand factual knowledge including the mathematical notation and terminology of number theory	K2
CLO2	Apply mathematical proofs of statements and find counterexamples to false statements in Number Theory.	K3
CLO3	Analyze theoretical knowledge to problems of computer security	K4
CLO4	Evaluate the logic and methods behind the major proofs in number theory.	K5
CLO5	Create some current research problems in number theory	K6

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	S	M
CLO2	S	S	M	M	S
CLO3	S	S	M	S	S
CLO4	S	M	S	S	S
CLO5	S	S	S	M	M

S- Strong; M-Medium; L-Low

NUMBER THEORY - MTH2405- 73 HRS

Unit I (15 Hrs)

Residue classes, Linear Congruences with applications, Fermat's theorem, Euler's theorem, Chinese Remainder theorem, Wilson's theorem, the order of an integer modulo n and existence of primitive roots. Indian Mathematics: Concept of Zero and Pi, Number System. Simple Constructions from Sulba-sutras-Pythagoras Theorem.

Unit II (14 Hrs)

Quadratic congruences, quadratic residues and nonresidues, Euler's criterion, The Legendre symbol and its properties, quadratic reciprocity, Gauss's Lemma, Jacobian symbol and its properties with applications.

Unit III (15 Hrs)

Perfect numbers, the group of arithmetic functions, Mobius inversion formula with applications, Fermat numbers and Mersenne numbers. Finite and infinite simple continued fractions, rational approximations of real numbers

Unit IV (15 Hrs)

Diophantine linear equations, Pythagorean triples, Gaussian integers, primes as sum of squares the case $n = 4$ in Fermat's Last theorem, Pell's equation continued fraction solution of Pell's equation.

Unit V (14 Hrs)

Analytic Number Theory- Sum of reciprocals of primes-order of growth of function-Chebyshev's theorem- Bertrand's postulate- the prime number theorem- the Zeta function and Riemann hypothesis

Text Book

S.No	Authors	Title	Publishers	Year and Edition
1.	Erickson & Vazzana	Introduction to Number Theory	Chapman & Hall/CRC	2008 and 1 st Edn.
2.	Lecturers Notes by Department			
	UNIT – I Chapter III : Sections 3.1 to 3.8 UNIT – II Chapter V: Sections 5.1 to 5.5. UNIT – III Chapter VI & VII: Sections 6.1 to 6.4. 7.2 -7.3 and Chapter VIII: Sections 8.1 to 8.4 UNIT – IV Chapter IX : Sections 9.1 to 9.7 UNIT – V Chapter X : Sections 10.1 to 10.7			

Reference Books

S.No	Authors	Title	Publishers	Year and Edition
1.	Thomas Koshy	Elementary number theory with applications	Academic Press	2007 and 2 nd Edn.
2.	John Stillwell	Elements of number theory	Springer	2002 and 1 st Edn.
3.	Melvyn Nathanson B	Elementary Methods in number theory	Spring India Ltd	2005,
4.	David M Burton	Elementary number theory	Mc Graw Hill Education	2012 and 7 th Edn.

Pedagogy

Chalk & Talk, PPT, Group discussion, Seminar, Quiz, Assignment.

Course Designers

1. Dr. K. Krishnavani
2. Dr. M. Deepa

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MTH2506	LEBESGUE MEASURE THEORY	THEORY	73	2	-	4

Preamble

- To introduce the concepts of measure and integral with respect to a measure, to show their basic properties, and to provide a basis for further studies in Analysis, Probability, and Dynamical Systems.
- To construct Lebesgue's measure on the real line and in n -dimensional Euclidean space. To explain the basic advanced directions of the theory.

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand the basics axioms for the real numbers, natural and rational numbers as subset. Demonstrate the basic concepts underlying the definition of the general Lebesgue integral.	K2
CLO2	Apply the concepts of Borel sets, measurable functions, differentiation of monotone functions	K3
CLO3	Analyse about the little wood's theorem, integral of a non-negative function, functions of bounded variation	K4
CLO4	Evaluate a clear idea about convergence in measure, differentiation of an integral, absolute continuity and convex functions	K5
CLO5	Create the theory of the course to solve a variety of problems at an appropriate level of difficulty	K6

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	M	S	S
CLO2	S	M	S	M	S
CLO3	S	S	S	M	S
CLO4	S	S	S	S	M
CLO5	S	S	M	S	S

S- Strong; M-Medium; L-Low

LEBESGUE MEASURE THEORY-MTH2506-73 HRS

Unit I (15Hrs)

The Real number system: Axioms for the real numbers- The natural and rational numbers as subset of $\mathbb{R}$ -The extended real numbers-Sequence of real numbers-open and closed sets of real numbers-continuous functions-**Borel sets**. Number system and units of measurement in Indian Knowledge System

Unit II (14Hrs)

Lebesgue Measure: Outer measure - Measurable sets and Lebesgue measure - Measurable functions - **The Little wood's theorem**.

Unit III (15Hrs)

The Lebesgue Integral: The Lebesgue integral of a bounded function over a set of finite measure - Integral of a non-negative function - General Lebesgue integral - **Convergence in measure**.

Unit IV (15 Hrs)

Differentiation and Integration: **Differentiation of monotone functions**- Functions of bounded variation-Differentiation of an integral - Absolute continuity-Convex functions

Unit V (14 Hrs)

The classical banach spaces: the L^p spaces- The Minkowski and holder inequalities-**Convergence and completeness**-Approximation in L^p .

Note : IKS topics are restricted to Assignments only

1. <https://youtu.be/bs76mGPYEK4?si=kI7ofota-7KXJJYE>
2. https://youtu.be/1H3O_oyOxNQ?si=vWidMxpCO2yydKLe

Text Book

S.No	Author	Title of the book	Publishers	Year and Edition
1.	H.L.Royden	Real Analysis	PHI Learning Private limited	2009, 3 rd Edn.
	UNIT: I – Chapter 2– Sections: 1-7 UNIT: II – Chapter 3 – Sections: 1-3, 5, 6 UNIT: III – Chapter 4– Sections: 1-4 UNIT: IV – Chapter 5– Sections: 1-5 UNIT: V – Chapter 6 – Sections: 1-4			

Reference Books

S. No	Author	Title of the book	Publishers	Year and Edition
1.	R.G.Bartle	Elements of real Analysis	John Wily and Sons	2000 and 4 th Edn.
2.	R. Goldberg Richard	Methods of real analysis	Oxford and IBH Publishing co	2014
3.	Siri Krishan Wasan	Real analysis	Tata McGraw Hill	2000 and 1 st Edn.
4.	W.Rudin	Principles of Mathematical Analysis	McGraw Hill	2002 and 3 rd Edn

Pedagogy

Chalk & Talk, PPT, Group discussion, Seminar, Quiz, Assignment.

Course Designer

1. Dr. M. Deepa
2. Dr. R. Anitha Cruz

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MTH2507	PARTIAL DIFFERENTIAL EQUATIONS	THEORY	73	2	-	4

Preamble

- To present students the elements of the theory of partial differential equation.
- To introduce different methods for solving partial differential equation.
- To enable the students to find solution of partial differential equation of practical application like engineering, physics etc.

Course Learning Outcomes

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

Mapping with Course Learning Outcomes

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand the basic concepts of first and second order partial differential equation of and different methods of solving pde's	K2
CLO2	Apply PDEs, apply analytical methods, and physically interpret the solutions.	K3
CLO3	Analyse and validate mathematical models of practical problems related to other fields.	K4
CLO4	Evaluate boundary values problems and point out its significance	K5
CLO5	Create the knowledge of partial differential equations for modelling the general structure of solutions and using analytic methods for solutions.	K6

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	S	M
CLO2	S	S	M	S	S
CLO3	S	M	S	S	S
CLO4	S	S	S	S	S
CLO5	S	S	M	S	S

S- Strong; M-Medium; L-Low

PARTIAL DIFFERENTIAL EQUATIONS - MTH2507 - 73 HRS

Unit I (15 Hrs)

Nonlinear Partial Differential Equations of the first order - Cauchy's method of Characteristics - Compatible System of First order equations- Charpit's method - **Special types of First Order equations** - Jacobi's method.

Unit II (14 Hrs)

Partial Differential Equations of second order - The origin of Second-order Equations - **Linear Partial Differential Equations with constant coefficients** – Equations with variable coefficients

Unit III (15 Hrs)

The solution of Linear Hyperbolic Equations - Separation of variables – The Method of integral transforms - Non linear Equation of the second order.

Unit IV (15 Hrs)

Laplace's equation - The occurrence of Laplace's Equation in Physics - **Elementary solution of Laplace's Equation** - Families of Equipotential surfaces - Boundary value problems - Separation of variables - Problems with axial symmetry.

Unit V (14 Hrs)

The wave Equation -The occurrence of wave equation in physics – Elementary solution of the one-dimensional wave equation - **Vibrating Membranes: Application of the calculus of variations** -Three dimensional problems. The diffusion equations: Elementary solutions of the diffusion Equation - Separation of variables - the use of Integral transforms

Use AI Tool Mathos AI:

To Formulation of Partial differential equations

To find the solution of the first order Partial differential equations

Text Book

S. No	Author	Title of the book	Publishers	Year and Edition
1.	Ian N.Sneddon	Elements of Partial Differential Equations	Dover Publications, INC. Mineola, New York	2006 and 1 st Edn.
	Unit I : Chapter 2 Sections 7,8,9,10,11 and 13 Unit II : Chapter 3 Sections 1, 4, 5 and 6 Unit III: Chapter 3 Sections 8,9,10 and 11 Unit IV: Chapter 4 Sections 1, 2,3,4,5 and 6 Unit V : Chapter 5 Sections 1, 2, 4 and 5, Chapter 6 Sections 3, 4 and 5			

Reference Books

S. No	Author	Title of the book	Publishers	Year and Edition
1.	Raisinghania.M D	Ordinary and partial differential equation	S.Chand Company	2005 and 9 th Edn.
2.	Vairamanickam K and Etal	Transforma and partial differential equations	Scitech Publications India Pvt Ltd	2009 and 2 nd Edn.
3.	Nita H Shah	Ordinary and partial differential equations	Phi Learning Private Ltd	2010
4.	K.Sankara Rao	Introduction to partial differential equations	Phi Learning Private Ltd	2011 and 3 rd Edn.
5.	Veerarajan T	Transforms and partial differential equations	Tata Mc Graw Hill Education Private Limited	2011

Pedagogy

Chalk & talk, PPT, Group discussion, Seminar, Quiz, Assignment

Course Designer

1. Dr. R. Sasirekha
2. Dr. P. M. Mahalakshmi

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MTH23CEA	GRAPH THEORY	THEORY	88 (43+45)	2	-	5 (2+3)

Preamble

- To present students the Basic concepts of graph theory.
- To enable the students to find the practical applications to the real world problems etc.

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO 1	Understanding of some network and colouring in Graph theory .	K2
CLO 2	Apply the understanding and used to model the atomic variable .	K3
CLO 3	Analysis the concepts of connectivity, Blocks and Hamilton cycles in the real life.	K4
CLO 4	Evaluate the concept and familiar with the concepts of colouring develop the reader to apply in day to day life .	K5
CLO 5	Create some of the concepts in graph theory and the readers to apply in day today life.	K6

Mapping with Programme Learning Outcomes

CLO s/PLO s	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5
CLO 1	S	S	S	M	S
CLO 2	S	M	M	S	S
CLO 3	S	S	S	S	M
CLO 4	M	S	M	S	S
CLO 5	S	S	S	M	S

S- Strong; M-Medium; L-Low

GRAPH THEORY - MTH23CEA- 88 HRS

Unit I (17 hrs)

Graphs, Subgraphs : **Graphs and Simple Graphs – Graph Isomorphism** – The Incidence and Adjacency Matrices – Subgraphs – Vertex Degrees – Paths and Connection Cycles. Trees: Trees- Cut Edges and Bonds – Cut Vertices – Cayley's Formula.

Unit II (17 hrs)

Connectivity, Euler Tours And Hamilton Cycles: Connectivity – Blocks- **Euler tours** – Hamilton cycles.

Unit III (18 hrs)

Matchings : **Matchings – Matchings Coverings in Bipartite Graphs** – Perfect Matching Edge Colourings: Edge Chromatic Number – Vizing's Theorem.

Unit IV (18 hrs)

Independent Sets, Cliques: Independent Sets- Ramsey's Theorem Vertex Colourings: Chromatic Number – **Brook's Theorem** – Hajos Conjecture – Chromatic Polynomials – Girth and Chromatic Number.

Unit V (18 hrs)

Planar Graphs: Plane and Planar Graphs – Dual Graphs – Euler's Formula- Bridges – Kuratowski's Theorem (Proof Omitted) – **The Five Colour Theorem** and The Four Colour Conjecture – Non hamiltonian Planar Graphs – Directed Graphs: Directed Graphs – Directed Paths – Directed Cycles.

Link for the courses in Coursera

Introduction to Graph Theory <https://www.coursera.org/programs/psgr-faculty-learning-program-1luew/browse?collectionId=&productId=RRI51-ckEeaEXgo6pliZ4A&productType=course&query=Introduction%20to%20Graph%20Theory&showMiniModal=true&source=search>

Trees and Graphs: Basics

https://www.coursera.org/programs/psgr-faculty-learning-program-1luew/skills/graph-theory?collectionId=skill~graph-theory&productId=-OqlvFXeEuHCA5K4_4e8w&productType=course&query=Introduction%20to%20Graph%20Theory&showMiniModal=true&source=search

Text book

S. No	Author	Title of the book	Publishers	Year and Edition
1.	J.A. Bondy and U.S.R. Murty	Graph theory with applications	Elsevier Publishing Co., Inc., New York	1976 and 1 st Edn.
Unit I : Chapter 1, Sections 1.1 to 1.7 & Chapter 2, Sections 2.1 to 2.4. Unit II : Chapter 3, Sections 3.1 to 3.2 & Chapter 4, Sections 4.1 to 4.2 Unit III : Chapter 5, Sections 5.1 to 5.3 & Chapter 6, Sections 6.1 to 6.2 Unit IV : Chapter 7, Sections 7.1 to 7.2 & Chapter 8, Sections 8.1 to 8.5 Unit V : Chapter 9, Sections 9.1 to 9.7 & Chapter 10, Sections 10.1 to 10.3				

Reference Books

S. No	Author	Title of the book	Publishers	Year and Edition
1.	Nar Singh Deo	Graph Theory for Computer Science and Engineers	PHI, India	2016 and 4 th Edn.
2.	Reinhard Diestel	Graduate texts in mathematics, Graph theory	Springer.	2012 and 4 th Edn.
3.	Jonathan L.Gross , Jay yellen	Graph theory and its application	Chapman and hall	2005 and 2 nd Edn.
4.	Gary Chartrand and ping zhang	A first course in graph theory	Dover Publications	2013

Pedagogy

Chalk & talk, PPT, Group discussion, Seminar, Quiz, assignment

Course Designer

1. Dr. R. Sasirekha
2. Dr. A. Neerajah

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MTH25E3	CONTROL THEORY	THEORY	58	2	-	3

Preamble

- The objective of this course is to introduce some fundamental concepts of control system including state space techniques, optimal control, stability analysis and controllability.
- The course is intended to provide students with confidence in own abilities to analyze and design a new control system.

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand the basic concepts and properties of differential equations, fundamental concepts of control system	K2
CLO2	Apply about concept of observable and controllable system.	K3
CLO3	Analyze and design a new control system.	K4
CLO4	Evaluate the system stability, equilibrium points, linear system stability	K5
CLO5	Create optimal control to statement of the optimal control problems and interpret the problems	K6

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	M	S	S
CLO2	S	S	S	M	S
CLO3	S	M	S	S	S
CLO4	S	S	S	S	M
CLO5	S	M	S	S	S

S- Strong; M-Medium; L-Low

CONTROL THEORY - MTH25E3 - 58 HRS

Unit I (12 Hrs)

Observability: Linear systems - Observability Grammian - Constant coefficient systems - Reconstruction Kernel - Nonlinear Systems.

Unit II (12 Hrs)

Controllability: Linear Systems - Controllability Grammian - Adjoint Systems - Constant coefficient systems - Steering function - Nonlinear systems.

Unit III (12 Hrs)

Stability: Stability - Uniform Stability - Asymptotic Stability of Linear Systems - Linear time varying systems - Perturbed linear systems- Nonlinear systems.

Unit IV (12 Hrs)

Stabilizability: Stabilization via linear feedback control - Bass method - Controllable subspace - Stabilization with restricted feedback.

Unit V (10 Hrs)

Optimal Control: Linear time varying systems with quadratic performance criteria - Matrix Riccati equation - Linear time invariant systems - Nonlinear Systems.

Usage of AI Tool :

Solve using Mathos AI to solve the following

Study on the Controllability of the system

Study on the Stability of the system

Text Book

S. No	Author	Title of the book	Publishers	Year and Edition
1.	K.Balachandran and J.P.Dauer	Elements of Control Theory	Narosa, New Delhi	2012 and 2 nd Edn.
	Unit I : Chapter 2- Sections : 2.1-2.2 Unit II : Chapter 3- Sections : 3.1-3.2 Unit III : Chapter 4- Sections : 4.1- 4.3 Unit IV : Chapter 5- Sections : 5.1- 5.3 Unit V : Chapter 6- Sections : 6.1- 6.3			

Reference Books

S. No	Author	Title of the book	Publishers	Year and Edition
1.	Mike Mesterton	A primer on the calculus of variations and optimal control	American Mathematical Society	2009
2.	Deo S G et.al	Text book of ordinary differential equations	McGraw Hill Education	2017, 3 rd Edn.
3.	Arnold V I	Ordinary differential equations	Phi Learning Private Limited	2009
4.	P.K.Ghosh , Satyajit Anand	Linear Control Systems	Platinum Publishers	2015
5.	A.K.Jairath	Problems and Solutions of Control Systems : With Essential Theory	CBS Publishers	2015

Pedagogy

Chalk & talk, PPT, Group discussion, Seminar, Quiz, Assignment

Course Designer

1. Dr. R. Anitha Cruz
2. Dr. M. Nila

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MTH23E4	STOCHASTIC PROCESSES	THEORY	58	2	-	3

Preamble

- To enable the students to learn the different aspects of statistics.
- To provide them a systematic knowledge to analyze, organize, present and interpret any information effectively.

Course Learning Outcomes

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

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand the basic concepts of Stochastic process, Markov chains,	K ₂
CLO2	Apply the concepts in pure Birth processes and Poisson processes	K ₃
CLO3	Analyze the type of the distribution	K ₄
CLO4	Evaluate the basics of sampling distribution theory	K ₅
CLO5	Create on estimating a good estimate using unbiased, sufficient, efficient estimates	K ₆

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	M	S	S	S
CLO2	S	S	S	M	S
CLO3	S	S	M	S	S
CLO4	M	S	S	S	S
CLO5	S	S	M	S	S

S- Strong; M-Medium; L-Low

STOCHASTIC PROCESSES - MTH23E4 - 58 HRS

UNIT I (12 Hrs)

Elements of Stochastic Process: Review of basic terminology and Properties of random variables and distribution functions – Two simple examples of Stochastic Process - Classification of general Stochastic Process – Defining a Stochastic Process. Markov Chains : Definitions - Examples of Markov Chains – Transition probability matrices of a Markov Chains – Classification of states of Markov Chains – Recurrence – Examples of recurrent Markov Chains

UNIT II (12 Hrs)

The Basic limit theorem of Markov Chains and Applications: Discrete renewal equations – Proof of Theorem 1.1 – Absorption Probabilities – Criteria for recurrence – A Queueing example – Another Queueing model – Random walk. Classical examples of Continuous time Markov Chains : General pure Birth processes and Poisson processes - A counter model – Birth and Death processes – Differential equations of Birth and Death processes – Birth and Death processes with absorbing states – Finite state continuous time Markov Chains

UNIT III (12 Hrs)

Renewal Processes: Definition of a Renewal process and related concepts – Some special renewal process and examples – Renewal equations and Elementary Renewal Theorem – Renewal theorem – Applications of The Renewal theorem – Generalizations and variations on Renewal processes. Brownian Motions : Background material – Joint probabilities for Brownian Motions – Continuity of paths and the Maximum Variables – Variations and Extensions – Computing some functional of Brownian Motions by Martingale methods – Multi Dimensional Brownian Motions - Brownian paths

UNIT IV (11 Hrs)

Branching Processes : Discrete Time Branching Processes – Generating function relations for Branching Processes – Extinction probabilities – Examples – Two type Branching Processes – Multi type Branching Processes – Continuous time Branching Processes – Extinction probabilities for Continuous time Branching Processes – Limit Theorems for Continuous time Branching Processes

UNIT V (11 Hrs)

Stationary Processes: Definitions and Examples – Mean square distance – Mean square error prediction – Prediction of Covariance Stationary Processes – Ergodic Theory and Stationary Processes – Applications of Ergodic Theory

Text book

S. No	Author	Title of the book	Publishers	Year and Edition
1	Samuel Karlin and Howard M. Taylor	A First Course in Stochastic Processes	Academic Press, New York, Second edition.	1975 and 2 nd Edn.
	Unit I : Chapter : 1,2 Unit II : Chapter : 3,4 Unit III: Chapter : 5,7 Unit IV: Chapter : 8 Unit V : Chapter : 9			

References

S. No	Author	Title of the book	Publishers	Year and Edition
1.	HenkC.Tijms	A first course in Stochastic Models	Wiley	2003
2.	Jochen Geiger	Applied Stochastic Process	E book	2007
3.	Jothi Prasath Medhi	Stochastic Process	New Age International Publishers	1982 and 2 nd Edn.

Pedagogy

Chalk & talk, PPT, Group discussion, Seminar, Quiz, assignment

Course Designer

1. Dr. R. Anitha Cruz
2. Dr. M. Nila

COURSE CODE	COURSE NAME	CATEGORY	L	T	P	CREDIT
MCM18A3	FINANCIAL AND MANAGEMENT ACCOUNTING	Inter Disciplinary Course	75			3

Preamble

- To enhance the students knowledge in accounting aspects.
- To develop a thorough knowledge in the financial and management techniques.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Discuss the conceptual framework within which the key accounting methods can be analyzed.	K6
CO2	Apply the tools and techniques on contemporary areas of financial analysis.	K3
CO3	Analyze in-depth concept and techniques of management.	K4

Syllabus

M.SC (MATHEMATICS) SEMESTER –II INTER DISCIPLINARY COURSE FINANCIAL AND MANAGEMENT ACCOUNTING

UNIT-I (DL hrs = 15)

Accounting; Definition-Objectives, advantages, accounting concepts and conventions-Methods of Accounting-Double Entry System-Basic books of Accounts-Journal-Ledger-Preparation of Trial Balance.

UNIT-II (DL hrs = 15)

Final Accounts: Trading and Profit and Loss Account-Balance sheet of Sole Proprietary concern

UNIT-III (DL hrs = 15)

Analysis and interpretation of financial Statements-Comparative statements-Common size statements-trend analysis-limitations of financial analysis

UNIT-IV (DL hrs = 15)

Ratio Analysis-Meaning-Importance-Advantages and limitations-Classification of Ratios-profitability-Turnover-Solvency Ratios.

UNIT-V (DL hrs = 15)

Working Capital –Concepts, Kinds, Importance of Working Capital-Working Capital requirements and their computations.

Note: 20% Theory and 80% for Problems

Text Book

S.No	Author Name	Book Name	Publisher	Year & Edition
1.	Reddy & Murthy	Financial Accounting	Margham Publications	11 th Revised Edition Reprint 2013
2.	Shashi.k.Gupta R.K.Sharma	Management Accounting	Kalyani Publications	Latest edition 2012

Reference Books

S.No	Author Name	Book Name	Publisher	Year & Edition
1.	Jain & Narang	Advanced Accounting	Kalyani Publications	18th edition, 2012
2.	Pillai RSN & Bagavathi	Advanced Accountancy II	S.Chand	Revised Edition 2010

Pedagogy

- Power point presentations and board, Group Discussion, Seminar, Assignment, Practical Problems, Quiz

Course Designers:

1. Dr.R.S.Kanimozhi
2. Dr.R.Krishnakumari