

#### **Criterion 1 Curricular Aspects Metric**

Metric	1.2 Academic Flexibility	
No.		
1.2.1.1	1.2.1.1: Number of Programmes in which CBCS / Elective course system implemented.	University syllabus for the courses having Optional/ Elective courses

#### **B.COM. PART-III**

#### SCHEME OF EXAMINATION

Subject	Max. Marks	Min. Marks
A. FOUNDATION COURSE-		
(a) Hindi Language -	75	26
(b) English Language -	75	26
B. COMPULSORY CORE COURSE:		
I. Income Tax	75	25
II. Indirect Tax	75	25
III. Management Accounting	75	25
IV. Auditing	75	25
And any one of the following Cantination Optional Group.		
OPTIONAL GROUP - A		
I. Financial Management	75	25
II. Financial Market	75	25
OPTIONAL GROUP - B		
Principal of Marketing	75	25
I. International Marketing	75	25
OPTIONAL GROUP - C		
i. Information Technology and its		
Applications in Business	75	25
ii. Essential of E-Commerce	75	25
OPTIONAL GROUP - D		
i. Fundamentals of Insurance	75	25
ii. Money & Banking System	75	25

#### USE OF CALCULATORS

The students of Degree/P.G. Classes will be permitted to use of Calculators in the examination hall from annual 1986 examination on the following conditions as per decision of the standing committee of the Academic Council at its meeting held on 31-1-1986.

- 1. Student will bring their own Calculators.
- 2. Calculators will not be provided by University or examination centres.
- 3 Calculators with, memory and following variables be permitted +,-,\*/, square reciprocal, exponentials, log squares, root, trigonometric functions viz, sine, cosine tangent etc. factorial summation, xy, yx and in the light of objective approval of merits and demerits of the viva only will be allowed.

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## REVISED ORDINANCE NO. 21 BACHELOR OF SCIENCE

- 1. The three year course has been broken up into three Parts. Part-I known as B.Sc. Part-I examination at the end of the first year, Part-II known as B.Sc. Part-II examination at the end of the second year and Part-III known as B.Sc. Part-III examination at the end of the thirdyear.
- 2. A candidate who after passing (10+2) Higher Secondary or Intermediate examination of C.G. Board of Secondary Education Bhopal or any other Examination recognised by the University or C.G. Board of Secondary Education as equivalent thereto, has attended a regular course of study in an affiliated College or in the Teaching Department of the University for one academic year shall be eligible for appearing at the B.Sc. Part-Iexamination.
- 3. A candidate who, after passing the B.Sc.-I examination of the University or any other examination recognised by the University as equivalent thereto, has attended a regular course of study for one academic year in an affiliated college or in the Teaching Department of the University shall be eligible for appearing at the B.Sc. Part-Ilexamination.
- 4. A candidate who, after passing the B.Sc. Part-Ii examination of the University, has completed a regular course of study for one academic year in an affiliated college or in the Teaching Department of the University shall be eligible for appearing at the B.Sc. Part-IIIexamination.
- 5. Besides regular students, subject to their compliance with this Ordinance exstudent and non-collegiate candidates shall be permitted to offer only such subjects/papers as are taught to the regular student at any of the University Teaching Department orCollege.
- 6. Every candidate appearing in B.Sc. Part-I, Part-II and Part-III examination shall be examined in-

(i) Foundation Course:

- (ii) Any one of the following combinations of three subjects:-
  - 1. Physics, Chemistry & Mathematics.
  - 2. Chemistry, Botany & Zoology.
  - 3. Chemistry, Physics & Geology.
  - 4. Chemistry, Botany & Geology.
  - 5. Chemistry, Zoology & Geology.
  - 6. Geology, Physics & Mathematics.
  - 7. Chemistry, Mathematics & Geology.
  - 8. Chemistry, Botany & DefenceStudies.
  - 9. Chemistry, Zoology & DefenceStudies
  - 10. Physics, Mathematics & DefenceStudies.
  - 11. Chemistry, Geology & DefenceStudies
  - 12. Physics, Mathematics & Statistics
  - 13. Physics, Chemistry & Statistics
  - 14. Chemistry, Mathematics & Statistics.
  - 15. Chemistry, Zoology & Anthropology.
  - 16. Chemistry, Botany & Anthropology.
  - 17. Chemistry, Geology & Anthropology.
  - 18. Chemistry, Mathematics & Statistics.

- 19. Chemistry, Anthropology & DefenceStudies.
- 20. Geology, Mathematics & Statistics.
- 21. Mathematics, Defence Studies & Statistics
- 22. Anthropology, Mathematics & Statistics
- 23. Chemistry, Anthropology & AppliedStatistics
- 24. Zoology, Botany & Anthropology
- 25. Physics, Mathematics & Electronics.
- 26. Physics, Mathematics & ComputerApplication
- 27. Chemistry, Mathematics & ComputerApplication
- 28. Chemistry, Bio-Chemistry & Pharmacy
- 29. Chemistry, Zoology & Fisheries.
- 30. Chemistry, Zoology & Agriculture
- 31. Chemistry, Zoology & Sericulture
- 32. Chemistry, Botany & EnvironmentalBiology
- 33. Chemistry, Botany & Microbiology
- 34. Chemistry, Zoology & Microbiology
- 35. Chemistry, Industrial Chemistry & Mathematics
- 36. Chemistry, Industrial Chemistry & Zoology
- 37. Chemistry, Biochemistry, Botany
- 38. Chemistry, Biochemistry, Zoology
- 39. Chemistry, Biochemistry, Microbiology
- 40. Chemistry, Biotechnology, Botany
- 41. Chemistry, Biotechnology, Zoology
- 42. Geology, Chemistry & Geography
- 43. Geology, Mathematics & Geography
- 44. Mathematics, Physics & Geography
- 45. Chemistry, Botany & Geography
- (iii) Practical in case prescribed for coresubjects.
- 7. Any candidate who has passed the B.Sc. examination of the University shall be allowed to present himself for examination in any of the additional subjects prescribed for the B.Sc. examination and not taken by him at the degree examination. Such candidate will have to first appear and pass the B.Sc. Part-I examination in the subjects which he proposes to offer and then the B.Sc. Part-II and Part-III examination in the same subject. Successful candidates will be given a certificate to that effect.
- 8. In order to pass at any part of the three year degree course examination an examinee must obtain not less than 33% of the total marks in each subject/ group of subjects. In subject/ group of subjects where both theory and practical examination are provided an examinee must pass in both theory and practical parts of the examinationseparately.
- 9. Candidate will have to pass separately at the Part-I, Part-II and Part-III examinations. No division shall be assigned on the result of the Part-I and Part-II examination. In determining the division of the final examination, total marks obtained by the examinees in their Part-I, Part-II and Part-III examination in the aggregate shall be taken in to account. Provided in case of candidate who has passed the examination through supplementary examination having failed in one subject/ group only, the total aggregate marks being carried over for determining the division shall include actual marks obtained in the subject/ group in which he appeared at the supplementary examination.
- 10. Successful examinee at the Part-III examination obtaining 60% or more marks shall be places in the First Division, those obtaining less than 60% but not less than 45% marks in the Second Division and other successful examinees in the Third Division.

	Subject	Danan	Max.	Total	Min.
	Subject	raper	Mark	Mark	Mark
(A)	Compulsory				
	Subject				
	1) Hindi Language	Ι	75	-	26
	2) English Language	Ι	75	-	26
(B)	Three Elective Subject :				
2.	Chemistry	Ι	33		
		II	33	100	33
		III	34		
		Practical		50	17
1.	Physics	Ι	50		
	2	II	50	100	33
		Practical		50	17
3.	Mathematics	Ι	50		
		II	50	150	50
		III	50		
4.	Botany	Ι	50		
		II	50	100	33
		Practical		50	17
5.	Zoology	Ι	50		
		II	50	100	33
		Practical		50	17
6.	Geology	Ι	50		
		II	50	100	33
		Practical		50	17
7.	Statistics	Ι	50		
		II	50	100	33
		Practical		50	17
8.	Anthropology	Ι	50		
		II	50	100	33
			Practical	50	17
9.	Inde. chemistry	Ι	34		
	2	II	33	100	33
		III	33		
		Dractical		50	17

## SCHEME OF EXAMINATION

Subject	Paper	Max. N	Aarks	Min. Marks		
10. Defence Studies	Ι	50				
	II	50	100	33		
	Practical		50	17		
11. Micro Biology	Ι	50				
	II	50	100	33		
	Practical		50	17		
12. Electronics	Ι	50				
	II	50	100	33		
	Practical		50	17		
13. I.T.	Ι	50				
	II	50	100	33		
	Practical		50	17		
14. Computer Science	Ι	50				
	II	50	100	33		
	Practical		50	17		
15. Biochemistry	Ι	50				
-	II	50	100	33		
	Practical	50				

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- 1. Student will bring their own Calculators.
- 2. Calculators will not be provided either by the University or examination centres.
- 3. Calculators with, memoty and following variables be permitted +, -, x, , square, reciprocal, expotentials log, square root, trignometric functions, wize, sine, cosine, tangent etc. factiorial summation, xy, yx and in the light of objective approval of merits and demerits of the viva only will be allowed.

#### **MATHEMATIS**

#### There shall be three theory papers. Two compulsory and one optional Each

paper carrying 50 marks is divided into five units and each unit carry equal marks.

## PAPER - I (Paper Code-0898) ANALYSIS

#### REAL ANALYSIS

- **UNIT-I** Series of arbitrary terms. Convergence, divergence and Oscillation. Abel's and Dirichlet's test. Multiplication of series. Double series. Partial derivation and differentiability of real-valued functions of two variables. Schwarz and Young's theorem. Implicit function theorem. Fourier series. Fourier expansion of piecewise monotonic functions.
- **UNIT-II** Riemann integral. Intergrability of continuous and monotonic functions. The fundamental theorem of integral calculus. Mean value theorems of integral calculus.

Improper integrals and their convergence, Comparison tests. Abel's and Dirichlet's tests. Frullani's integral. Integral as a function of a parameter. Continuity, derivability and integrability of an integral of a function of a parameter.

#### COMPLEX ANALYSIS

**UNIT-III** Complex numbers as ordered pairs. Geometric representation of Complex numbers. Stereographic projection.Continuity and differentiability of Complex functions. Analytic functions. Cauchy-Riemann equations. Harmonic functions. lementary functions. Mapping by elementary functions. Mobius transformations. Fixedpoints, Cross ratio. Inverse points and critical mappings. Conformal mappings.

#### **METRIC SPACES**

- **UNIT-IV** Definition and examples of metric spaces. Neighbourhoods, Limit points, Interior points, Open and closed sets, Closure and interior. Boundary points, Sub-space of a metric space. Cauchy sequences, Completeness, Cantor's intersection theorem. Contraction principle, Construction of real numbers as the completion of the incomplete metric space of rationals. Real numbers as a complete ordered field.
- UNIT-V Dense subsets. Baire Category theorem. Separable, second countable and first countable spaces. Continuous functions. Extension theorem. Uniform Isometry homeomorphism. Equivalent continuity, and metrics. Compactness,Sequential compactness. Totally bounded spaces. Finite intersection property. Continuous functions and compact sets. Connectedness, Components, Continuous functions and connected sets.

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#### PART - II (Paper Code-0899) ABSTRACT ALGEBRA

- **UNIT-I**Group-Automorphisms, inner automorphism. Automorphism groups and their computations, Conjugacy relation, Normaliser, Counting principle and the class equation of a finite group. Center for Group of prime-order, Abelianizing of a group and its universal property. Sylow's theorems, Sylow subgroup, Structure theorem for finite Abelian groups.
- **UNIT-II** Ring theory-Ring homomorphism. Ideals and Quotient Rings. Field of Quotients of an Integral Domain, Euclidean Rings, Polynomial Rings, Polynomials over the Rational Field. The Eisenstien Criterion, Polynomial Rings over Commutative Rings, Unique factorization domain. R unique factorisation domain implies so is R [x1, x2 ..... xn] Modules, Submodules, Quotient modules, Homomorphism and Isomorphism theorems.
- **UNIT-III** Definition and examples of vector spaces. Subspaces. Sum and direct sum of subspaces, Linear span. Linear dependence, independence and their basic properties.

Basis. Finite dimensional vector spaces. Existence theoremfor bases. Invariance of the number of elements of a basis set. Dimension. Existence of complementary subspace of a subspace of a finite dimensional vector space. Dimension of sums of subspaces. Quotient space and its dimension.

- **UNIT-IV** Linear transformations and their representation as matrices. The Algebra of linear transformations. The rank nullity theorem. Change of basis. Dual space. Bidual space and natural isomorphism. Adjoint of a linear transformation. Eigenvalues and eigenvectors of a linear transformation. Diagonalisation. Annihilator of a subspace. Bilinear, Quadratic and Hermitian forms.
- UNIT-V Inner Product Spaces-Cauchy-Schwarz inequality. Orthogonal vectors. Orthogonal Complements. Orthonormal sets and bases. Bessel's inequality for finite dimensional spaces. Gram-Schmidt Orthogonalization process.

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#### (I) PRINCIPLES OF COMPUTER SCIENCE (Paper Code-0900)

UNIT-IData Storage - Storage of bits. Main Memory. Mass Storage. Coding Information of Storage. The Binary System. Storing integers, storing fractions, communication errors. Data Manipulation - The Central Processing Unit. The Stored-Program Concept. Programme Execution. Other Architectures. Arithmetic/Logic Instructions. Computer-Peripheral Communication.

**UNIT-II Operating System and Networks -** The Evolution of Operating System. Operating System Architecture. Coordinating the Machine's Activities. Handling Competition Among Process. Networks. Networks Protocol.

**Software Engineering -** The Software Engineering Discipline. The Software Life Cycle. Modularity. Development Tools and Techniques. Documentation. Software Ownership and Liability.

**UNIT-III Algorithms -** The Concept of an Algorithm, Algorithm Representation. Algorithm

Discovery. Iterative Structures. Recursive Structures. Efficiency and Correctness.

(Algorithms to be implemented in C).

Programming Languages - Historical Perspective. Traditional

Programming Concepts, Program Units. Language Implementation. Parallel

Computing. Declarative Computing.

**UNIT-IV Data Structures -** Arrays. Lists. Stacks. Queues. Trees. Customised Data Types. Object Oriented Programming.

**File Structure -** Sequential Files. Text Files. Indexed Files. Hashed Files. The Role of The Operating System.

**Database Structure -** General Issues. The Layered Approach to Database Implementation. The Relational Model. Object-Oriented Database. Maintaining Database Integrity. E-R models.

**UNIT-V Artifical Intelligence -** Some Philosophical Issues. Image Analysis. Reasoning, Control System Activities. Using Heuristics. Artificial Neural Networks. Application of Artificial Intelligence.

**Theory of Computation -** Turning Machines. Computable functions. A Non computable Function. Complexity and its Measures. Problem Classification.

#### **REFERENCES** :

- 1. J. Glen Brookshear, Computer Science : An Overview, Addition Wesley.
- 2. Stanley B. Lippman, Josee Lojoie,  $C^{++}$  Primer (3rd Edition), Addison-Wesley.

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#### (II) DISCRETE MATHEMATICS (Paper Code-0901)

**UNIT-ISets and Propositions -** Cardinality. Mathematical Induction, Principle of Inclusion and exclusion.

Computability and Formal Languages - Ordered Sets. Languages. Phrase Structure Grammars. Types of Grammars and Languages. Permutations. Combinations and Discrete Probability.

- UNIT-II Relations and Functions Binary Relations, Equivalence Relations and Partitions. Partial Order Relations and Lattices. Chains and Antichains. Pigeon Hole Principle. Graphs and Planar Graphs Basic Terminology. Multigraphs. Weighted Graphs. Paths and Circuits. Shortest Paths. Eulerian Paths and Circuits. Travelling Salesman Problem. Planner Graphs. TREES.
- UNIT-III Finite State Machines Equivalent Machines. Finite State Machines as Language Recognizers. Analysis of Algorithms - Time Complexity. Complexity of Problems. Discrete Numeric Functions and Generating Functions.
- UNIT-IV1 Recurrence Relations and Recursive Algorithms Linear Recurrence Relations with Constant Coefficients. Homogeneous Solutions. Particular Solution. Total Solution. Solution by the Method of Generating Functions. Brief review of Groups and Rings.
- **UNIT-V Boolean Algebras -** Lattices and Algebraic Structures. Duality, Distributive and Complemented Lattices. Boolean Lattices and Boolean Algebras. Boolean Functions and Expressions. Prepositional Calculus. Design and Implementation of Digital Networks. Switching Circuits.

#### **REFERENCES** :

C.L. Liu, Elements of Discrete Mathematics, (Second Edition), McGraw Hill, International Edition, Computer Science Series, 1986.

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## (III) APPLICATION OF MATHEMATICS IN FINANCE AND INSURANCE (Paper Code-0902)

**Application of Mathematics in Finance :** 

**UNIT-I Financial Management -** An overview. Nature and Scope of Financial Management.

Goals of Financial Management and main decisions of financial management. Difference between risk, speculation and gambling.

Time value of Money-Interest rate and discount rate. Present value and future valuediscrete case as well as continuous compounding case. Annuities and its kinds.

- UNIT-II Meaning of return. Return as Internal Rate of Return (IRR). Numerical Methods like Newton RaphsonMethod to calculate IRR. Measurement of returns under uncertainty situations. Meaning of risk. Difference between risk and uncertainty. Types of risks. Measurement of risk. Calculation of security and Portfolio Risk and Return-Markowitz Model. Sharpe's Single Index Model Systematic Risk and Unsystematic Risk.
- **UNIT-III** Taylor series and Bond Valuation. Calculation of Duration and Convexity of bonds. Financial Derivaties Futures. Forward. Swaps and Options. Call and Put Option. Call and Put Parity Theorem. Pricing of contingent claims through Arbitrage and Arbitrage Theorem.

#### **Application of Mathematics in Insurance**

- **UNIT-IV** Insurance Fundamentals Insurance defined. Meaning of loss. Chances of loss, peril, hazard, and proximate cause in insurance. Costs and benefits of insurance to the society and branches of insurance-life insurance and various types of general insurance. Insurable loss exposuresfeature of a loss that is ideal for insurance. Life Insurance Mathematics Construction of Mortality Tables. Computation of Premium of Life Insurance for a fixed duration and for the whole life.
- **UNIT-V** Determination of claims for General Insurance Using Poisson Distribution and Negative Binomial Distribution-the Polya Case.

Determination of the amount of Claims in General Insurance - Compound Aggregate claim model and its properties, and claims of reinsurance. Calculation of a compound claim density function. F-recursive and approximate formulae for F.

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Theory component will have maximum marks 30. Practical component will have maximum marks 20.

### (IV) PROGRAMMING IN C AND NUMERICAL ANALYSIS (Thoury & Practical) (Paper Code-0903)

UNIT-IProgrammer's model of a computer. Algorithms. Flow Charts. Data Types. Arithmetic and input/output instructions. Decisions control structures. Decision statements. Logical and Conditional operators. Loop. Case control structures. Functions. Recursions. Preprocessors. Arrays. Puppetting of strings. Structures. Pointers. File formatting.

#### Numerical Analysis

- UNIT-II Solution of Equations : Bisection, Secant, Regula Falsi, Newton's Method, Roots of Polynomials : Interpolation : Lagrange and Hermite Interpolation, Divided Differences, Difference Schemes, Interpolation Formulasusing Differences. Numerical Differentiation. Numerical Quadrature : Newton-Cote's Formulas. Gauss Quadrature Formulas, Chebychev's Formulas.
- UNIT-III Linear Equations : Direct Methods for Solving. Systems of Linear Equations (Guass Elimination, LU Decomposition, Cholesky Decomposition), Iterative Methods (Jacobi, GaussSeidel, Relaxation Methods).

The Algebraic Eigenvalue problem : Jacobi's Method, Givens' Method, Householder's Method, Power Method, QR Method, Lanezos' Method.

- UNIT-IV Ordinary Differential Equations : Euler Method, Single-step Methods, Runge-Kutta's Method, Multi-step Methods, Milne-Simpson Method, Methods Based on Numerical Integration, Methods Based on Numerical Differentiation, Boundary Value Problems, Eigenvalue Problems.
  Approximation : Different Types of Approximation, Least Square Polynomial Approximation, Polynomial Approximation using Orthogonal Polynomials, Approximation with Trigonometric Functions, Exponential Functions, Chebychev Polynomials, Rational Functions.
- **Unit-V** Monte Carlo Methods Random number generation, congruential generators, statistical tests of pseudo-random numbers.

Random variate generation, inverse tranform method, composition method, acceptancerejection method, generation of exponential, normal variates, binomial and Poisson variates.

Monte Carlo integration, hit or miss Monte Carlo integration, Monte Carlo integration for improper integrals, error analysis for Monte Carlo integration.

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#### (IV) PRACTICAL

### PROGRAMMING IN C AND NUMERICAL ANALYSIS LIST OF PRACTICAL TO BE CONDUCTED...

- 1. Write a program in C to find out the largest number of three integer numbers.
- 2. Write a program in C to accept monthly salary from the user, find and display income tax with the help of following rules :

Monthly Salary	Income Tax					
9000 or more	40% of monthly salary					
7500 or more	30% of monthly salary					
7499 or less	20% of monthly salary					

- 3. Write a program in C that reads a year and determine whether it is a leap year or not.
- 4. Write a program in C to calculate and print the first n terms of fibonacci series using looping statement.
- 5. Write a program in C that reads in a number and single digit. It determines whether the first number contains the digit or not.
- 6. Write a program in C to computes the roots of a quadratic equation using case statement.
- 7. Write a program in C to find out the largest number of four numbers using function.
- 8. Write a program in C to find the sum of all the digits of a given number using recursion.
- 9. Write a program in C to calculate the factorial of a given number using recursion.
- 10. Write a program in C to calculate and print the multiplication of given 2D matrices.
- 11. Write a program in C to check that whether given string palindrome or not.
- 12. Write a C function seriessum () to calculate the sum of series :  $1+X+1/2! X^2+1/3! X^3+.... 1/n! X^n$
- 13. Write a program in C to determine the grade of all students in the class using Structure. Where structure having following members name, age, roll, sub 1, sub2, sub3, sub4 and total.
- 14. Write a program in C to copy one string to another using pointers. (Without using standard library functions).
- 15. Write a program in C to store the data of five students permanently in a data file using file handling.

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# (V) MATHEMATICAL MODELLING(Paper Code-0904) The Process of Applied mathematics.

- **UNIT-I** Setting up first-order differential equations Qualitative solution sketching. Difference and differential equation growth models.
- **UNIT-II** Single-species population models. Population growth-An age structure model. The spread of Technological innovation.
- **UNIT-III** Higher-order linear models- A model for the detection of diabetes. Combat modes.

Traffic models - Car-following models. Equilibrium speed distributions.

- **UNIT-IV** Nonlinear population growth models. Prey-Predator models. Epidemic growth models. Models from political science Proportional representation-cumulative voting, comparison voting.
- **UNIT-V** Applications in Ecological and Environmental subject areas- Urban waste water management planning.

#### **REFERENCES**:

- 1. Differential equation models, Eds. Martin Braun, C.S. Coleman, D.A. Drew.
- 2. Political and Related Models, Steven. J. Brams, W.F. Lucas, P.D. Straftin (Eds.)
- 3. Discrete and System models, W.F. Lucas, F.S. Roberts, R.M. Thrall.
- 4. Life Science Models, H.M. Roberts & M. Thompson.

All volumes published as modules in applied Mathematics, Springer-Verlag, 1982.

5. Mathematical Modelling by J.N. Kapur, New Age International, New Delhi.

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## B. Ed. Curriculum **Curriculum Framework**

## B.ED. TWO YEAR COURSE (2017-2019)

Curriculum Organization based on NCTE framework							
Semester I	Semester II	Semester III	Semester IV				
THEORY	THEORY	THEORY	THEORY				
( C ) Philosophical Perspectives of Education (4 credits)	( C ) Sociological Perspectives of Education (4 credits)	(S) Pedagogy - II (4 credits)	( C S ) Gender, School & Society (4 credits)				
(C) Learner & Learning Process (4 credits)	( C ) Curriculum & Knowledge (4 credits)	( T E ) Assessment in Learning (2 credits)	( T E ) Language Proficiency (4 credits)				
	(E) Elective - I (4 credits)		(E) Elective - II (4 credits)				
(S) Pedagogy - I (4 credits)	(TE) Arts Education (2 credits)						
PRACTICUM	PRACTICUM	PRACTICUM	PRACTICUM				
Preparation of Teaching Aids (2 credits) Community Activities (2 credits)	Internship (4 Wks) (4 credits) School Experience - I (2 credits) a) Observation Report of School Documents	Internship (16 Wks) (10 credits) Reflective Diary (2 credits)	Psycho-metric Assessment (2 credits) Viva-Voce on Teaching Experience				
	b) Mentor's Report	Supervisor's Assessment (2 credits)					
12+4 = 16 Credits	14 + 6 = 20 Credits	6 + 14 = 20 Credits	12 + 2 = 14 Credits				
C = Core Paper; E = Elective P	aper;) T E = Teacher Enrichment; (	C S = Contemporary Study					



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## B. Ed. Scheme

#### SCHEME OF ASSESSMENT B.Ed. Two Year Course (Session 2017-19)

SL. NO.	PAPER				SCHEME OF MARKS				S	
SEMESTER I	THEORY					EXTERNAL MARKS II			AL MARKS	
Paper I	Philoso	phical Perspe	ctives of	Education		10	0			
Paper II	Learner	r and Learnin	g Proces	s		10	0			
Paper III	Pedago	gy – I	0			10	0			
-		PRACT	ICUM		EX	TERNA	L MARKS	INTERN	AL MARKS	
(i)	Prepara	ation of Teach	ing aids			-	-		50	
(ii)	Commu	unity Activitie	s			-	-		50	
		- ·		TOTAL	1	30	0	1	100	
SEMESTER II		THEC	DRY		EX	TERNA	L MARKS	INTERN	AL MARKS	
Paper IV	Sociolog	gical Perspect	ives of E	ducation		10	0			
Paper V	Curricu	lum and Kno	wledge			10	0			
Paper VI	Elective	e – I	0			10	0			
Paper VII	Arts Ed	lucation				10	0			
•		PRACT	ICUM		EX	TERNA	L MARKS	INTERN	AL MARKS	
	Interns	hip (One mon	th)							
(i)	School ]	Experience – a	a) Obser	vation of		-	-		50	
	School ]	Document; b)	Mentor'	's Report						
				TOTAL	1	40	0		50	
SEMESTER III		THEC	ORY		EX	TERNA	L MARKS	INTERNAL MARKS		
Paper VIII	Pedago	gy – II				10	0			
Paper IX	Assessn	nent in Learni	ing			10	0			
		PRACT	ICUM		EX	TERNA	L MARKS	INTERNAL MARKS		
	Interns	hip ( 4 months	<b>s</b> )			-	-	100		
	Reflecti	ive Diary & Su	uperviso	r's						
	Assessn	nent					50			
				TOTAL	200			150		
SEMESTER IV		THEC	DRY		EXTERNAL MARKS			INTERNAL MARKS		
Paper X	Gender	, School and S	Society			10	0			
Paper XI	Langua	ge Proficiency	y			10	0			
Paper XII	Elective	e – II				10	0			
		PRACT	ICUM		EX	TERNA	L MARKS	INTERN	AL MARKS	
(i)	Trainin	ig in Yoga, Sp	orts & G	ames		-	-		50	
(ii)	Psycho-	metric Assess	ment			5	0			
(iii)	Viva-V	oce on Teachi	ng Exper	rience		10	0			
	TOTAL			45	50		50			
SEMESTER		I II				III		IV		
EXAM	THEORY	PRACTICUM	THEORY	PRACTICU	JM T	HEORY	PRACTICUM	I THEORY	PRACTICUM	
MARKS	300	100	400	50		200	150	300	200	
TOTAL MARKS		400		450	350				500	
		THEORY (SI	EM-I,II,I	II,IV)	PRACTICUM (SEM-I,II,III,IV)				,III,IV)	
TOTAL MARKS		12	00				5	500		
<b>GRAND TOTAL</b>					1700					







## **Master of Commerce**

## M. Com. IV th Semester

Special attention to the Students. Students are required to select any one Specialization out of four suggested below.

#### Optional - Specialization

Optional Group -	(A)	Marketing
Optional Group -	(B)	Management
Optional Group -	(C)	Banking and Insurance
Optional Group -	(D)	Taxation and Accounting

Optional Group - (A) विपणन (Marketing)

प्रश्न पत्र	प्रश्नपत्र का नाम	पूर्णांक	पेपर कोड
Paper – A I	विपणन के सिद्धान्त	80+20	401
प्रश्न पत्र– A I	(Principle of Marketing)		
Paper – A II	विज्ञापन एवं विक्रय प्रबन्ध	80+20	402
प्रश्न पत्र – A II	(Advertising & Sales Management)		
Paper – A III	विपणन अनुसन्धान	80+20	403
प्रश्न पत्र– A III	(Marketing Research)		
Paper – A IV	अन्तर्राष्ट्रीय विपणन	80+20	404
प्रश्न पत्र –A IV	(International Marketing)		

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## **Master of Education**

## **Curriculum Framework**

## M.ED. TWO YEAR COURSE 2019-2020

Curriculum Orga	nization based on N	ICTE framework					
Semester I	PEC	Semester II	Р	Semester III	Ρ	Semester IV	PEC
(C) Philosophical perspectives of Education (4 credits) (C) Sociological perspectives of Education	Strengthening language proficiency (4 credits)	( C) Introduction to Research methodology in Education (4 credits) ( C) Psychological perspectives of Education (4 credits)	Proposal presentation on Dissertation (2 Credits) Internship School based Activities (4 Credits)	( C) History and Development of Education in India (4 credits) ( C) Economic & Political perspectives of Education	Psycho-metric Testing (4 Credits)	( C) Curriculum Development (4Credits) ( S)Educational Guidance & Counselling / Education for differently abled	Academic Writing (2 Credits)
(4 credits)				(4 credits)		(4Credits)	
(E) Education Technology/ Teacher Education (4 credits)	Exploring library resources (4 Credits)	(S) Educational Guidance & Counselling (4 Credits)/ Education for differently abled (4 credits)		(E) Advanced Education Statistics / Educational Administration and Management (4 credits)		Dissertation & Viva-Voce (8 Credits)	
				( C) Gender perspectives in Education (4 Credits)			
12	8	12	6	16	4	16	2
	20			20	<u> </u>	18	8

C = Core paper, E = Elective paper, S = Specialization, PEC = Professional Enhancement Course, P = Practicum

SRUNCOUR MARCE 12012 Paratichere Gul 25/06/18

# SCHEME OF TEACHING AND EXAMINATIONS MASTER OF SCIENCE IN COMPUTER SCIENCE

## FORTH SEMESTER

Subject Code	SUBJECTS	Teaching Load Per Week			Credit	redit Examination Marks				rks			
							Max.	Marks	5		Min.	Marks	5
		L	Т	Р	L+ (T+P)/2	Th	Ses	Pr	Total	Th	Ses	Pr	Total
Paper 1	Software Engineering	3	2	-	4	100	50	-	150	40	30		70
Paper II	Artificial intelligence and Expert System	3	2	-	4	100	50	-	150	40	30		70
Paper III	Elective : 1. Data Mining & Data Warehousing 2. Advanced Computer Architecture	3	2	-	4	100	50	-	150	40	30		70
Project	Major Project	-	-	6x2	6	-	50	300	350		30	150	180
TOTAL	•	09	06	15	18	300	200	300	800	120	120	150	390



## **Master of Science (Mathematics)**

# M.A./M.Sc. (MATHEMATICS) (Semester-III) 2018-19 & Onward

There shall be five theory papers. Two compulsory and three optionals. Each paper shall have 100 marks. Out of these five papers, the paper which has theory and practical both, the theory part shall have 70 marks and practical part shall have 30 marks. **Overall tally of marks in theory and practical will be 500**.

Paper		Description	Theory	Sessional	Practical	Remark
Comp	ulsor	y Papers	•		•	
Ι	Inte Ana	gration Theory and Functional Ilysis (I)	80	20		
II	Part Mee	tial Differential Equations & chanics (I)	80	20		
Option	nal Pa	apers				
III	A	Fundamentals of Computer Science ( Object Oriented Programming and Data Structure)	70		30	For regular students only
	В	General Relativity and Cosmology (I)	80	20		
	С	Fuzzy Set Theory & Its Applications (I)	80	20		
	D	Mathematical Biology (I)	80	20		
IV	А	Operations Research (I)	80	20		
	В	Wavelets (I)	80	20		
V	A	Programming in C (with ANSI Features) (I)	70		30	For regular students only
	В	Graph Theory (I)	80	20		
	С	Algebraic Number Theory (I)	80	20		

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## Scheme of Examination M.A./M.Sc. (MATHEMATICS) (Semester-IV) 2018-19 & Onward

There shall be five papers. Two compulsory and three optional papers. Each paper shall have 100 marks. The paper which has theory and practical both, the theory part shall have 70 marks and practical part shall have 30 marks. **Overall tally of marks in theory and practical will be 500**.

Paper		Descri	Theory	Session	Practical	Rema
		ption		al		rk
Compulsory Papers						
Ι	Functional Analysis (II)		80	20		
II	Partial Differential		80	20		
	Equ	Equations & Mechanics				
<b>Optional Papers</b>						
III	Α	<b>Operating System and</b>	70		30	For
		<b>Database Management</b>				regular
		System				students
	В	Cosmology (II)	80	20		
	C	Fuzzy Set Theory	80	20		
		& Its Applications				
	D	Mathematical Biology(II)	80	20		
IV	Α	<b>Operations Research (II)</b>	80	20		
	В	Wavelets (II)	80	20		
V	А	Programming in C (with	70		30	For
		ANSI Features) (II)				regular
						students
	В	Graph Theory (II)	80	20		
	С	Algebraic Number Theory	80	20		

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