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PARK'S COLLEGE (AUTONOMOUS)

www.parkscollege.ac.in

PARK'S COLLEGE (AUTONOMOUS), Tirupur-5

B.Sc Mathematics

Vision :

❖ To create an academically sound environment the nurtures, motivates and inspires excellence in research and teaching in Mathematics along with concern for society.

Mission :

❖ To educate and form the youth as liberated lifelong learners who are sensitive to gender and ecology, empowered to respond to global challenges.

❖ To make the students creative and research oriented

❖ To impart quality education in mathematics to rural and economical weaker students

❖ To inspire, prepare and empower students to succeed in the ever-changing world.

PROGRAMME OUTCOMES (POs)

On completion of B.Sc Mathematics Programme, the students are expected to

P01: Apply the knowledge of life science, physical and chemical science, mathematics, statistics, computer science and humanities for the attainment of solutions to the problems that come across in our day-to-day life/activities.

PO2: Recognize, identify and analyse the problem and formulate solutions for problems using the principles of mathematics, natural sciences with appropriate consideration for the public health, safety and environmental considerations.

PO3: Formulate, research literature and solve complex computing problems researching sustained conclusions using fundamental principles of mathematics, computing sciences and relevant domain disciplines.

PO4: Evaluate solutions for complex computing problems and design and evaluate systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal.

PO5: Communication the fundamental and advance concepts of their discipline in written and oral form. Able to make appropriate and effective use of information and information technology relevant to their discipline.

PO6: Create, select, adapt and apply appropriate techniques, resources and modern computing activities with an understanding of the limitations.

PO7: Understand and commit to professional ethics and cyber regulations, responsibilities and norms of professional computing practice.

PO8: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadcast context of technological change.

PO9: Commitment to principles, codes of conduct and social responsibility in order to behave consistently with personal respect. Acquire the responsibility to contribute for the personal development and for the development of the community. Respect the ethical values, social responsibilities and diversity.

PO10: Identify a timely opportunity and using innovation to purse that opportunity to create value and wealth for the betterment of the individual and society at large.

PO11: Function as an individual and as a member or leader in diverse teams and in multidisciplinary settings.

PO12: Become an entrepreneur by acquiring technical, communicative, problem solving and intellectual skills.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

The objectives of B.Sc. Mathematics Programme is to equip/prepare the students

PEO 1	Provide students with a thorough knowledge of fundamental mathematical facts,and solve problems which can be analyzed mathematically.
PEO 2	Provide high quality and relevant education in the field of Mathematics
PEO 3	Provide grounding in a coherent body of knowledge, board coverage of related academic skills, personal development and social skills.
PEO 4	Develop confidence to appear for SSC (CGL), IBPS, RRB and Civil servicesexam and will occupy higher posts in administrative level.
PEO 5	Expose them to various contemporary issues which will enable them become ethical and responsible towards themselves, co-workers, the Society and the Nation

PROGRAMME SPECIFIC OBJECTIVES (PSOs)

On the successful completion of B.Sc. Mathematics, the students will be able to

PSO 1	Graduates will develop necessary computer skills and knowledge to enhance their employability
PSO 2	Graduated will became good team players and team leaders.
PSO 3	Graduated will acquire adequate mathematical and statistical skills which willenable them to have successful careers
PSO 4	Graduates will apply their knowledge in modern industry, teaching, and research.
PSO 5	Graduates will become effective collaborators and innovators, leading or participating in ventures that address social, technical and business challenges.

Course Outcomes

Course Code and Course Name	Course Outcomes
Language - I	**CO1**: புதுக்கவிதை, மரபுக்கவிதை வாயிலாக இலக்கிய, வாழ்வியல் அறநெறிகளை உரைத்தல். **CO2**: சிறுகதை வழி வெளிப்படும் சமுதாயச் சிந்தனைகளை அறிந்து விழிப்புணர்வைப் பெறுதல். **CO3**: தன்னம்பிக்கையை ஏற்படுத்தல். **CO4**: மாணவர்களுக்கு மொழி அறிவை வளர்த்தல். **CO5**: இலக்கியங்கள் தோன்றி வளர்ந்த பின்புலத்தையறிதல்.
E01 English - I	**CO1:** To identify English as an easy language for the purpose of learning **CO2:** To acquire language skills with literary appreciation and critical thinking **CO3:** To construct a sentence competitively in the spoken and written communication **CO4:** To develop a passion for Literature and language **CO5:** To develop the different usage of sentences and modes of letter writing
24BDSC1 Classical Algebra	**CO1:** Determine the convergence of real sequences and series. **CO2:** Find the sum of the series by applying Binomial, Exponential andLogarithmic Series **CO3:** Relation between the roots and coefficients of equations **CO4:** Apply transformations of equations and solve the Equations **CO5:** Formulate and solve the mathematical equations and analyze the nature of the roots
24BDSC2 Calculus	**CO1:** Recall the basic concepts of differentiation, partial differentiation and Integration **CO2:** Evaluate problem solving skills using derivatives and Partial Derivatives **CO3:** Classify the nature of double points of a curve and Determine asymptotes for the curve **CO4:** Evaluate problems in double and triple integrals using Transformation of one coordinate system to another **CO5:** Analyze the properties of Beta and Gamma functions.
24BAL1 Mathematical Statistics-I	**CO1:** Learn about various measures of central tendencies and their appropriate usage. **CO2:** Understand the meaning of correlation, regression and its properties. **CO3:** Understand random variables and probability distributions. **CO4:** Know the difference between discrete and continuous random variables. **CO5:** Compute expected value and variance of discrete and Continuous random variables.
FCA Environmental Studies	**CO1:** Understand and gain a rigorous foundation in various scientific disciplines as they apply to environmental science, such as ecology, evolutionary biology, hydrology, and human behavior. **CO2:** Understand the primary environmental problems and the science behind those problems and potential solutions. **CO3:** Acquire the knowledge about the social issues. **CO4:** Learn about the field work of the environmental issues.

Course Code and Course Name	Course Outcomes
	CO5: Acquire the knowledge about the pollution and its effects.
Communicative English	**CO1:** Develop and effectively communicate through verbal/oral communication and improve the listening skills. **CO2:** Develop and actively participate in group discussion / meetings / interviews and prepare & deliver presentations. **CO3:** Understand and develop effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, inter-personal relationships, conflict management and leadership quality. **CO4:** Understand the individual through goal/target setting, self motivation and practicing creative thinking. **CO5:** Enrich the personality.
Language - II	**CO1:** சிற்றிலக்கியம், காப்பியம் வாயிலாக இலக்கிய, வாழ்வியல் அறநெறிகளை உரைத்தல். **CO2:** கட்டுரை வழி வெளிப்படும் சமுதாயச் சிந்தனைகளை அறிந்து விழிப்புணர்வைப் பெறுதல். **CO3:** தன்னம்பிக்கையை வளர்த்தல். **CO4:** இலக்கணங்களைக் கற்று தருதல், படைப்புத் திறனை உக்குவித்தல். **CO5:** மாணவர்களை வேலை வாய்ப்புடன் கூடிய போட்டித் தேர்வுகளுக்குத் தயார்ப்படுத்துதல்.
E02 English - II	**C01:** To read and comprehend English in the context of acquisition of soft (life) skill. **C02:** To acquire knowledge about three basic genres of literature namely poetry, prose and drama along with their subdivisions emergence in various ages. **C03:** To understanding of the various aspects of the Essay-its elements, kinds, structure and the nuances of language **C04:** To communicate clearly, effectively and handle their day to day affairs well with their knowledge of language skills. **C05:** To apply the basic grammatical rules learnt from the prescribed text.
24BDSC3 Analytical Geometry	**CO1:** Develop the polar form of straight lines, circle and conic sections and also to understand the properties **CO2:** Gain more profound Knowledge on straight lines **CO3:** Analyze the characteristics of sphere **CO4:** Demonstrate the fundamental concepts of cone and cylinder **CO5:** Integrate the concept of cone and straight line
24BDSC4 Trigonometry , Vector Calculus and Fourier Series	**CO1:** Understand the expansions of trigonometric functions, the nature of Hyperbolic functions, Fourier Series, Vector point functions **CO2:** Understand the expressions for trigonometric functions **CO3:** Find the Fourier co-efficient for Periodic functions and its applications. **CO4:** Apply the concepts of Gradient, Divergence and Curl in solving vector differentiation problems. **CO5:** Solve the multiple integrals by applying Gauss divergence

Course Code and Course Name	Course Outcomes
	theorem, Stoke's theorem and Green's theorem.
24BAL2 **Mathematical Statistics-II**	**CO1:** Acquire the Knowledge by using Binomial distribution, Poisson Distribution etc. **CO2:** Interpret different types of distributions and discuss their statistical properties **CO3:** Identify the appropriate probability distribution for a given situation **CO4:** Apply the concepts of t-distributions and its applications. **CO5:** Demonstrate the use of chi-square distribution
FCB **Human Rights,** **Constitution of India &** **IPR**	**CO1:** Understand and apply written and oral communication skills to business. **CO2:** Understand and analyze the global legal environment. **CO3:** To familiarize the complex problems, find and deploy a variety of legal authorities, and communicate effectively in a variety of settings. **CO4:** Understand and Develop skills in business situations. **CO5:** Acquire the knowledge about the constitution of India.
SS1 **Communicative English**	**CO1:** Develop and effectively communicate through verbal/oral communication and improve the listening skills. **CO2:** Develop and actively participate in group discussion / meetings / interviews and prepare & deliver presentations. **CO3:** Understand and develop effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter- personal relationships, conflict management and leadership quality. **CO4:** Understand the individual through goal/target setting, self motivation and practicing creative thinking. **CO5:** Acquire the knowledge about the correct usage and conversation practice.
Language - III	**CO1:** பக்தி இலக்கியம் வாயிலாக இலக்கிய, வாழ்வியல் அறநெறிகளை உரைத்தல். **CO2:** நீதி இலக்கியம் வாயிலாக வாழ்வியல் அறநெறிகளை உரைத்தல். **CO3:** நவீன கருவிகளை அறியச் செய்தல். **CO4:** இலக்கணங்களைக் கற்றுத் தருதல், படைப்புத் திறனை ஊக்குவித்தல். **CO5:** தற்கால கவிஞர்களைப் பற்றியும், சங்க இலக்கியங்களைப் பற்றியும் அறியச் செய்தல்.
E03 **English - III**	**CO1:** To identify the concepts of basic Grammar. **CO2:** To understand the proficiency of the English writer's narrative skill's of their experience. **CO3:** To express their own notions, in prose, poetry and short story. **CO4:** To develop an interest for literature and language **CO5:** To distinguish the development of prose through different periods.
	CO1: Recollect the notions of friction **CO2:** Centre of gravity and deploy them in solving the respective problems.

Course Code and Course Name	Course Outcomes
24BDSC5 **Statics**	**CO3:** Get a clear idea about the concepts of forces and moments. **CO4:** Apply the concepts of forces in finding the resultant of more than one force acting on a surface. **CO5:** Analyze the basics of coplanar forces and equilibrium of three forces acting on a rigid body and can solve the simple problems related to it.
24BDSC6 **Operations Research-I**	**CO1:** Demonstrate OR approach in decision making **CO2:** Formulate mathematical LPP models and find their solutions **CO3:** Translate LPP using duality principle and find their solutions **CO4:** Recall and apply simplex method and its extensions **CO5:** Recognize, solve and interpret transportation problems
24BAL3 **Business Accounting**	**CO1:** To understand the principles and concepts of accounting system to maintain the business transactions systematically. **CO2:** Acquire the conceptual skills to prepare financial statements. **CO3:** Gain knowledge on Bank Reconciliation Statement and Accounting for Non- profit Organization. **CO4:** Learn the various techniques and methods of depreciation followed in the business. **CO5:** Explain the purpose of double entry system to understanding the accounting system properly.
NME1 **General Awareness**	**CO1:** This course is designed to create social awareness at a preliminary level for students across the board. **CO2:** To help the students to upgrade their knowledge on Current challenges and issues of Indian society. **CO3:** Understand and acquire the knowledge about the current information around the world. **CO4:** Understand the multi-cultural diversity of Indian society through its demographic composition. **CO5:** To understand the different levels of government administration.
Mathematical Skills	**CO1:** Problem solving techniques for aptitude problems **CO2:** Prepare themselves for various competitive examinations. **CO3:** Applications of simple formulae **CO4:** Acquaintance to shortcut methods **CO5:** Acquaintance to various elementary concepts
Language - IV	**CO1:** சங்க கால மக்களின் வாழ்வியலை அறியச் செய்தல். அற இலக்கியங்கள் வழி ஒழுக்கங்களைக் கற்றல். **CO2:** நாவல் வழி வெளிப்படும் சமுதாயச் சிந்தனைகளை அறிந்து விழிப்புணர்வைப் பெறுதல். **CO3:** நவீன கருவிகளை அறியச் செய்தல். **CO4:** மொழி அறிவை வளர்த்தல், படைப்புத் திறனை வளர்த்தல். **CO5:** மாணவர்களுக்குத் தன்னம்பிக்கை மற்றும் தலைமைப் பண்பை வளர்த்தல், மாணவர்களை வேலை வாய்ப்புடன்

Course Code and Course Name	Course Outcomes
	கூடிய போட்டித் தேர்வுகளுக்குத் தயார்ப்படுத்துதல்.
E04 **English – IV**	**CO1:** To understand the narrative style of the renowned prolific writers' personal experiences **CO2:** To analyse and demonstrate their writing skills. **CO3:** To cherish the populous works of eminent classical writers. **CO4:** To develop an ability to write in appropriate genres for a variety of purposes and audience **CO5:** To be aware of important grammar and confidence in their own voice as a writer
24BDSC7 **Dynamics**	**CO1:** Remember the notions which were studied under Simple harmonic motion **CO2:** Clearly understand the concept of projectiles and its properties by solving some simple problems related to it. **CO3:** The collision of elastic bodies and able to solve the simple problems regarding it. **CO4:** Evaluate the law of force sin central orbit by applying the action of central forces. **CO5:** Analyze the concept of impulse, impulsive forces.
24BDSC8 **Operations Research-II**	**CO1:** Choose the mathematical tools that are needed to solve the Assignment Problems **CO2 :** Apply Game Theory and its types **CO3:** Apply and extend queuing models to analyze real world models **CO4:** Recall mathematical skills to analyze and solve problems in queuing models **CO5:** Predict the demand and supply in transaction of goods.
24BDSC9 **Differential Equations & LaplaceTransforms**	**CO1:** Recollect the notions of Differential Equations and deploy them in solving the respective problems. **CO2:** Apply the concepts of First and Second Order Differential Equations With constant coefficients **CO3:** Geta clear idea about the concepts of Laplace Transform **CO4:** Solve linear differential equations with constant coefficients and unit step and unit impulse functions using Laplace transform **CO5:** Analyze the basics of inverse and Application of Laplace Transform and can solve the simple problems related to it.
24BAL4 **Cost and Management Accounting**	**CO1:** Understand the role of cost accounting in the complex Business environment. **CO2:** To impart knowledge in cost sheets, material cost and labour cost. **CO3:** Understand the Labour costing system and cost management system. **CO4:** Acquire knowledge on fundamental aspects of the management accounting and the financial performance of the companies.

Course Code and Course Name	Course Outcomes
	CO5: Understand the preparation of different types of budget.
NME2 **Women's Rights**	**CO1:** To gain an understanding about barriers of society and impact of law to mitigate this issues **CO2:** To make students understand the basic concepts in comparative politics. **CO3:** To understand the relationship between patriarchy, power and violence. **CO4:** To recognize key women's human rights defenders who have made important contribution to furthering the rights of women and girls. **CO5:** Demonstrate a working knowledge of feminism and the field of Women and Gender Studies.
SS2 **Mathematical Skills**	**CO1:** Problem solving techniques for aptitude problems **CO2:** Prepare themselves for various competitive examinations. **CO3:** Applications of simple formulae **CO4:** Acquaintance to shortcut methods **CO5:** Applying the techniques in real life problems
COC1/COC2/ **COC3 Extension Activities (NCC / NSS / SPORTS)**	**CO1:** Identify and apply the elements of social activities **CO2:** Demonstrate effective use of government schemes and projects **CO3:** Investigate visual strengths to promote NCC activities **CO4:** Identify and apply the sustainable use of club activities **CO5:** Create the awareness to people about the environmental pollution
24BDSC10 **Real Analysis - I**	**CO1:** Understand basic concepts of Real Analysis **CO2:** Determine the real number system concept, LUB, Absolute value and triangleinequality **CO3:** Apply the concepts of continuity, convergent sequences and metric space. **CO4:** Develop simple proofs for some standard theorems **CO5:** Analyze the concepts of intersection theorem and covering theorems.
24BDSC11 **Complex Analysis - I**	**CO1:** Perform basic algebraic manipulation with complex numbers **CO2:** Gets a chance to explore the concept of uniform convergence, conformal mapping **CO3:** Evaluate integrals along a path in the complex plane and understand the concept of Cauchy's theorem **CO4:** Compute the Taylor and Laurent expansions of simple functions,determining the nature of the singularities and calculating residues **CO5:** Discuss about cauchy's fundamental , goursat lemma , Cauchy's integral formula
24BDSC12 **Modern Algebra - I**	**CO1:** Recollect the concepts of sets, mappings, relations and work on several examples. **CO2:** Understand and use the basic definitions and properties of groups, subgroups and find simple proofs for results in group theory. **CO3:** Apply the concepts of homomorphism and isomorphism for groups andrings **CO4:** Extend the results from group theory to study the properties of rings andfields and to possess the ability to work within their algebraic structures

Course Code and Course Name	Course Outcomes
	CO5: Classify algebraic structures in various disciplines
24BDSE1A Elective-I(A)-Numerical Methods-I	**CO1:**Solve system of linear algebraic equations **CO2:**Derive numerical methods for approximating the solution of the problems of algebraic and Transcendental equations. **CO3:**Implement a variety of numerical algorithms using appropriate technology **CO4:**Get practical knowledge of polynomial interpolation. Also numerical algorithms are used inC++ for solving scientific problems. **CO5:** Solve the ordinary differential equations by usingthe methods like Lagrange's method.
24BDSE1B Elective-I(B)-Astronomy-I	**CO1:**Understand the concept of the Solar System. **CO2:**Become familiar with the Double & Multiple stars. **CO3:**Acquire the knowledge in the Milky Way. **CO4:**Know the various constellations. **CO5:**Trained to know the normal forms.
24BDSE1C Elective-I(C)-AutomataTheory And Formal Languages	**CO1:**Understanding the definition of Automation. **CO2:**Introducing the different types of Grammar. **CO3:**Constructing the Regular Expressions. **CO4:**Trained to know the normal forms. **CO5:**Simplifying context free grammar.
24BDSE2A Elective-II(A):GraphTheory	**CO1:**Define Introduction of Graphs **CO2:**Concept of Euler and Hamiltonian graphs **CO3:**Planar Graph concept is learned **CO4:**Application of graph theory **CO5:**Relation between matrices and graph theory
24BDSE2B Elective - II(B):Astronomy-II	**CO1:**Introducing the exciting world of astronomy to the students **CO2:**Gain basic knowledge of the Moon **CO3:**Acquire the facts in Ellipses **CO4:**Understanding Kepler's laws of planetary motion. **CO5:**Find the application of Astronomical Instruments like sidereal clock and chronometer
24BDSE2C Elective - II(C):ElementsOf Number Theory	**CO1:**Understand the concepts of divisibility, congruence, greatest commondivisor, prime and prime-factorization **CO2:**Analyze and solve linear Diophantine equations and congruences of various types and use the theory of congruences in applications. **CO3:**Apply the properties of multiplicative functions such as the Euler phi-function and quadratic residues **CO4:**Evaluate the unsolved problems about primes. **CO5:**Apply the sum of squares by Fermat's, Lagurange's& Euler's theorems.
24BSB1	**CO1:** Understand the basic terminology used in C programming. **CO2:** Write, compile and debug programs in C language.

Course Code and Course Name	Course Outcomes
Skill Based l: C Programming	**CO3**: Design programs involving decision structures, loops and functions. **CO4:** Understand the dynamics of memory by the use of pointers. **CO5:** Understand the concept of files in C language.
24BCIR **Internship/Field Project**	**CO1:** To Integrate theory with practical. **CO2:** To give opportunity to students to work with industrial experts **CO3:** To introduce students to work culture. **CO4:** Acquire skills in communication, management team work. **CO5:** To understand scope, functions and job responsibilities in various departments of an organization.
Managerial Skills	**CO1:** Develop and effectively communicate through verbal/ oral communication and improve thelistening skills. **CO2:** Develop and actively participate in group discussion / meetings / interviews and prepare & deliver presentations. **CO3:** Understand and develop effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter- personal relationships, conflict management and leadership quality. **CO4:** Understand the individual through goal/target setting, self motivation and practicing creative thinking. **CO5:** Acquire the knowledge about the reasoning ability and mental attitude.
24BDSC13 **Real Analysis – II**	**CO1:** Apply the concept of continuity **CO2:** Explain the concepts of completeness and connectedness in metric Spaces **CO3:** Distinguish continuity and uniform continuity **CO4:** Understand the concept of derivatives, bounded variation. **CO5:** Get visualize bounded variation and rectifiable curves.
24BDSC14 **Complex Analysis – II**	**CO1:** Perform basic algebraic manipulation with complex numbers **CO2:** Get a chance to explore the concept of uniform convergence, conformal mapping **CO3:** Evaluate integrals along a path in the complex plane and understand the concept of Cauchy's theorem. **CO4:** Compute the Taylor and Laurent expansions of simple functions, determining the nature of the singularities and calculating residues. **CO5:** Apply the Meromorpic function ,Rouche's theorem.
24BDSC15 **Modern Algebra – II**	**CO1:** Find the inverse of the matrix and Define Symmetric and Skew – SymmetricMatrices **CO2:** Demonstrate various characterization of nonsingular matrices **CO3:** Understand the basic concept of vector spaces **CO4:** Define orthogonality in an inner product space and construct orthonormalbasis **CO5:** Find the matrix of a linear transformation
	CO1: Acquire knowledge about the basic concepts of Discrete Mathematics and itsapplications

Course Code and Course Name	Course Outcomes
24BDSC16 **Discrete Mathematics**	**CO2:** Basic Concepts of True and False logical statements **CO3:** Evaluate integrals along a path in the complex plane and understand the concept of Cauchy's theorem **CO4:** Understand abstract algebra, posets, lattices, Boolean algebra **CO5:** Analyze natural language arguments by means of symbolic propositional logic
24BDSE3A **Elective – III(A):** **Numerical Methods - II**	**CO1:** Derive numerical methods for approximating the solution of the problems of algebraic and transcendental equations **CO2:** Implement a variety of numerical algorithms using appropriate Technology **CO3:** Recollect the notions of Differential Equations and deploy them in solving the respective problems. **CO4:** Solve the ordinary differential equations by using the methods like Euler's, Runge Kutta, Modified Euler and Improved Euler. **CO5:** Apply the concepts of First and Second Order Differential Equations with constant coefficients
24BDSE3B **Elective – III(B):** **Fuzzy Logic and Fuzzy Sets**	**CO1:** Explain the concept of fuzzy sets and crisp sets in brief **CO2:** Define operations and relations in fuzzy sets **CO3:** Demonstrate the operations on fuzzy sets **CO4:** Analyze the relationship among fuzzy measures **CO5:** Apply fuzzy theory in engineering, management and medicine.
24BDSE3C **Elective – III(C):** **Fundamentals of Computer Algorithms**	**CO1:** Recall some basic programming principles and algorithm design techniques **CO2:** Demonstrate the correctness of divide and conquer algorithms and solve some problems **CO3:** Classify Greedy strategy algorithms and Solve some problems **CO4:** Solve dynamic programming problems **CO5:** Analyze the Backtracking Problems
24BIDE **Interdisciplinary Elective** **Vedic Mathematics**	**CO1:** Understand the concept of addition and subtraction using completing the whole and from left to right. **CO2:** Manage to solve the multiplication using vertically and crosswise and one more than the previous one method and demonstrate multiplication by 11. **CO3:** Distinguish between squaring numbers ending in 5 and squaring numbers near number 10. **CO4:** Apply reverse squaring to find square root of number ending in 5 and manage to solve the square root of perfect square. **CO5:** Identify cube and cube roots, understand and apply division by 9 and understand the concept of division by using straight division.
24BCPV Project Work and Viva –Voce	**CO1:** Ability to identify research problems and selection of research areas. **CO2:** Acquire knowledge to an application software **CO3:** Ability to choose and apply appropriate tools for

Course Code and Course Name	Course Outcomes
	programming. **CO4:**Develop the skills to arrive a technical solution to the research problem **CO5:** Obtain practical knowledge in preparing the research report.
24BSBL1 **Skill Based II:Laboratory-1-C** **Programming Practical**	**CO1:**Illustrate Programming principles **CO2**:Develop skills to solve mathematical problems **CO3:**Relate conditional and looping statements **CO4:**Design simple projects **CO5:**Construct programs using strings and functions
SS3 **Managerial Skills**	**CO1:**Develop and effectively communicate through verbal/oral communication and improve the listening skills. **CO2:**Develop and actively participate in group discussion / meetings / interviews and prepare & deliver presentations. **CO3:**Understand and develop effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter- personal relationships, conflict management and leadership quality. **CO4:**Understand the individual through goal/target setting, self Motivation and practicing creative thinking. **CO5:**Acquire the knowledge about the reasoning ability and mental
COC4 Club Activities	**CO1:**Identify and apply the elements of club activities **CO2:**Demonstrate effective use of government schemes and projects **CO3:**Investigate visual strengths to promote club activities **CO4:**Identify and apply the sustainable use of club activities **CO5:**Create the awareness to the student about club activities