

- PROGRAMME OUTCOMES
- PROGRAMME SPECIFIC OUTCOMES
- COURSE OUTCOMES

# Bachelor of Science (B.Sc.)

## Programme Outcomes (PO)

PO-1 Understand scientific phenomena and their relevance in everyday life

PO-2 Develop skills to identify, analyse and solve problems of their core areas using modern tools and techniques

PO-3 Developed scientific outlook not only with respect to science subjects but also in all aspects related to life.

PO-4 Realized how developments in any science subject helps in the development of other science subjects and vice-versa and how interdisciplinary approach helps in providing better solutions and new ideas for the sustainable developments

## Programme Specific Outcomes (PSO)

### Bachelor of Science (B.Sc.) -Botany/Zoology/Chemistry (BZC )

PSO 1: Understands life process and influence of the environment on life.

PSO 2: Appreciates the evolutionary mechanism which led to the formation of present-day plants and animals

PSO 3: Understands the role of chemistry in life processes and appraise role of green chemistry in environment sustainability

PSO4: Students master fundamental skills to function effectively as professionals and continue learning in the field of Biology

### Bachelor of Science ( B.Sc.) – Maths/Physics/Chemistry (MPC)

PSO 1: Enhances arithmetical skills and logical reasoning in students

PSO 2: Understand the physical and chemical properties of materials

PSO 3: Develops ability to interlink the information in physical science, material science and chemical science and build up an inclination to address the issues in biophysics.

PSO 4: The combination integrates all Basic Science courses and lays a strong foundation and prepares the learner for Post-Graduation in respective disciplines

## Bachelor of Science (B.Sc.)-Maths/Physics/Computer Science (MPCs)

PSO 1: Enhances arithmetical skills and logical reasoning in students.

PSO 2: Master a broad set of knowledge concerning the fundamentals in the basic areas of Physics and Mathematics

PSO 3 : Develop proficiency in computing

PSO 4: Hands-on experience in various practical aspects of problem solving, programming and experimentation.

## Bachelor of Commerce

### Programme Outcomes (PO)

PO-1 Students develop business acumen and financial literacy. .

PO-2 Analytical skills, entrepreneurial and managerial skills learnt through the course renders students employable.

PO-3 Knowledge about principles in accounting, economic policies, export and import laws and other aspects which tends to impact business and trade will help in building competence in choosing business as a career

PO-4 Computer programming skills help in conducting business with ease and make them employable

### Programme Specific Outcomes (PSO)

## Bachelor of Commerce (B.Com.)-General

PSO 1: Enables the students to develop business acumen and financial literacy

PSO 2: Enables students to examine the connection between Accounting, Auditing and Taxation.

PSO 3: Analytical skills, entrepreneurial and managerial skills learnt through the course renders students employable.

PSO 4: Knowledge of principles in accounting, economic policies, export and import laws and other aspects which tends to impact business and trade will help in building competence in choosing business as a career

## Bachelor of Commerce (B.Com)-Computer Applications

PSO 1: Enables the students to develop business acumen and financial literacy. To examine the connection between Accounting, Auditing and Taxation.

PSO 2: Analytical skills, entrepreneurial and managerial skills learnt through the course renders students employable. Knowledge of principles in accounting, economic policies, export and import laws and other aspects which tends to impact business and trade will help in building competence in choosing business as a career

PSO 3: Knowledge of computer programming enable the students to meet the requirements of technical competencies for placements

PSO 4: To empower the student to comprehend the ideas of computer programming and its applications in web based business tasks.

## Bachelors of Arts (B.A)

### Programme Outcomes (PO)

PO-1 Students develop a broader outlook towards the society

PO-2 Inculcates critical thinking, administrative acumen and effective leadership qualities

PO-3 Understand history to create a better future

PO-4 Knowledge about socio-economic problems help students to explore ways to overcome them

PO-5 On the whole it moulds a student into a citizen. With societal responsibility

### Programme Specific Outcomes (PSO)

## Bachelors of Arts (B.A.)- History, Economics, Political Science(H.E.P)

PSO 1: Provides critical thinking, administrative acumen and moulds the student into an ideal citizen.

PSO 2: Understands the impact of economic/warfare/literary policies of various rulers on the society

PSO 3: Analyse economic theories and concepts to tackle problems like poverty unemployment and to understand market trends.

PSO 4: The combination lays a strong foundation and prepares the learner for Post-Graduation in respective disciplines

### **Program Outcomes: B.A. Political Science**

<b>Department of POLITICAL SCIENCE</b>	After successful completion of three year degree program in Political Science a student is able to
<b>Programme Outcomes</b>	<p>PO-1. Students enable to develop academic proficiency in the subfields of Indian Government and Politics, Comparative Government, International Relations, Public Administration, Political Theory and Political Ideology.</p> <p>PO-2. Students enable to develop and be able to demonstrate skills in conducting as well as presenting research in political science.</p> <p>PO-3. Students enable to analyze political and policy problems and formulate policy options.</p> <p>PO-4. Students enable to discuss the major theories and concepts of political science and its subfields, and also deliver thoughtful and well articulated presentations of research findings.</p> <p>PO-5. Understanding of the institutions, processes, constitutional background, and policy outcomes of Indian government and the ability to compare Indian government to other countries around the world.</p> <p>PO-6. Understanding of government institutions, electoral processes, and policies in a variety of countries around the world and the ability to compare the effectiveness or impact of differing political arrangements across countries.</p>

<b>Programme Specific Outcomes</b>	<p>PSO-1. Serve as a politician</p> <p>PSO-2. Work as a teacher in colleges, schools and high schools</p> <p>PSO-3. Serve as political party member, political adviser, and well citizen of India.</p> <p>PSO-4. Work in elections and political as well as administrative system.</p> <p>PSO-5. Serve in forest department as forest conservator.</p> <p>PSO-6. Can admit to MA Politics, LLB, MSW, MBA,</p>
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### **Course Outcomes B.A. Political Science**

**After completion of these courses students should be able to**

Sl.No	Semester	Course type	Course	Course Outcome
1	B.A106 SEM-I	DSC-1A	Paper-1 Political Science Concepts and Theories	Co1: To understand the nature scope of political science . Co2: To differentiate among various approaches to study of political science . Co3: Origin of state & theory . Co4: ideologies & their importance of social system & state Co5: To understand concept state nation & civil society .
2	B.A.206 SEM-II	DSC-1B	Paper-II Political Institutions	Co1: spread the knowledge about types of Govt . Co2: Understood comparative govt & politics. Co3: To understand the form of govt in various countries & their working pattern .

				Co4:Structure of role of legislature executive & judiciary. Co5:To understand about local & Urban bodies .
3	SEM-III	DSC	Paper-III Indian Government and Politics Constitution and Institution	Co1:Demonstration of constitutional values & implication . Co2:Examine the fundamental rights duties & directive principles of Indian citizen. Co3:Critically analyzing the important institutions union govt . Co4:knowledge about important institute of state govt . Co5:obseve the constitutional relations between center and state .
4	SEM-IV	DSC	Paper-IV Indian Government and Politics: Political process	Co1:To analyzing political parties in india between national & regional.  Co2:To understand history & social & political movements. Co3:To understand the role of election commission & voting behavior. Co4:To gain protection & rights by statutory commissions. Co5:Empowerment through local governance bodies.
5	SEM-V	DSC	Paper-V Western Political thoughts	Co1:To analyze western political philosophy . Co2:To analyze modern & western philosophy. Co3:To understand the utilitarian philosophy. Co4:To analyzse the idealist & concept. Co5:To analzse the Marxist political philosophy.

		DSE	Paper-VI(A) (Optional) International Relations-I	Co1:Describe the structure scope & importance of IR. Co2:Colonialism feature & third world countries. Co3:To appreciate the post war development through the emergence of their world. Co4:To understand the concept power regional global & peace security. Co5:Eu,SAARC,ASEAN, role limitation.
6	SEM-VI	DSC	Paper-VII Indian Political Thoughts	Co1:state feature s Manu,Kautilya & Bhodist political thoughts. Co2:Give the knowledge about religious movement philosophy. Co3: criticizes the causes for the theory of cost system . Co4: Give the knowledge about nationalism. Co5:To understand socialist political philosophy.
		DSE	Paper-VIII(A) (Optional) International Relations-II	Co1:Global political economy structure & role . Co2:To understand international security. Co3:To appreciate foreign policy their determinant . Co4:Emerging issues features & its relevance .Indo –US &Indo Russian relations.

-DSC (Discipline Specific Course)

-DSE (Discipline Specific Elective)



## **COURSE OBJECTIVE AND OUTCOMES OF COMPUTER SCIENCE & APPLICATIONS**

### **1) B.Sc. Computer Science –I Year (Semester – I) – Programming in C**

**Course Outcomes:** On successful completion of this course, student should be able to :-

- Identify situations where computational methods and computers would be useful.
- Given a computational problem, identify and abstract the programming task involved.
- Approach the programming tasks using techniques learned and write pseudo-code.
- Choose the right data representation formats based on the requirements of the problem.
- Use the comparisons and limitations of the various programming constructs and choose the right one for the task in hand.
- Write the program on a computer, edit, compile, debug, correct, recompile and run it.
- Identify tasks in which the numerical techniques learned are applicable and apply them to write programs, and hence use computers effectively to solve the task.
- Understanding a functional hierarchical code organization.
- Ability to define and manage data structures based on problem subject domain.
- Ability to work with textual information, characters and strings.
- Ability to work with arrays of complex objects.
- Understanding a concept of object thinking within the framework of functional model.
- Understanding a concept of functional hierarchical code organization.
- Understanding a defensive programming concept.
- Ability to handle possible errors during program execution.

### **2) B.Sc. Computer Science –I Year (Semester – II) – Object Oriented Programming in C++**

**Course Outcomes:** On successful completion of this course, student should be able to :-

- Understand the features of C++ supporting object oriented programming
- Understand the relative merits of C++ as an object oriented programming language
- Understand how to produce object-oriented software using C++
- Understand how to apply the major object-oriented concepts to implement object oriented programs in C++, encapsulation, inheritance and polymorphism
- Understand advanced features of C++ specifically stream I/O, templates and operator overloading.
- Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.
- Understand dynamic memory management techniques using pointers, constructors, destructors, etc
- Describe the concept of function overloading, operator overloading, virtual functions and polymorphism.
- Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming.
- Demonstrate the use of various OOPs concepts with the help of programs.

### **3) B.Sc. Computer Science –II Year (Semester – III) – Data Structures using Java**

**Course Outcomes:** On successful completion of this course, student should be able to :-

- Ability to describe the concepts of object-oriented programming.
- Ability to handle interfaces, class hierarchies and exceptions in programs.
- Ability to construct appropriate diagrams and textual descriptions to communicate the static structure and dynamic behavior of an object oriented solution
- Ability to design and develop Object Oriented systems
- Students will be able to analyze algorithms and algorithm correctness.
- Students will be able to summarize searching and sorting techniques
- Students will be able to describe stack, queue and linked list operation.
- Students will be able to have knowledge of trees and graphs concepts
- Students will be able to choose appropriate Data Structure as applied to specified problem definition.
- Students will be able to handle operations like searching, insertion, deletion, traversing mechanism etc. on various Data Structures.
- Students will be able to apply concepts learned in various domains like DBMS, Compiler Construction etc.
- Students will be able to use linear & non-linear Data Structures like Stacks, Queues, linked list etc.
- Students will be able to master the Programs related to OOPS concepts in Java programming language.
- Students will be able to master the usage of various packages written in the Java programming language.
- Students will be able to create, debug, Test a software application written in the Java programming language.
- Able to write well-structured procedure-oriented programs.
- Analyze run-time execution of previous learned sorting methods, including selection, merge sort, heap sort and Quick sort.
- To implement the Stack ADT using both array based and linked-list based data structures.
- To implement the Queue ADT using both array based circular queue and linked-list based implementations.
- Able to implement binary search trees.

### **4) B.Sc. Computer Science –II Year (Semester – IV) – Data Base Management System**

**Course Outcomes:** On successful completion of this course, student should be able to :-

- Describe basic concepts of database system.
- Design a data model and schemas in RDBMS.
- Be competent in use of Structured Query Language SQL.
- Analyze functional dependencies for designing a robust database.
- Implement transactions, concurrency control, and be able to do Database recovery.
- Explain the features of database management systems and Relational database.
- Design conceptual models of a database using ER modeling for real life applications and also construct queries in Relational Algebra.
- Create and populate a RDBMS for a real life application, with constraints and keys, using SQL.

- Retrieve any type of information from a data base by formulating complex queries in SQL.
- Analyze the existing design of a database schema and apply concepts of normalization to design an optimal database.
- Build indexing mechanisms for efficient retrieval of information from a database.

### **5)B.Sc. Computer Science –III Year (Semester – V) – Operating System**

**Course Outcomes :** On successful completion of this course, student should be able to :-

- Master functions, structures and history of operating systems
- Master understanding of design issues associated with operating systems
- Master various process management concepts including scheduling, synchronization, deadlocks
- Be familiar with multithreading
- Master concepts of memory management including virtual memory
- Master system resources sharing among the users
- Master issues related to file system interface and implementation, disk management
- Be familiar with protection and security mechanisms
- Be familiar with various types of operating systems including Unix
- Ability to understand basic concepts about operating system.
- Ability to describe process management, scheduling and concurrency control mechanisms.
- Ability to analyze memory management and deadlocks.
- Ability to compare various file systems and its operating systems examples.
- Describe the important computer system resources and the role of operating system in their management policies and algorithms.
- Understand the process management policies and scheduling of processes by CPU
- Evaluate the requirement for process synchronization and coordination handled by operating system
- Describe and analyze the memory management and its allocation policies.
- Identify use and evaluate the storage management policies with respect to different storage management technologies.
- Identify the need to create the special purpose operating system.
- Understand the basics of operating systems like kernel, shell, types and views of operating systems
- Describe the various CPU scheduling algorithms and remove deadlocks.
- Explain various memory management techniques and concept of thrashing
- Use disk management and disk scheduling algorithms for better utilization of external memory.
- Recognize file system interface, protection and security mechanisms.
- Explain the various features of distributed OS like Unix, Linux, windows etc.

### **6)B.Sc. Computer Science –III Year (Semester – V) –**

## **Programming with Python 7) B.Sc. Computer Science –III Year**

### **(Semester – VI) – Software Engineering**

**Course Outcomes :** On successful completion of this course, student should be able to :-

- Define various software application domains and remember different process model used in software development.
- Explain needs for software specifications also they can classify different types of software requirements and their gathering techniques.

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COURSE OBJECTIVE AND OUTCOMES OF COMPUTER SCIENCE & APPLICATIONS

- Convert the requirements model into the design model and demonstrate use of software and user- interface design principles.
- Distinguish among SCM and SQA and can classify different testing strategies and tactics and compare them.
- Justify role of SDLC in Software Project Development and they can evaluate importance of Software Engineering in PLC.
- Generate project schedule and can construct, design and develop network diagram for different type of Projects. They can also organize different activities of project as per Risk impact factor.
- Plan a software engineering process life cycle , including the specification, design, implementation, and testing of software systems that meet specification, performance, maintenance and quality requirements
- Able to elicit, analyze and specify software requirements through a productive working relationship with various stakeholders of the project
- Analyze and translate a specification into a design, and then realize that design practically, using an appropriate software engineering methodology.
- Know how to develop the code from the design and effectively apply relevant standards and perform testing, and quality management and practice
- Able to use modern engineering tools necessary for software project management, time management and software reuse.
- Able to prepare SRS document, design document, test cases and software configuration management and risk management related document.
- Develop function oriented and object oriented software design using tools like rational rose.
- Able to perform unit testing and integration testing.
- Apply various white box and black box testing techniques

### **8) B.Sc. Computer Science –III Year (Semester – VI) – Web Technologies**

**Course Outcomes:** On successful completion of this course, student should be able to :-

- Develop a dynamic webpage by the use of Java Script and DHTML.
- Write a well formed/valid XML document.
- Write a Perl script and CGI Script programs .
- Explain the history of the internet and related internet concepts that are vital in understanding web development.
- Discuss the insights of internet programming and implement complete application over the web.
- Demonstrate the important HTML tags for designing static pages and separate design from content using Cascading Style sheet.

- Utilize the concepts of JavaScript and Java
- Use web application development software tools i.e. XML etc. and identify the environments currently available on the market to design web sites.

## **1)B.Com Computer Applications –I Year (Semester – I) – Information Technology**

**Course Outcomes:** On successful completion of this course, student should be able to :-

- Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

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COURSE OBJECTIVE AND OUTCOMES OF COMPUTER SCIENCE & APPLICATIONS

- Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- Communicate effectively in a variety of professional contexts.
- Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- Identify and analyze user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing based systems.
- Apply the knowledge of mathematics, science and computing in the core information technologies.
- Identify, design, and analyze complex computer systems and implement and interpret the results from those systems.
- Design, implement and evaluate a computer-based system, or process component, to meet the desired needs within the realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- Review literature and indulge in research using research based knowledge and methods to design new experiments, analyze, and interpret data to draw valid conclusions.
- Select and apply current techniques, skills, and tools necessary for computing practice and integrate IT- based solutions into the user environment effectively.
- Apply contextual knowledge to assess professional, legal, health, social and cultural issues during profession practice.
- Analyze the local and global impact of computing on individuals, organizations, and society.
- Apply ethical principles and responsibilities during professional practice.
- Communicate effectively with a range of audiences using a range of modalities including written, oral and graphical.
- Engage in independent and life-long learning for continued professional development.

## **2)B.Com Computer Applications –I Year (Semester – II) – Programming with C**

**Course Outcomes:** On successful completion of this course, student should be able to :-

- Identify situations where computational methods and computers would be useful.
- Given a computational problem, identify and abstract the programming task involved.
- Approach the programming tasks using techniques learned and write pseudo-code.
- Choose the right data representation formats based on the requirements of the problem.
- Use the comparisons and limitations of the various programming constructs and choose the right one for the task in hand.
- Write the program on a computer, edit, compile, debug, correct, recompile and run it.

- Identify tasks in which the numerical techniques learned are applicable and apply them to write programs, and hence use computers effectively to solve the task.
- Understanding a functional hierarchical code organization.
- Ability to define and manage data structures based on problem subject domain.
- Ability to work with textual information, characters and strings.
- Ability to work with arrays of complex objects.
- Understanding a concept of object thinking within the framework of functional model.
- Understanding a concept of functional hierarchical code organization.

- Understanding a defensive programming concept.
- Ability to handle possible errors during program execution.

### **3) B.Com Computer Applications –II Year (Semester – III) – Fundamentals of Web Designing**

**Course Outcomes:** On successful completion of this course, student should be able to :-

- Develop a dynamic webpage by the use of Java Script and DHTML.
- Write a well formed/valid XML document.
- Write a Perl script and CGI Script programs .

### **4) B.Com Computer Applications –II Year (Semester – IV) – Relational Database Management Systems**

**Course Outcomes:** On successful completion of this course, student should be able to :-

- Describe DBMS architecture, physical and logical database designs, database modeling, relational, hierarchical and network models.
- Identify basic database storage structures and access techniques such as file organizations, indexing methods including B-tree, and hashing.
- Learn and apply Structured query language (SQL) for database definition and database manipulation.
- Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database.
- Understand various transaction processing, concurrency control mechanisms and database protection mechanisms.
- Implement Basic DDL, DML and DCL commands
- Understand Data selection and operators used in queries and restrict data retrieval and control the display order
- Write sub queries and understand their purpose
- Use Aggregate and group functions to summarize data
- Join multiple tables using different types of joins
- Understand the PL/SQL architecture and write PL/SQL code for procedures, triggers, cursors, exception handling etc..
- Define database system concepts and apply normalization to the database.
- Explain the basic processing and optimization techniques for high level query.
- Describe different transaction processing concepts and use different concurrency control techniques.
- Discuss different types of databases such as object oriented and distributed databases.
- Identify different types of database failures and techniques to recover from such failures.



- Discuss advanced database technologies and products used in enterprise.

### **5) B.Com Computer Applications –III Year (Semester – V) – Objective Oriented Programming with C++**

**Course Outcomes:** On successful completion of this course, student should be able to :-

- Understand the features of C++ supporting object oriented programming
- Understand the relative merits of C++ as an object oriented programming language

- Understand how to produce object-oriented software using C++
- Understand how to apply the major object-oriented concepts to implement object oriented programs in C++, encapsulation, inheritance and polymorphism
- Understand advanced features of C++ specifically stream I/O, templates and operator overloading.
- Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.
- Understand dynamic memory management techniques using pointers, constructors, destructors, etc
- Describe the concept of function overloading, operator overloading, virtual functions and polymorphism.
- Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming.
- Demonstrate the use of various OOPs concepts with the help of programs.

### **6) B.Com Computer Applications –III Year (Semester – V) – Computerised Accounting**

**Course Outcomes:** On successful completion of this course, student should be able to :-

- Set up initial data
- Understand the creation of Groups and ledgers in Tally
- Understand Stock group and stock categories and the methods to post entries in each group and category.
- Understand the methods to enter different types of vouchers.
- Understand the meaning and purpose of contra and journal voucher
- Understand the methods to post entries in purchase and sales vouchers.
- Understand the meaning and purpose of cost categories and cost centres
- Understand the Concept of Bill of Material and price list.
- Understand the meaning/method and purpose of Bank reconciliation.
- Understand the concept of TDS and the entries related to it.
- Understand the concept and computation of VAT.
- Understand the meaning and computation of service tax.
- Understand the importance and preparation of Final Accounts

### **7) B.Com Computer Applications –III Year (Semester – VI) – E-Commerce**

**Course Outcomes:** On successful completion of this course, student should be able to :-

- Define and differentiate various types of E-commerce.
- Describe Hardware and Software Technologies for E-commerce.

- Explain payment systems for E -commerce.
- Describe the process of Selling and Marketing on web.
- Describe E-business and its Models.
- Discuss various E- commerce and E- business Strategies.

**8)B.Com Computer Applications –III Year (Semester – VI) – Management Information Systems**

**Course Outcomes:** On successful completion of this course, student should be able to :-

- Understand the leadership role of Management Information Systems in achieving business competitive advantage through informed decision making.



- Analyze and synthesize business information and systems to facilitate evaluation of strategic alternatives.
- Effectively communicate strategic alternatives to facilitate decision making.
- Describe managing the digital firm
- Evaluate the role of information systems in today's competitive business environment.
- Define an information system from both a technical and business perspective and distinguish between computer literacy and information systems literacy.
- Assess the relationship between the digital firm, electronic commerce, electronic business and internet technology.
- Identify the major management challenges to building and using information systems in organizations. Identify managerial risks related to information system organization processing and utilizing.
- Interpret information systems in the enterprise
- Analyze the role played by the six major types of information systems in organizations and their relationship to each other.
- Describe the types of information systems supporting the major functional areas of the business.
- Assess the relationship between organizations, information systems and business processes, including the processes for customer relationship management and supply chain management.
- Explain how enterprise systems and industrial networks create new efficiencies for businesses.
- Evaluate the benefits and limitations of enterprise systems and industrial networks.
- Explain relationships between concepts of information systems, organization, management and strategy.
- Identify the salient characteristics of organizations.
- Analyze the relationship between information systems and organizations.
- Distinguish the classical and contemporary models of managerial activities and roles.
- Describe how managers make decisions in organizations.
- Evaluate the role of information systems in supporting various levels of business strategy.
- Debate infrastructure of information technology
- Identify the hardware components in computer system
- Describe the major types of software.
- Compare the principal types of databases.
- Describe the basic components of telecommunications systems and compare the various types of telecommunications networks.
- Describe how the internet works and identify its major capabilities.
- Illustrate redesigning the organization with information systems
- Identify the core activities in the systems development process.
- Evaluate models for determining the business value of information systems.
- Identify appropriate strategies to manage the system implementation process.
- Analyze the principal causes of information system failure.

## DEPARTMENT OF BOTANY

### Course Outcomes B. Sc Botany

Sl.No	Semester	Course code	Course	Course Outcome
1	SEM-I	BS- 104	PAPER-1 Microbial Diversity and Lower plants	CO-1. Study of Bacteria structure, nutrition, reproduction, and Economic importance CO-2. Study of Viruses structure, replication and transmission, plant disease caused by viruses and their control. CO-3. Know the Cyanobacteria characters, cell structure their significance as Biofertilizer. CO-4. Know the systematic, morphology and structure Algae and Fungi CO-5. Know the life cycle pattern of Algae and Fungi. CO-6. Know the structure, and reproduction, ecological and economic importance of Lichens.
2	SEM-II	BS- 201	PAPER-2 Bryophytes, Pteridophytes, Gymnosperms and Paleobotany	CO-1. Study of cryptogams to understand their Diversity. CO-2. Know the systematics, morphology and structure of bryophytes, and Pteridophytes. CO- 3. Know life cycle pattern of cryptogams. CO-4. Know economic importance of cryptogams. CO-5. Know evolution of algae, fungi, bryophytes and Pteridophytes. CO-6 To bring investigation of

				<p>Palaeobotanical study in India.</p> <p>CO-7. Know, scope and application of Palaeobotany.</p> <p>CO-8. Know types of fossils, geological time scale and general account of Bennettitales.</p>
3	SEM-III	BS-304	<p>PAPER-III</p> <p>Plant Taxonomy of Angiosperms and Medicinal Botany</p>	<p>CO-1. Systematic study of angiosperms.</p> <p>CO-2. Understand the morphological and reproductive character of spermatophytic plants.</p> <p>CO-3. Understand economic importance of angiosperms.</p> <p>CO-4. Understand the diversity among spermatophyte.</p> <p>CO-5. Understand scope and interdisciplinary nature, distinction of Ethanomedicine from Folklore medicine.</p> <p>CO-6. Know the outline of Ayurveda, Siddha, Unani, Homeopathy systems.</p> <p>CO-7. Know the plants in primary health care, common medicinal plants-Tippateega, Tulasi, Pippallu, Karakaya, Kalabanda, Turmeric and Evolution of crude drug.</p> <p>CO-7. Understand the concept of Traditional medicine vs Modern medicine.</p> <p>CO-8. Know the Pharmacognosy and Plant crude drugs.</p>
4	SEM-IV	BS- 404	<p>PAPER-IV</p> <p>Plant Anatomy, Embryology and Palynology</p>	<p>CO-1. Know the Meristems, Tissues and Tissue systems and leaf ontogeny, diversity of internal structure, stomata and epidermal out growth.</p> <p>CO-2. Know the stem and root anatomy, vascular cambium-</p>

				<p>formation and function.</p> <p>CO-3.Understand the Anomalous secondary growth of stem and root.</p> <p>CO-4.Know the Wood structure, General account, study of local timbers.</p> <p>CO-5Know the history and importance of Embryology.</p> <p>CO-6Understand the development of Embryo, Endosperm, and formation seed.</p> <p>CO-7Know the pollen morphology, pollen pistil interactions, pollination types, NPC system, application of Palynology.</p>
5	SEM-V	BS- 503	PAPER-V Cell Biology and Genetics	<p>CO-1.Gain knowledge about cell and its function, Plant cell envelops, Nucleus, chromosomes and cell division.</p> <p>CO-2. Know the DNA and RNA structures and replications, types ,functions.</p> <p>CO-3.Know the Genetics, Mendalism, Linkage and crossing over , Mutations, Gene Expression.</p> <p>CO-4. Understand the extra nuclear genome.</p>
		BS-506	PAPER-VI (Elective -1) Ecology and Biodiversity	<p>CO-1.Know the biotic and a biotic components of ecosystem.</p> <p>CO-2.Food chain &amp; food web in ecosystem, ecological pyramids and</p>

				<p>biogeochemical cycles.</p> <p>CO-3. Understand plant and environment, population ecology, community ecology, production ecology.</p> <p>CO-4. Understand Biodiversity concepts, conventions and types.</p> <p>CO-5. Understand biodiversity levels value of Biodiversity.</p> <p>CO-6. Know the hot spots of India and Endemism.</p> <p>CO-7. Understand Agro-biodiversity.</p> <p>CO-8. Know the principle of conservation of Biodiversity.</p>
6	SEM-VI	BS-606	PAPER-VII (Elective-II) Tissue Culture and Biotechnology	<p>CO-1. Understand tissue culture techniques, Organ culture, callus culture, cell and protoplast culture, somatic hybrids and Cybrids.</p> <p>CO-2. Understand the Application of tissue culture and production of secondary metabolites.</p> <p>CO-3. Know the Biotechnology and r-DNA technology.</p> <p>CO-4. Know the Gene cloning vectors, Gene Libraries, Genomic Libraries, C-DNA Libraries, PCR and its applications.</p> <p>CO-5. Understand Method of gene transfer in plants and production of transgenic plants.</p>
		BS-603	PAPER-VIII Plant Physiology	<p>CO-1. Know scope and importance of plant physiology.</p> <p>CO-2. Understand plant &amp; water relation, Mineral Nutrition, Stress physiology and Translocation of organic substances.</p> <p>CO-3. Know the Enzymes nomenclature, characteristics,</p>

				<p>mechanism and regulation of enzyme action and Enzyme kinetics.</p> <p>CO-4. Understand process of photosynthesis, C3 , C4, CAM pathways.</p> <p>CO-4. Understand the process of respiration, growth and developmental process in plant.</p> <p>CO-5. Know the Nitrogen Metabolism, Lipid Metabolism and physiology of flowering and photoperiodism.</p>
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### COURSE OUTCOMES (CO's) Of BSc - Chemistry

Sl.No	SEM	Course code	Course	Course Outcome
1	I	BS101	Chemistry	<b>CO1</b> S and P- block elements and Study of principles, classification, reactions and analysis of anions and cations
				<b>CO2</b> basics of organic chemistry like types of organic reactions, polarization factors and stability and Study of Alkanes, Alkenes and Alkynes their properties, preparation, reactions and also Alicyclic compounds preparation methods.
				<b>CO3</b> Basics of physical chemistry like Atomic structure various theories proposed and their significance and derivation of Gaseous laws and various methods for liquifaction of gases.
				<b>CO4</b> chemical bonding basics common hybridizations and shapes of molecules and Molecular orbital theory, types of molecular orbitals, molecular orbital energy level diagrams. Study of evaluation of analytical data, classification of errors and mathematical operations.
2	II	BS201	Chemistry	<b>CO1</b> Study of oxides of C, N, S, Cl and their oxyacids, General preparation and classification and structure of inter halogens and Chemistry of d-block elements.
				<b>CO2</b> Study of Arenes, polynuclear compounds, preparations and their properties. Classification of Halogen compounds their chemical reactivity.
				<b>CO3</b> Study of ideal and non ideal liquids, various laws and their applications. Colligative properties their experimental determination methods and Study of various laws of Crystallography, determination of structure of various crystals.
				<b>CO4</b> Types of volumetric Titrations, indicators, and gravimetric analysis, theories of bonding in metals and Study of classification of metals, ceramics, composites. Their general characteristics, properties and applications.
3	III	BS301	Chemistry	<b>CO 1</b> Study of f-block elements their colour, magnetic, catalytical, spectral properties and separation techniques and Study of lanthanides. and Symmetry operations and symmetry elements, and their

				explanation with examples. Study of classification solvents and their examples
				<b>CO2</b> Study of preparation, physical properties, chemical properties of Alcohols , phenols, ethers epoxides, Carbonyl compounds with named reactions.
				<b>CO3</b> Study of phase, components, degree of freedom and their phase equilibria systems, Classification of colloids, preparation methods, properties and their applications and Adsorption and its theories,
				<b>CO4</b> Study of nano particles production of nano tubes and applications, classification of isomers, study of optical activity with examples and rules of stereochemistry, racemic mixture and their resolution techniques, Conformational analysis with examples.
4	IV	BS401	Chemistry	<b>CO 1</b> Study of simple inorganic molecules and coordination complexes, various theories , postulates and their application, classification of organometallic compounds and properties and Study of classification of metal carbonyls, preparation and properties
				<b>CO2</b> Nomenclature and preparation and properties of carboxylic acids and its derivatives and Nomenclature and classification of nitro compounds, its physical and chemical reactivity.Orientation and electrophilic substitution on nitro enzenecompounds.
				<b>CO3</b> Study of electric conductance on metals, solutions, various laws and its limitations, electrolyte and galvanic cells and EMF of cell and its applications and calculation of thermodynamic quantities. And potentiometric titrations.
				<b>CO4</b> Thermal and photo chemical- pericyclic reactions an Terminology and retro synthesis, functional group inter conversions, Definition and classification of stereoselective reactions, stereospecific reactions.
5	V	BS503	Chemistry	<b>CO 1</b> To identify molecular geometries associated with various d -orbital splitting patterns, predict electron configurations of split d orbitals for selected transition metal atoms or ions. To know about the stability constant (formation constant, binding constant) which is an equilibrium constant for the formation of a complex in solution. It is a measure of the strength of the interaction between the reagents



				that come together to form the complex. To have knowledge on isomerization and racemization reactions, to the general field of redox reactions, and to the reactions of coordinated ligands. To know about the applications in other fields such as organic, bioinorganic and biological chemistry
				<b>CO2</b> Study of preparation, physical properties, chemical properties of Amine, Cyanides, Isocyanides. Heterocyclic compounds their preparation and properties.
				<b>CO3</b> To understand chemical kinetics which deals with the measurement of rates of reaction proceeding under given conditions, hence study of this topic help them to locate favorable conditions to speed up a reaction, there by getting the products in a short time.
				<b>CO4</b> Molecular spectroscopy- Rotationa,I.R and Electronic spectroscopy and To understand the laws of photochemistry and to know about a number of applications of photochemical process which are useful in daily life such as fluorescence, phosphorescence, photosensitization etc.
6	VA	BS508 A	Instrument al Methods of Analysis	<b>CO 1</b> Solvent Extraction and Chromatography
				<b>CO2</b> Classification chromatography and their principles, applications.
				<b>CO3</b> Colorimetry and Spectro Photometry.
				<b>CO4</b> Electro analytical techniques.
7	VI	BS603	Chemistry	<b>CO 1</b> To know how the Coordination compounds play many roles in the animals and plants. They are essential in the storage and transport of oxygen, as electron transfer agent, as catalysts, and in photosynthesis. Because of its central function as an oxygen carrier for metabolic processes, Hemoglobin is probably the most studied of all the proteins. The interaction of transition metal ions with biological molecules provides one of the most fascinating areas of coordination chemistry.
				<b>CO2</b> To gain knowledge on carbohydrates which constitutes one of the most important group of natural products By their study of classification, structural elucidation, properties, and their interconversions are useful to understand about important foodstuffs and other forms of carbohydrates. Amino acids are another important natural products as they are building units of other

				natural products like enzymes, peptides, proteins etc. their study is necessary to understand structure of various substances present in living organisms.
				<b>CO3</b> To gain knowledge of the laws of physical chemistry such as chemical equilibrium, law of thermo chemistry , distribution law, etc. can be deduced from law of thermodynamics. Moreover, it can predict the feasibility of a process and extent of yield of the product obtain.
				<b>CO4</b> NMR -spectroscopy, chemical shift,m spin - spin coupling and Mass spectrometry.
8	VIA	BS608 A	Medicinal Chemistry	<b>CO 1</b> Introduction nd Terminology
				<b>CO2</b> Enzymes and Receptors
				<b>CO3</b> Synthetic and Therapeutic activity of Drugs.
				<b>CO4</b> Molecular messengers and health promoting Drugs.

## COURSE OUTCOMES (CO's)

### Of Commerce

Sl.No	Semester	Course code	Course	Course Outcome
1	I		Business Organisation F.A-I Business Economics	<b>CO1)</b> Mechanism to run a Business Organisation
				<b>CO2)</b> Accounting Principles
				<b>CO3)</b> Demand-Supply
2	II		Principles of Management Managerial Economics FA-II	<b>CO1)</b> Functions of Management
				<b>CO2)</b> National Income
				<b>CO 3)</b> Consignment
3	III		Income Tax BST Advanced Accounting	<b>CO 1)</b> Rules & Regulations of IT
				<b>CO 2)</b> correlation
				<b>CO 3)</b> Partnership Accounts
4	IV		Corporate Accounting	<b>CO 1)</b> Bank Account
5	V		Financial Institutions and Markets Computerized Accounting Cost Accounting Business Law	<b>CO 1)</b> Savings Encouragement & Income generation
				<b>CO 2)</b> Knowledge of the Computer Accounting
				<b>CO 3)</b> Cost Sheet
				<b>CO 4)</b> Contract
6	VI		Commerce Lab Auditing Company Law Managerial Accounting	<b>CO 1)</b> Operations of Banking
				<b>CO 2)</b> Objectives of Auditing
				<b>CO 3)</b> Conduction of Company Meetings
				<b>CO 4)</b> Break Even Analysis

**COURSE OUTCOMES (CO's)**

**Of**

**TELUGU**

Sl.No	Semester	Course code	Course	Course Outcome
1	I		TELUGU	Learning the value of Truth Respect to the Nature
2	II		TELUGU	Inspirational quotes Good expressive Knowledge
3	III		TELUGU	Communication Skills Respect to Customs
4	IV		TELUGU	Spirituality

**COURSE OUTCOMES (CO's)**  
**Of**  
**Economics**

S. No	Semester	Course	Course Out Come
1	Sem. I	Micro Economics	1.Understand the price demand
			2. Understand the consumer's behaviour.
			3. Understand the production function and its factor.
			4. Understand the concept of cost and revenue
			5. Understand the classification of market.
2.	Sem. II	Micro Economics	1.Understand the National Income
			2.Classical and Keynesian theories of output and employment
			3.Understand the consumption and investment function
			4.Understand quantity theory of money
			5. Understand inflation causes and measures.
3.	Sem. III	Micro Economics	1.Understand the comparison between perfect competition and monopoly
			2.Understand the kinky demand curve
			3. Understand pricing strategies
			4. Understand the rent theory and profit theories.
			5.Understand the classical and modern theories of International trade
4.	Sem. IV	Public Economics	1.Private and Public goods
			2. Understand the principle of maximum social advantage
			3. Type of Taxes (VAT)
			4. Fiscal policies and its objectives
			5. Classification of budget
5.	Sem. V	Indian Economy	1.Basic features of Indian Economy

			2. Poverty and Unemployment causes
			3. New Economic Reforms, NITI Aayog
			4. Green Revolution, Food Security in India
			5. Small scale industries
6.	Sem. V VI(b)	Economics of Development and Infrastructure.	1. Indicators of Economic Development
			2. Human Resources Development
			3. Choice of techniques
			4. Social Infrastructure
7.	Sem. VI VII	Telangana Economy	1. Demographic features of Telangana
			2. Welfare Programme in Telangana
			3. Cropping pattern, Mission Kakatiya
			4. Special Economic zone in Telangana
			5. Infrastructural Development in Telangana
8.	Sem. VI VIII (a)	Industrial Economics	1. Industrial location theories
			2. Concepts and Organisation of a firm
			3. New Industrial Policy 1991
			4. Commercial Banks.

**COURSE OUTCOMES (CO's)**  
**Of**  
**History**

S.No	Semester	Course	Course Out Come
1	I	History of India (From Earliest Times to c.700CE)	Indian Culture
			Religious Values
			Competitive Aspect
			Administration skills
2	II	History Of India (c.700-1526 CE)	Islamic Culture
			Religious Tolerance
			Administration skills
			Competitive skills
3	III	History Of India(1526-1857 CE)	Polity,Society,Trade during Mughal Period
			European Policies
			Administration Skills
			Competitive Aspect
4	IV	History Of India (1858-1964 CE)	British Divide and Rule
			Social Religious Movemens
			Indian National Congress
			Independance Movement
			Competitive Aspect
5	V	World History (1453-1815 CE)	Renaissance
			European Rulers
			Industrial

			Revolution
			Competitive Aspect
6	VA	History Of Telangana (From earliest Times to 1724 CE)	Geographical features of Telangana
			Rulers and Dynasties of Telangana
			Administration Skills
			Competitive Aspect
7	VI	World History (1815-1950 CE)	Revolutions and Unifications in Europe
			Wars and Causes
			UNO organizations
			Competitive Aspect
8	VIA	History of Telangana (1724-2014 CE)	Salarjung Reforms
			Social, Cultural, Political awakening in Telangana
			Separate Telangana Movement
			Competitive Aspect



### Program Outcomes: B.Sc(Mathematics)

<b>Department of Mathematics</b>	
<b>Program Outcomes</b>	<p>DSC-IA: By the time of students completes the course they realize wide ranging applications of the subject.</p> <p>DSC-IB: After learning the course the students will be equipped with the various tools to solve few types of differential equations that arise in several branches of science.</p> <p>DSC-IC: After the completion of course students will be in a position to appreciate beauty and applicability of the course.</p> <p>DSC-ID: On successful completion of the course students will be able to recognize algebraic structures that arise in matrix algebra, linear algebra and will be able to apply the skills learnt in understanding various such subjects.</p> <p>DSC-IE: After completion of this course students appreciate its interdisciplinary nature.</p> <p>DSE-IE/A: Students understand the beautiful interplay between algebra and geometry.</p> <p>DSC-IF: Students realize the importance of the subject in solving some problems of algebra and calculus.</p> <p>DSE-IF/B: Students realize the way vector calculus is used to address some of the problems of physics.</p>

DSC-IA: Differential Calculus.

DSC-IB: Differential Equations.

DSC-IC: Real Analysis.

DSC-ID: Algebra

DSC-IE: Linear Algebra

DSE-IE/A: Solid Geometry.

DSC-IF: Numerical Analysis.

DSE-IF/B: Vector Calculus.

### Programme Outcomes: B. Sc Physics

<b>Department of Physics</b>	After successful completion of three year degree program in Physics a student is able to;
<b>Programme Outcomes</b>	<p>PO-1. Demonstrate, solve and an understanding of major concepts in all disciplines of physics.</p> <p>PO-2. Solve the problem and also think methodically, independently and draw a logical conclusion.</p> <p>PO-3. Employ critical thinking and the scientific knowledge to design, carryout, record and analyze the results of Physics experiments.</p> <p>PO-4. Create an awareness of the impact of Physics on the society, and development outside the scientific community.</p> <p>PO-5. To inculcate the scientific temperament in the students and outside the scientific community.</p> <p>PO-6. Use modern techniques, decent equipments and Phonics software</p>
<b>Programme Specific Outcomes</b>	<p>PSO-1. Gain the knowledge of Physics through theory and practicals</p> <p>PSO-2. Understand good laboratory practices and safety.</p> <p>PSO-3. Develop research oriented skills.</p> <p>PSO-4. Make aware and handle the sophisticated instruments/equipments</p>

## Course Outcomes B. Sc Physics

After completion of these courses students should be able to

Sl.No	Semester	Course type	Course	Course Outcome
1	SEM-I	DSC-1	Paper-1 Mechanics	Co1:study of vectors and scalars Co2:motion of particles and rigid bodies Co3:planetary motion Co4:relation between space and time for objects moving with constant velocity
2	SEM-II	DSC-2	Paper-II Waves and Oscillations	Co1:lissajous figures Co2:study of damped and forced oscillations Co3:normal modes of vibrations Co4:testing of vibrations
3	SEM-III	DSC-3	Paper-III Thermodynamics	Co1:relation between heat and other forms of energy Co2:production of low temperatures Co3:nature and behaviour of matter and energy on the atomic and sub atomic level Co4:statistical treatment of the behavior of large no.of atoms or molecules especially as regards the distribution of energy among them
4	SEM-IV	DSC-4	Paper-IV Optics	Co1:formation of interference pattern with different optical lenses and glass plates Co2:resolving power Co3:orientation of the vibrations of a light wave Co4:explaining flaws in this process of making an image
5	SEM-V	DSC-5	Paper-V Electro magnetism	Co1:study of electric fields in static equilibrium Co2:study of magnetic fields in

				systems where the currents are steady Co3:generation of alternating current Co4:displacement current and its consequences
		DSE-1	Paper-VI Solid state physics	Co1:determining the band structure and electrical properties Co2:response of material to the external magnetic field Co3:theoretical understanding of elementary ideas of electronic energy bands Co4:production of lasers
6	SEM-VI	DSC-6	Paper-VII Modern physics	Co1:relationship between atomic spectra and the electronic structure of atoms Co2:explanation of behavior of light and matter Co3:study of the nucleus of the atom Co4: capability of an atom at its nucleus to separate and generate
		DSE-2	Paper-VIII Basic Electronics	Co1:understand the use of circuit analysis theorems and methods Co2:diode formation and its applications Co3:study of amplification and conversion from DC to AC Co4:to make conditional switches

### COURSE OUTCOMES (CO's) Of BSc - Zoology

Sl.No	SEM	Course code	Course	Course Outcome
1	I		Animal diversity-invertebrates	CO1)To understand diversity of various life forms of invertebrates.
				CO 2)Acquire in-depth knowledge about life cycle of invertebrates
				CO 3)To learn economic , evolutionary importance of invertebrates
				CO 4)To investigate invertebrates in laboratory & classify them easily
2	II		Ecology, Zoogeography and Animal Behavior	CO1)To learn the functioning of the ecosystem
				CO 2)To understand the diversity of various life forms and threats posed
				CO 3)To understand the distribution of fauna in different regions of the earth
				CO 4)To understand the behaviour of animals to stimuli
3	III		Animal Diversity – Vertebrates & Developmental Biology	CO1)To understand diversity of various life forms of vertebrates.
				CO 2) Acquire in-depth knowledge about vertebrates anatomy
				CO 3)To learn economic , evolutionary importance of invertebrates
				CO 4) To investigate vertebrates in laboratory & classify them easily
4	IV		Cell and molecular Biology, Genetics and Evolution	CO1)To understand the Basic unit of life
				CO 2)To understand the Structure and function of various cell organelles
				CO 3)To understand the concept of heredity
				CO 4) To appreciate the evolutionary concepts
5	V		Physiology and Biochemistry	CO1)) To have an enhanced knowledge and appreciation of functioning of various systems
				CO 2)To understand the mutual cooperation between systems for optimum functioning
				CO 3)To understand the classification, function and metabolism of carbohydrates, proteins,Lipids
				CO 4) Should be able to perform, analyse and report on experiments and observations in physiology and biochemistry
6	VA		Applied Zoology	CO1)To Introduce the term Fisheries,Sericulture,Apiculture,Vermiculture and Poultry to the students.

				<b>CO 2)</b> To bring awareness to the students on economic value of fisheries, and provides the economical importance of Fsheries Sericulture, Apiculture, Vermiculture and Poultry
				<b>CO 3)</b> To educate students about equipments used in Fsheries Sericulture, Apiculture, Vermiculture and Poultry
				<b>CO 4)</b> To be able to identify fishes, prawns, silkworm stages
7	VI		<b>Immunology and Animal biotechnology</b>	<b>CO1)</b> Imparts in depth knowledge of tissues, cells and molecules involved in host defence mechanisms.
				<b>CO 2)</b> Understanding of immune mechanisms in disease control, vaccination, process of immune interactions.
				<b>CO 3)</b> Imparts the Knowledge to culture animal cells in artificial media.
				<b>CO 4)</b> Use in recombinant DNA technology, genetic manipulations and in a variety of industrial processes
8	VIA		<b>Aquatic biology</b>	<b>CO1)</b> Understands the Aquatic environment
				<b>CO 2)</b> Understands the physical and chemical characteristics of water bodies
				<b>CO 3)</b> Understands aquatic pollution
				<b>CO 4)</b> Knows about the legal provisions for protection of water bodies from pollution