PROGRAM OUTCOME ACADEMIC YEAR 2022-23

PROGRAM	PROGRAM OUTCOMES	
BACHELOR OF BUSINESS ADMINISTRATION IN COMPUTER APPLICATION		
B.B.A(CA)		
BACHELOR OF BUSINESS ADMINISTRATION IN COMPUTER APPLICATION **B.B.A(CA)**	**PO-1**	To provide sound academic base from which an advanced career in Computer ApplicationCan be developed. Conceptual grounding in computer usage as well as its practical business application will be provided.
	PO-2	To produce skill oriented human resource.
	PO-3	To import practical skills among students.
	PO-4	To make industry ready resource.
	PO-5	To bring the spirit of entrepreneurship.
BACHELOR OF COMPUTER APPLICATION (BCA)		
BACHELOR OF COMPUTER APPLICATION (BCA)	**PO-1**	To produce skill oriented human resource
	PO-2	To bring the spirit of entrepreneurship.
	PO-3	To import practical skills among students.
	PO-4	Acquire practical skills and hands-on experience on emerging technologies like Java, Web designing,Android, Python, IoT, PHP and Data Science.
	PO-5	Acquiring knowledge in basic management skills and business applications
	PO-1	Develop a sound academic base for an advanced career in Computer Applications.

BACHELOR OF ARTS

DEPARTMENT OF BACHELOR OF ARTS	**PO-1**	The B.A. graduates can pursue B.Ed. course and opt teaching career in the schools.
	PO-2	Students can do Post Graduate Studies in their respective subjects studied in 'Under Graduate' level. Other Career options :- Journalism, Tourism, etc.
	PO-3	Students become eligible to appear for any competitive exams conducted by Union Public Service Commission (UPSC), Maharashtra Public Service Commission (MPSC), Indian Railway Board, Bank and PO exams etc for entering into the government services.
	PO-4	Students can pursue their studies in doing MBA, Post Graduate Diploma in Computer (PGDC), Certificate Courses of any discipline.
	PO-5	Students can develop various communication skills such as reading, listing, speaking, etc., which will be helpful in expressing ideas and views clearly and effectively. Graduates demonstrate social interaction and understand environment and sustainability.

BACHELOR OF SCIENCE

BACHELOR OF SCIENCE and MASTER OF SCIENCE	**PO-1**	After completion of three year graduate, Student should Understood the basic concepts, fundamental principles, and the scientific theories related to various scientific phenomena and their relevancies in the day-to-day life
	PO-2	Acquired the knowledge with facts and figures related to various subjects in pure sciences such as Physics, Chemistry, Botany, Zoology, Mathematics, etc.
	PO-3	Acquired the skills in handling and applications of available scientific instruments, planning and performing in laboratory experiments in present subjects in their level
	PO-4	Analyzed the given scientific data critically and systematically and the ability to draw the objective conclusions
	PO-5	Thinking and 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
	PO-6	Developed scientific outlook not only with respect to science subjects but also in all aspects related to life and community by participating in various social and cultural activities voluntarily
	PO-7	Developed various communication skills such as reading, listening, speaking, etc., which we will help in expressing ideas and views clearly and effectively

	PO-8	Realized that pursuit of knowledge is a lifelong activity and in combination with untiring efforts and positive attitude and other necessary qualities leads towards a successful life

BACHELOR OF COMMERCE

BACHELOR OF COMMERCE	**PO-1**	Students will be able to understand the various aspects of development in Agricultural, Industrial and service sector in India.
	PO-2	After completing three years for Bachelor's in Commerce (B.Com) program, students would gain a thorough grounding in the fundamentals of Commerce and Finance.
	PO-3	The programme will give knowledge about various new concepts in computerized system and Forensic Audit to students.
	PO-4	The commerce and finance focused curriculum offers a number of specialization and practical exposure which would equip the student to face the modern day challenges in commerce and business.
	PO-5	The all-inclusive outlooks of the course offer a number of values based and job oriented courses ensure that students are trained into up-to-date.
	PO-6	This program could provide well trained professional for the industries, Banking sector, Insurance companies, financing companies, Transport agencies, Warehousing etc. to meet the well-trained manpower requirements.
	PO-7	The graduates will get hands-on experience in various aspects acquiring skills for Marketing manager, selling manager, over all administration abilities of the company.

MASTER OF COMMERCE

MASTER OF COMMERCE	**PO-1**	The programme will create the awareness about the latest developments in the field of capital market in India.
	PO-2	The programme will enable the students to understand various transactions in stock exchanges and agencies involved in it.
	PO-3	The programme will give knowledge about basic issues in Industrial Economic Environment to students.
	PO-4	The programme will enhance capabilities of students to conduct the research in the field of business and social sciences

	PO-5	The programme will develop independent logical thinking and facilitate personality development and equip the students to seek suitable careers in management and entrepreneurship.
	PO-6	Enriched knowledge with new ideas and techniques essential for business and management.
	PO-7	Develop analytical interpretative and presentation skill regarding research in commerce and management.

PROGRAMME SPECIFIC OUTCOMES
ACADEMIC YEAR 2022-23

	Programme Specific Outcomes
	Upon completion of these courses the student would
DEPARTMENT OF BACHELOR OF BUSINESS ADMINISTRATION IN COMPUTER APPLICATION
	B.B.A(CA)
PSO-1	Students should be able to apply modern practices and strategies in software project development using open-ended programming environments to deliver quality product for Business success in context with societal needs.
PSO-2	An ability to gain knowledge on design and control strategy; techniques to secure information and adapt to the fast changing world of information technology needs.
PSO-3	Design and develop Web and Mobile based computer applications
PSO-4	An ability to use and develop cloud software, administrative features, infrastructure services and architectural patterns; ethical hacking and forensic security technologies.
	BACHELOR OF COMPUTER APPLICATION (BCA)
PSO-1	Ability to correlate theory and practical knowledge in applications.
PSO-2	Become employable in various public and private sectors.
PSO-3	Blend analytical, logical, and managerial skills with technical aspects to resolve real- world issues.
	BACHELOR OF COMMERCE
PSO-1	Students will be able to demonstrate progressive learning of various tax issues and tax forms related to individuals.
PSO-2	Students will be able to demonstrate knowledge in setting up computerized set of accounting books.
PSO-3	Students will demonstrate progressive affective domain development of values, the role of accounting in society and business.
PSO-4	Students will learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.
PSO-5	Students will learn relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

PSO-6	Learners will gain thorough systematic and subject skills

MASTER OF COMMERCE

PSO-1	Impart the students with higher level knowledge and understanding of contemporary trends in commerce and business finance.
PSO-2	Equip the students to evaluate environmental factors that influence business operation withthe conceptual requirements and skills on preparation and interpretation of financial statements.
PSO-3	Prepare the students to apply statistical methods and proficient use of tools for modelingand analysis of business data.
PSO-4	Facilitate the students to apply capital budgeting techniques for investment decisions.
PSO-5	Prepare students to appraise the structure and operations of banking systems.
PSO-6	Prepare the students for an in-depth analysis of investment, portfolio management,investment banking and liquidation of investments.
PSO-7	Develop competency in the students about the laws and regulations and roles of commercial, government and central banks in controlling money market and inflation.
PSO-8	Facilitate the students to analysis and frame micro financing schemes for rural banking. Impart the students the concept of risk mitigation in financial sectors and their role in investment decisions of individuals and business enterprises.
PSO-9	Provide guidance to students to plan and undertake independent research in a chosen discipline.
PSO-10	Train the students on teamwork, lifelong learning and
PSO-11	continuous professional development
PSO-12	Impart the students with higher level knowledge and understanding of contemporary trends in commerce and business finance.

BACHELOR OF SCIENCE

PSO-1	Upon completion of the Graduate Chemistry sequence, chemistry majors are able to recognize and apply the principles of atomic and molecular structure to predict chemical properties and chemical reactivity
PSO-2	Upon completion of a degree, chemistry majors are able to employ critical thinking and scientific inquiry in the performance, design, interpretation and documentation of laboratory experiments, at a level suitable to succeed at an entry-level position in chemical industry or a chemistry graduate program.

PSO-3	Upon completion of a chemistry degree, chemistry majors are able to interpret and analyze quantitative data.	
PSO-4	Upon completion of a BSC in Chemistry degree, students are able to understand theoretical concepts of instruments that are commonly used in most chemistry fields as well as interpret and use data generated in instrumental chemical analyses.	
PSO-5	Understand the basics in Atomic Structure, Errors in analysis, Acids, Bases, Its strength, Electrophilic, Nucleophilic Periodicity, Qualitative, Quantitative analysis, Chromatographic Techniques, Kinetic reactions, Conductance, Phase rules, Nuclear rections, Quantum, MOT, Sidgwick, LFT, CFT, Coordination Chemistry, Industries like Agro, Cement, Glass, Food, Sugar, Soap, Dye etc.	
PSO-6	The ability to apply such knowledge and understanding to the solution of qualitative and quantitative problems	
PSO-7	Basic knowledge of spectra of molecular, atomic, UV, IR and NMR	
PSO-8	Approach to Green Chemistry and protection of environment and west management	
PSO-9	Progression to HE	

SCIENCE

Chemistry (UG, PG)	**PSO-1**	Expectation of all PO of Graduate in Science.
	PSO-2	Upon completion of the Graduate Chemistry sequence, chemistry majors are able to recognize and apply the principles of atomic and molecular structure to predict chemical properties and chemical reactivity.
	PSO-3	Upon completion of a degree, chemistry majors are able to employ critical thinking and scientific inquiry in the performance, design, interpretation and documentation of laboratory experiments, at a level suitable to succeed at an entry-level position in chemical industry or a chemistry graduate program.
	PSO-4	Upon completion of a chemistry degree, chemistry majors are able to interpret and analyze quantitative data.
	PSO-5	Upon completion of a BS in Chemistry degree, students are able to understand theoretical concepts of instruments that are commonly used in most chemistry fields as well as nterpret and use data generated in instrumental chemistry.
	PSO-6	Understand the basics in Atomic Structure, Errors in analysis, Acids, Bases, Its strength, Electrophilic, Nucleophilic Periodicity, Qualitative, Quantitative analysis, Chromatographic Techniques, Kinetic reactions, Conductance, Phase rules, Nuclear reactions, Quantum, MOT, Sidgwick, LFT, CFT, Coordination Chemistry, Industries like Agro, Cement, Glass, Food, Sugar, Soap, Dye etc.
	PSO-7	The ability to apply such knowledge and understanding to the solution of qualitative and quantitative problems.

	PSO-8	Basic knowledge of spectra of molecular, atomic, UV, IR and NMR.
	PSO-9	Approach to Green Chemistry and protection of environment and waste management.
	PSO-10	Progression to HE
	PSO-11	Expectation of all PO of Graduate in Science.
	PSO-12	Upon completion of the Graduate Chemistry sequence, chemistry majors are able to recognize and apply the principles of atomic and molecular structure to predict chemical properties and chemical reactivity.
Botany	**PSO-1**	Students understand the key role of the plants in environment.
	PSO-2	Students care about the sustainable use of the various plants. And its products.
	PSO-3	Understands various role of abiotic factors for day-to day life of the plants and man. Students understand the various minerals and growth hormones.
	PSO-4	To inculcate sense of start ups, while maintaining social and environment awareness and promote the possibility of self-employment after B.Sc
	PSO-5	To help students build-up a progressive and successful career in plant tissue culture and agro industries
	PSO-6	Students understand the key role of the plants in environment.
	PSO-7	Students care about the sustainable use of the various plants. And its products.
Zoology	**PSO-1**	To provide thorough knowledge about various animal sciences from primitive to highly evolved animal groups
	PSO-2	To make the students aware of applications of Zoology subject in various industries
	PSO-3	To highlight the potential of various branches to become an entrepreneur
	PSO-4	To equipped the students with skills related to laboratory as well as field based studies
	PSO-5	To make the students aware about conservation and sustainable use of biodiversity
	PSO-6	To inculcates interest and foundation for further studies in Zoology
	PSO-7	To address the socio-economic challenges related to animal sciences
	PSO-8	To facilitate students for taking up and shaping a successful career in Zoology
	PSO-9	To bridge up the gap between knowledge based conventional education and market demands and to provide an alternative to those pursuing

		higher education.
	PSO-10	To enrich students' training and knowledge to practices of Applied zoology in Cottage industry
	PSO-11	To introduce the various techniques of rearing of useful animals.
	PSO-12	To inculcate sense of job responsibilities, while maintaining social and environment awareness
	PSO-13	To help students build-up a progressive and successful career in industries with a biochemical perspective
	PSO-24	To promote the possibility of self-employment after B.Sc.
Physics	**PSO-1**	The student develop good experimental technique, including proper setup and care of equipment, conducting experiments and analyzing results and make meaningful comparisons between experiment and theory
	PSO-2	Develop deep understanding of the basics, fundamental & laws of physics like mechanics, optics, properties of matter, e-m theory, and environmental issues related to physics so that they can pursue higher studies
	PSO-3	Students completing this course will have understanding of matter through courses like solid state physics, atomic and molecular physics, nuclear physics etc.
	PSO-4	Technical skills & Skills of computer software will be developed through practical course.

COURSE OUTCOME ACADEMIC YEAR 2022-23

DEPARTMENT OF BACHELOR OF BUSINESS ADMINISTRATION IN COMPUTER APPLICATION

Course Title	CO No.	Course Outcomes
Business Communication (CA-101)	**CO-1**	To understand what is the role of communication in personal andbusiness worldS
	CO-2	To understand system and communication and their utility
	CO-3	To develop proficiency in how to write business letters and other communications
	CO-4	Apply the managerial functions in different business setup
	CO-5	Implement decisions to ensure organizational effectiveness
Principles of Management (CA-102)	**CO-1**	Interpret and design the different forms of organization
	CO-2	Demonstrate social responsibility and ethical issues involved inbusiness situations and organizations
	CO-3	Integrate management principles in real time situations
	CO-4	Apply the managerial functions in different business setup
	CO-5	Implement decisions to ensure organizational effectiveness
C Programming (CA-103)	**CO-1**	To understand the concept of Procedural Programming
	CO-2	To acquire basic programming skills using C ProgrammingLanguage
	CO-3	Students will Improve logical thinking through practical knowledge of C Programming

	CO-4	By learning the basic programming constructs they can easilySwitch over to any other language in future.
Database Management System (CA-104)	**CO-1**	To understand role and importance File Structures and Organization
	CO-2	To develop skills related with Database basic Concepts.
	CO-3	To Develop right understanding of various Data models
	CO-4	To Understand the Programming in SQL and Implementation
	CO-5	To Learn about Relational Database Designing.
Statistics (CA-105)	**CO-1**	To understand role and importance of statistics in various business situations
	CO-2	To develop skills related with basic statistical technique
	CO-3	Develop right understanding regarding regression, correlation and data interpretation
Computer Laboratory Based on 103 &104 (CA-106)	**CO-1**	To assess the knowledge of student in C and DBMS
	CO-2	To acquire knowledge on writing computer programs using C Language
	CO-3	To create and manage Database using SQL
Principles of programming and algorithm (CA-107)	**CO-1**	To develop analytical /logical thinking and problem solvingcapabilities
	CO-2	To know the fundamentals of programming and designing.

	CO-3	To learn the algorithm analysis and notations
	CO-4	To understand the concept, problem and algorithm.
Organization Behavior & Human Resource Management (CA-201)	**CO-1**	To understand basic concept of HRM & OB
	CO-2	To know the major trends in HRM & OB
	CO-3	To make aware students about on the job & Off the JobTraining methods
	CO-4	To understand basic concept of HRM & OB
Financial Accounting (CA-202)	**CO-1**	To develop right understanding regarding role and importance of monetary and financial transactions in business
	CO-2	To cultivate right approach towards classifications of differenttransactions and their implications
	CO-3	To develop proficiency preparation of basic financial as to how towrite basis accounting statement - Trading and P&L
Business Mathematics (CA-203)	**CO-1**	To understand role and importance of Mathematics in variousbusiness situations and while developing softwares.
	CO-2	To develop skills related with basic mathematical technique
Relational database management System. (CA-204)	**CO-1**	Enables students to understand relational database concepts.
	CO-2	Enables students to understand transaction management concepts in database system.
	CO-3	Enables student to write PL/SQL programs that use: procedure,function, package, cursor and trigger.

	CO-4	To Understand SQL/PLSQL the programming languageof oracle
	CO-5	Get Fundamental Knowledge of subject in Brief along with Software.
Web Technology HTML-JS-CSS (CA-205)	CO-1	To know & understand concepts of internet programming.
	CO-2	To understand how to develop web based applications using JavaScript
Computer Laboratory Based on 204 & 205 (CA-206)	CO-1	To assess the knowledge of student in RDBMS and WebTechnology
	CO-2	To acquire knowledge on writing computer programs usingconcept of Web Technology
	CO-3	To create and manage Database using concept of RDBMS
Add On (Advance C) (CA-207)	CO-1	To study advanced concepts of programming using the 'C'Language.
	CO-2	To understand code organization with complex data types andstructures.
	CO-3	To work with files.
Digital Marketing (CA-301)	CO-1	The aim of this syllabus is to give knowledge about using digital marketing in and as business.
	CO-2	To make SWOT analysis, SEO optimization and use of variousdigital marketing tools.
	CO-3	To understand Case study and Exercise on various terms
	CO-4	To understand Digital marketing for business purpose

Data Structure (CA-302)	CO-1	To understand the concept of ADT's.
	CO-2	To learn linear data structures – lists, stacks, and queues.
	CO-3	To understand sorting, searching and hashing algorithms.
	CO-4	To apply Tree and Graph structures.
Software Engineering (CA-303)	CO-3	To understand system concepts.
	CO-4	To understand Software Engineering concepts.
Angular – JS (CA-304)	CO-1	By the end of this course, the students should be able to Understand Client Side MVC and SPA
	CO-2	Explore Angular JS Component
	CO-3	Develop an Angular JS Single Page Application
	CO-4	Apply filter in Angular JS application
	CO-5	By the end of this course, the students should be able to Understand Client Side MVC and SPA
Big Data (CA-305)	CO-1	To enable learners to develop expert knowledge and analytical skills in current and developing areas of analysis statistics, andmachine learning
	CO-2	To enable the learner to identify, develop and apply detailedanalytical, creative, problem solving skills.
	CO-3	Provide the learner with a comprehensive platform for career development, innovation and further study.
Computer Laboratory Based on 302 , 304 and 305	CO-1	To assess the knowledge of student in Data Structure, AngularJS and R programming

(CA-306)		
	CO-2	To acquire knowledge on writing computer programs usingconcept of Data Structure , Angular JS and R programming
	CO-3	To create and manage Applications using Data Structure , Angular JS and R programming
Basic Course in Environment al Awareness (CA-307)	**CO-1**	Provide an opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improvethe environment
	CO-3	To develop conscious towards a cleaner and better managed Environment
Networking (CA-401)	**CO-1**	To gain knowledge about Computer Networks concepts.
	CO-2	To know about working of networking models, addresses, transmission medias and connectivity devices.
Object Oriented Concepts Through CPP (CA-402)	**CO-1**	Acquire an understanding of basic object-oriented concepts andthe issues involved in effective class design.
	CO-2	Enable students to write programs using C++ features like operator overloading, constructor and destructor, inheritance,polymorphism and exception handling.
Operating System (CA-403)	**CO-1**	To know the services provided by Operating System
	CO-2	To know the scheduling concept
	CO-3	To understand design issues related to memory management andvarious related algorithms.
	CO-4	To understand design issues related to File management andvarious related algorithms
Computer Laboratory Based on 402	**CO-1**	To assess the knowledge of student in CPP and Adv. PHP

and 404(406S)		
	CO-2	To acquire knowledge on writing computer programs usingconcept of CPP and Adv. PHP
	CO-3	To create and manage Applications using CPP and Adv. PHP
Cyber Security (CA-501)	CO-1	To understand the fundamentals of cyber security.
	CO-2	To understand various categories of Cybercrime, Cyber-attacks onmobile, tools and techniques used in Cybercrime and case studies.
	CO-3	To have an overview of the Cyber laws and concepts of Cyber Forensics.
Object Oriented Software Engineering (CA-502)	CO-1	To understand the fundamentals of object modeling
	CO-2	To understand and differentiate Unified Process from other approaches.
	CO-3	To design with static UML diagrams.
	CO-4	To design with the UML dynamic and implementation diagrams.
	CO-5	To improve the software design with design patterns.
	CO-6	To test the software against its requirements specification.
Core Java (CA-503)	CO-1	To introduce the object oriented programming concepts.
	CO-2	To understand object oriented programming concepts, and apply themin solving problems.
	CO-3	To introduce the principles of inheritance and polymorphism; and demonstrate how they relate to the design of abstract classes
	CO-4	To introduce the implementation of packages and interfaces

	CO-5	To introduce the concepts of exception handling and multithreading.
	CO-6	To introduce the design of Graphical User Interface using applets and swing controls.
Python (CA-504)	**CO-1**	Define and demonstrate the use of built-in data structures "lists"and "dictionary".
	CO-2	Design and implement a program to solve a real world problem.
	CO-3	Design and implement GUI application and how to handle exceptionsand files.
Project (CA-505)	**CO-1**	Students can express their ideas clearly and effectively, bothverbally and in written form.
	CO-2	Students can work as a team to achieve common goals.
	CO-3	Students are able to make links across different areas of knowledge and to generate, develop and evaluate ideas and Information related to the project.
	CO-4	Students are able to learn on their own, reflect on their learningand improve upon it.
Computer Laboratory Based on 502 and 503 (CA-506)	**CO-1**	To assess the knowledge of student in Java Programming,Python
	CO-2	To acquire knowledge on writing computer programs usingconcept of Java Programming, Python
	CO-3	To create and manage Applications using Java Programming,Python
Ad-on Internet of Things (IoT) (CA-507)	**CO-1**	To understand Technical aspects of Internet of things.
	CO-2	To describe smart objects and IoT Architecture.
	CO-3	To study and compare different Application protocols of IoT.
	CO-4	To understand IoT platform using Arduino Uno.

Recent Trends in IT (CA-601)	**CO-1**	To discuss the basic concepts AI.
	CO-2	To apply basic, intermediate and advanced techniques to minethe data.
	CO-3	To provide an overview of the concept of Spark programming.
Software Testing (CA-602)	**CO-1**	Students will be introduced to testing tools.
	CO-2	Students will acquire Knowledge of Basic SQA.
	CO-3	Students will be able to design basic Test Cases.
Advanced Java (CA-603)	**CO-1**	Students will know the concepts of JDBC Programming.
	CO-2	Students will know the concepts of Multithreading and Socket Programming.
	CO-3	Students will know the concepts of Spring and Hibernate.
	CO-4	Students will develop the project by using JSP and JDBC.
	CO-5	Students will develop applications in Spring and hibernate
Dot Net Framework (CA-604)	**CO-1**	Understand the features of Dot Net Framework, VB,C#, and ASP.
	CO-2	Design and develop window-based and web-based .NET Applications.
	CO-3	Design and Implement database connectivity usingADO.NET for VB, C#, and ASP.
	CO-4	Design and develop a Website.
Project (ca-605)	**CO-1**	Students can express their ideas clearly and effectively, bothverbally and in written form.

	CO-2	Students can work as a team to achieve common goals.
	CO-3	Students are able to make links across different areas of Knowledge and to generate, develop and evaluate ideas andinformation related to the project.
	CO-4	Students are able to learn on their own, reflect on their learningand improve upon it.

DEPARTMENT OF BACHELOR OF BUSINESS COMPUTER APPLICATION

Course Title	Code	Course Outcomes
Business Communicat ionSkills (101)	CO-1	It improves various skills of students such as linguistic, non-linguistic etc.
	CO-2	Students learn the basic concepts of business communicationsuch as formal communication, informal communication etc.
	CO-3	It enhances the students' ability to read, write, listen andspeak effectively.
	CO-4	Students observe and apply different Communication skills inday to day life.
Principle of Managemen (102)	CO-1	Students learn the conceptual knowledge about nature,complexity, functions of management etc.
	CO-2	Students understand the different aspects of principles ofmanagement given by different authors.
	CO-3	Students learn the importance of management of change,crisis, TQM, Stress Management etc.
	CO-4	It helps to apply Henry Fayol's principles in Day to day workinglife.
C Language (103)	CO-1	Ability to improve logical thinking throughpractical knowledge of C Programming.
	CO-2	Able to develop logic for writing programs usingControl Structures, Arrays, and Functions.
	CO-3	Able to develop small real-life applications usingC.

Database Management System (104)	CO-1	Ability to obtain the basic knowledge ofDatabase Management Systems.
	CO-2	Able to gain knowledge of creation, manipulation and querying of data indatabases.
	CO-3	Able to normalize the database design.
	CO-4	Able to develop an E-R model based on userrequirements
Statistics (105)	CO-1	Students learn the basic concepts of statistics.
	CO-2	Students understand to calculate various types of averagesand variation.
	CO-3	Students understand how the different statistical conceptscan be applied in different industries differently.
	CO-4	It inculcates the research culture among
Computer Laboratory based on CA-103 and CA-104 (106)	CO-1	Ability to develop and implement computer programs using C Language.
	CO-2	Able to create and manipulate databasesusing SQL.
	CO-3	Understand how to write, debug andexecute simple programs in C
Organization Behavior andHuman Resource Management (201)	CO-1	Ability to develop strategies for organizational change and development.
	CO-2	Able to make aware students of traditional &modern methods of procurement & development in the organization.
	CO-3	Able to explore the major trends inHRM & OB.

Financial Accounting (202)	**CO-1**	Ability to develop skills for basic accounting.	
	CO-2	The course will impart knowledge on transaction management and record-keeping.	
	CO-3	Cultivate the right approach towards classifications of different transactions and their implications.	
	CO-4	Develop proficiency in the preparation of basic financial and accounting statements	
Business Mathematics (203)	**CO-1**	Ability to analyze and interpret mathematical results.	
	CO-2	To understand the role and importance of Mathematics in various business situations and while developing software.	
Relational Database (204)	**CO-1**	\Able to acquire a good formal foundation on the relational model of data and usage of Relational Databases.	
	CO-2	Enables the student to write PL/SQL programs that use procedure, function, package, cursor and trigger.	
	CO-3	Able to use advanced database Programming concepts.	
WebTechnology HTML-JavaScript-CSS (205)	**CO-1**	Ability to design more attractive Web pages using CSS.	
	CO-2	Ability to develop interactive websites using JavaScript.	
	CO-3	Understand how to develop web-based applications using JavaScript.	
Computer Laboratory Based on 204 and 205 (206)	**CO-1**	Able to manage relational databases using SQL.	
	CO-2	Ability to write simple and nested queries using SQL.	

	CO-3	Ability to write PL/SQL programs that uses procedure,function, package, cursor, and trigger.
	CO-4	Abilityto design web pages usingHTML,CSS and Javascript
Digital Marketing (301)	CO-1	Familiarity with working of E-Commerce and understand B-B, C-B, C-Crelationship.
	CO-2	Able to understand the basics of SEO (Search Engine Optimization) and better understanding between Digitaland Real Marketing.
	CO-3	Understanding of Digital Marketing types and gainingpractical knowledge of its usage through the Internet, Social Media and Mobile, Email.Designing effective content for digital marketingusing various Digital Marketing tools.
	CO-4	Developing an effective marketing strategyusing CRM.
Data Structure (302)	CO-1	Able to understand the concepts of ADTs.
	CO-2	Develop skills in the implementation andapplication of different types of data structures.
	CO-3	To understand basic algorithms related tosorting, searching and hashing.
	CO-4	To understand the concept of differentmemory allocation techniques.
	CO-5	Apply algorithm and data structure invarious real-life software problems.
Software Engineering (303)	CO-1	Able to understand concepts of Systems andtheir types.
	CO-2	Able to understand software engineeringconcepts and their applications.
	CO-3	Develop the ability to gain knowledge of theSDLC process.
	CO-4	Ability to understand the concept of Re-Engineering and Reverse Engineering.
	CO-5	Knowledge of different types of software developmentmodels such as waterfall,spiral, and prototyping.

	CO-6	Understand the concept of testing and its types.
PHP (304)	**CO-1**	Ability to develop interactive data-drivendynamic websites.
	CO-2	Understand how server-side programming workson the web.
	CO-3	To understand Session and Cookie concept.
	CO-4	To implement database connectivity.
Angular JS (305)	**CO-1**	Empower students to create a web applicationthat depends on Client-Side MVC & SPA.
	CO-2	To study the use of various AngularJSComponents.
	CO-3	Ability to understand the concepts of Javascriptand its implementation.
	CO-4	Create and bind controllers with Javascript andapply the filter in the Angular JS application.
Big Data (306)	**CO-1**	Able to understand the basic techniques such asR programming that form the foundations of Big Data.
	CO-2	Ability to acquire knowledge in specializedaspects of big data including big data applications and big data analytics.
	CO-3	To understand the building blocks of Big Data and specialized aspects of big data with the helpof different big data applications.
	CO-4	Explore the area of specialization in Data Science and be able to represent the analyticalaspects of Big Data.
	CO-5	Able to summarize data using exploratory dataanalysis and visualization using graphs.
Blockchain (306)	**CO-1**	Understand what and why of Blockchain.
	CO-2	Explore the major components of Blockchain.
	CO-3	Learn about Bitcoin, Cryptocurrency andEthereum.
	CO-4	Deploy and exercise example smart contracts.

	CO-5	Identify a use case for a Blockchain application.
	CO-6	Create your Blockchain network application.
Networking (401)	CO-1	Obtain knowledge about Computer Networkconcepts.
	CO-2	Gain Knowledge about working of networkingmodels, addresses, transmission media and Connectivity devices.
	CO-3	To acquire information about network securityand cryptography.
Object-Oriented Concepts through CPP (402)	CO-1	Acquire an understanding of basic object-
	CO-2	Oriented concepts and the issues involved ineffective class design.
	CO-3	Develop programming skills using C++ features.
	CO-4	Able to use various object-oriented concepts usedto solve real-life problems.
Operating System (403)	CO-1	Understand fundamental operating system
	CO-2	abstraction such as process, semaphore, threadsetc.
	CO-3	To know the services provided by OperatingSystem.
	CO-4	Analyze process scheduling, CPU Scheduling, andmemory management algorithms.
Node – JS (404)	CO-1	Understand the JavaScript and technical concepts behind Node JS.
	CO-2	Structure a Node application in modules.
	CO-3	Understand and use the Event Emitter, Buffers,Streams and Pipes.

	CO-4	Build a Web Server in Node and understand howit works.
	CO-5	Ability to understand how to connectwith SQL orMongo database in Node.
Advance PHP (405)	**CO-1**	To know & understand concepts of internet programming.
	CO-2	Understand how server-side programming workson the web.
	CO-3	Able to understand how to use PHP Frameworkslike (Joomla / Drupal)
Cyber Security (501)	**CO-1**	Have a good understanding of CyberSecurity and the Tools.
	CO-2	To acquire basic information on CyberSecurity and Cybercrime.
	CO-3	Have a good understanding of Cyber laws.
	CO-4	To develop Cyber forensics awareness.
	CO-5	Identify attacks, security policies andcredit card frauds in the mobile and Wireless Computing Era.
Object-Oriented Software Engineering (502)	**CO-1**	Able to give Design Specifications forProject.
	CO-2	Acquire Knowledge in Basic Modeling.
	CO-3	Ability to acquire Project ManagementSkills.
	CO-4	Able to understand the fundamentals ofobject modeling
	CO-5	Design different UML diagrams.
	CO-6	Improve the software design with designpatterns.

Core Java (503)	CO-1	Able to solve real-world problems usingOOP techniques.
	CO-2	Able to solve problems using java collection framework and I/O classes
	CO-3	Develop applets for web applications.
	CO-4	Design GUI-based applications.
	CO-5	Ability to understand the use of file concepts.
MongoDB (504)	CO-1	Ability to work with MongoDB shell andMongoDB tools.
	CO-2	Able to do Schema design, Data modeling,and all sorts of CRUD Operations.
	CO-3	Able to apply various techniques tooptimize query performance.
	CO-4	Analyze the data stored in MongoDB.
Python (504)	CO-1	Understand the need and importance ofPython language.
	CO-2	Able to learn how to design andimplement Python applications.
	CO-3	Design and implement a program to solvea real-world problem
	CO-4	Design and implement GUI application
	CO-5	Gain knowledge of handling the conceptsof exceptions and files.
(DSE) Project (505)	CO-1	Undertake problem identification, formulation and solution.
	CO-2	Understand project characteristics and various stages of project development.
	CO-3	Design solutions to complex problems.
	CO-4	Gain a sound technical knowledge of selected project development platforms.

	CO-5	Developed enhance coding skills.
Computer Laboratories Based on (503 and 504) (2 credits each) (506)	**CO-1**	Define and demonstrate the use of GUI Programming concepts.
	CO-2	Design and implement a program to solve a real-world problem.
	CO-3	Design and implement classes and methods.
	CO-4	Implementation of exception handling using packages.
Recent Trends in IT (601)	**CO-1**	Able to understand basic concepts of AI.
	CO-2	To apply basic, intermediate and advanced techniquesto mine the data.
	CO-3	To provide an overview of the concept of Sparkprogramming.
Software Testing (602)	**CO-1**	Acquire knowledge of testing tools.
	CO-2	Understand the basic concepts of SQA.
	CO-3	Able to design and implement the basic Test Cases.
Advanced Java (603)	**CO-1**	Able to understand the concepts of JDBC Programming, Multithreading and SocketProgramming.
	CO-2	Ability to understand the concepts of spring and Hibernate, JSP and JDBC.
	CO-3	Develop applications in spring and hibernate.
	CO-4	Design website by using JDBC and JSP.

	CO-5	Develop different types of Servlet applications
Android Programmin g (604)	**CO-1**	Able to write simple GUI applications, use built-in widgets and components, work with the database tostore data locally, and much more.
	CO-2	Demonstrate their understanding of the fundamentalsof Android operating systems.
	CO-3	Demonstrate their skills in using Android softwaredevelopment tools
Dot Net Framework (604)	**CO-1**	Understand the features of Dot Net Framework, VB,C#, and ASP.
	CO-2	Design and develop window-based and web-based .NET Applications.
	CO-3	Design and Implement database connectivity usingADO.NET for VB, C#, and ASP..
	CO-4	Design and develop a Website.
(DSE) Project (605)	**CO-1**	Acquire Project development and management skills.
	CO-2	Able to implement design and coding techniques.
	CO-3	Students will be able to apply test cases and testingtechniques in the project.
Computer Laboratory Based on 603 and 604 (2 credits each) (606)	**CO-1**	Ability to develop different types of chattingapplications by using Socketprogramming.
	CO-2	Able to develop and design different types ofwebsites.
	CO-3	Able to develop the project by using spring andHibernate.
	CO-4	To Understand Applications of widgets andcomponents.

DEPARTMENT OF GEOGRAPHY

Course Title	Code	Course Outcomes
Geography	**CO-1**	Students of all undergraduate general degree programs should have acquired the following abilities/ values at the time of graduation:
	CO-2	Define and develop the interdisciplinary approach through the study of Geography
	CO-3	Enhance employability and entrepreneur skills among the students.
	CO-4	Demonstrate and appreciate the importance of diverse cultural, economic, regional, and resources perspective.
	CO-5	Realization the importance of relation between Geography and various branches of Humanities, mental moral sciences.
	CO-6	Demonstrate and understand the important concept and theories in the field of Geography. Subject specific
	CO-7	Demonstrate knowledge of physical and cultural features of the earth surface.
	CO-8	Define basic disciplines of Geography and its sub branches.
	CO-9	Discuss the basic concepts and terminologies used in Geography like interior of the earth, plate tectonic, sea floor spreading, population growth, disasters, composition and structure of atmosphere, hydrosphere, etc.
	CO-10	Distinguish between minerals and rocks, weather and climate, interior of the earth, basic industries, farming etc.
	CO-11	Describe the causes and effects of local, national and international problems like global warming, acid rain, ozone depletion, soil degradation, deforestation etc. Institutional
	CO-12	Encourage to develop overall personality with soft skills and vocational competence among the students
	CO-13	Enhance and rediscover knowledge skills and holistic approach towards life

DEPARTMENT OF ECONOMICS

Course Title	Code	Course Outcomes
ECONOMICS	**CO-1**	To familiarize with fundamentals of modern financial system.
	CO-2	To help the students to prepare for varied competitive examinations.
	CO-3	To familiarize students with various concepts of national income.
	CO-4	To introduce students to the role of money in an economy.
	CO-5	To facilitate the development of research aptitude in students.
DEPARTMENT OF MARATHI		
Course Title	**Code**	**Course Outcomes**
F.Y.B.A. SEM-I (Marathi)	**CO-1**	Understanding the interrelation between literature and society.
	CO-2	Explaining the nature of Language and Literature.
	CO-3	Obtaining the skills of literary criticism.
	CO-4	Imbuing the essay writing skills.
	CO-5	Illustrating the nature of literary forms like one-act-play, travelogue and short-story.
B.A. SEM-II (Marathi)	**CO-1**	Introduction of medieval Marathi language and literature.
	CO-2	Introduction of the contemporary literary works.
	CO-3	Acquiring the skill of translation.
	CO-4	Explanation of the need and significance of editing

B.A.III G3 (Marathi) Poetry	CO-1	Acquaintance with oriental poetry.
	CO-2	Understanding the nature and features of poetry's.
	CO-3	Acquaintance with oriental poetry.
	CO-4	Developing the poetic devices and their uses.
	CO-5	Creating the skills of critical appreciation of poem
B.A.III S4 Linguistics	CO-1	Getting acquainted with modern linguistics.
	CO-2	Understanding origin, nature and function of language.
	CO-3	Getting information about phonetics.
	CO-4	Enhancing the interest in Marathi Language.
B.A.III S3 Medieval Marathi Literature	CO-1	Introduction of the historical survey of medieval Marathi literature.
	CO-2	Introduction of the literary forms in medieval literature.
	CO-3	Explanation of the trends and structure of medieval Marathi Literature.
Marathi III Utility and Creativity of Marathi Language	CO-1	Understanding the formal and informal language.
	CO-2	Developing various language skills.
	CO-3	Getting motivation for creative writing.

	CO-4	Understanding the technique of mass communication.
B.A.III Literary Criticism:	**CO-1**	Introduction to various trends in literary criticism.
	CO-2	Understanding various trends in Dalit literature.
T.Y.B.A. MARATHI Sem V G3 -- BHASH IK KAUSH ALYVI KAS AANI ADHUN IK MARAT HI SAHITY A PRAKA R: PRVAS VARNA N	**CO-1**	Acquiring writing skills for print media.
	CO-2	To understanding the nature, motivation, purpose, features and movement of the literary genre.
	CO-3	To understand taste and analyse the assigned travelogue.
Sem VI G3—BHASHIK KAUSHALYVIK AS AANI MARATHI	**CO-1**	To learn about Marathi literature, language skills development and governance.

SAHITYA PRAKAR: KAVITA		
	CO-2	To understanding the nature, movement, motivation, tendency and features of this genre of poetry.
	CO-3	Assessing, testing and analyzing selected poems from the designated textbook
	CO-4	To get acquainted with the various inventions in the genre of poetry and the form of language on the basis of the poems of the textbook
S3— MADHYYUGIN MARATHI VANGMAUACHA STHUL ITIHAS PRARAMBH TE 1600	**CO-1**	To understand concept form, motivation, tendency of the growing history.
	CO-2	Understanding the social and cultural background of the medieval period.
	CO-3	To understand the chronological history of Marathi language and literature.
S4— VARNNATMAK BHAHAVIDNYAN **Sem-V**	**CO-1**	Explain the nature, features and function of language.
	CO-2	Explain the need for language study.
	CO-3	Brief introduction to the branches and various methods of language study.
	CO-4	Understanding the structure of the senses and the process of self-creation.
	CO-5	To understand the science of self, self-thought and self-system of Marathi.

Sem VI	CO-1	To understand morphology and morphology of Marathi.
	CO-2	By introducing syntax and syntax in the context of Marathi language introducing the concept of semantics through linguistic organs.

DEPARTMENT OF HINDI

Course Title	Code	Course Outcomes
F.Y.B.A. SEM-I (Hindi)	CO-1	Understanding the interrelation between literature and society.
	CO-2	Explaining the nature of Language and Literature.
	CO-3	Obtaining the skills of literary criticism.
	CO-4	Imbuing the essay writing skills
	CO-5	Illustrating the nature of literary forms like one-act-play, travelogue and short-story.
B.A. SEM-II (Hindi)	CO-1	Introduction of medieval Hindi language and literature.
	CO-2	Introduction of the contemporary literary works
	CO-3	Acquiring the skill of translation.
	CO-4	Explanation of the need and significance of editing
S.Y.B.A.(G2) SEM-III (Hindi) Poetry	CO-1	Acquaintance with oriental poetry.
	CO-2	Understanding the nature and features of poetry.

	CO-3	Creating the skills of critical appreciation of poems.
	CO-4	Developing the poetic devices and their uses
SEM-III (S1) Linguistics:	CO-1	Getting acquainted with modern linguistics
	CO-2	Understanding origin, nature and function of language.
	CO-3	Enhancing the interest in Hindi Language
SEM-III (S2) Medieval Hindi Literature:	CO-1	Introduction of the historical survey of medieval Hindi literature
	CO-2	Introduction of the literary forms in medieval literature
	CO-3	Explanation of the trends and structure of medieval Hindi Literature.
III Utility and Creativity of Hindi Language	CO-1	Understanding the formal and informal language
	CO-2	Developing various language skills.
	CO-3	Getting motivation for creative writing.
	CO-4	Understanding the technique of mass communication
TYBA HINDI (G3) Kathher Gadya Sahitya Sem-V	CO-1	To make students aware of memoir literature.

	CO-2	To make students aware of Resvachitra literature
	CO-3	To develop students from the point of view of evaluation.
	CO-4	To develop the development of meeting chronicle writing skills.
	CO-5	Build dialogue-writing skills
Sem-VI Ghazal literature	CO-1	To make students aware of Ghazal literature.
	CO-2	To make the students aware of the personality of the Ghazalkar.
	CO-3	To develop the attitude of assessment to the students.
	CO-4	To make students aware of government letter writing.
S4 Sem-V Bhasha Vighyan	CO-1	Introducing the nature of linguistics.
	CO-2	To explain the scope of Linguistics to the students.
	CO-3	Introducing the directions of linguistics
	CO-4	To explain the application aspect of linguistics.
	CO-5	To explain the utility of linguistics in the study of literature
Sem-VI Hindi Bhasha our Vikas	CO-1	Introducing the nature of linguistics.
	CO-2	To explain the scope of Linguistics to the students.

	CO-3	Introducing the directions of study of linguistics.
	CO-4	Explaining the Application aspect of Linguistics.
	CO-5	To explain the utility of linguistics in the study of literature
S3 Sem-V History of Hindi Literature	CO-1	To acquaint the students with the background of modern times
	CO-2	To make students aware of the poetry of Bharattendu era
	CO-3	To get acquainted with the creators of the modern period.
	CO-4	To sensitize the students about the origin and development of Hindi poetry.
Sem-VI History of Hindi Literature	CO-1	Introduction to Hindi Literature Writing
	CO-2	To introduce the period division and nomenclature of Hindi literature.
	CO-3	To get acquainted with the compositions of the ancient, devotional, ritual, creators

Chemistry

Course Title	**Code**	Course Outcomes
FY BSc	CO-1	Students will be able to apply thermodynamic principles to physical and chemical process
	CO-2	Calculations of enthalpy , Bond energy, Bond dissociation energy , resonance energy
	CO-3	Variation of enthalpy with temperature –Kirchoff's equation

	CO-4	Third law of thermodynamic and its application
	CO-5	Relation between Free energy and equilibrium and factors affecting on equilibrium constant.
	CO-1	Exergonic and endergonic reaction
	CO-2	Gas equilibrium, equilibrium constant and molecular interpretation of equilibrium constant
	CO-3	Van't Haff equation and its application
	CO-4	Concept to ionization process occurred in acids, bases and pH scale
	CO-5	Related concepts such as Common ion effect hydrolysis constant, ionic product, solubility product
	CO-1	Degree of hydrolysis and pH for different salts , buffer solutions
	CO-2	After completing the course work learner will be acquired with knowledge of chemical energetics,
	CO-3	Chemical equilibrium and ionic equilibria.
CH-102 Organic Chemistry	CO-1	The students are expected to understand the fundamentals, principles, and recent developments in the subject area.
	CO-2	It is expected to inspire and boost interest of the students towards chemistry as the main subject.
	CO-3	To familiarize with current and recent developments in Chemistry.
	CO-4	To create foundation for research and development in Chemistry
	CO-5	Students will learn Fundamentals of organic chemistry, stereochemistry (Conformations,and nomenclatures) and functional group approach for aliphatic hydrocarbons
CH-103 Chemistry Practicals Course –I	CO-1	Importance of chemical safety and Lab safety while performing experiments in laboratory

	CO-2	Determination of thermochemical parameters and related concepts	
	CO-3	Techniques of pH measurements	
	CO-4	Preparation of buffer solutions	
	CO-5	Elemental analysis of organic compounds (non instrumental)	
	CO-6	Chromatographic Techniques for separation of constituents of mixtures	
	CO-7	Students will learn quantum mechanical approach to atomic structure, Periodicity of elements, various theories for chemical bonding.	
	CO-8	The practical course is in relevance to the theory courses to improve the Understanding of the concepts	
	CO-9	It would help in development of practical skills of the students.	
CH-201 Inorganic Chemistry	CO-1	Various theories and principles applied to revel atomic structure	
	CO-2	Origin of quantum mechanics and its need to understand structure of hydrogen atom	
	CO-3	Schrodinger equation for hydrogen atom	
	CO-4	Radial and angular part of hydrogenic wave functions	
	CO-5	Significance of quantum numbers	
	CO-6	Shapes of orbitals	
	CO-7	Explain rules for filling electrons in various orbitals- Aufbau's principle, Pauli exclusion principle, Hund's rule of maximum multiplicity	

	CO-8	Discuss electronic configuration of an atom and anomalous electronic configurations
	CO-9	Describe stability of half-filled and completely filled orbitals.
	CO-10	Discuss concept of exchange energy and relative energies of atomic orbitals
	CO-11	Design Skeleton of long form of periodic table.
	CO-22	Describe Block, group, modern periodic law and periodicity.
	CO-13	Classification of elements as main group, transition and inner transition elements
	CO-14	Write name, symbol, electronic configuration, trends and properties.
	CO-15	Explain periodicity in the following properties in details: a. Effective nuclear charge, shielding or screening effect; some numerical problems. b. Atomic and ionic size. c. Crystal and covalent radii d. Ionization energies e. Electronegativity- definition, trend, Pauling electronegativity scale. f. Oxidation state of elements
	CO-16	Attainment of stable electronic configurations.
	CO-17	Define various types of chemical bonds- Ionic, covalent, coordinate and metallic bond
	CO-18	Explain characteristics of ionic bond, types of ions, energy consideration in ionic bonding, lattice and solvation energy and their importance in the context of stability and solubility of ionic compounds
	CO-19	Summarize Born-Lande equation and Born-Haber cycle,

	CO-20	Define Fajan's rule, bond moment, dipole moment and percent ionic character.	
	CO-21	Describe VB approach, Hybridization with example of linear, trigonal, square planer, tetrahedral, TBP, and octahedral.	
	CO-22	Discuss assumption and need of VSEPR theory.	
	CO-23	Interpret concept of different types of valence shell electron pairs and their contribution in bonding.	
	CO-24	Application of non-bonded lone pairs in shape of molecule	
	CO-25	Basic understanding of geometry and effect of lone pairs with examples such as ClF_3, Cl_2O, BrF_5, XeO_3 and $XeOF_4$.	
	CO-26	Students will know about basics of analytical chemistry, some techniques of analysis and able to do calculations essential for analysis.	
CH-202 Analytical Chemistry	**CO-1**	Analytical Chemistry –branch of chemistry	
	CO-2	Perspectives of analytical Chemistry	
	CO-3	analytical problems	
	CO-4	Calculations of mole, molar concentrations and various units of concentrations which will be helpful for preparation of solution	
	CO-5	Relation between molecular formula and empirical formula	
	CO-6	Stoichiometric calculation	
	CO-7	Define term mole, millimole, molar concentration, molar equilibrium concentration and Percen Concentration.	

	CO-8	SI units, distinction between mass and weight
	CO-8	Units such as parts per million, parts per billion, parts per thousand, solution-dilatant volume ratio, function density and specific gravity of solutions Basics of type determination, characteristic tests and classifications, reactions of different functional groups.
	CO-9	Separation of binary mixtures and analysis
	CO-10	Elemental analysis -Detection of nitrogen, sulfur, halogen and phosphorous by Lassiagen's test
	CO-11	Purification techniques for organic compounds.
	CO-12	Basics of chromatography and types of chromatography
	CO-13	Theoretical background for Paper and Thin Layer Chromatography
	CO-14	pH meter and electrodes for pH measurement
	CO-15	Measurement of pH
	CO-16	Working of pH meter
	CO-17	Applications of pH meter
CH- 203: Chemistry Practical –II	**CO-1**	Inorganic Estimations using volumetric analysis
	CO-2	Synthesis of Inorganic compounds
	CO-3	Analysis of commercial products
	CO-4	Purification of organic compounds
	CO-5	Preparations and mechanism of reactions involved

	CO-6	The practical course is in relevance to the theory courses to improve the Understanding of the concepts.
	CO-7	It would help in development of practical skills of the students
	CO-8	Use of micro scale techniques wherever required
SYBSc CH-301 Physical and Analytical Chemistry	CO-1	Define / Explain concept of kinetics, terms used, rate laws, molecularity, order.
	CO-2	Explain factors affecting rate of reaction
	CO-3	Explain / discuss / derive integrated rate laws, characteristics, expression for half-life and examples of zero order, first order, and second order reactions.
	CO-4	Determination of order of reaction by integrated rate equation method, graphical method, half-life method and differential method
	CO-5	Explain / discuss the term energy of activation with the help of energy diagram.
	CO-6	Explanation for temperature coefficient and effect of temperature on rate constant k.
	CO-7	Derivation of Arrhenius equation and evaluation of energy of activation graphically
	CO-8	Derivations of collision theory and transition state theory of bimolecular reaction and comparison
	CO-9	Solve / discuss the problem based applying theory and equations.
	CO-10	Define / explain adsorption, classification of given processes into physical and chemical adsorption.
	CO-11	Discuss factors influencing adsorption, its characteristics, differentiates types as physisorption and Chemisorption
	CO-12	Classification of Adsorption Isotherms, to derive isotherms.
	CO-13	Explanation of adsorption results in the light of Langmuir adsorption isotherm, Freundlich's adsorption Isotherm and BET theory

	CO-14	Apply adsorption process to real life problem.
	CO-15	Solve / discuss problems using theory.
	CO-16	Define, explain and compare meaning of accuracy and precision
	CO-17	Apply the methods of expressing the errors in analysis from results
	CO-18	.Explain / discuss different terms related to errors in quantitative analysis.
	CO-19	Apply statistical methods to express his / her analytical results in laboratory
	CO-20	Solve problems applying equations
	CO-21	Explain / define different terms in volumetric analysis such as units of concentration, indicator, equivalence point, end point, standard solutions, primary and secondary standards, complexing agent, precipitating agent, oxidizing agent, reducing agent, redox indicators, acid base indicators, metallochome indicators, etc.
	CO-22	Perform calculations involved in volumetric analysis
	CO-23	Explain why indicator show colour change and pH range of colour change.
	CO-24	To prepare standard solution and **b.** perform standardization of solutions.
	CO-25	To construct acid – base titration curves and performs choice of indicator for particular titration
	CO-26	. Explain / discuss acid-base titrations, complexometric titration / precipitation titration / redox titration.
	CO-27	Apply volumetric methods of analysis to real problem in analytical chemistry / industry
CH-302 Inorganic and Organic Chemistry	CO-1	Define terms related to molecular orbital theory (AO, MO, sigma bond, pi bond, bond order, magnetic property of molecules, etc).

	CO-2	. Explain and apply LCAO principle for the formation of MO's from AO's.
	CO-3	Explain formation of different types of MO's from AO's
	CO-4	Distinguish between atomic and molecular orbitals, bonding, anti-bonding and non-bonding molecular orbitals.
	CO-5	Draw and explain MO energy level diagrams for homo and hetero diatomic molecules. Explain bond order and magnetic property of molecule.
	CO-6	Apply MOT to explain bonding in diatomic molecules other than explained in syllabus
	CO-7	Define different terms related to the coordination chemistry (double salt, coordination compounds, coordinate bond, ligand, central metal ion, complex ion, coordination number, magnetic moment, crystal field stabilization energy, types of ligand, chelate effect, etc.) To correlate reagent and reactions
	CO-8	Explain Werner's theory of coordination compounds. Differentiate between primary and secondary valency. Correlate coordination number and structure of complex ion.
	CO-9	Apply IUPAC nomenclature to coordination compound
	CO-10	.Identify and draw the structures aromatic hydrocarbons from their names or from structure name can be assigned.
	CO-11	. Explain / discuss synthesis of aromatic hydrocarbons.
	CO-12	Give the mechanism of reactions involved.
	CO-13	Explain /Discuss important reactions of aromatic hydrocarbon
	CO-14	Identify and draw the structures alkyl / aryl halides from their names or from structure name can be assigned.
	CO-15	Explain / discuss synthesis of alkyl / aryl halides
	CO-16	Write / discuss the mechanism of Nucleophilic Substitution (SN1, SN2 and SNi) reactions
	CO-17	Explain /Discuss important reactions of alkyl / aryl halides

	CO-18	To correlate reagent and reactions.
	CO-19	Give synthesis of expected alkyl / aryl halides.
	CO-20	Identify and draw the structures alcohols / phenols from their names or from structure name can be assigned.
S	CO-21	Able to differentiate between alcohols and phenols
	CO-22	Explain / discuss synthesis of alcohols / phenols
	CO-23	Write / discuss the mechanism of various reactions involved
	CO-24	Explain /Discuss important reactions of alcohols / phenols
	CO-25	To correlate reagent and reactions of alcohols / phenols
	CO-26	Give synthesis of expected alcohols / phenols.
CH-303 Practical Chemistry	CO-1	.Verify theoretical principles experimentally.
	CO-2	Interpret the experimental data on the basis of theoretical principles
	CO-3	Correlate theory to experiments. Understand/verify theoretical principles by experiment observations; explain practical output / data with the help of theory.
	CO-4	Understand systematic methods of identification of substance by chemical methods.
	CO-5	Write balanced equation for the chemical reactions performed in the laboratory
S	CO-6	Perform organic and inorganic synthesis and is able to follow the progress of the chemical reaction by suitable method (colour change, ppt. formation, TLC).
	CO-7	Set up the apparatus / prepare the solutions - properly for the designed experiments

	CO-8	Perform the quantitative chemical analysis of substances explain principles behind it
	CO-4	Systematic working skill in laboratory will be imparted in student.
CH-401 Physical and Analytical Chemistry	CO-1	Define the terms in phase equilibria such as- system, phase in system, components in system, degree of freedom, one / two component system, phase rule, etc.
	CO-2	Explain meaning and Types of equilibrium such as true or static, metastable and unstable equilibrium.
	CO-3	Discuss meaning of phase, component and degree of freedom.
	CO-4	Derive of phase rule
	CO-5	Explain of one component system with respect to: Description of the curve, Phase rule relationship and typical features for i) Water system ii) Carbon dioxide system iii) Sulphur system
	CO-6	Define various terms, laws, differentiate ideal and no-ideal solutions
	CO-7	Discuss / explain thermodynamic aspects of Ideal solutions-Gibbs free energy change, Volume change, Enthalpy change and entropy change of mixing of Ideal solution.
	CO-8	Differentiate between ideal and non-ideal solutions and can apply Raoult's law
	CO-9	Interpretation of i) vapour pressure–composition diagram ii) temperature-composition diagram.
	CO-10	Explain distillation of liquid solutions from temperature – composition diagram
CH-402 Inorganic and Organic Chemistry	CO-1	Isomerism in coordination complexes
	CO-2	Explain different types of isomerism in coordination complexes

	CO-3	Apply principles of VBT to explain bonding in coordination compound of different geometries.
	CO-4	Correlate no of unpaired electrons and orbitals used for bonding
	CO-5	Identify / explain / discuss inner and outer orbital complexes
	CO-6	Explain / discuss limitation of VBT.
	CO-7	Explain principle of CFT.
	CO-8	Apply crystal field theory to different type of complexes (Td, Oh, Sq. Pl complexes)
	CO-9	Calculate field stabilization energy and magnetic moment for various complexes.
	CO-10	To identify Td and Sq. Pl complexes on the basis of magnetic properties / unpaired electrons
CH-403 Practical Chemistry	**CO-1**	Verify theoretical principles experimentally
	CO-2	Interpret the experimental data on the basis of theoretical principles
	CO-3	Correlate the theory to the experiments. Understand / verify theoretical principles by experiment or explain practical output with the help of theory.
	CO-4	Understand systematic methods of identification of substance by chemical methods
	CO-5	Write balanced equation for all the chemical reactions performed in the laboratory.
	CO-1	Perform organic and inorganic synthesis and able to follow the progress of the chemical reaction.
	CO-2	Set up the apparatus properly for the designed experiments.
	CO-3	Perform the quantitative chemical analysis of substances and able to explain principles behind it.

TY BSc Physical Chemistry	CO-1	Understand the role of computers in simulating chemical processes analyzing data.
	CO-2	Quantify the ideas (not overshadowed by mathematics) about the behavior of molecules and systems in order to be able to cope with experimental testing.
	CO-3	Distinguish the usefulness of mathematics in Physical Chemistry and to be inspired by the charm of their application.
	CO-4	Thinks and reflects in the language of science avoiding the simple memorization of knowledge.
Inorganic Chemistry	CO-1	Student can draw molecular orbital diagram,
	CO-2	Learn about basic concept of coordination chemistry, BMO,ABMO orbitals splitting of d orbitals ,
	CO-3	Know about crystalline structure,
	CO-4	Know about homogeneous and heterogeneous catalysis
Organic Chemistry	CO-1	Describe the synthesis of chemical reactions of polynuclear and hetreonuclear aromatic Hydrocarbons.
	CO-2	Meaning of active methylene group
	CO-3	Reactivity of methylene group,
	CO-4	Synthetic applications ethyl acetoacetate and malonic ester
	CO-5	To predict product with panning or supply the reagent/s for these reactions
	CO-1	From the IR spectrum, they will be able to find out IR frequencies of different functional groups. And thus, they will be able to find functional groups present in the compound.

	CO-2	Students will understand the principle of NMR spectroscopy and will understand various terms used in NMR spectroscopy. They will learn measurement of chemical shift and coupling constants.
Analytical Chemistry	**CO-1**	Upon completion of a degree
	CO-2	Acquire the Principles of Qualitative and Quantitative analysis w.r.t. Gravimetric , Thermal and Electrogravimetric analysis in detail
	CO-3	Principles of Quantitative Analysis (Spectrophotometry - Colorimeter, spectrophotometer, AAS, FES and Polarography) with instrumentation, role of each part, types of instruments and its applications
	CO-4	Principles of separation Techniques like solvent extraction
Industrial Chemistry	**CO-1**	Understanding of industrial processes and various chemical manufacturing processes of food , cement ,starch
	CO-2	,glass , polymer, sugar and fermentation, soap, detergents and cosmetics, dyes and paints, pharmaceutical industries.
	CO-3	Composition of petroleum, resources, processing of petroleum Fuels and eco-friendly fuels
	CO-4	Importance of chemical industry, Various insecticides, Various insecticides,
Environ-mental Chemistry	**CO-1**	Principles of green chemistry, Advantages of green chemistry, Methods of water purification, Waste water treatment process, Techniques used to monitor hazardous materials present in environment
MSc I – CCTP-1: CHP-110 Physical Chemistry	**CO-1**	Understand the role of computers in simulating chemical processes and analyzing data.
	CO-2	Quantify the ideas (not overshadowed by mathematics) about the behavior of molecules and systems in order to be able to cope with experimental testing
	CO-3	Distinguish the usefulness of mathematics in Physical Chemistry and to be inspired by the charm of their application.
	CO-4	Thinks and reflects in the language of science avoiding the simple memorization of knowledge
CCTP-1: CHP-210 Physical	**CO-1**	To determine types of molecule on the basis of moment of inertia and rotational spectra.

Chemistry		
	CO-2	To determine the vibrations of polyatomic molecule.
	CO-3	To determine quantum and classical theory of Raman effect, pure rotational Raman spectra
	CO-4	To determine electronic spectra of diatomic molecules
	CO-5	To determine Principle, Instrumentation and Applications of Mossbauer Spectroscopy
CCTP-2: CHI-130, Inorganic Chemistry-I	CO-1	Student should visualize/ imagine molecules in 3 dimensions.
	CO-2	To understand the concept of symmetry and able to pass various symmetry elements through the molecule.
	CO-3	Understand the concept and point group and apply it to molecules
	CO-4	To understand product of symmetry operations.
	CO-5	To apply the concept of point group for determining optical activity and dipole moment
	CO-6	.Student should understand the importance of Orthogonality Theorem.
	CO-7	They should able to learn the rules for constructing character table.
	CO-8	Using reduction formulae should be able to find out the possible type of hybridization
CCTP-5: CHI-230,Inorganic Chemistry, Semester – II	CO-1	Student should able to find out the no of microstates and meaningful term symbols, construction of microstate table for various configuration
	CO-2	Hund's rules for arranging the terms according to energy.
	CO-3	Student should understand interelectronic repulsion.

	CO-4	Student should know the concept of weak and strong ligand field.
	CO-5	Student able to find out splitting of the free ion terms in weak ligand field and strong ligand field.
	CO-7	To draw correlations diagram for various configurations in Td an Oh ligand field
	CO-8	Student should know basic instrumentation and selection rules and relaxation in rules
	CO-9	Student should know basic d-d transition, d-p mixing, charge transfer spectra.
CCTP-3:CHO-150, Organic Chemistry-I, Semester – I	**CO-1**	They will understand the criteria for aromaticity in nonbenzenoid molecules and other advanced polycyclic aromatics
	CO-2	Understand the chemistry of monocyclic heterocycles, nomenclature and reactions
	CO-3	Learn the concept stereochemistry and its importance; their rules and the concept of chirality
	CO-4	Understand the role of various reaction intermediates like carbocation, carbanion, carbenes, radicals, and nitrenes in organic reactions; concept of NGP
	CO-5	Able to describe mechanism of different rearrangement reactions. Appreciates the various steps involved in the molecular rearrangements.
	CO-6	Understand the chemistry of Ylides
	CO-7	Use synthetic reagent of oxidation and reduction for solving the problems
CCTP-6:CHO – 250, Organic Chemistry-II, Semester–II	**CO-1**	MOT and will be able to extend this in predicting reaction mechanism and stereochemistry of electrocyclic reactions.
	CO-2	The concepts in free radical reactions, mechanism and the stereo chemical outcomes.

	CO-3	The basic principle of spectroscopic methods and their applications in structure elucidation of organic compounds using given spectroscopic data or spectra.
CBOP-1: CHG – 190, General Chemistry-I **SECTION-I: Theory Course** **Elective Option-C: Introduction to Chemical Biology-I**	CO-1	1) Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.
	CO-2	Students will be able to function as a member of an interdisciplinary problem solving team
	CO-3	To impart the students thorough idea in the chemistry of carbohydrates, amino acids, proteins and nucleic acids etc.
	CO-4	Be able to describe the chemical basis for replication, transcription, translation and how each of these central processes can be expanded to include new chemical matter
	CO-5	Develop skills to critically read the literature and effectively
SECTION-II: Practical Course **Elective Option-A: Inorganic Material Analysis, Synthesis and Applications**	CO-1	Determination of Silica and Manganese from pyrolusite ore
	CO-2	Determination of copper and iron from Chalcopyrite ore.

	CO-3	Synthesis of solid state materials / nano-materials.
	CO-4	Determination of tin and lead from solder alloy
	CO-5	Determination of iron and chromium from stainless steel alloy.
	CO-6	Removal and kinetics of photocatalytic dyes, degradation
CBOP-2: CHG – 290, General Chemistry -II, **SECTION-I: Theory Course** **Elective Option– C: Introduction to Chemical Biology-II**	CO-1	Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.
	CO-2	Students will be able to function as a member of an interdisciplinary problem solving team.
	CO-3	To impart the students thorough idea in the chemistry of carbohydrates, amino acids, proteins and nucleic acids etc.
	CO-4	Be able to describe the chemical basis for replication, transcription, translation and how each of these central processes can be expanded to include new chemical matter.
	CO-5	Develop skills to critically read the literature and effectively communicate research in a peer setting.
	CO-6	Describe the importance of chemical biology research and interdisciplinary work
SECTION-II: Practical Course **Elective Option-A: Electrochemical Methods of**	CO-1	Hydrolysis of NH4Cl or CH3COONa or aniline hydrochloride

Analysis:		
	CO-2	Hydrolysis of ethyl acetate by NaOH
	CO-3	Stability Constant of a complex ion
	CO-4	Estimation of halide in mixture
	CO-5	Determination of the acid and base dissociation constant of an amino acid and hence the isoelectric point of the acid.
	CO-6	Determination of dissociation constants of tribasic acid
CCPP-1: CHP-107: Practical Course – I: Semester –I	**CO-1**	Statistical treatment of experimental data.
	CO-2	Determination of an order of a reaction.
	CO-3	Kinetics of oxidation of ethanol.
	CO-4	Determination of molecular weight by steam distillation
	CO-5	Determination of the densities of a series of solutions and to calculate the molar volumes of the components.
CCPP-2: CHP-227: Practical Course-II: Semester -II	**CO-1**	This course is designed to make students aware of how to perform organic compounds in laboratory.
	CO-2	The course includes synthesis of some derivatives and organic compounds, which will help them while working in research laboratory in future.
	CO-3	Making derivatives of organic compounds will help them in industry or while doing research in medicinal chemistry for Drug development

	CO-4	This practical course is also designed to make student aware of green chemistry and role of green chemistry in pollution reduction.
	CO-5	The students learn how to avoid solvents and do solvent free reaction.
	CO-1	Also the work-up procedure in many experiments is made more eco-friendly to environment.
MSc II Organic Reaction Mechanism and Biogenesis(CHO-350)	**CO-1**	Understand the Mechanism of the reaction and application of the reaction.
	CO-2	To determine Kinetic and Non- Kinetic methods
	CO-3	To determine Free Radicals in Organic Synthesis.
	CO-4	To determine Synthesis of Biogenesis of Terpenoids.
	CO-5	To determine Hammet Equation , Substituent constants, Use of Hammet plots
Structure Determination of Organic Compounds by Spectroscopic Compounds. (CHO-351)	**CO-1**	To determine first and second order splitting.
	CO-2	To determine chiral NMR solvents in structure determination.
	CO-3	To determine fundamentals and applications in structure elucidation
	CO-4	2D NMR spectroscopy in structure elucidation

	CO-5	. To determine complex multiplicity patterns and coupling constants in asymmetric compounds
Organic stereo Chemistry (CHO-352)	**CO-1**	Logical reasoning as well as thinking should be enhanced in students
	CO-2	Students should be able to find out reaction products of organic reactions with proper stereo chemistry.
	CO-3	Students should be able to understand the proper stereochemistry of cyclic compounds.
CBOP-3, Designing Organic Synthesis and Heterocyclic chemistry reaction(CHO-353(B)	**CO-1**	To determine retrosynthetic analysis.
	CO-2	To determine interconversion of two groups
	CO-3	To determine C-C disconnection in heteroatom and heterocyclic compounds
CCTP-10, Chemistry of Natural Products reaction(CH O-450)	**CO-1**	Understanding and planning of total synthesis while maintaining the stereochemistry.
	CO-2	S.
CBOP-4 , Concepts and Applications of Medicinal Chemistry(CH	**CO-1**	To determine proteins as biological catalysts.

O-452 -A)		
	CO-2	To determine chemistry of diseases and drug development.
	CO-3	To determine Pharmacokinetics and Pharmacodynamics of drug.
	CO-4	Ternary Mixture Seperation.
	CO-5	Carbohydrates synthesis and isolation of Natural Products. S
CBOP-5 , Practical –III Chemistry(CH O-453)	CO-1	Convergent Synthesis
	CO-2	Divergent Synthesis

Zoology

Course Title	Code	Course Title
F.Y.B.Sc. and S.Y.B.Sc. Paper I	CO-1	This course will provide students with an opportunity to gain information regarding animal classification and systematic, animal structure and function relationships, evolution between and within major animal groups, animal reproduction and development, animal diversity and animal ecology.
	CO-2	The General Zoology course is designed to introduce students to the study of zoology at the organismal and organ function levels
	CO-3	The general zoology course provides the student with an introduction to the recent advances in zoology in the areas of systematic, evolution, reproduction, development
	CO-4	At the end of the semester, the students are expected to have
	CO-5	Understand the interrelationship of all life forms through the knowledge of common life processes
F.Y.B.Sc. and S.Y.B.Sc. Paper II	CO-1	Applied zoology, cell biology and Genetics courses provide offer a broad, relevant and contemporary curriculum.

	CO-2	The lecture section of the course will review the general principles of modern and applied zoological theory
	CO-3	The courses encourage in students an enthusiasm for biological sciences in general for whole animal science and conservation of the natural environment in particular.
	CO-4	It develops an understanding of the ethical, economic, legal and political context of keeping captive animals, animal behavior, ecology and conservation.
	CO-5	It produces graduates with the ability to apply concepts from Zoology and communicate ideas effectively in a range of contexts and communication modes.
F.Y.B.Sc. and S.Y.B.Sc. Paper III	CO-1	The practical courses provide opportunities for practical work practical skills in laboratory-based and field zoology and experiential learning in aspects of Applied Zoology.
	CO-2	The specific learning goals for General Zoology are to provide students with a working knowledge of fundamental principles in zoology that will provide a foundation for their later advanced course work in more specific biological subjects.
	CO-3	As General Zoology is a basic course, students will become familiar with animal classification schemes and associated taxonomic group diagnostic characteristics as well as developing an understanding of and ability to apply basic zoological principles.
	CO-4	The laboratory and lecture sections of the course are highly integrated and directed toward teaching students the principles of animal evolution, classification, form and function.
	CO-5	It promotes students' ability to critically think about, assess and evaluate data gathered both in the field and through scientific literature.

BOTANY

Course Title	Code	Course Outcomes
FIRST YEAR Plant life and utilization I (BO111)	CO-1	Students understand the diversity of lower plant and their distinct features.

	CO-2	Understand the algal diversity and its industrial application
	CO-3	knows about distinct classes of Lichen and their utilization
	CO-4	Understand the Fungal diversity and their application in various industries. Also know how to
	CO-5	Cultivate the mushroom and their values.
Plant morphology and Anatomy (BO112)	CO-1	Understand the importance of plant morphology in allied branches of botany
	CO-2	Students get an idea about various floral whorl and its importance in plant reproduction
	CO-3	Students study the role of anatomy in other allied branches of botany
	CO-4	Student know about the different tissues present in plant their structure and role.
	CO-5	understand the differences in internal organization of two distinct plant group and plant parts
Plant life and utilization II (BO121)	CO-1	Students understand the differences in higher plant structure
	CO-2	Knows the different characters in Pteridophytes and their uses
	CO-3	Know the distinct features of gymnosperm, structure of Cycas and their economic potential
	CO-4	Understand the morphological differences in dicot and monocot and their classification
	CO-5	Knows the value of angiosperm in various industries such as food, fodder and fiber
Principles of Plant Science	CO-1	Understanding the scope and importance of plant physiology.

(BO122)		
	CO-2	Demonstrate processes imbibition, Osmosis, Diffusion and Plasmolysis
	CO-3	Describe Plant growth regulators and their types.
	CO-4	Discuss the structure of plant cell and Plasma membrane and cell cycle in plants
	CO-5	Explain the scope and importance of molecular biology.
	CO-6	Describe the structure of DNA, Packing of DNA and types of DNA, RNA.
	CO-6	Explain the DNA replication process, enzymes involved in that process.
SEM I Course Paper I: Taxonomy of Angiosperm and Plant Community (BO – 211)	CO-1	Students will learn the application of morphology in plant identification, classification and nomenclature
	CO-2	Students learn Plant collection, preservation techniques and can identify plant in field.
	CO-3	Students get aware about various recent computerized tools used in plant research
	CO-4	Students will know how the vegetation pattern change in different ecosystem
	CO-5	Students will learn the techniques of vegetation studies and its application
Course Paper II Plant Physiology	CO-1	Define the terminologies: Plant water relations, Growth, Transpiration, Ascent of Sap, Plant
	CO-2	Growth regulators and Nitrogen metabolism.

	CO-3	Explain processes of mineral nutrition, absorption of water, ascent of sap, mechanisms of water
	CO-4	Describe Plant growth regulators and their types and Discuss nitrogen metabolism in plants
	CO-5	Demonstrate processes imbibition, Osmosis, Diffusion and Plasmolysis, measure growth by arc
SEM II Course Paper I: Plant Anatomy, Embryology and Palynology (BO 213)	CO-1	Define terms related to plant Anatomy, Embryology.
	CO-2	Describe various tissue systems in plants like epidermal, mechanical and vascular.
	CO-3	Interpret the Principles involved in distribution of mechanical tissues.
	CO-4	Explain the process of normal and abnormal secondary growth in plants.
	CO-5	Differentiate between normal and abnormal secondary growth
Course Paper II: Plant Biotechnology (BO 213)	CO-1	Define the terminologies related to plant biotechnology.
	CO-2	Describe the fermentation process.
	CO-3	Explain enzyme technology and their industrial scale production.
	CO-4	Interpret the production of Single cell proteins.
	CO-5	Illustrate the concept of phytoremediation.

PHYSICS

Course Tiitle	Code	Course Outcome
FIRSTYEAR TERM I- Mechanics	**CO-1**	Demonstrate an understanding of Newton's laws and applying them in calculations of the motion of simple systems.
	CO-2	Use the free body diagrams to analyze the forces on the object.
	CO-3	Understand the concepts of energy, work, power, the concepts of conservation of energy and be able to perform calculations using them.
	CO-4	Understand the concepts of elasticity and be able to perform calculations using them.
	CO-5	Understand the concepts of surface tension and viscosity and be able to perform calculations using them.
Physics Principles and applications	**CO-1**	To demonstrate an understanding of electromagnetic waves and its spectrum.
	CO-2	
	CO-3	To understand the general structure of atom, spectrum of hydrogen atom.
	CO-4	To understand the atomic excitation and LASER principles.
Heat and Thermodynamics	**CO-1**	Describe the properties of and relationships between the thermodynamicproperties of a pure substance.
	CO-2	Describe the ideal gas equation and its limitations.
	CO-3	Describe the real gas equation.
	CO-4	Apply the laws of thermodynamics to formulate the relations necessary toanalyze a thermodynamic process.
	CO-5	Analyze the heat engines and calculate thermal efficiency.

Electromagn etism	**CO-1**	Demonstrate an understanding of the electric force, field and potential,and related concepts, for stationary charges.
	CO-2	Calculate electrostatic field and potential of simple charge distributionsusing Coulomb's law and Gauss's law.
	CO-3	Demonstrate an understanding of the dielectric and effect on dielectric dueto electric field.
	CO-4	Demonstrate an understanding of the magnetic field for steady currentsusing Biot-Savart and Ampere's laws.
	CO-5	Demonstrate an understanding of magnetization of materials.
F Y B Sc Physics Practical	**CO-1**	Acquire technical and manipulative skills in using laboratory equipment, tools, and materials.
	CO-2	Demonstrate an ability to collect data through observation and/or experimentation and interpreting data.
	CO-3	Demonstrate an understanding of laboratory procedures including safety,and scientific methods.
	CO-4	Demonstrate a deeper understanding of abstract concepts and theoriesgained by experiencing and visualizing them as authentic phenomena.
SECOND YEAR Mathematica l Methods in Physics	**CO-1**	Understand the complex algebra useful in physics courses
	CO-2	Understand the concept of partial differentiation.
	CO-3	Understand the role of partial differential equations in physics
	CO-4	Understand vector algebra useful in mathematics and physics
	CO-5	Understand the singular points of differential equation.
Electronics	**CO-1**	Understand the relations in electricity
	CO-2	Understand the properties and working of transistors.

	CO-3	Understand the functions of operational amplifiers.
	CO-4	Design circuits using transistors and operational amplifiers.
	CO-5	Understand the relations in electricity
Oscillation, wavesand sound	**CO-1**	Understand the physics and mathematics of oscillations.
	CO-2	Solve the equations of motion for simple harmonic, damped, and forcedoscillators.
	CO-3	Formulate these equations and understand their physical content in a variety of applications,
	CO-4	Describe oscillatory motion with graphs and equations, and use these descriptions to solve problems of oscillatory motion.
	CO-5	Explain oscillation in terms of energy exchange, giving various examples.
	CO-6	Solve problems relating to Undamped, damped and force oscillators andsuperposition of oscillations
Optics	**CO-1**	Acquire the basic concepts of wave optics
	CO-2	describe how light can constructively and destructively interfere
	CO-3	explain why a light beam spreads out after passing through an aperture
	CO-4	Summarize the polarization characteristics of electromagnetic waves
	CO-5	appreciate the operation of many modern optical devices that utilize waveoptics
S Y B Sc. Physics Practical	**CO-1**	After completing this practical course students will be able to
	CO-2	Use various instruments and equipment.
	CO-3	Design experiments to test a hypothesis and/or determine the value of anunknown quantity.

	CO-4	Investigate the theoretical background to an experiment.
	CO-5	Set up experimental equipment to implement an experimental approach.
	CO-1	Analyze data, plot appropriate graphs and reach conclusions from yourdata analysis.
	CO-2	Work in a group to plan, implement and report on a project/experiment.
	CO-3	

Department of Political Science

Course Title	Code	S
FYBA Introduction to Indian Constitution	**CO-1**	Students realized the significance of constitution of India from all walks of life and helped them to understand the basic concepts of Indian constitution.
	CO-2	Students identified the importance of fundamental rights, Directive Principles of State Policy as well as fundamental duties.
	CO-3	Students understood the functioning of Union and State Governments in Indian sfederal system.
	CO-4s	Students learned procedure and effects of constitutional amendments, composition and activities of election commission.
SYBA Introduction to Political Science	**CO-1**	Students enabled to understand the nature and scope of political science.
	CO-2	Students enabled to understand the significance of approaches to the study of political science.
	CO-3s	Students enabled to acquaint with the theories, approaches, concepts and values of political science.
TYBAS Local Self Government in	**CO-1**	Students understood the evolution of Local Self Government in Maharashtra.

Maharashtra		
	CO-2	Students understood the significance of 73rd and 74th Constitutional Amendments.
	CO-3	Students understood the functioning of Local Self Government.
	CO-4	SStudents learned composition, power and functions of local bodies.

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