



Vidya Prasarak Mandal's

Amolakchand Mahavidyalaya

Godhani Road, Umarsara, Yavatmal, Maharashtra 445001
Affiliated to Sant Gadge Baba Amravati University, Amravati
2(f) and 12(B) Recognition of UGC

Accredited by NAAC with 'B' Grade (Accreditation valid up to 4 November 2021)

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Declaration

This is to declare that information, reports, true copies and numerical data etc. furnished in this file as supporting documents is verified by IQAC and found correct

Dr. R. A. Mishra

Principal

Amolakchand Mahavidyalaya,

Yavatmal

AMOLAKCHAND MAHAVIDYALAYA, YAVATMAL (MS)

PROGRAM OUTCOMES [UG Level]

Faculty of Science and Technology

After graduating from faculty of Science and Technology;

- To develop a strong foundation in basic sciences such as physics, chemistry, mathematics, and biology.
- To impart analytical and research skills that enable students to identify and solve scientific problems.
- To acquire theoretical and practical knowledge in a chosen specialization such as biology, chemistry, physics, mathematics, electronics or computer science.
- To prepare graduates for higher education and research in leading institutions in India and abroad.
- To instil ethical values and professionalism among students towards scientific research and development.
- To enable students to communicate effectively in scientific discourse and disseminate scientific knowledge to the public.
- To pursue careers in research and development, academia, government, industry, and entrepreneurship.
- To encourage creativity, innovation, and independent thinking among students.
- To provide students with opportunities for experiential learning and hands-on training through laboratory and fieldwork.
- To develop problem-solving skills in students that enable them to apply scientific principles to real-world situations.

PROGRAM OUTCOMES [UG Level]

Faculty of Commerce and Management

After graduating from faculty of Commerce and Management;

- The students will have a comprehensive knowledge of business principles, accounting practices, and financial management.
- The students will be able to analyse and interpret financial data and apply it in decision-making processes.
- The students will possess effective communication skills, both oral and written and be proficient in the use of modern technology for business communication.
- The students will understand the importance of ethical behaviour and social responsibility in the business environment.
- The students will be able to work effectively in teams and appreciate the benefits of collaboration and diversity.
- The students will possess strong analytical and critical thinking skills to solve complex business problems.
- The students will be able to adapt to changing business environments and emerging trends.

- The students will demonstrate entrepreneurial skills and can identify and pursue new business opportunities.
- The students will have a global perspective and be aware of cultural differences in business practices.
- The students will be prepared for further education and lifelong learning opportunities.

PROGRAM OUTCOMES [UG Level]

Faculty of Arts/Humanities/ Social Sciences

After graduating from faculty of Arts;

- The students will have proficiency in the respective language he has chosen (Marathi/Hindi/English).
- The students will have ability to critically evaluate and analyse various literary works and texts.
- The students will have understanding of economic concepts and principles.
- The students will have ability to evaluate critically political theories and systems.
- The students will be able to understand historical events and their impact on society.
- The students will have ability to analyse and critically evaluate philosophical theories.
- The students will have proficiency in music and ability to perform in a professional setting.
- The students will have ability to communicate effectively in both oral and written forms.
- The students will be able to understand cultural diversity and its impact on society.
- The students will have ability to undertake independent research and present findings in a clear and concise manner.

PROGRAM OUTCOMES [PG Level]

Faculty of Science and Technology

Master of Physics

After Post graduation in Physics;

- Students will acquire advanced knowledge of the fundamental principles and concepts of physics.
- Students will develop skills to solve complex problems in various areas of physics, including classical mechanics, thermodynamics, electromagnetism, quantum mechanics, statistical mechanics, nuclear physics, classical mechanics, Digital electronics and microprocessor and condensed matter physics.
- Students will gain proficiency in using mathematical and computational methods for modelling and analysing physical phenomena.
- Students will learn to design and conduct experiments, analyse data, and communicate their findings effectively.
- Students will develop critical thinking, analytical, and research skills necessary for pursuing doctoral studies or a career in academia, research, or industry.
- Students will acquire knowledge and understanding of interdisciplinary areas that intersect with physics, such as materials science, biophysics, nuclear physics, and astronomy.

- Students will demonstrate the ability to work independently, collaborate with peers, and effectively communicate scientific concepts and research findings in written and oral formats.
- Students will acquire the ethical and professional values necessary for scientific research and the responsible conduct of science.

PROGRAM OUTCOMES [PG Level]

Faculty of Science and Technology

Master of Chemistry

After Post graduation in Chemistry;

- Students will have ability to conduct theoretical and experimental research in the discipline of chemistry.
- Students will have capability to design and execute chemical experiments, analyse data and interpret results.
- Students will have proficiency in the use of modern laboratory techniques and instrumentation.
- Students will have understanding of the fundamental principles and concepts of various branches of chemistry.
- Students will have knowledge of advanced topics in chemistry such as quantum mechanics, spectroscopy, and thermodynamics.
- Students will have awareness of chemical safety practices and regulations.
- Students will have ability to communicate scientific ideas and results effectively through oral and written presentations.
- Students will have capacity to critically evaluate scientific literature and engage in independent research.
- Students will have understanding of ethical and professional responsibilities in scientific research.
- Students will be prepared for advanced studies or careers in academia, industry, or government sectors.

PROGRAM OUTCOMES [PG Level]

Faculty of Science and Technology

Master of Mathematics

After Post graduation in Mathematics;

- Students will possess advanced mathematical skills that allow them to solve complex problems in various fields such as finance, engineering, statistics, and physics.
- Students will be able to apply their knowledge of mathematical concepts to real-world problems, using mathematical models to analyse and solve problems in various industries.
- Students will have the skills to conduct independent research in mathematics and related fields. They will be able to design experiments, gather and analyse data, and draw valid conclusions.
- Students will be effective communicators, both orally and in writing, able to explain complex mathematical concepts to a range of audiences.

- Students will be able to work collaboratively with other professionals in interdisciplinary teams, applying their mathematical skills to address a range of complex challenges.
- Students will have developed critical thinking skills, able to evaluate different approaches to problem-solving and apply appropriate mathematical methods to address specific problems.
- Students will be committed to continuous learning and professional development, remaining up-to-date with developments in their field and adapting to changing needs and trends.

PROGRAM OUTCOMES [PG Level]
Faculty of Commerce and Management
MASTER OF COMMERCE

After Post graduation in Commerce;

- Students will have advanced knowledge and understanding of the key concepts and theories in commerce that can be applied in diverse settings.
- Students will have a strong ethical foundation and will be equipped with the skills to make complex ethical decisions in the business world.
- Students will be able to communicate effectively both orally and in writing to articulate complex business concepts.
- Students will be able to evaluate and analyse complex, multidimensional business problems and develop creative and innovative solutions.
- Students will have a global mindset and an understanding of how diverse cultural contexts influence business practices and decisions.
- Students will be equipped with the skills to lead and manage teams and organizations effectively.
- Students will be able to think strategically and make evidence-based decisions that help organizations achieve their goals.
- Students will have strong quantitative skills and be proficient in using data and analytics to inform business decisions.
- Students will be proficient in using technology tools and platforms to analyse data, communicate effectively, and solve problems.
- Students will develop professionalism and be equipped with the skills to work effectively in diverse business environments.

PROGRAM OUTCOMES [PG Level]
Faculty of Arts/Humanities/ Social Sciences
M.A. (ECONOMICS)

After Post graduation in Economics;

- Students will demonstrate deep knowledge and understanding of economic theories, principles, and concepts. They will be able to analyse and interpret economic data and apply economic theories in real-world situations.
- Students will develop critical thinking and problem-solving skills by applying economic theories to solve complex economic problems. They will be able to identify

economic challenges and propose solutions based on their understanding of economic theories.

- Students will develop effective communication skills, both written and oral, to present economic ideas and data effectively.
- Students will be able to communicate economic concept analysis clearly to different audiences, including policymakers, business executives, and the general public.
- Students will develop research skills to conduct independent research in economics, including data collection, analysis, and interpretation. They will be able to use various economic models, empirical methods, and statistical techniques to design and conduct research projects.
- Students will develop global and cultural awareness by understanding the interconnectedness of economies and societies worldwide. They will be able to analyse and evaluate the impact of economic policies and decisions on different cultures and societies.
- Students will equip them with skills and knowledge to pursue careers in a variety of fields, including government, academia, international organizations, and private sectors such as banking and financial services, consulting and research.

PROGRAM OUTCOMES [PG Level]

Faculty of Arts/Humanities/ Social Sciences

M.A. (POLITICAL SCIENCE)

After Post graduation in Political Science;

- Students will be able to demonstrate an in-depth knowledge of the theories, concepts, and practices of politics and governance.
- Students will be able to analyse and critically evaluate political phenomena, institutions, and policies using various qualitative and quantitative research methods.
- Students will be able effectively to communicate and articulate complex political ideas and arguments through written and oral means.
- Students will be able to develop creative and innovative solutions to political problems, based on sound research and analysis.
- Students will be able to conduct independent research on topics of interest in political science, using appropriate research methods and tools.
- Students will be able to engage in professional and ethical behaviour in all aspects of their work as political scientists.
- Students will be able to demonstrate an understanding of the role of political science in society, including the interface between politics and other sectors such as economics, society, and culture.
- Students will be able to identify and analyse the impact of global, regional, and local events, trends, and actors on politics and governance.
- Students will be able to collaborate effectively in diverse teams and contexts, including with individuals from different cultural, disciplinary, and professional backgrounds.
- Students will be able to apply their knowledge and skills to various professional and academic contexts, such as public service, non-governmental organizations, academia, or the private sector.

PROGRAM OUTCOMES [PG Level]
Faculty of Arts/Humanities/ Social Sciences
M. A. (HISTORY)

After Post graduation in History;

- Students will be able to develop an advanced understanding and knowledge of historical events, concepts, and theories.
- Students will be able to develop critical thinking and analytical skills to evaluate sources and arguments.
- Students will be able to develop advanced research skills and methodologies to conduct independent historical research.
- Students will be able to demonstrate effective communication skills through written and oral presentations of historical research.
- Students will be able to develop a broad and interdisciplinary approach to the study of history, including the analysis of political, economic, social, and cultural forces.
- Students will be able to demonstrate proficiency in using primary and secondary sources to generate original insights and interpretations.
- Students will be able to develop a nuanced understanding of the complexities and diversity of historical experiences across different cultures, societies, and periods.
- Students will be able to apply historical perspectives to contemporary issues and debates and relate historical knowledge to present-day contexts and debates.

PROGRAM OUTCOMES [PG Level]
Faculty of Arts/Humanities/ Social Sciences
M.A. (ENGLISH)

After Post graduation in English;

- Students will develop advanced skills in analysing literature and language, applying critical thinking to literary and cultural texts.
- Students will develop advanced communication skills in written and oral communication, with the ability to communicate complex ideas clearly and effectively.
- Students will develop advanced research skills, including the ability to conduct independent research, analyse and synthesize existing research, and present findings effectively.
- Students will develop an appreciation for the diversity of perspectives and cultures represented in literature and language, with the ability to apply this knowledge in various contexts.
- Students will develop professional skills applicable to a variety of industries, including critical thinking, problem-solving, oral and written communication, and project management.
- Students will develop skills in creative and innovative thinking, with the ability to explore new ideas and approaches to literature, language, and culture.
- Students will develop an understanding of the ethical and social responsibilities associated with literary and language studies.

- Students will develop leadership skills, including the ability to work collaboratively, delegate responsibilities, and manage projects effectively.
- Students will develop a commitment to lifelong learning and the ability to adapt to new technologies, methodologies, and information relevant to their field of study.
- Students will develop global perspectives, with an understanding of the interconnectedness of language and literature across cultures and nations.

PROGRAM OUTCOMES [PG Level]
Faculty of Arts/Humanities/ Social Sciences
M. A. (MARATHI)

After Post graduation in Marathi;

- Students will be able to demonstrate in-depth knowledge and critical understanding of Marathi literature, including its history, cultural milieu, and literary traditions.
- Students will be able to analyse and interpret various literary genres in Marathi literature, such as poetry, fiction, drama, and literary criticism.
- Students will be able to apply theoretical concepts and literary tools to evaluate Marathi literature and critically assess their cultural, social, and political significance.
- Students will be able to develop advanced research, analytical, and written communication skills through independent research projects and scholarly writing.
- Students will be able to articulate and defend original ideas and perspectives on Marathi literature, both orally and in writing.
- Students will be able to understand the contribution of Marathi literature to regional and national literature and its impact on cultural and intellectual discourse.
- Students will be able to develop intercultural competencies and appreciate diverse perspectives in Marathi literature and society.
- Students will be able to engage in ethical and responsible intellectual discourse on Marathi literature and cultural issues, demonstrating the ability to respect diverse opinions and perspectives.

PROGRAM OUTCOMES [PG Level]
Faculty of Arts/Humanities/ Social Sciences
M.A. (HINDI)

After Post graduation in Hindi;

- Students will have attained a high level of proficiency in reading, writing, speaking, and comprehension of the Hindi language.
- Students will have a deep understanding of the rich traditions of Hindi literature, including its history, major authors, genres, themes, and critical approaches.
- Students will be able to analyse and interpret literary texts independently and critically, using appropriate theories, methods, and evidence.
- Students will have acquired advanced research and writing skills, including the ability to formulate research questions, conduct original research, and produce scholarly papers and presentations.

- Students will have developed an appreciation for the cultural and historical contexts that shape Hindi literature, including its relationships with other literary traditions and social movements.
- Students will be able to communicate their ideas effectively in Hindi and English, using a variety of oral and written formats, such as essays, presentations, and seminars.
- Students will have learned to conduct themselves in a professional and ethical manner, showing respect for scholarly norms, cultural diversity, and intellectual property rights.
- Students will be prepared for careers in fields such as teaching, writing, journalism, translation, publishing, cultural diplomacy, and international business, as well as for further research at the doctoral level.

PROGRAM SPECIFIC OUTCOMES [UG Level]

Faculty of Science and Technology

- The students will be able to demonstrate a solid understanding of the fundamental concepts, principles, theories, and methodologies in mathematics, physics, chemistry, botany, zoology, computer science, and electronics.
- The students will be able to apply analytical and critical thinking skills to identify, formulate, and solve complex problems in various areas of science and technology.
- The students will be able to develop proficiency in conducting laboratory experiments, collecting data, analysing results, and drawing appropriate conclusions.
- The students will be able to apply scientific methods and approaches to design simple experiments, analyse data, and communicate findings effectively.
- The students will be able to integrate knowledge and concepts from multiple disciplines to address complex scientific problems and challenges.
- The students will be able to utilize mathematical and computational tools to model and analyse scientific phenomena and to solve quantitative problems.
- The students will be able to effectively communicate scientific information and ideas through oral, written, and visual means to both technical and non-technical audiences.
- The students will be able to demonstrate ethical conduct, professionalism, and awareness of societal and environmental issues related to science and technology.
- The students will be able to collaborate effectively with peers, professionals, and interdisciplinary teams to accomplish common goals and projects.
- The students will be able to engage in continuous learning, keep up with advancements in science and technology.

PROGRAM SPECIFIC OUTCOMES [UG Level]

Faculty of Commerce and Management

- Students will be able to understand accounting terminologies and principles, financial statements, accounting procedures, and fundamentals of bookkeeping and ledger maintenance.

- Students will be able to apply mathematical tools and techniques to solve business problems, including algebra, calculus, and statistical methods.
- Students will be able to understand the foundational aspects of commercial laws, including contract law, consumer protection laws, intellectual property laws, and company law.
- Students will be able to understand the principles of management, including planning, organizing, staffing, directing, and controlling.
- Students will be able to learn about the basics of starting and running a business, including market research, business planning, and funding.
- Students will be able to understand financial techniques used for decision-making, including cost and management accounting, working capital management, capital budgeting, and investment appraisal.
- Students will be able to understand basic marketing principles, including market segmentation, product positioning, advertising, sales promotion, and sales management.
- Students will be able to understand the basics of banking and financial services, including credit functions, investment banking, money market operations, and foreign exchange management.
- Students will be able to apply basic computer skills and learn about the basics of computer applications relevant to business.
- Students will be able to develop good communication and interpersonal skills, including the ability to present their ideas effectively, negotiate, and work in teams.
- Students will be able to gain the knowledge and skills necessary for pursuing further studies or professional careers in different fields of commerce and industries.

PROGRAM SPECIFIC OUTCOMES [UG Level]

Faculty of Arts/Humanities/ Social Sciences

- The students will be able to understand and demonstrate the key concepts, theories and historical developments in their chosen subject of study.
- The students will be able to communicate effectively in both written and oral forms of Marathi, English, and Hindi.
- The students will be able to apply critical thinking skills to analyse and evaluate different perspectives on various issues related to their respective subjects.
- The students will be able to demonstrate proficiency in research and data analysis in their chosen field of study, using appropriate methodologies and techniques.
- The students will be able to interpret and analyse historical documents and understand the historical context of events.
- The students will be able to understand the political systems, government structures, and political theories.
- The students will be able to apply ethical principles and practices in academic and community settings as per the values of their chosen subject.
- The students will be able to develop a deep understanding of the impact of music on society and analyse musical traditions with cultural awareness.

- The students will be able to understand and demonstrate diverse philosophical traditions with critical thinking and analytical reasoning.
- The students will be able to display/exhibit a knowledge of the literature and literary techniques of English, Marathi, and Hindi literature.
- Students will be able to explain fundamental economic theories and concepts, such as supply and demand, market equilibrium, production and costs, and macroeconomic principles.
- Students will be able to apply mathematical and statistical models to analyse economic data and draw conclusions from the findings.
- Students will be able to examine the impact of economic policies on different sectors of the economy, such as trade, taxation, globalization, inflation, and unemployment.
- Students will be able to present economic, and political information and ideas clearly and logically.
- The students will acquire the ability to collaborate and work effectively in a team environment.
- Students will be able to develop skills in research, analysis, and synthesis of information.
- Students will be able to gain the knowledge and skills necessary for pursuing further studies or professional careers in the arts.

PROGRAM SPECIFIC OUTCOMES [PG Level]

Faculty of Science and Technology

MASTER OF PHYSICS

- Students will be able to demonstrate proficiency in fundamental physical principles and theories, as well as advanced topics in various subfields of physics.
- Students will have a deep understanding of the mathematical tools and computational methods used for modelling, analysis, and experimentation in physics.
- Students will be able to develop the ability to design, conduct, and analyse experiments with advanced equipment, instrumentation, and techniques to obtain reliable and accurate results.
- Students will be able to attain the ability of critical thinking, problem-solving, and analytical skills to evaluate the quality of scientific information and to identify open questions and areas for further research.
- Students will be able to develop excellent communication skills to present scientific findings and ideas effectively in written and oral formats to both scientific and non-scientific audiences.
- Students will be able to understand the ethical principles and professional values that guide scientific research practices in physics, including a commitment to safety and responsible conduct of research.
- Students will be proficient in contemporary software, languages, and tools used for physics research, including those used for data analysis, numerical simulations, and modelling.
- Students will be able to develop the ability to formulate scientific questions, design and execute research projects, and interpret and analyse numerical and experimental results.

- Students will be able to gain expertise in the various subfields of physics, including classical mechanics, quantum mechanics, electromagnetism, and thermodynamics, and their applications in interdisciplinary areas (biophysics, materials science, engineering, etc.).
- Students will be able to attain the ability of teamwork, leadership, interpersonal, and collaboration skills by working in groups and facilitating joint research projects. Develop the ability to design, conduct, and analyse experiments with advanced equipment, instrumentation, and techniques to obtain reliable and accurate results.

PROGRAM SPECIFIC OUTCOMES [PG Level]

Faculty of Science and Technology

MASTER OF CHEMISTRY

- Students will be able to demonstrate advanced knowledge and understanding of chemical principles and their applications in different fields of chemistry.
- Students will be able to acquire the ability to design, conduct, and analyse chemical experiments using advanced techniques and instrumentation to obtain accurate and reliable results.
- Students will be able to acquire the ability of critical thinking, problem-solving, and analytical skills to evaluate scientific information and identify new areas of chemistry research.
- Students will be able to demonstrate proficiency in communication skills to present scientific findings and ideas effectively in written and oral formats to a range of audiences.
- Students will be able to develop professional and ethical values as a chemist that include the safe handling of chemicals, responsible conduct of research and the proper treatment of scientific data.
- Students will be able to understand advanced concepts and methodologies in the different subfields of chemistry such as organic, inorganic, physical, and analytical chemistry especially organic chemistry.
- Students will be able to attain proficiency in contemporary tools and software used in chemical research and analysis.
- Students will be able to develop the ability to generate scientific questions.
- Students will be able to demonstrate teamwork, leadership, and collaboration skills by working in groups and facilitating collaborative research.
- Students will be able to gain experience and expertise in the practical aspects of chemical research, including laboratory management and dissertation writing.

PROGRAM SPECIFIC OUTCOMES [PG Level]

Faculty of Science and Technology

MASTER OF MATHEMATICS

- Students will have the ability to apply mathematical methods and techniques in solving complex problems across various fields.
- Students will have proficiency in analytical thinking, quantitative reasoning, and problem-solving skills.

- Students will have advanced knowledge and understanding of the fundamental concepts, theories, and methods in mathematics.
- Students will have Competence in using advanced mathematical software tools and techniques for modelling and simulations.
- Students will have the ability to communicate complex mathematical ideas and concepts effectively to both technical and non-technical audiences.
- Students will be Ready for continuing education, research, or industrial positions that require a strong mathematical background.
- Students will acquire the ability to demonstrate ethical and professional behaviour in applying mathematical practices and principles.

PROGRAM SPECIFIC OUTCOMES [PG Level]

Faculty of Commerce and Management

MASTER OF COMMERCE

- Students will be able to analyse and interpret complex business scenarios using advanced methodologies and techniques to provide effective solutions.
- Students will be able to develop critical thinking and problem-solving skills to identify and evaluate emerging trends, issues, and opportunities in various industries.
- Students will be able to communicate effectively and persuasively with stakeholders, including employees, customers, shareholders, and government agencies.
- Students will be able to demonstrate strong knowledge in finance, accounting, marketing, and operations management to make informed business decisions.
- Students will be able to leverage advanced technological tools and analytics to create innovative business models and improve organizational performance.
- Students will be able to foster creativity and entrepreneurship to identify and pursue new business opportunities.
- Students will be able to exhibit a strong sense of ethical and social responsibility in decision-making and corporate governance.
- Students will be able to demonstrate the ability to work in interdisciplinary teams, collaborating with professionals from diverse backgrounds and cultures.
- Students will be able to develop leadership competencies that enable effective management of people, resources, and organizational goals.
- Students will be able to engage in lifelong learning and professional development to stay abreast of the latest industry practices and innovations.

PROGRAM SPECIFIC OUTCOMES [PG Level]

Faculty of Arts/Humanities/ Social Sciences

M.A. (ECONOMICS)

- Students will be able to demonstrate an advanced understanding of macroeconomic and microeconomic theories, principles, and models and apply them to analyse and solve complex economic problems.
- Students will be proficient in statistical, mathematical, and econometric methods and software relevant to economic analysis and be able to collect, process, and analyse data to produce meaningful economic insights.

- Students will be able to critically evaluate economic policies, both domestic and international, and assess their potential impact on economic growth, welfare, and inequality.
- Students will be able to understand global economic issues such as trade, globalization, and international finance and analyse their impact on the domestic economy.
- Students will have strong oral and written communication skills and be able to effectively communicate complex economic concepts and analyses to diverse audiences.
- Students will understand the ethical and professional standards associated with conducting economic research and analysis and adhere to these principles in their work.

PROGRAM SPECIFIC OUTCOMES [PG Level]

Faculty of Arts/Humanities/ Social Sciences

M.A. (POLITICAL SCIENCE)

- Students will be able to understand and analyse the core concepts and theories of political science, such as democracy, governance, power, and authority, and apply them to practical situations.
- Students will be equipped with the knowledge and skills to carry out independent research, including data collection, analysis, and interpretation, and present their findings to a wide audience.
- Students will develop the ability to assess complex political issues and identify potential solutions to problems faced within the political arena.
- Students will learn to communicate complex ideas effectively through written and oral presentations and demonstrate critical thinking abilities when writing research papers, policy briefs, and other professional documents.
- Students will have the necessary knowledge to understand the political dynamics of different regions and the interrelationship between national, regional, and global political institutions.
- Students will possess a thorough understanding of ethical principles and be able to work by professional ethical norms.
- Students will be able to apply political science theories to unpack the phenomena of current events and have the skills to devise practicable policies in diverse political contexts, making informed judgments on contemporary political issues.

PROGRAM SPECIFIC OUTCOMES [PG Level]

Faculty of Arts/Humanities/ Social Sciences

M.A. (HISTORY)

- Students will be able to demonstrate comprehensive knowledge and understanding of the key events, themes, and issues in global and local history.
- Students will be able to evaluate and analyse historical sources critically and use them to develop sophisticated and nuanced arguments.

- Students will be able to demonstrate advanced research skills, including the ability to identify and use primary and secondary sources, conduct original research, and produce a substantial research paper.
- Students will be able to demonstrate proficiency in written and oral communication, including the ability to effectively present historical arguments and analysis to different audiences.
- Students will be able to demonstrate a deep understanding of historical methodology and debates, and the ability to engage with different historical traditions and approaches.
- Students will be able to develop a critical awareness of contemporary issues and debates related to history, and the ability to reflect on the implications of historical knowledge for contemporary society.
- Students will be able to demonstrate the ability to work independently and collaboratively in a variety of contexts, including conducting research, presenting findings, and engaging with different stakeholders.
- Students will be able to develop a global perspective on history, including an understanding of the interconnectedness of historical events and processes across different regions and cultures.
- Students will be able to demonstrate proficiency in the use of digital tools and techniques in historical research and presentation.
- Students will be able to develop a professional attitude and ethical framework for historical research and dissemination, including a commitment to objectivity, accuracy, transparency, and respect for diverse perspectives and voices.

PROGRAM SPECIFIC OUTCOMES [PG Level]

Faculty of Arts/Humanities/ Social Sciences

M.A. (ENGLISH)

- Students will be able to analyse and interpret a variety of literary works and genres from different historical periods and geographical regions.
- Students will be able to demonstrate advanced research skills and the ability to engage in scholarly discourse.
- Students will be able to apply critical and theoretical frameworks to literary analysis and interpretation.
- Students will be able to develop advanced writing skills and produce original scholarly work.
- Students will be able to evaluate the cultural, historical, and social contexts in which literature is produced and received.
- Students will be able to demonstrate an understanding of the diversity of perspectives and experiences represented in literature and culture.
- Students will be able to communicate effectively and present complex ideas accurately and persuasively.
- Students will be able to collaborate effectively with peers in academic and professional settings.
- Students will be able to analyse and interpret literary texts from a variety of cultural and historical contexts.

- Students will be able to demonstrate critical thinking and communication skills through written and oral modes.
- Students will be able to understand and engage with major literary theories and methodologies.
- Students will be able to conduct independent research using scholarly sources and draw evidence-based conclusions.
- Students will be able to evaluate literary works in terms of their social, political, and cultural relevance.
- Students will be able to apply their knowledge of literary works to broader issues and questions in the humanities and beyond.
- Students will be able to develop a sophisticated understanding of the relationship between literary texts, language, and culture.
- Students will be able to demonstrate the ability to produce original literary criticism and analysis.
- Students will be able to apply their knowledge and skills in diverse professional settings, including education, publishing, media, and the arts.

PROGRAM SPECIFIC OUTCOMES [PG Level]

Faculty of Arts/Humanities/ Social Sciences

M.A. (MARATHI)

- Students will be able to analyse and critically evaluate various literary genres, styles, and themes in Marathi literature.
- Students will develop proficiency in reading, writing, and speaking Marathi with clarity and fluency.
- Students will be able to understand the historical, cultural, and social contexts of Marathi literature and their influence on literary production.
- Students will be able to conduct independent research and produce scholarly work related to Marathi literature.
- Students will develop proficiency in using contemporary research methodologies and critical tools to interpret Marathi texts.
- Students will be familiar with the major literary movements and figures in Marathi literature.
- Students will be able to Understand the role of Marathi literature in shaping regional, national, and global cultural discourses.
- Students will be able to apply literary theories and critical approaches to Marathi texts.
- Students will acquire skills in communicating ideas and insights related to Marathi literature effectively, both orally and in writing.
- Students will be sensitive to the issues of gender, caste, class, and identity in Marathi literature, and its representation.

PROGRAM SPECIFIC OUTCOMES [PG Level]

Faculty of Arts/Humanities/ Social Sciences

M.A. (HINDI)

- Students will gain an in-depth understanding of Hindi literature concerning its historical, cultural, social and linguistic aspects.
- Students will be able to analyse literary texts, critically evaluate literary works and their socio-cultural context, and draw meaningful conclusions.
- Students will be proficient in the Hindi language, both written and spoken. They will be able to use Hindi language resources, literature and criticism.
- Students will develop effective communication skills in the Hindi language, which will enable them to express their thoughts and ideas clearly and concisely, both in oral and written form.
- Students will be able to apply critical thinking and research skills to various literary texts, analyse and evaluate arguments and assumptions, and conduct in-depth research on the subject.
- Students will have extensive knowledge of Hindi literary traditions, including classical, medieval and modern literature, and various literary genres such as poetry, drama, fiction, and non-fiction.
- Students will develop an understanding of cultural nuances and sensitivities which are inherent to Hindi literature and their impact on societal and political structures.
- Students will be able to appreciate Hindi literature beyond their cultural boundaries, shedding light on its universal appeal and the beauty of its words and thoughts.
- Students will be able to incorporate interdisciplinary approaches to the study of Hindi literature and appreciate the richness and complexity of various theories and perspectives.
- Students will have excellent career advancement opportunities in academia, research, publishing, journalism, and other fields related to language and literature.

AMOLAKCHAND MAHAVIDYALAYA, YAVATMAL-445001

COURSE OUTCOME (CO)[Subjects covered under faculty of Science& Technology]

Subject- Botany		
Class	Course	Outcome (Students will be able to.....)
B. Sc. I, Sem.-I	Diversity and applications of microbes and cryptogams	Know about Plant kingdom, Diversity of cryptogams, Viruses, Bacteria and importance of microbes.
		General characters of algae like Habitat, Thallus organization, Pigmentation reserve food and reproduction and classification of algae.
		Know the general characters of Fungi along with subdivision of Mastigomycotina, Ascomycotina, Basidiomycotina and Deuteromycotina with their specific example of Albugo, Aspergillus and Puccinia with whole life cycle.
		General characters of Bryophytes along with Class Hepaticopsida and Bryopsida with their specific genus of Marchantia and Funaria with whole life cycle.
		General characters of the following classes Sphenopsida and Filicopsida with special reference to examples Equisetum and Marsilea. Students would be able to identify the different types of steles and understand the evolution about the seed habit in plants.
		Role of Algae and Fungi in Industries, Medicine, Food & Agriculture, Mycorrhiza, PlantDiseases- viral, bacterial and fungal diseases.
		Identify and learn the difference between Algae, Fungi, Bryophytes and Pteridophytes..
		Identify and learn to handle the lab equipment's like, compound microscope, dissecting microscope and their detail structure etc
		Observe the material carefully and prepare a temporary slide or permanent slide by using different stain.
		Know the internal structure or anatomy and life cycle of Algae, Fungi, Bryophytes and Pteridophytes with their specific examples by using permanent slide or with the help of charts and by using images through internet sources
Study the symptoms of fungal, viral, bacterial and Mycoplasmal diseases and Lichens		

B. Sc. I, Sem.-II	Gymnosperms, Morphology of Angiosperms and Plant Utilization	Know about Paleobotany, and different types of fossils, Geological time scale which is divided into different Eon, Era, Period and Epoch, fossil gymnosperms- Pteridospermales and Bennettitales.
		Gymnosperms- Classification of Gymnosperms, Morphology, anatomy, life cycle and taxonomic position of Pinus and Gnetum, and Economic importance.
		Types of roots, stem, leaf and its modifications, parts of leaf, phyllotaxy, venation.
		Know types of inflorescences and flower and its parts along with its functions, different position of ovules and types of pollination.
		Fruits types and along with their examples and Morphology, varieties and economic importance of the Food plant including Wheat and Potato, fibre plants Cotton and oil yielding plant like Groundnut.
		Origin or history and economic importance of the spices like Black pepper, Clove, Cinnamon and Cardamom, sources of firewood, timber and Bamboos. Pharmacognosy and Phytochemistry with respect to following medicinal plants.
		Learn hand techniques like cutting thin section, staining and mounting an object.
		Acquire the knowledge of preparation of double stain permanent slide of Pinus stem, needle and Gnetum stem and leaf.
		Study the Morphology and anatomy of the following members Pinus, Gnetum.
		Study of fossils like Lyginopteris and Bennettites.
		Learn the different morphological types of roots and its modification, stem and its modification, leaf venation, phyllotaxy and its modification. Different forms of corolla and different types of placentation.
		Types of fruits and morphology of plant of medicinal properties and uses like Aloe-vera, Adathodavasica etc. Morphology and economic importance of spices like Black pepper, Clove, Cinnamon and Cardamom etc., Food plant like Wheat, Potato and Groundnut and Cotton plant.
B. Sc. II, Sem.-III	Angiosperm Systematic, Anatomy and Embryology	Origin and evolution of angiosperm, Plant nomenclature, Herbarium, Botanical Garden, Concept of biodiversity and its conservation by ex-situ and in-situ method and importance of biodiversity.
		Bentham and Hookers and Engler and Prantle's classification and systematic studies & economic importance of following Families of Dicotyledons (Polypetalae) like Malvaceae, Brassicaceae, Leguminosae, Apiaceae.
		Taxonomy, Systematic studies and economic importance of Asteraceae, Asclepiadaceae, Apocynaceae, Solanaceae, Verbenaceae and Lamiaceae, Euphorbiaceae, Liliaceae and Poaceae.
		Types of meristematic and permanent tissue, characteristics of growth rings, Sapwood and heartwood and primary and secondary structure of root.

		<p>Primary structure of the monocot and dicot stem and secondary growth in dicot stem. Anomalies structure in Bignonia, Dracaena and Boerhavia stem. Internal structure Nerium and Maize leaf</p> <p>Structure of microsporangium and megasporangium, development of male and female gametophytes. Types of ovules, double fertilization, classification of embryo endosperm types & significance.</p> <p>Students will learn about the different Angiospermic families by utilising the knowledge of plant taxonomy.</p> <p>Also, they will learn different floral structures and other morphological characters.</p> <p>Besides, they would be able to understand the concept of embryology and with the help of permanent slides, learn the structure of anther, ovule and embryo</p> <p>In addition, they will upgrade themselves with the knowledge of anatomy and through the study of double staining, able to make permanent slides of plant materials.</p>
B. Sc. II, Sem.-IV	Cell Biology, Genetics and Biochemistry	<p>Concept of cell, Prokaryotic and Eukaryotic cell and its structure. Structure and functions of Cell wall, Plasma membrane and ultrastructure of Nucleus and its function.</p> <p>Structure and functions cell organelles like Endoplasmic Reticulum, Golgi complex, Vacuole, Ribosome, Peroxisome etc. Cell cycle: different stages of Mitosis and Meiosis.</p> <p>Chromosome Morphology: structure and type. Chromosomal aberrations, Structural aberrations and Numerical aberrations</p> <p>Basics of Genetics and Mendel's law and developed problem-solving ability on the Mendelism and Interaction of genes.</p> <p>Concepts of Linkage, crossing over, Gene mutation, Extra nuclear genome i.e. mitochondrial DNA and chloroplast DNA.</p> <p>Nomenclature and characteristics of enzymes, holoenzyme, coenzyme, cofactor, Mechanism of action of enzyme and structure of carbohydrates.</p> <p>Acquire a knowledge of Cell cycle, Mitosis and Meiosis and through this knowledge they will be able to learn and identify their different stages.</p> <p>Able to know about Genetics, Mendel's work on inheritance, and how Mendel's law of inheritance had formed. Furthermore, they will learn about the Monohybrid and Dihybrid ratio and its practical significance.</p> <p>Besides they will gain an ability to solve problems on interaction of genes.</p> <p>Also, through the study of Biochemistry they will gain knowledge to demonstrate the presence of starch, proteins and lipids.</p>
B. Sc. III,	Plant Physiology and Ecology	<p>Know importance of water to plant life, Active and passive absorption of water, Ascent of sap, transpiration</p>

Sem.-V		and mineral uptake.
		Understand the concepts of Photosynthesis and Respiration.
		Understand Tropic, Nastic Plant movements, Concept and types of stress- biotic and abiotic.
		Know phenomenon of photoperiodism, role of phytochrome, concept of florigen and vernalization and plant response to light and temperature.
		Understand components of environment, scope and importance of ecology, ecological factors, edaphic factor and ecological adaptations.
		Understand the concepts of Ecosystem- Structure and function, ecological succession, types of ecosystem and population ecology.
		Know the Importance of the Subject, Departmental Discipline, Laboratory environment & Laboratory equipments& also know that how to become a true nationalist & true Indian.
		Know Historical account & Importance of Plant Physiology, Plant-Water Relations & related topics.
		Know about Plant Metabolism & Plant Growth, Plant Responses & related topics.
		Know about Ecology-Environment, Ecosystem & related topics.
	Know about Theoretical & Practical knowledge of the subject.	
B. Sc. III, Sem.-VI	Molecular Biology and Biotechnology	Historical account, chemical composition, double helical model of DNA. Eukaryotic replication, DNA packaging, satellite, repetitive DNA and Transposable elements.
		Concept of gene, fine structure of gene, central dogma, types of RNA, genetic code, Structure of ribosomes, eukaryotic transcription and translation.
		Regulation of gene expression in Prokaryotes and Eukaryotes, Protein Folding Mechanism and Structure, Protein Sorting and Trafficking.
		Basics of recombinant DNA technology, Restriction Enzymes, Cloning vectors, techniques of gene transfer and PCR.
		Understand the concepts of Plant tissue culture, requirement for PTC, Growth hormones, cellular totipotency, differentiation, morphogenesis, callus culture and micropropagation
		Know the application of biotechnology in agriculture, industry, health care and conservation.
		Know the Importance of the Subject, Departmental Discipline, Laboratory environment, Laboratory equipments& also know that how to become a true nationalist & true Indian.
		Know the Historical account & Importance of Molecular Biology and Biotechnology.
		Know about the nature, ultra structure, chemical composition and functions of sole genetic material i.e. DNA

		molecule.
		Know about Genetic Engineering, Plant tissue culture and Applications of Biotechnology.
		Know about the importance of theoretical and practical aspects of the subject.
Chemistry		
B. Sc. I, Sem.-I	Paper- I: Periodic Properties and Ionic bonding, s Block element and p-Block elements, Electron displacements, Reactive intermediate and Aliphatic hydrocarbon, Aromatic hydrocarbons, Thermodynamics, Gaseous state and Phase Rule	Solve the conceptual questions using the knowledge gained by studying periodicity in atomic radii, ionic radii, ionization energy and electron affinity of elements.
		Apply concepts of acids and bases as well as non-aqueous solvents and their industrial usage.
		Compare different reaction intermediates, functional group chemistry through the study of methods of preparation, properties and chemical reactions with underlying mechanism.
		Choose correct synthetic approach to prepare derivatives of industrially important molecules.
		Solve different numerical problem of varying difficulty associated with gaseous and liquid state.
		Students will be able to Perform the process of filtration, crystallization, melting point, waste management.
		Understand the effect of orientation effect of a group.
		Perform the single stage preparation with the help of given procedure.
		Determine Melting point and percentage yield
		Write the reaction and its mechanism of given single stage preparation
		Calculate percent yield of product by using formula.
		Separate basic and acidic radicals from the given mixture.
Detect cations and anions from the mixture by using different test.		
B. Sc. I, Sem.-II	Paper- II: Polarization, Covalent bonding, Acids & Bases, P-block elements, Noble gases and Non-aqueous solvent, Alkyl halides, Arylhalides and Alcohols, Phenol, ether and epoxides, Physical properties & Molecular structure, Chemical	Apply the knowledge gained by studying types of bonding, solvation, hybridization and molecular geometries
		Draw the correct molecular structures, bond order and bond length.
		Synthesize commercially important compounds of varying carbon backbone
		Choose correct synthetic approach to prepare derivatives of industrially important molecules
		Solve numerical problems related to crystalline state.
		Acquire skills to use chemical kinetics to develop mechanism of chemical reactions.
		Perform experiments carefully and safely.

	Kinetics	<p>Analyse the given organic compound qualitatively by different tests.</p> <p>Detect elements present in the given compounds.</p> <p>Determine functional group present in a given compound.</p> <p>Prepare the derivative of the provided substance.</p> <p>Determine Melting point of a given compound & also compare reported values and obtained values of melting points.</p> <p>Skilfully determine the surface tension, viscosity of liquid.</p> <p>Calculate, communicate and analyse the result.</p> <p>Determine cleansing capacity of samples of detergent.</p> <p>Predict the endothermic or exothermic process from heat of solution of a salt.</p>
B. Sc. II, Sem.-III	Paper- III: Covalent Bonding, Metallic Bonding, VSPER Theory, Volumetric Analysis, Gravimetric Analysis, Aldehydes and Ketones, Carboxylic Acids, Optical isomerism. Geometric isomerism & Conformational isomerism, Thermodynamics & Equilibrium Phase Equilibrium, Liquid state & Electrochemistry	<p>To learn about the basic concepts and types of chemical bonding, laws, rules and equations for formation of chemical bonds, solubility, hybridization of molecules. To study the modern approaches of chemical bonding (Molecular Orbital Theory).</p> <p>To know the basic concepts quantitative estimation by using Volumetric and Gravimetric analysis.</p> <p>To study the properties and reactions of carbonyl compounds (aldehyde, ketone and acids) and corresponding reaction mechanisms.</p> <p>To learn the basic concepts of Optical, geometrical and conformational isomerism and stability of organic compound base on bayer's strain theory.</p> <p>Helps to understand about the applications of Thermodynamics in Colligative Properties and Phase Equilibrium.</p> <p>To know details about surface tension and Viscosity. To learn about how conductance of weak electrolyte varies with respect to dilution and temperature and determination of Dissociation constant using Kohlrausch's law.</p> <p>Understand to prepare standard solutions.</p> <p>Apply the knowledge of titration and carry out various types of titrations.</p> <p>Analyse the observations and interpret the results of experiments performed.</p> <p>Evaluate the observations.</p> <p>Compare theoretical with experimental results.</p> <p>Understand the aspects and to carry out of gravimetric analysis.</p>

B. Sc. II, Sem.-IV	Paper- IV: Chemistry of elements of Transition Series& Exaction of elements, Inner transition elements& General properties of Metallurgy, Polynuclear Hydrocarbons &Reactive Methylene Compounds, Aromatic Nitrocomounds, Amino compounds, Diazonium salts& Amino acids and Proteins, Colligative properties of dilute solutions, Crystalline state	To study the chemical and physical properties of d-Block elements and their compounds. extraction of elements using various process.
		To learn Lanthanides with respect to Electronic configuration, Atomic and ionic radii Oxidation states, Magnetic properties, Color of salts, Complex formation behavior.
		Helps to understand about the classification of structure, properties, reactions and use of Polynuclear hydrocarbon, carbohydrate molecules and reactive methylene compounds
		To learn in detail about the preparation, properties, chemical reactions and mechanisms of Amides, Amines, Diazonium salts and Amino-acids
		Helps to understand about the applications of Thermodynamics in Colligative Properties
		Helps to know the Law of rational indices, Weiss and Miller indices and Laws of Crystallography, Crystal Planes.
		Create the chromatographic chambers and analyze binary mixtures by chromatography.
		Apply the knowledge and carry out complexometric titrations.
		Analyse data obtained by colorimetric or spectrophotometric titrations.
		Understand the various isolation processes.
Analyse the observations and interpret the results of experiments performed		
B. Sc. III, Sem.-V	Paper- V: Coordination Compounds and Chelates, Crystal Field Theory (CFT) Electronic Spectra of Transition Metal Complexes, Heterocyclic compounds, Organometallic compounds, Dyes:, Drugs and Pesticides, Photochemistry, Molecular Spectroscopy	Understand key features of co-ordination compounds including variety of structures and know the concepts of oxidation number, coordination number, ligands, chelates and stability of complex.
		Knowledge of crystal field theory to understand splitting in complexes and factors affecting in crystal field splitting.
		Understand heterocyclic compounds especially about their synthesis, reactivity and application of heterocyclic compound in advanced chemical synthesis.
		Classify dyes on the basis of structure and mode of application, preparation and uses of dyes, drugs and pesticides.
		Understand photochemical and thermal reactions by interaction of radiation with matter.
		Identify the electric and magnetic properties of radiation and know the spectroscopic techniques for understanding the atomic structure and structure of molecule.
		Prepare metal complexes in laboratory and study their structure
		Prepare and Understand applications of Prussian blue.

		Study structure and get knowledge to prepare crystals of chrome alum
		Explore electroanalytical techniques based on conductance and emf measurements
		Apply the basic knowledge to determine strength of given solution conductometrically
		Analyse the observations and interpret the result of experiments performed with the help of graph.
B. Sc. III, Sem.-VI	Paper- VI: Kinetic Aspects of Metal Complexes and Analytical Chemistry, Organometallic Chemistry, Inorganic Polymers, Bioinorganic Chemistry, Electronic spectroscopy and Infrared spectroscopy, NMR spectroscopy and Mass spectroscopy, Elementary Quantum Mechanics, Electro-chemistry and Nuclear Chemistry	Understand thermodynamic and kinetic stability of complexes and geometry of complexes. Know about spectrophotometric technique for determination of concentration of metal ion. Define and classify chromatographic techniques.
		Know basics of organometallic chemistry, inorganic polymers and bio-inorganic chemistry. Get basic knowledge of biological role of metal ions.
		Identify structure of compound by use of electronic spectroscopy and infrared spectroscopy and know how to interpret spectra.
		Understand importance of Nuclear Magnetic Resonance spectroscopy and mass spectrometry in determination of organic compounds.
		Understand limitation of classical mechanics and differences between classical and quantum mechanics. Know how to derive Schrodinger's wave equation and its applications.
		Identify interconversions of chemical energy and electrical energy by knowing electrochemistry. Understand fundamental concept of nuclear chemistry and application of radioisotopes in industry, agriculture, medicine & biosciences.
		Comprehensive understanding of the estimation of given sample Iodometrically.
		Understand and learn skills to prepare standard solutions for titrations.
		Apply the basic knowledge to determine dissociation constant of weak acid conductometrically.
		Determine pH of soil sample and perform strong acid and strong base titration by pH-Metry.
		Understand principle of colorimeter to verify Beer-Lambert's law.
		Analyse the observations and interpret the result of experiments performed with the help of graph
M.Sc. I Sem.-I	Paper- I: Inorganic Chemistry-I prediction of shapes of molecules	predict the nature of bond and its properties through various electronic structural methods; bonding models
		correlate magnetic properties of complexes with strength of ligand field
		Correlate structure and bonding with reactivity of boron clusters
		appreciate specialized and advanced topics in inorganic and coordination chemistry
		recognize and assign symmetry characteristics to molecules and objects

		Find out point group of element and construction of character table
	Paper- II: Organic chemistry-I& Lab-I	Implement rules of aromaticity to organic molecules
		Sketch organic molecules in different projection formula and assign its configuration. Apply their understanding about the organic reactions of industrial significance with respect to the chemo-selectivity, regioselectivity and enantioselectivity.
		Analyze the product distribution and the stereochemistry of various organic products.
		Evaluate the organic reactions based on the influence of the substituents on substrate molecules
		Design organic reactions in order to achieve the required product(s)
		Design the methodologies to develop ecofriendly and green technology for industry & research.
		Develop methods and remedies for reactions with environmental pollution.
		Improve scientific practical information orally and in writing.
		Get awareness about laboratory safety and handling of chemicals.
		Apply different purification techniques recrystallization, thin layer chromatography, distillation and solvent extraction.
	Paper- III: Physical chemistry-I& Lab-II	Understand basic concepts and theories for quantum mechanics, surface chemistry, thermodynamics and electrochemistry.
		Apply the concepts of quantum mechanics to solve higher order problems associated with shapes, size and energy of atomic entities.
		Develop the methodologies to identify and use colloidal substances and micelles.
		Implement and build theoretical and experimental processes using thermodynamics and electrochemical concepts
		Solve numerical problems associated with quantum mechanics, thermodynamics, and electrochemistry
		Select the proper indicator for a titration
		Improve scientific skill of data collection and analysis.
		Create methods for estimation of concentration of electrolytes in mixture using potentiometry.
		Corelate nature of graphs in conductometric titrations
Get awareness about laboratory skills of handling electroanalytical instruments.		
Apply concept of critical micellar concentration to cleaning power of detergents.		
Paper- IV: Modern methods of	Appraise specific analytical technique based on sample and target analyte	

	separation	Develop analytical ability and critical thinking in selection of statistics and their use in making interpretation meaningful and productive
		Understand the principles of chromatographic techniques
		Select proper chromatographic technique among the available techniques
		Correlate the use of indicator used in different types of titration.
		Explore electro analytical techniques based on conductance and emf measurements. Design buffer systems of the required pH
		Understand the Gas Chromatography, HPLC,GC-MC,LC-MC applications and problems
M.Sc. I Sem.-II	Paper- V: Co-ordination Chemistry & Inorganic Chemistry Lab-IV	Recollect the principles of electronic structure, bonding & reactivity of coordination complexes
		Understand the concept of synthesis and stability of transition metal organometallic complexes
		Develop the possible catalytic pathways leading to desired products
		Apply the principles of transition metal coordination complexes in understanding functions of biological systems
		Identify the medicinal applications of inorganic compounds
		Unravel and interpret the photochemical properties of coordination complexes
		Apply knowledge to develop method for qualitative identification elements from the mixture having applications in industry and research.
		Create methods for estimation of element/metal from the complexes.
		Improve skill for separation identification and removal of interfering radicals
		Get idea about development of spot test for the different elements.
		Understand importance of metal complexes and green methods for the synthesis.
	Paper- VI: Organic chemistry-II	Predict the orientation and stereochemistry of the product of addition reaction
		Predict the orientation and stereochemistry of the product of elimination reaction
		Apply enolate chemistry to achieve molecular complexity
		Design organic reactions in order to achieve the required product(s).
		Formulate green chemistry synthesis to increase atom economy.
	Paper- VII: Physical chemistry- II & Lab-III	Demonstrate the ability to use chemical dynamics to solve problems associated with enzyme kinetics, fast reactions and complex reactions.
		Students understand the Calculation of energy levels from wave functions, physical picture of bonding &

		anti-bonding wave functions.
		Learns the various types of polymers & its characterization and mechanism of polymerization and also its applications.
		Students get knowledge of Electrochemistry of solutions various types of experimental techniques, corrosion, Types of corrosion, corrosion inhibitors, Corrosion monitoring.
		Understand basic and advanced level statistical thermodynamics, reaction kinetics. Apply the concepts of statistical thermodynamics and reaction kinetics to solve complex problems.
	Paper- VIII: Optical Methods and Environmental chemistry	Understand key features of Formulate experiments based on optical and electroanalytical techniques.
		Get knowledge of Summarize principles and applications of molecular absorption and molecular emission spectroscopy.
		Understand water pollution, Classification, causes, consequences and methods to prevent water pollution.
		Understand air pollution, Classification, causes, consequences and methods to prevent water pollution.
	Understand soil pollution, Classification, causes, consequences and methods to prevent water pollution.	
M.Sc. II Sem.-III	Paper- IX: Spectroscopy-I	Get advanced knowledge about the interactions of electromagnetic radiation and matter and their applications in spectroscopy.
		Apply formalisms based on molecular symmetry to predict spectroscopic properties
		Analyse and interpret spectroscopic data collected by the methods discussed in the course
		Solve problems related to the structure, purity and concentration of chemicals and to study molecular interactions by choosing suitable spectroscopic methods and interpreting corresponding data
		Interpret UV-visible spectroscopy and its basic principle and applications in terms of organic compounds
		Interpret IR spectroscopy and its basic principle and applications in terms of functional group analysis
		Understand NMR spectroscopy and its basic principle and applications in terms of structural analysis
		Interpret elemental analysis by using mass spectrometry.
	Combine information from the techniques in determination of molecular structures in organic chemistry	
	Paper- X: Analytical Chemistry- I	Understand principle, instrumentation and applications of various thermal methods of analysis and thermometric titrations
		Understand theory, instrumentation, applications, advantages and disadvantages of high frequency titrations, electrogravimetry and coulometry
		Learn about principle, types and uses of chemical sensors, biochemical sensors, biosensors and ion selective electrode

		Understand different electroanalytical techniques like polarography, voltammetry, chronopotentiometry and amperometric titrations
		Understand concept of bio-analytical chemistry along with applications of spectrophotometry, spectrofluorimetry, ultracentrifugation, gel electrophoresis and toxicology.
	Paper- XI: Special Paper-I, Organic Synthesis-I	Know and recall the fundamental principles of organic chemistry that includes chemical bonding, stereochemistry, reaction mechanism and stereochemistry.
		Synthesize organic compounds itself involves large part of synthetic reagents
		Recognize the basic practical skills for the synthesis and analysis of organic compounds
		Learn about functional group addition & functional group elimination
		Predict the reactivity of an organic compound from its structure and Justify a reasonable mechanism for a chemical reaction.
		Develop basic skills for the multi-step synthesis of organic compounds.
		Illustrate chemical structures stereochemistry and mechanism of modern named reactions
		Apply synthesis methodology to perform advanced organic synthesis.
		Explain basic chemo-, regio-, and stereoselective concepts and apply these in synthesis, as well as construct reactions pathways of complex organic compounds using retro synthetic analysis
		Understand about organic-chemical reactions with a focus on principles for effective synthesis strategies, stereo selectivity, catalysis, as well as metal organic chemistry
		Understand research-based in-depth understanding in the field of design and production (synthesis) of complex molecules.
		Paper- XII: Special Paper-II (Natural Products)
	Know structures, stereochemistry, synthesis and reactions of amino acids, proteins and peptides	
	Understand mechanism of action, orientation, steric effect and reactions of enzymes	
	Study classification, nomenclature, occurrence, isolation and general methods of structure determination of alkaloids and terpenoids	
	Learn occurrence, nomenclature, structure, stereochemistry, synthesis and reactions of steroids and hormones	
	Know occurrence, classification, biogenesis, physiological effects and synthesis of prostaglandins, pyrethroids, rotenones and pheromones	
	Study structure, synthesis, and chemistry of Vitamins and Natural Pigments	

M.Sc. II Sem.-IV	Paper- XIII: Spectroscopy-II	Implement rules of Raman spectroscopy to organic molecules
		Interaction of x-ray with matter, scattering and diffraction.
		Presentation of ESR spectra, application of ESR to study the free radicals, structure determination, reaction velocities
		Elucidation of structure of inorganic molecules.
		Solve the problem of organic molecules based on UV, IR, ^1H NMR, ^{13}C NMR
	Paper- XIV: General Analytical Chemistry	To study principle and working of proportional counters and Geiger Muller (GM) counters. principle and working of scintillation counters. Semiconductors detectors (eg. HPGe).
		To find types of reactions used in fluorimetric analysis. Also advantages and disadvantages and its applications of (RTP).
		Principles, atomization and excitation, ICP-source, Instrumentation and applications FIA techniques, pretreatment of sample in packed reactors, components of FIA apparatus, Factors affecting FIA and applications.
		Elucidate to determine minerals, vitamins, anti-oxidants, toxins and preservatives. General idea of the properties of drugs for their characterization and quantification.
		To study the classification Fuel analysis, its advantage and disadvantage, classification of poisons.
	Paper- XV: Special Paper-III Organic Chemistry-III	Familiarize the organometallic reagents and its applications in organic synthesis. Learn about the Catalysis, hydrogenation of olefins and oxoprocess, Wilkinson catalyst etc. Learn about organometallic compounds and Alkyls and Arene complexes
		explain and rationalize the synthesis, structure, bonding, properties and reactivity of both main group and transition metal organyls rationalize industrially important catalytic processes through the application of organometallic principles
		Understand the bonding in olefin, acetylene and allyl systems. Concepts of synthesis, structure and bonding in metallocenes
		Learn about transformations for C-X and C-C bond-formation, functional group reactivity, chemoselectivity, regioselectivity, and the strategy of multistep synthesis will be the core topics that are covered
		Learn about concepts include strategy/retrosynthesis, advanced aromatic chemistry, protecting groups, stereochemistry, enolates and other carbonyl chemistry, alkene synthesis, reduction/oxidation (introductory), heterocycles, cross-coupling reactions and other modern methods of synthesis
		Identify, analyse and evaluate synthetic routes to target molecules using retrosynthesis

		Describe the recent increase in the structural complexity of drug molecules.
		Describe and apply stereochemical concepts such as chirality, stereoisomerism, and stereoselectivity in relation to chemical transformations and apply organometallic reagents and reactions in organic synthesis
		Plan and design experimental setups for various types of laboratory tests, perform transformations of importance for organic synthesis.
		Understand the functional group protection and know the protection of important functional groups.
		Learn about heterocyclic compounds are very interesting due to their distinct structure and the availability of this kind of heterocyclic structures in medicinal drugs
		Learn about technique of synthesis of heterocyclic compounds is important in the synthesis of different drugs
		Gives the quantitative ideas about the synthesis, properties and uses of such heterocyclic compounds like pyrrole, pyridine quinoline, thiophene, furan etc
		Understand detailed chemistry of Pyrazole, imidazole, oxazole, thiazole, thiazine, diazines, triazines, pyrimidines, pyrazines and zepines, oxepines, Indoles, Benzofurans, Quinolines Flavones, Chromones, Coumarines, Phenothiazines, Azetidines and its importance.
	Paper- XVI: Special Paper-IV: Applied and Medicinal Chemistry	Learn the different terms, nomenclature, classification, synthesis, mechanism and assay of drugs
		Learn classification of different drugs on the basis of applications and also their synthesis, mode of actions, pharmacokinetics, pharmacodynamics data and secondary metabolism
Understand classification of drugs and also procedures, types, various theories as well as concepts of drug designing		
Computer Science		
B. Sc. I, Sem.-I	Computer Fundamentals & C Programming	Learn The Concept of Computers & Characteristics, generation of computers. Memory and their types and Printers and their types.
		Learn The concept of DOS, Booting process, DOS commands such as REN, CD, MD, RD, DIR, DEL, COPY, TYPE, DATE, TIME, COPYCON, PROMPT External commands: FORMAT, XCOPY, CHKDSK, PATH, ATTRIB, AUTOEXEC.BAT, introducing windows its features and understanding number systems like, decimal, binary, octal
		Learn the concept of Internet, Types of Internet's connection: Direct dial-up, broadband, Internet protocol

		TCP/IP, FTP, HTTP, understanding Domain name e-mail address, WWW, understanding web Browser Internet Explorer, Netscape navigator, search engines
		Understand Concept of Programming, Algorithm, Flowcharting, programming process, Structured programming, Concept of C programming, its structure, history& features.
		Understand Concept of Elements of C: Introduction to C, History, features structure of C program, header file, character set, keywords, identifiers, constants, variables, basic data types, symbolic constants, type def operators & Expressions: Arithmetic, Relational, logical assignment, Increment and decrement, precedence of operators
		Understand Concept of Formatted I/O and Unformatted I/O operations, Control structures if, if...else, nested else, conditional operator, for do, do...while structures, break and continue the loop
		Design and implement the solution to the real-life problems by using word, excel, power point, will be able to use printer. Student will be able to Perform various dos operations using DOS commands, will be able to browse the web using various search engines, able to construct e-mails and sending these emails and attaching documents to emails.
		Design and implement the solution to the real life problems by using C Programming.
B. Sc. I, Sem.-II	Computer Fundamentals & C Programming	Learn The Definition of Data structure, their types, various operations, concept of stack, implementing operation on linear array and stack.
		Learn concept of Queue & linked list, their representation in memory, traversing, insertion & deletion operations, types of linked list.
		Learn definition & concept of binary tree, traversing operation. Various sorting and searching techniques.
		Understand Concept Of array, pointers and strings. Student should be able to design different programs on array, pointer, strings.
		Understand Concept of functions, its need, defining it, calling and returning functions, types of functions, function recursion, local and global variables.
		Understand Concept Of structure, declaring it, defining structure variables, accessing structure members, array of structure, nested structure, concept of union, comparing with structure, concept of file handling and related operations.
		Design and implement the solution to the real-life problems related to data structure by using c language.
		Design and implement the solution to the real-life problems by using advance C Programming
B. Sc. II,	Object Oriented programming	Learn The Concept of HTML language, Structure of HTML Document, Elements, attributes & tags of html.

Sem.-III	with C++ & Web Technology	Learn The Concept XML, its features, components of XML document, elements, Attributes, DTD, its need, declaring attributes, attribute types, Internal and External DTD
		Understand style sheet, its types & various properties such as Test, Font, Color, background, border, display, height, line-height, margin, width. CSS with HTML and XML.
		Understand Concept Of OOP, its features, advantages and applications, tokens, basic data types, constants, variables, symbolic constants, declaration And Dynamic initialization of variables
		Understand Concept of control & looping structures, functions, passing objects and returning objects from functions, inline and friend functions, concept of function overloading, scope resolution operator, member dereferencing operator, implicit & explicit type conversions.
		Understand Concept of class and objects, defining and accessing data members and member functions, passing & returning objects from functions, managing I/O operations, concept of constructor, destructor, default, parameterized, copy constructors
		Design different web pages using HTML, XML, CSS.
		Design and implement the solution to the real-life problems by using C++ Object oriented Programming.
B. Sc. II, Sem.-IV	Advanced C++ and Web Designing	Understand Concept of OOP, its features, advantages and applications, concept of class and objects, defining and accessing data members and member functions, managing I/O operations, manipulator, new, delete, operators.
		Understand Concept of functions, passing objects and returning objects from functions, concept of inheritance, their types, examples on single, multilevel, multiple, hybrid, hierarchical inheritances, concept of templates
		Understand Concept of different visibility modes, pointers to derived class, dynamic binding, virtual and pure virtual functions, rules for virtual functions and abstract base classes. Working with files, stream classes, opening and closing of file, file input/output with stream class
		Learn The Concept XML, its features, components of XML document, elements, Attributes, DTD, its need, declaring attributes, attribute types, Internal and External DTD
		understand style sheet, its types & various properties such as Test, Font, Color, background, border, display, height, line-height, margin, width. CSS with HTML and XML.
		Understand Comparison with DTD, Schema elements, element type element attributes, XML schema data type, converting DTD to schema, namespace, refit namespaces, scope of namespaces collusion & Applications

		Design different web pages using HTML, XML, CSS.
		Design and implement the solution to the real-life problems by using advance C++ Programming.
B. Sc. III, Sem.-V	RDBMS & V.B.	Understand Concept of DBMS, comparison with traditional file approach, storage structure, data representation & various data base models.
		Understand Concept of relational models, relations, domains, attributes, keys, E-R diagrams, tables and various normalization techniques.
		Understand Concept of SQL, data types, operators & various DDL & DML commands.
		Learn the Concept of Visual programming environment such as New Project window, property window, Form layout window, toolbar, menu bar, Form properties, pointer tool, label control, text box, command button.
		Learn the Concept of Creating Menu, Application wizard for menudata types & variables, Various operators & control structures.
		Understand the concept of Internal Functions such as MsgBox0, named constant, default button, VB Programming including Private and public procedure passing data by reference and value, passing control as arguments.
		Design and implement the solution to the real-life problems by using RDBMS technology.
		Design and implement the solution to the real-life problems by using V.B Programming.
B. Sc. III, Sem.-VI	PL/SQL & Advanced V.B.	Understand Concept of functions and understanding various category of functions like Number, Character & Conversion functions.
		Understand Concept of features and block structure of PL/SQL, variables, constants, data types & control structure. Concept of Cursor, types, opening, closing, using and fetching data. The concept of Trigger and its types.
		Understand Concept of Transaction. The Rollback, Commit, Save point commands. Concept of security of data base, types of privileges, Grant and Revoke commands. Concept of table and Row locking.
		Understand Concept of Need for dialog box control, adding the dialog box control, producing the various dialog boxes, Mouse response and Control, multiple list boxes.
		Understand Concept of forms, collection of forms, accessing it, uploading forms, placing text on forms, format with print, print method, multiple forms, placing tool bars on forms.
		Understand Concept of Working with Files, Open & close statements, file modes, locking the file, working with sequential access file, print# input#, write# statement, working with random access file, put,

		get statement, defining user defined data types, file control, file related commands.
		Design and implement the solution to the real-life problems by using Advance Visual Basic programming..
		Design and implement the solution to the real-life problems by using PL/SQL programming
Electronics		
B. Sc. Part-I, Sem.-I	Basic of Electronics	Apply the basic principle of Electronics to discuss and explain the measurements, meter reading,
		Solve the problems based on concept of Resistance, Network, Instrument developing stage
		Compare the different types of Sensor and actuators and their significance, explain the properties and its applications, of signal processing
		Use and explain different type's sensor, actuator and plotter.
		Analyze the different biasing circuits, discuss types of Noise and distortions in electronic circuits, and interpret low, middle and high frequency response of biomedical instrumentation.
		Analyze and explain the concept of signal condition feedback and its characteristics, principle of operation and design of various biomedical instrumentation.
		Identify and use of various types of electronic components and instrument.
		Handle the various equipment's like, Cathode Ray Oscilloscope, Function generators etc.
		The virtual practical execution with Virtual lab by IITK, IITB
		Design and study various types of oscillators, Multi-vibrators and amplifiers.
		Analyze the observations and interpret the result of experiments performed
		Compare theoretical with experimental result and determine percentage error.
Acquire skills of finding faults in experimental units and soldering the electronic component in the circuit.		
B. Sc.-Part-I, Sem.-II	Digital Electronics	Apply the basic principle of Electronics to discuss & explain the measurements, meter reading,
		Solve the problems based on concept of Digital logic, Network, sate logic developing &IC stage
		Compare the different types of Logic IC, and Function and their significance, explain the properties and its applications of decision based signal processing
		Use and explain different type's logical sate designing.
		Analyze the different biasing circuits, discuss types of Noise and distortions, logic state defining in digital electronic circuits, and interpret low, middle response of IC families.

		Analyze and explain the concept of signal condition principle of operation and design of various logical instrumentation.
		Acquire skills of finding faults in experimental units and soldering the electronic component in the circuit.
		Handle the various equipment's like, Cathode Ray Oscilloscope, Function generators, pulse analyzer, clock cycles etc.
		Identify and use of various types of digital electronic components and instrument.
		The virtual practical execution with Virtual lab by IITK, IITB
		Design and study various types of logical instrument design and simulation
		Analyze the observations and interpret the result of experiments performed.
		Compare theoretical with experimental result and determine percentage error.
B. Sc. Part-II, Sem.-III	Electronic Devices and Circuit	Apply the basic principle of Electronics to discuss and explain the measurements, meter reading,
		Solve the problems based on concept of Resistance, Network, Instrument developing stage
		Compare the different types of Sensor and actuators and their significance, explain the properties and its applications, of signal processing
		Use and explain different type's sensor, actuator and plotter.
		Analyze the different biasing circuits, discuss types of Noise and distortions in electronic circuits, and interpret low, middle and high frequency response of biomedical instrumentation.
		Analyze and explain the concept of signal condition feedback and its characteristics, principle of operation and design of various biomedical instrumentation.
		Identify and use of various types of electronic components and instrument
		Handle the various equipment's like, Cathode Ray Oscilloscope, Function generators etc.
		Design and study various types of oscillators, Multi-vibrators and amplifiers.
		Analyze the observations and interpret the result of experiments performed
		Compare theoretical with experimental result and determine percentage error.
		Acquire skills of finding faults in experimental units and soldering the electronic component in the circuit
B. Sc. Part-II, Sem.-IV	Communication Electronics and Microprocessor 8085	Apply the basic principle of Electronics to discuss and explain measurements, meter reading,
		Solve problems based on concept of Digital logic, Network, sate logic developing & IC stage
		Compare the different types of Logic IC, and Function and their significance, explain the properties and its applications, of decision based signal processing

		<p>Use and explain different type's logical state designing.</p> <p>Analyze the different biasing circuits, discuss types of Noise and distortions, logic state defining in digital electronic circuits, and interpret low, middle response of IC families.</p> <p>Analyze and explain the concept of signal condition principle of operation and design of various logical instrumentation.</p> <p>Identify and use of various types of communication and microprocessor based electronic circuits and components.</p> <p>Handle the various equipment's like, Microprocessor kit, software, pulse analyzer, clock cycles, PC etc.</p> <p>The virtual practical execution with Virtual lab by IITK, IITB</p> <p>Design and study various types of logical instrument design and simulation,</p> <p>Analyze the observations and interpret the result of experiments performed</p> <p>Compare theoretical with experimental result and determine percentage error.</p> <p>Acquire skills of finding faults in experimental units and soldering the electronic component in the circuit.</p>
<p>B. Sc. Part-III, Sem.-V</p>	<p>Measuring Instruments</p>	<p>Apply the basic principle of Electronics to discuss and explain the measurements, meter reading,</p> <p>Solve the problems based on concept of Resistance, Network, Instrument developing stage</p> <p>Compare the different types of Sensor and actuators and their significance, explain the properties and its applications, of signal processing</p> <p>Use and explain different type's sensor, actuator and plotter.</p> <p>Analyze the different biasing circuits, discuss types of Noise and distortions in electronic circuits, interpret low, middle and high frequency response of biomedical instrumentation.</p> <p>Analyze and explain the concept of signal condition feedback and its characteristics, principle of operation and design of various biomedical instrumentation.</p> <p>Identify and use of various types of electrical and electronic components.</p> <p>Identify and handle the various equipment's like, Cathode Ray Oscilloscope, travelling microscope, digital multi-meter etc.</p> <p>Design and study various types of oscillators, Multi-vibrators and amplifiers.</p> <p>Analyze the observations and interpret the result of experiments performed.</p> <p>Compare theoretical with experimental result and determine percentage error.</p> <p>Acquire skills of finding faults in experimental units and soldering the electronic component in the circuit.</p>

B. Sc. Part-III, Sem.-VI	Advanced Microprocessor and Micro Controller	Apply the principle of sensor and actuators and explain the interfacing based measurements.
		Solve the problems based on concept of Resistance, Network, Instrument developing stage, automation, signal processing
		Compare the different types of process, development board and their significance.
		Use and explain different type's microcontroller interfacing boards and plotter.
		Analyze the different compensating TTL-CMOS circuits, discuss types of distortions in sensing circuits, and response of automated instrumentation.
		Analyze and explain the concept of signal condition and its characteristics, principle of operation and design of various instrumentation.
		Identify and use of various types of microcontroller and electronic components the circuit.
		Identify and handle the various equipment's like, Cathode Ray Oscilloscope, travelling microscope, digital multi-meter etc.
		Design and study various types of sensor network, Multi-vibrators and amplifiers.
		Analyze the observations and interpret the result of experiments performed.
		Compare theoretical with experimental result and determine percentage error.
Acquire skills of finding faults in experimental units and soldering the electronic component		
Mathematics		
B. Sc. I, Sem-I	Algebra & Trigonometry, Differential and Integral Calculus	Find inverse and normal form of matrices
		Evaluate the characteristic equation, eigen value and corresponding eigen vector of a given matrix
		Evaluate relation between the roots and coefficients of equations.
		To study application of De Movivre's theorem
		Compute summation of trigonometric series.
		Find inverse and normal form of matrices.
		Evaluate the characteristic equation, eigen value and corresponding eigen vector of a given matrix
		Evaluate relation between the roots and coefficients of equations.
		To study application of De Movivre's theorem
Compute summation of trigonometric series.		

B. Sc. I, Sem-II	Differential Equations (Ordinary and Partial), Vector Analysis and Solid Geometry	Solve first order differential equations using different technique
		Solve differential equations of first order and higher degree and orthogonal trajectories.
		Calculate complementary function and particular integral second order differential equations and describe the different methods to solve second order differential equations.
		Solve first order partial differential equations using different technique.
		Solve compatible differential equations and homogeneous and non-homogeneous equations with constant coefficients
		To interpret the vectors, their product, differentiation and integration
		Determine curvature and torsion
		Solve apply the concepts of divergence, gradient and curls which are useful in physics.
		Describe the different forms of sphere and properties
B. Sc. II, Sem-III	Advanced Calculus and Elementary Number Theory	Discuss the equations and cone and cylinder.
		Describe series and different test of series.
		Interpret sequence and their types.
		Define limit and study the basic property, classify continuity and discontinuity of function of two variable, expand function of two variable by using Taylor's theorem
		Find minima and maxima by using Lagrange's method and study Jacobian
		Evaluate double and triple integration.
		Evaluate GCD of more than two interger by using Euclidean algorithm.
		Study prime number and unique factorization theorem, define Fermat number and solve linear Diophantine equation
		Discuss the congruence and their properties, solve linear congruence by using Chinese remainder theorem
B. Sc. II, Sem-IV	Modern Algebra: groups and rings and Classical Mechanics	Study different types of functions
		Describe primitive roots, different types of congruences and quadratic residue
		To introduce the concept of group with examples and recognize even & odd permutation
		Solve problems on coset.
		Understand major concepts of homomorphim & isomrorphism
		Gain good knowledge & understand regarding ring & integral domain
		Study definitions of left & right ideal principle ideal & equation rings.

		Different Concepts of Contrimts & Gengralized Coordinations
		Solve problems on areal velocity &Keplers laws of motion.
		Solve Euler’s differential equation.
		Solve Euler’s differential equation
		Differential of the equation concept body
B. Sc. III, Sem-V	Mathematical Analysis and Mathematical Methods	Interpret Riemann integral and study fundamental theorem and mean value theorem of integral calculus.
		Study of improper integral and their tests, beta and gamma function.
		Analyze complex function, Analytic function, harmonic function and conjugate function and illustrate complex number by using Milne Thompson method.
		Study Mobius transformation, cross ratio find image of function by using conformal mapping.
		Study definations of metric space, limit point, interior point, open set closed set and compactness and solve examples on Chauchy sequence.
		Solve problem regarding Rodrigue’s formula
		Study of Bessel’s equation, solution of Bessel’s equation
		Solve problem on Fourier series for odd and even function
		Solve problems on Laplace transform
		Solve problems on Fourier Transform
B. Sc. III, Sem-VI	Linear Algebra & Graph Theory	Solve theorem on Vector space
		Analyse Linear transformation and representation of matrices
		Analyse dual space and Bidual space
		Study analyse inner product space
		Describe modules and sub modules
		Study graphs and various types and uses of graph.
		Describe different types of trees and their properties.
		Analyze fundamental cutset and circuit and different representation of planer graph.
		Study how Vector space associated with a graph and Intersection and join of W_i and W_s .
Describe different types matrix related to the graph.		
M.Sc. Part-I	Paper- I: Real Analysis	Interpret Riemann Stieltjes integral & properties
		Describe Sequences and uniform convergence.

Sem.-I		Define Rearrangement of terms of a series & Power series	
		Find Derivatives of higher order and study Jacobian.	
		Evaluate Maxima and Minima.	
	Paper- II: Advanced Abstract Algebra		Recall the concepts of coset and normal subgroups and to prove elementary propositions involving these concepts
			Recognize different types of subgroups such as normal subgroup, cyclic subgroup and understand the structure and characteristics of these subgroup.
			Demonstrate the homomorphism, sum and direct sum of ideals, maximal and prime ideals, nilpotent and nil ideals.
			Translate the transition of important concepts of homomorphism and isomorphism from discrete Mathematics to advanced abstract Mathematics
			Interpret the definition and examples of modules and sub modules.
	Paper- III: Complex Analysis		Identify Cauchy integral formula apply to find the value of function at inside point of the region.
			Express the function in series of positive and negative power of variable in a given region.
			Record the concept of singularities to find integral of complex valued function on some simple connected region and multi connected region.
			Apply the residue theorem to compute several kinds of real integrals.
			Recognize absolute everywhere differential function and they will learn how it helps them to decide analyticity of function.
	Paper- IV Topology – I		Identify the cardinal and ordinal numbers and their role in building up the topology
			Demonstrate the concepts such as topological spaces, open and closed sets, closure and boundary
			Categories some important concepts like continuity, compactness, connectness, projection mapping etc and prove related theorems.
			Relates the basic concepts of countability axiom, separation axioms and convergence in topological spaces
			Distinguish the regular, normal and completely regular spaces.
	Paper- V: Differential Geometry		Discuss the local Intrinsic properties of a surface, curves on a surface and surfaces of Revolution.
			Design arguments in the geometric description of family of curves and surfaces in order to establish basic properties of geodesic
		Restate Gaussian Curvature, Surface of constant curvature, conformal mapping, Geodesic mapping.	

		Recognize tensor calculus, Tensor product of vector spaces, Transformation formulae, contraction special tensors, Inner product.
		Apply covariant differentiation of tensors and use absolute derivation of tensorial forms and tensor connections.
M.Sc. I Sem-II	Paper- VI: Measure & Integral Theory	Analysis Lebesgue outer measure, Regularity and Lebesgue measurability.
		Explain Integration of Non-negative function, the general integral, integration of series, Riemann and Lebesgue integrals.
		Demonstrate the concepts of derivative, differentiation and integration.
		Discuss the Measures and outer measures.
		Express completion of a measure, measure spaces and Holder and Minkowski inequality.
	Paper- VII: Advanced Linear Algebra and Field Theory	Recall the concepts of Eigen values and eigenvectors and polynomial.
		Explain Quadratic forms, Linear transformation, Canonical and Normal form.
		Describe the concepts of Algebraic extension of fields.
		Discuss Normal and separable extension of group.
		Understand the concepts of Galois theory and its Applications.
	Paper- VIII: Integral Equation	Understand the type of integral equations.
		Categorize Volterra integral equations of first and second kind,.
		Determine the solution of Fredholm integral equation of the second kind.
		Define the concepts of iterated kernels and reciprocal kernels.
		Explain solution of Volterra integral equations of second kind.
	Paper- IX: Topology – II	Categorize some important concepts of metric spaces.
		Restate the ideas and concepts of complete metric spaces.
		Interpret the definition and examples of product spaces.
		Express the function and quotient spaces.
		Discuss the metrization and paracompactness.
Paper- X: Riemannian Geometry	Discuss the properties of Christoffel symbols, divergence, gradient, Laplacian.	
	Demonstrate the concepts of Parallel vector field.	
	Intercept the concepts of curvature tensor.	
	Categorize some concepts like Ricci tensor, curvature invariant and Einstein tensor.	

		Summarize the concepts of Riemannian curvature, space of constant curvature, , intrinsic symmetries and killing vectors
M.Sc. II Sem-III	Paper- XI: Functional Analysis I	Interpret Quotient spaces of normed linear spaces and its completeness.
		Describe Dual spaces with example
		Define complex linear spaces.
		Recall solvability of linear equations in Banach spaces.
		Study Hilbert spaces and structure of Hilbert spaces.
	Paper- XII: Classical Mechanics	Interpret Variational principle and Lagranges Equations & Hamilton's principle.
		Describe Lagranges Equations of first kind and second kind.
		Study Legendre transformations and the Hamilton equations of motion.
		Study Canonical transformations
		Evaluate the Hamilton-Jacobi Equation for Hamilton's principle function.
	Paper- XIII: General Relativity	Interpret Introduction of special theory of relativity and principles of special theory of relativity.
		Study Einstein's relativity.
		Study Schwarzschild exterior solution and its isotropic form.
		Analyze Schwarzschild interior solutions and Gravitational wave equation.
		Study Eddington's form of Schwarzschild solution and Weyl's solution to the linearized field equation.
	Paper- XIV: Operational Research	Evaluate Graphical solution, Duality in LP. and Economic Interpretation.
		Study Goal programming & Advanced techniques in LP.
		Discuss the Transportation problem and assignment problems.
		Study Shortest route problem and network route problem
		Describe Characteristics of dynamic programming.
Paper- XV: Difference Equation-I	Evaluate approximate summation.	
	Study Equations with variable coefficients & Non-linear equations that can be linearized..	
	Discuss the Z-transform: Properties, initial and final value theorems.	
	Study Stability of linear systems & Stability of non-linear system.	
	Describe Asymptotic analysis of sums.	
M.Sc. II	Paper- XVI: Functional	Study Riesz Representation theorem, adjoint of an operator on a Hilbert space
		Study use of complex analysis in spectral theory.

Sem-IV	Analysis –II	Calculate Compact linear operators on normed spaces.
		Analyze Spectral properties of bounded self-adjoint linear operators
		Study Positive operator and projection operators.
	Paper- XVII: Partial Differential Equation	Solve Genesis of first order P.D.E., Classification of intergals, Linear Equations of the first order
		Recall Classification of second order P.D.E
		Calculate One dimensional Wave equation.
		Solve Laplace’s Equation, Dirichlet problem for a half plane, The Dirichlet problem for a circle.
		Solve Heat conduction problem.
	Paper- XVIII: General Relativity & Cosmology-II	Study of static cosmological models of Einstein and De-sitter their derivations.
		Describe derivation of Roberson Walker Metric, Further Properties.
		Study Motion of particles and light rays in R-W model.
		Study Friedman models: closed model, Flat model, Open model”.
		Study Relativistic steller structure.
	Paper- XIX: Operation Research	Interpret Queing system and Basic characteristic of queing system.
		Determine Games and strategies.
		Apply the concepts of General NLLP constrained optimization with equality constraints.
		Solve Solution of Non-Linear Programming method.
		Discuss the unconstrained and constrained geometric programming problems
	Paper- XX: Difference Equation-II	Interpret The Self-adjoint Second Order Linear Equations
		Determine The Sturm-Liouville Problem.
Solve apply Discrete Calculation of Variation.		
Solve the Boundary Value Problems for Non Linear Equations.		
Discuss the Solution of partial differential equations..		
Physics		
B. Sc. I, Sem-I	Mechanics, Properties of matter, Waves and Oscillation	Understand and apply the basic concepts of Newtonian Mechanics to physical systems.
		Understand the variation of ‘g’ with altitude and depth.
		Determination of gravitational potential for sphere

		Understand the basic concepts of methodology of science and the fundamentals of mechanics & properties of matter. Discuss and apply the rotational dynamics of rigid bodies.
		Examine the phenomenon of simple harmonic motion and distinction between undamped, damped and forced oscillations and the concept of resonance.
		Explain the superposition of simple harmonic motion and acquire the knowledge of Ultrasonic waves, their production, detection and applications in different fields.
		Determine the constants of elasticity and relate it with appropriate things.
		Study of surface tension, equation of continuity, Bernoulli's theorem and variation of viscosity with temperature.
		Perform different practical experiments based on mechanics individually out of self-motivation.
		List out, identify and handle various equipment like different types of pendulums
		Measure various physical quantities by using different measuring instruments such as vernier caliper, micrometer screw gauge, travelling microscope, spherometer.
		Acquire skills in observing and measuring different types of errors.
		Determine the nature of collision by performing experiment and calculate the value coefficient of restitution.
		Determine the value of acceleration due to gravity by different oscillating objects like Bar & Kater's pendulum
		Calculate the moment of inertia of various objects and correlate it with theory.
		Determine the modulus of rigidity of wire using Torsional pendulum & Maxwell's needle.
		Calculate the Young's modulus of the material of a beam and correlate it with the theoretical values.
		Understand the effect of physical parameters on surface tension.
B. Sc. I, Sem-II	Kinetic Theory, Thermodynamics and Electric Currents	Understand the kinetic theory of gases and deduce the Boyle's law;
		Determination of specific heat of monatomic gas & its extension to di & tri-atomic gases
		Differentiate between real and Vander Waals gases & understand the transport phenomenon in gases
		Formulate the relationship between thermodynamic variables
		Develop an understanding of laws of thermodynamics Simplify the Carnot's theorem and discuss various state parameters
		Understand the concept of Liquefaction of gases
		Deduce the Clausius-clapeyron heat equation and determine the Maxwell's general relationship and application to Joule-Thomson cooling

		Understand the effect of electric and magnetic fields on charged particles
		Understand the construction and working of Mass spectrograph, velocity selector & Cyclotron
		Simplify electrical circuits by applying various network theorems
		Study of AC circuits, series and parallel combination of L, C, and R, their reactance; transformer
		To apply the theories learnt and the skills acquired to solve real time problems
		Distinguish between the magnetic effect of electric current, electromagnetic induction and the related laws in appropriate circumstances
		Understand the working of Ballistic Galvanometer and its applications
		Understand different types of Oscillator circuits, working and their applications in in domestic, industrial and scientific devices/equipment's
B. Sc. II, Sem-III	Electrodynamics, Solid state electronics, Theory of relativity, Atmosphere and Gio-physics.	Understands the concepts and theorems concern to vector calculus, electric magnetic phenomenon and its applications. Apply the fundamental knowledge to solve problems.
		Gain the understanding of fundamental concepts, principles and equations concern to Magnetostatics and their applications
		Understands the theory of semiconductor materials and devices. To get an idea about the different semiconductor diodes and its applications
		Acquire the knowledge about junction transistor, OP-AMP and its applications.
		Ability to develop the basic concepts of special theory of relativity. Derive and prove the expression for experimental based phenomenon
		Understands the knowledge about Earth's internal structure, atmosphere ,and its composition. To get an idea about origin of earthquakes and the description of seismic sources.
		Demonstrate an understanding of the basic principles of operation of semiconductor diodes and transistors.
		Explain the voltage transfer characteristics of the different diode and transistor.
		Differentiate between the types of OP-AMP and its applications through experiment.
		Learn the aspects of CRO, to determine the hysteresis loss of known voltage.
		Work effectively in a small team to complete a complex set of tasks.
B. Sc. II, Sem-IV	Optics, Laser, fibre optics and renewable energy sources	Understand the phenomenon of light like reflection, interference, transmittance etc. and evaluate how to measure wavelength and refractive index using Newton's ring
		Gain the knowledge of wave nature of light and different types of diffraction. Also understand how to calculate wavelength of light by using grating

		Understands the concept of polarization, double refraction and ability to develop analyze the polarization of light by using Nicol prism
		Acquire the knowledge about LASER, MASER, pumping characteristics and different types of laser and its application.
		Gain the knowledge of fiber optics, and also know about its losses, communication and their application in various fields.
		Understands the knowledge about renewable energy sources, methods of storage and its application
		Demonstrate an understanding of the concept of Newton's ring and able to calculate wavelength of sodium light.
		Understand how to calculate wavelength of monochromatic light and resolving power of plane diffraction grating.
		Learn about resolving power of telescope through experiment.
		Explore the concept of refractive index and how to find the refractive index of prism by spectrometer.
		Understand how to determine capacitance by using Scherring bridge method and self inductance by bridge rectifier method.
B. Sc. III, Sem-V	Quantum Mechanics, Nuclear Physics & Solid State Electronics	Apply the basic principle of quantum mechanics to discuss and explain the dual nature of light and matter
		To solve the problems based on concept of quantum mechanics using Schrodinger time dependent and independent equations.
		Compare the different types of quantum numbers and their significance, explain the properties of X-rays and its applications, Raman spectroscopy.
		Use and explain different types particle detectors, interpret constitution of nucleus, concept of nuclei decay, nuclear reactions.
		Analyze the different biasing circuits, discuss types of Noise & distortions in electronic circuits, interpret low, middle and high frequency response of RC coupled amplifier using h-parameters.
		Analyze and explain the concept of feedback and its characteristics, principle of oscillation and design of various oscillators and multivibrators
		Identify and use of various types of electrical and electronic components.
		Identify and handle the various equipment's like, Cathode Ray Oscilloscope, travelling microscope, digital

		multimeter etc.
		Design and study various types of oscillators, Multivibrators and amplifiers.
		Analyse the observations and interpret the result of experiments performed.
		Compare theoretical with experimental result and determine percentage error.
		Acquire skills of finding faults in experimental units and soldering the electronic component in the circuit.
B. Sc. III, Sem-VI	Statistical Mechanics and Solid-State Physics	Evaluate various basic concepts in statistical mechanics like phase space, unit cell, micro-state, macro-state, energy states, entropy relation, probability etc. and understand Maxwell Boltzmann statistics, and its application
		Understand concept of distinguishable & indistinguishable particles like boson & fermions etc. & understand different statistics like Bose – Einstein, Fermi- Dirac distribution and its application
		Basic knowledge of a crystal structure in terms of atomic positions, unit cells, crystal symmetry & x-ray diffraction analysis to recognize common crystal structures & describe their symmetries
		Analyze the basic theory of electrical properties of materials to understand motion of electron and band structure of solids
		Analyze the basic theory of magnetic properties of materials in terms of atomic magnetic moment, magnetization vector, magnetic susceptibility, dia. para and ferromagnetic materials, Curie's law, Weiss's law, hysteresis and energy loss etc.
		Introduce the basic properties of superconductors and nanomaterials in terms of its properties and application.
		Identify and use of various types of electrical and electronic components.
		Identify and handle the various equipment's like, Cathode Ray Oscilloscope, travelling microscope, digital multimeter etc.
		Design and study various types of diodes (p-n junction diode, Zener diode and Photodiode), Solar cell etc.
		Analyse the observations and interpret the result of experiments performed
		Compare theoretical with experimental result and determine percentage error.
		Acquire skills of finding faults in experimental units.
M.Sc. Part-I Sem.-I	MATHEMATICAL PHYSICS	Understand and explain the algebra of matrices, partitioning of matrices and solve the eigen value problem; differentiate and solve matrices in classical and quantum mechanics
		Derive and analyze limits and continuity for complex functions;

		<p>explain and apply the concept and consequences of analyticity and the Cauchy-Riemann equations; determine the residues of a complex function and use the residue theorem to compute certain types of integrals; Solve problems based on series expansion-Taylor and Laurent series</p>
		Obtain the general solution of second-order differential equation; explain the functions of different types of differential equations
		Solve Legendre Polynomial by applying special functions
		Solve differential equations like Legendre, Bessel and Hermite and obtain corresponding generating functions
		Derive properties of Laplace transform and Fourier transforms and state their applications in various physical problems.
	CLASSICAL MECHANICS	<p>understand the fundamentals of Newtonian mechanics for single particle and system of particles; state its limitations; describe conservation laws</p>
		Classify and define different types of constraints, explain its effect, justification for realizing constraints on the system and difficulties introduced by imposing constraints on it
		determine Gauge function for Lagrangian and its gauge invariance
		Define and explain Hamilton's principle and derive characteristic functions; solve Hamilton-Jacobi equation
		understand the motion of a mechanical system using Lagrange-Hamilton formalism
		Define and derive properties of two-body central force problem
		explain the stability of circular orbits, its classification and derive differential equation; explain and derive Kepler's laws
		obtain canonical transformation, generating functions; solve Poisson's brackets-transition from discrete to continuous system
		develop the understanding of small oscillations
	QUANTUM MECHANICS-I	<p>be familiar with the main aspects of the historical development of quantum mechanics and be able to discuss and interpret experiments that reveal the wave properties of matter, as well as how this inspired replacing classical mechanics with a wave equation</p>
		discuss the failures of various phenomenon of classical mechanics & origin of wave mechanics
		determine matrix representation of quantum mechanics
		describe simple harmonic oscillator using raising and lowering operators, represent angular momentum operators and hamiltonian in spherical coordinates; derive and discuss spatial nature of hydrogen electron orbital's

		solve Pauli Spin matrices; explain its application to spin-orbital of Hydrogen; obtain Clebesch-Gordan coefficients
		understand the concepts of angular momentum and spin, as well as rules for quantisation and their additions
		solve the Schrodinger equation on their own for simple systems in one to three dimensions, both analytically and by using robust numerical methods; use these solutions to calculate their time evolution, associated probabilities, expectation values, and uncertainties, as well as give concise physical interpretations and reasoning underlying the mathematical results
		distinguish between Schrodinger, Heisenberg and Interaction representations by various approximation methods; determine ground state energy of various systems by Variation method and WKB method for one dimensional problem
	COMPUTATIONAL METHODS AND PROGRAMMING	derive methods for determination of zeroes of linear and nonlinear equations and transcendental equations; obtain solution of simultaneous linear equations
		iteratively find the roots of smoothly varying functions with nonzero derivatives; carry out matrix operations, including inverses and determinants
		solve systems of linear equations with boundary value problems using multiple methods; determine eigen values and eigenvectors; use numerical methods for interpolation, finding roots of equations and curve fitting
		obtain eigen values and eigen vectors of matrices; apply numerical methods for interpolation; find roots of equations;
		integrate a function within limits of given interval and hence to estimate the area under the curves
		use numerical differentiation and integration for problems in physics; numerically, solve ordinary differential equations with boundary value problems
independently program computers using leading-edge tools (C-programming)		
formulate and computationally solve the selected problems in physics using C-programming		
M.Sc. Part-I Sem.-II	ELECTRODYNAMICS-I	Evaluate and solve electrostatic potential; Poisson and Laplace equations; Electrostatic energy density; electric energy of charge distribution in free space and in different media
		Solve Laplace equation with boundary conditions and potentials using cartesian, cylindrical and spherical symmetries; Green's function
		Apply Biot-Savart Law and Ampere's law for straight wire, loop, solenoid, toroid, current sheet
		determine charge distribution in finite region; solve multipole expansion of potential and field

		Explain the effect of uniform field on dielectric sphere; understand the concept of susceptibility and polarizability and apply to molecular field
		Understand time varying fields, displacement current, Faraday induction
		Solve Maxwell's equations for time varying fields; state its applications to propagation of electromagnetic waves and explain the significance of Poynting theorem
		describe the nature of electromagnetic wave and its propagation through different media and interfaces
		explain charged particle dynamics and radiation from localized time varying electromagnetic sources
	QUANTUM MECHANICS-II	Understand historical aspects of development of quantum mechanics; Understand and explain the differences between classical and quantum mechanics
		derive the expression for the first and second order energy shifts due to a perturbation for the non-degenerate and degenerate states from first principles and its application for obtaining fairly accurate energies corresponding to these states of perturbed systems
		describe time independent perturbation theory; effect of magnetic and electric field on spectra- Zeeman and Stark effect
		Understand the central concepts and principles in quantum mechanics, such as the Schrodinger equation, the wave function and its statistical interpretation, the uncertainty principle, stationary and non-stationary states, time evolution of solutions, as well as the relation between quantum mechanics and linear algebra including understanding of elementary concepts in statistics, such as expectation values and variance. They will master the concepts of angular momentum and spin, as well as the rules for quantization and addition of these. Hence, they will be able to solve the complex systems by approximation method
		solve the time dependent perturbation problems for quantum systems and predict the consequences
		explain the interaction of electromagnetic radiation with the atom resulting in stimulated emission in the atomic systems
		derive and explain transition probabilities for induced emission and absorption; selection rules and state its application to atomic spectra
		understand scattering from finite range and square well potentials; in a central potential; derive Born approximation
		develop the knowledge of low and high energy physics scattering phenomenon
generate the wave functions for the systems of identical particles; relate the symmetry property of the wave		

		function to the spin of the particles (Bosons and Fermions) and applicability of Pauli's exclusion principle
		derive creation and annihilation operators and their algebra for fermions and bosons
		Solve the Dirac Equation and Klein-Gordon Equation and obtain its free particle solution; derive free Dirac Particles equation of continuity and Second order wave equations
	SOLID STATE PHYSICS	develop theoretical and experimental approach to give fundamental insights into solid state physics
		explain the characteristic physical properties of different categories of solid materials, with an emphasis on the crystalline state; outline a wide spectrum of theoretical approaches to model the mechanical, thermal and electrical properties of solid materials
		describe Single Crystal and Poly Crystals and related terms-Crystal Symmetry, Symmetry Elements, Crystal Types, Bravais Lattices
		understand concept of X-ray diffraction, state its principle and working; List different X-Ray diffractions Techniques for structure determination
		understand the concept of Reciprocal Lattice; its Vector Demonstration in two dimensions; explain the significance of Brillouin zone in reciprocal lattice; explain the diffraction of Electrons and Neutrons;
		understand and explain the different crystals-molecular Crystals, Ionic Crystals; determine Madelung Constant, Covalent Crystals and Metals
		discuss the inter-Atomic Forces, Cohesive Energy of a Solid; Infrared Absorption by Ionic Crystal Lattice; anharmonicity and thermal Expansion
		derive Dulong and Petit Law; understand the effect of temperature on Specific Heat
		Explain Einstein and Debye Theories in detail
	NET WORK THEOREMS AND SOLID-STATE DEVICES	analyze the circuits using Kirchhoff's law and network simplification theorems; classify different passive components
		evaluate transient response, steady state response, network functions and analyze the series resonant and parallel resonant circuits
		differentiate between semiconductors, conductors and insulators on the basis of energy band diagram
		classify different types of diodes; Determine their characteristics
		obtain I/ O Characteristics of FET and MOSFET; explain its basic working principle; design and analyse these amplifier circuits
		design and analyze simple rectifiers and voltage regulators using diodes; have ability to design and analyze simple circuits using semiconductor switching devices like triac, diac and SCR

		Classify different amplifiers; describe basic working principle and input/output characteristics of Bipolar Junction Transistor; design and analyze simple BJT oscillator and multi-vibrator circuits
		construct and explain working and uses of various transducers; understand the construction and operation of basic measuring instruments.
M.Sc. Part-II Sem.-III	Electrodynamics-II	Explain charged particle dynamics and radiation from localized time varying electromagnetic sources
		Understand the basic mathematical concepts related to electromagnetic vector fields
		Understand and solve wave equation for electric field and magnetic fields in free space
		Explain the variation of electric and magnetic field with time
		be familiar with concepts of plasma physics and its relation with ordinary electromagnetic
		Understand the concept and application of wave guide, plasma and confinement
		Understand effect of magnetic field on electromagnetic wave
		Be familiar with the Magnetosonic and Alfvén Waves
	Solve the problems in electrodynamics by applying these theories and equations using advanced level mathematics	
	Statistical Mechanics	Understand the concept of microscopic and macroscopic states and relationship between thermodynamics and statistics
		Classify ensembles, relate partition function with thermodynamic quantities
		Discuss statistics of indistinguishable particles, application of Fermi-Dirac and Bose-Einstein distribution to these particles
		Interpret classical (Maxwell-Boltzmann) statistics and quantum statistics (Bose and Fermi Dirac) statistics for different systems of particles
		Derive knowledge on the concepts of phase transitions and super fluidity
		Correlate space - time dependent fluctuations
	Understand the concept of super-fluidity, Landau's theory and non-equilibrium processes	
	Atomic & Molecular Physics	There are many atomic models to explain atomic structure. But none of the model explained atomic structure fully. A new model could explain all parameters of atomic structure called vector atom model. Studying this model students can draw vector diagrams easily
		understand spectroscopy of the hydrogen and alkali atoms
		understand of quantum behaviour of atoms in external electric and magnetic fields

		recognize the spectroscopy of many electron atomic systems and hyperfine splitting of spectral lines
		understand Resonance Spectroscopy (ESR and NMR).
		be able to apply knowledge to detailed understanding of vibrational-rotational spectroscopy of diatomic molecules, isotope shifts
		be able to describe the detailed concept of Infrared & Raman spectra of Polyatomic molecules;
		be able to understand selection rules to explain transitions
		be able to describe apply knowledge to detailed understanding of electronic states of atoms, molecules, Franck-Condon factors
		Discuss origin of sodium D1 & D2 lines and determine interaction energy from different coupling schemes
		Understand the importance of rotational and vibrational energy levels by studying molecular spectroscopy
	Digital Techniques	Explain charged particle dynamics and radiation from localized time varying electromagnetic sources
		Understand the basic mathematical concepts related to electromagnetic vector fields
		Understand and solve wave equation for electric field and magnetic fields in free space
		Explain the variation of electric and magnetic field with time
		be familiar with concepts of plasma physics and its relation with ordinary electromagnetic
		Understand the concept and application of wave guide, plasma and confinement
		Understand effect of magnetic field on electromagnetic wave.
		Be familiar with the Magnetosonic and Alfven Waves
		Solve the problems in electrodynamics by applying these theories and equations using advanced level mathematics
M.Sc. Part-II Sem.-IV	NUCLEAR AND PARTICLE PHYSICS	Understand the structure of atomic nuclei and basic properties of a nucleus such as binding energy and nuclear forces
		Measure nuclear magnetic moment by Rabi's method and Block's method
		Interpret ground state properties of Deuteron Meson Theory of Nuclear forces
		Understand the process of nuclear fission and fusion and concept of particle detector and accelerators
		Identify and differentiate different nuclear detectors and particle accelerators
		Classify elementary particles and understand interaction between them
	Outline symmetry and conservation laws, understand basic design of quark model	
OPAMP THEORY AND ITS	Design differential amplifier, derive its configurations and DC/AC analysis	

	APPLICATIONS	Describe block diagram of typical Op Amp
		Identify basic integrated circuit components, develop its designing & packaging
		Classify various types of oscillators
		Design the signal generators and low and high order filters
		Understand and design multi-vibrator, ADC and PLL circuits
	CONDENSED MATTER PHYSICS-II	Identify different type of defects and imperfection in crystals
		Explain various dislocations and stacking faults in close packed structures by experimental methods
		Interpret the Hartree & Hartree-Fock approximation
		Understand the basics of Fermi Liquid Theory
		Describe different types of point defects within the framework of band model
		Identify different types of lattice disorders applying theoretical models, summarize impurity band semiconductor and amorphous semiconductors
	NANO SCIENCE AND NANOTECHNOLOGY	Tailor the properties of solids with proper understanding of their physical and chemical properties
		Understand the concept of free electron theory and 1D, 2D, 3D nanomaterials, band structure in three dimensions
		Understand various chemical and physical methods for the synthesis of diverse types of nanomaterials (0D, 1D and 2D)
		Derive information on the specific details of both bottom up and top-down synthesis
		Understand working principles and analysis of size, topography and morphology analysis of Nanomaterials based on SEM/TEM and scanning probe microscopies (AFM and STM)
		Describe the size dependent properties of nanostructured materials using the concept of quantum confinement and summarize their electrical and mechanical properties
	Zoology	
B. Sc. Part-I, Sem.-I	Life and Diversity of Non-chordata	Get knowledge about Non Chordates, Phylum Protozoa and related specimens like Plasmodium Vivax. They can also get information and knowledge about Protozoa related diseases.
		Get knowledge about Phylum Porifera and Coelenterata including their specimens given in syllabus.

		Get knowledge about Phylum Platyhelminthes and Aschelminthes including their specimens given in syllabus.
		Understand the theoretical aspects of Phylum Annelida and Arthropoda their general characters with reference to their model organism.
		Know about the Phylum Mollusca and Echinodermata with reference to their model organism.
		Learn about General Characters of Hemichordata, Body Organization of Balanoglossus, and Affinities of Balanoglossus.
B. Sc. Part-I, Sem-II	Cell and Developmental Biology	Get knowledge about the structure of Eukaryotic Cell, Plasma Membrane and Endoplasmic Reticulum with their functions and role in Eukaryotic Cell.
		Get knowledge about the structure of Golgi complex, Ribosome, Mitochondria and Lysosomes with their functions and role in Eukaryotic Cell
		Get knowledge about the structure of Nucleus, Nucleolus, Chromosomes and Endoplasmic Reticulum with their functions and role in Eukaryotic Cell.
		Understand the cell cycle and various stages of cell cycle during cell division including various stages of mitosis and meiosis.
		Learn about General Characters of Hemichordata, Body Organization of Balanoglossus, and Affinities of Balanoglossus
		Know about the Placenta in mammals, Parthenogenesis, Stem cells and regeneration including its types and functions
B. Sc. Part-II, Sem-III	Life and Diversity of Cordata	Learn about the characters and different levels of organization in phylum of chordates including classification from Protochordates upto class Mammalia.
		Learn about the understand confidently explain Migration in fishes and birds, parental care in Amphibians and Poisonous and non-poisonous snakes
		Mammalian endocrine gland their structure and significance evolution of Man and convergent and divergent evolution
		Classification of human and human ancestry Homoerectus, Neanderthal man, Cro-magnon man and modern man. Evolution of heart and aortic arches
		Learn Evolution with reference to Meaning and scope, confidently explain Indirect Evidences of evolution, techniques like radioactive carbon dating.
		Evolutionary Processes like including natural selection and related theories. Students would be able to

		Population Genetic.
B. Sc. Part-II, Sem-IV	Advanced Genetics and Animal Ecology	Learn Concept of genes and Mendel's Genetic with reference to different laws, and process of Linkage and its significance.
		Learn Crossing Over, Darlington's theory, breakage and exchange theory, and Copy choice theory and Multiple alleles concept with reference to drosophila.
		Learn about the Sex determination: Autosome and sex chromosomes and Genic Balance theory, Sex determination.
		Learn about the various type genetic disorders, chromosomal disorders.
		Learn about Amniocentesis, Inheritance of eye colour, Skin colour and Recessive genes, consanguineous marriages, Birth control measures
		Concept of ecology with reference to Abiotic factors and Biotic factors Relationship between habitat and ecological niche, energy flow in an ecosystem, food chain, food web.
B. Sc. Part-III, Sem-V	Animal Physiology and Economic Zoology	Understand the comparative respiratory organs including blood and its constituents. Student would be able to know the structure of heart and the rhythmic cardiac cycle.
		Understand the concepts of Muscles structure, their types, functions and working. They can analyze and apply their knowledge in university exam as well as various competitive exams.
		Understand the concepts of Nervous System and they can analyze and apply their knowledge in university exam.
		Understand Oestrous and Menstrual cycle. Students would be able to know the hormonal control of spermatogenesis, Oogenesis. They can also understand the Osmoregulation and its mechanism in aquatic and terrestrial animals.
		Understand the concepts of Agriculture Zoology and they can analyze and apply their knowledge in university exam.
		Know the definition, Scope, importance and present status of Aquaculture in India.
B. Sc. Part-III, Sem-VI	Molecular Biology and Biotechnology	Know about the definition of Genetic material and its basic information including Mitochondrial DNA. Student would be able to know about the RNAs and Non-Genetic RNA.
		Understand the concepts of replication, their types, and various enzymes involved in DNA replication, along with their functions.
		Know the Genetic code and its various features, the process of transcription and Gene regulation in prokaryotes and Eukaryotes.

		Understand the concepts Mutations and different types, and techniques like PCR, DNA Fingerprinting and related techniques.
		Understand the concepts of Molecular Biology Techniques like Recombinant DNA Technique, Hybridoma Technology, and genetic engineering etc.
		Understand the Immune system. Students would be able to distinguish between Innate and adaptive immunity. Students would be able to know the types and production of immune cells and their related organs
English		
B.Sc. Sem-I & Sem-II	Compulsory English	Understand the prose content, poetry and communication skills
		Apply four skills of the English language in his daily routine.
		Formulate/ compose his/her own sentences and able to speak English Language with a bit more competence and clarity.
		Collaborate wherever needed and linguistically communicate with other students in English
		Communicate effectively, proficiently with enhanced level of English usage by using their own ideas, thoughts and concepts.
Marathi		
B.Sc. Part-I, Sem.-I	वैचारिक	ज्योतीबाफुलेयांच्याचरित्राचाअभ्यासकरूनविविधप्रश्नविद्यार्थ्यांनीविचारली.
		डॉ. ए.पी. जे. अब्दुलकलामयांनीकेलेलेसंशोधनचरित्रयावरविद्यार्थ्यांनाप्रश्नविचारण्यातआले.
		विचारआणिशब्दभांडार वाढवूनविद्यार्थ्यांचेज्ञानसंवर्धनाने प्रगतीझाली.
	कविता	ज्ञानेश्वरयांचीगुरुवंदनाविद्यार्थ्यांनामार्गदर्शकतत्त्वाकडेघेऊनजाते.
		स्त्रीसंतअसूनहीजनाबाईताठमानेनेजगूनपरंपरावादीविचारालाझुगारतनाहीत. स्त्रीजाणिवेचाहुंकारप्रस्तुतअभंगातूनव्यक्तहोतो.
		कवितेतूनसामाजिकजाणीवनिर्माणझालीआहे.
	उपयोजित मराठी	पत्रांचेप्रकार, वैशिष्ट्ये, स्वरूपसविस्तरपणेविशद.
		कार्यालयीनपत्र, खाजगीपत्र, व्यावसायिकपत्रयाचीमाहितीदिली.
		आजच्याव्यवहारातपत्रांचीगरजकाय? हेविशदकेले.

		पत्रलिहिण्याचासरावकेला. वहीमध्येपत्रलिहूनआणूनदाखविले.
B.Sc. Part-I, Sem.-II	वैचारिक लेख	राजर्षी छत्रपती शाहू महाराजांच्या विविध कार्यांची सखोल माहिती
		रघुनाथ माशेलकर यांचे वैज्ञानिक विचार व संशोधकीय कार्य - वैज्ञानिक दृष्टिकोनाची माहिती
		विद्यार्थ्यांनी वरील लेखातून वैज्ञानिक दृष्टिकोन आत्मसात केला
	कविता	मातीशी नाते म्हणजे काय? विद्यार्थ्यांच्या भावनेला स्पर्श
		माणसे जन्माने जगतात की कर्माने यांचा ऊहापोह.
		कवितेतील शब्द सामर्थ्याने विद्यार्थ्यांनी स्पर्धात्मक दृष्टीने पर्यायीवाचक शब्द भांडार वाढविले.
उपयोजित मराठी	वृत्तसंस्था, वृत्तांकन, यांच्या प्रसारआणि प्रचारासाठी असलेली भूमिका.	
	पत्रकारिता, पत्र लेखन, वृत्त लिखाण विद्यार्थ्यांचे भविष्य बनू शकते.	
Hindi		
B.Sc. Part-I, Sem.-I & II	Compulsory Hindi	Understand the basic concept and subject of Hindi and its origins
		Evaluating the concept of Hindi from past to present and making the society more closely through literature.
		Know Hindi as a official language as well as second language so they can easily be employed
		As they are practicing translation from Hindi to English and English to Hindi and some other language as well as they can become translators in many central government offices.
		Having good command over particular language one can present himself in better way.
		Learning Hindi and nonHindi region definitely one can achieve anything.
		Understand "Mahabharata ki ek Sanj"by Bharatbhushan Agrawal.stories by premchand and Sudha Arora.
		Understand the adharbhut pathykrum and sandarbhas and poems by Harivanshray Bacchan.
		Understand the grammar pallavan,Lokokti and Muhavare .

AMOLAKCHAND MAHAVIDYALAYA, YAVATMAL-445001

COURSE OUTCOME (CO)[Subjects covered under faculty of Arts/Humanities/ Social Sciences]

Subject- Marathi

Class	Course	Outcome (Students will be able to.....)
B.A. Part-I	वैचारिक लेख	वरील सर्व वैचारिक लेख महाविचारवंताचे अनुभव विश्व आहे. परीक्षाकरिता विद्यार्थ्यांनी विचार न करता समाजहितासाठी प्रयत्न केले.
	ललित लेख	लालित्यपूर्ण अनुभवाची मांडणी करून समाजातील वास्तवता शब्दबद्ध करून प्रस्तुत करणे. स्पर्धा परीक्षेसाठी उपयोग होतो व विद्यार्थ्यांनी तयारी केली.
	कविता	कवितेतून विद्यार्थ्यांनी संवाद कौशल्य आत्मसात केले.
	निबंध लेखन	वर्णनात्मक, कथनात्मक, चरित्रात्मक, कल्पनात्मक, आत्मकथनपर, वैचारिक व चिंतनात्मक असे निबंधाचे प्रकार आहेत. निबंध लेखन या लेखन शैलीने भाषिक कौशल्ये विकसित केले.
	वैचारिक लेख	शब्दांचे सामर्थ्य विद्यार्थ्यांना ज्ञात व्हावे. भाषण व निवेदन महापुरुषांच्या विचारांतून शिकले.
B.A. Part-II	ललित लेख	ललित लेखनातून सत्य जगासमोर मांडल्या जाते. मराठी साहित्यातील लेखकांची स्पर्धा परीक्षेसाठी तयारी उपयुक्त.
	कविता	कवितेमध्ये संत, पंत, तंत, आधुनिक इ. प्रवाह येतात. परंपरा व संस्कृती यामधून मानवी जीवन जगण्याचा मंत्र विद्यार्थ्यांनी घेतला.
	पत्रलेखन	पत्र म्हणजे काय ? पत्रलेखनाचे कौशल्य, पत्रलेखनाचे तांत्रिक टप्पे, इ. बाबी स्पष्ट करणे. पत्रांच्या अनेक बाबी वहीमध्ये लिहून / सराव केला.
	वैचारिक	भाषा विकसित करणे. विविध कार्यक्रमाकरिता लेखकांचे विचार उपयोगात आणले.
	ललित लेख	शब्दांचे भांडार वाढून मराठी भाषेची वृद्धी वाढविली.
B.A. Part-III	कविता	तरुणाईच्या व्यक्तित्वाला शोभेल अशी काव्यरचना. अनेक सुभाषितांमधून निवेदन करण्याची कला प्राप्त केली.
	जाहिरात लेखन	जाहिरात लिखाणामुळे किंवा सादरीकरणामुळे विद्यार्थी भविष्य घडवू शकतात. संवादात्मक अभिनयातून जाहिरात सादरीकरण करण्याची कला शिकले.
	मराठी वाङ्मयाची सांस्कृतिक पार्श्वभूमी (आरंभ ते १८१८)	प्राचीन व मध्ययुगीन साहित्यातून साहित्याची रूपरेषा स्पष्ट होते. साहित्याचा विकास होण्यास प्राचीन व मध्ययुगीन सामाजिक व सांस्कृतिक पार्श्वभूमीचे महत्त्वाचे योगदान आहे. आधुनिक काळात विकसित झालेल्या साहित्याची पाळेमुळे या सांस्कृतिक पार्श्वभूमीत पाहायला मिळते.
	साहित्यविचार	साहित्याची निर्मिती प्रक्रिया साहित्य शास्त्रातून लक्षात येते.

		साहित्याच्या व्याखेचे स्वरूप कळते.	
		साहित्याचे प्रयोजन लक्षात येते.	
	लोकसाहित्य	साहित्याची निर्मिती लोकसाहित्यातून झाली.	
		लोकसाहित्य हा साहित्याचा महत्वाचा अविष्कार आहे.	
	विशेष वाङ्मय प्रकार - कविता	कविता वाङ्मयप्रकारची जडणघडण दिग्दर्शित करते.	
		महत्वाचा आधुनिक साहित्यप्रकार म्हणून या विषयाचे महत्व आहे	
		साहित्यप्रकाराचा अभ्यास लक्षात घेताना नव कवितेचा प्रवाह लक्षात येतो.	
	MA Part-II,	मराठी वाङ्मयाची सांस्कृतिक पार्श्वभूमी (१८१८ ते १९६०)	मराठी वाङ्मयाच्या संस्कृतीचा अभ्यास होतो.
			आधुनिक काळात विकसित झालेल्या साहित्याची पाळेमुळे या सांस्कृतिक पार्श्वभूमीत पाहायला मिळते.
		समीक्षाविचार	समीक्षेची दृष्टी या विषयाच्या अभ्यासातून प्राप्त होते.
साहित्याचे समतोल दृष्टीने आकलन करता येते			
लोकसाहित्य		साहित्याची निर्मिती लोकसाहित्यातून झाली.	
		लोकसाहित्य हा साहित्याचा महत्वाचा अविष्कार आहे.	
विशेष वाङ्मय प्रकार - कादंबरी		आधुनिक वाङ्मयात कादंबरी हामहात्वाचा वाङ्मयप्रकार आहे.	
		वाङ्मयप्रकार हि संकल्पना समजून घेणे.	
	कादंबरी या वाङ्मयप्रकाराची अन्य वाङ्मयप्रकाराशी तुलना करणे.		
English			
B.A. Part-I	Compulsory English	Understand the prose content, poetry and communication skills	
		Understand The Interpret The prose poem and knew the meaning of literature and life	
		Formulate/ compose his/her own sentences and able to speak English Language with a bit more competence and clarity.	
		Collaborate wherever needed and linguistically communicate with other students in English	
		Communicate effectively, proficiently with enhanced level of English usage by using their own ideas, thoughts and concepts.	
B.A. Part-II	Compulsory English	Acquire critical attitude and approach and gain knowledge.	
		Acquire enhanced sensibility and emotional depth and maturity in his/her expression.	
		Learn grammar such as Formation of Sentences.	
		Acquire Communication Skills.	
		Understand the cultural importance of Literature.	

B.A. Part-III	Compulsory English	Acquire critical attitude and approach and gain knowledge.
		Acquire enhanced sensibility and emotional depth and maturity in his/her expression.
		Understand the socio-political and cultural importance of Literature
		Communicate effectively, proficiently with enhanced level of English usage by using their own ideas, thoughts and concepts.
		Understand the cultural importance of Literature.
MA Part-I	Compulsory English	Acquire critical attitude and approach and gain knowledge, intellectual competence and critical scholarship which would help them to improve their performance in competitive exams like MPSC/UPSC/NET/SET in the subject.
		Understand and apply the evocative power of language and would be able to apply critical insight and judgment to form an informed and impactful opinion.
		Fairly acquainted with the background and socio-political as well cultural background of the poets and understand the factors behind their making and evolution. The student will grasp the distinctive writing style and technique of various poets & creative writers.
		Acquire enhanced sensibility and emotional depth and maturity in his/her expression
		Understand the socio-political and cultural importance of Literature and Literary Criticism.
		Help emerge social thinkers & critics who can take up various social problems and issues that ail the society and impede social change and progress and thus to achieve social transformation and social progress
MA Part-II	Compulsory English	Acquire critical attitude and approach and gain knowledge, intellectual competence and critical scholarship which would help them to improve their performance in competitive exams like MPSC/UPSC/NET/SET in the subject.
		Understand and apply the evocative power of language and would be able to apply critical insight and judgment to form an informed and impactful opinion.
		Fairly acquainted with the background and socio-political as well cultural background of the poets and understand the factors behind their making and evolution. The student will grasp the distinctive writing style and technique of various poets & creative writers.
		Acquire enhanced sensibility and emotional depth and maturity in his/her expression
		Understand the socio-political and cultural importance of Literature and Literary Criticism.
		Help emerge social thinkers & critics who can take up various social problems and issues that ail the society and impede social change and progress and thus to achieve social transformation and social progress
Hindi		

B.A. Part-I	ASMITA	Understand “Mahabharat ki ek Sanz” by Bharat bhushan Agrawal
		Understand the essay of Rahul Sankrutyan
		Understand the stories by Premchand
		Understand the stories by Sudha Arora
		Understand the Kavyas and poetries by Mahadevi Varma and Pant.
B.A. Part-II	APURVA	Understand the Grammar and standard Hindi Language
		Adopt the human Approach and think critically at the same time
		Understand the story Prapt such and ApraphDukh, Purskar and Nilu by Mahadevi Varma, Kuber Nath Agrawal and Premchand
		Understand and apply the elements of creative writing e.g. essay, story and letter writing
		Understand the Kavya by Nagarjun and Gazal of Dushant Kumar
		Obtain advanced level of Knowledge in hindi as a specialized field
B.A. Part-III	ABHIVRUTI	Understand the Grammar and standard Hindi Language
		Adopt the human Approach and think critically at the same time
		Understand and apply the elements of creative writing e.g. essay, story and letter writing
		Understand the stories such as Maharaj ka Elaj by Yashpal, Chif ki Dawat by BhisamSahani, Usne kaha tha by Guleri.
		Understand Ekankiutsarg by Rajkumar Varma
		Understand Amir Khusro ka sahitymeinyogdan and importance of Ahar, Bhojan and Swasth.
		The poetry section comprises of the total of Kavyas and Kavita (Mochi &Madhushala) by Maithini Sharan Gupta, Mahadevi Varma and HarivanshraiBhacchan.
MA Part-I	प्राची एवं मध्यकालीन काव्य	हिंदी के आदिलाकीन काव्य मुक्तक काव्यरूपोका परिचय छात्रोको हुवा और उसका लाभ अध्ययन मे मिला
		कबीरके विचारोकि प्रसंगीगता छात्रोको समजमे आयी
		तत्कालीन संस्कृती व जीवन दर्शन का परिचय मिला
		सुफी साहित्य के माध्यम से जीवन मूल्य एवं जीवन दर्शन को समझा और इसका जीवन मे लाभ हुवा
		प्राचीन एवं माधाकालीन काव्यके आस्वादन और मुल्यांकन कि दृष्टी कोनको बढावा मिला
		हिंदी साहित्य के इतिहास लेखन कि परंपरा आधारभूत सामुग्री और साहित्य इतिहास के पुर्नलेखनकि जानकारी मिली
		हिंदी साहित्य के इतिहास कालविभाजन, सिमानिर्धारण और नामकरण इत्यादीओकि परिचय हुवा
	हिंदी साहित्य का इतिहास	साहित्य विद्या कि विकास क्रम अध्ययन हो गया
		अभिनय के प्रती छात्रो के मनमे आकर्षण निर्माण हो गया
		तत्कालीन संस्कृती जीवन दर्शन का परिचय मिला

	काव्यशास्त्र एवं साहित्य लोचन	काव्यशास्त्र एवं साहित्य लोचन रीति सिद्धांत की अवधारणा काव्य गुण एवं शैली आदि से छात्रों को अवगत कराया
		वक्रोक्ति सिद्धांत व भेद ध्वनि सिद्धांत का स्वरूप, औचित्य सिद्धांत आदि से छात्रों को अवगत कराया और उन्हें जानकारी प्राप्त हुई
		पाश्चात्य काव्यशास्त्र प्लेटो , काव्य सिद्धांत अरस्तु , अनुकरण सिद्धांत , त्रासदी विवेचन , लॉजाइनस उदात्त की अवधारणा, Wordsworth काव्य भाषा का सिद्धांत मैथ्यू अर्नाल्ड आलोचना का स्वरूप और प्रकार्य, टी एस इलियट परंपरा की परिकल्पना और व्यक्तिगत स्वरूप का सिद्धांत, वस्तुनिष्ठ समीकरण संवेदनशीलता आदि से छात्रों को परिचित किया और उन्हें इसके बारे में जानकारी प्राप्त हुई
		हिंदी आलोचना कि प्रमुख प्रवृत्तियां शास्त्रीय, व्यक्तीवादी, ऐतिहासिक, तुलनात्मक, प्रभाववादी दृष्टिकोण छात्रों में अवगत किया
		छात्रों में समाज के समस्याओं पर उपाययोजना करने का कौशल प्राप्त हुआ।
	विशेष अध्ययन	हिंदी साहित्य का इतिहास और प्रेमचंद हिंदी सम्राट के बारे में जानकारी देकर प्रेमचंद के उपन्यास पर छात्रों ने प्रकाश डाला
		रंगभूमि, कर्मभूमि, निर्मला और गोदान आदि उपन्यासों की समीक्षा करके समाज में जागृति निर्माण की
		कफन, पूस की रात, नशा, बड़े घर की बेटी, ईदगाह, दो बैलों की कथा, आदि का अध्ययन करके कहानियों में दी गई समस्याओं से अवगत किया
		साहित्य का उद्देश्य, साहित्य के तत्व और साहित्य आदि से छात्रों को परिचित कराया गया
		छात्रों को कहानी, निबंध, जीवनी आदि विधाओं का परिचय देकर उन्हें ज्ञान कौशल प्राप्त हुआ
उन्हें गद्य साहित्य की विभिन्न शैली से परिचित कराया और उन्हें वाचन कौशल निर्माण हुआ		
MA Part-II	आधुनिक काव्य	आधुनिक काव्य के पुनर्नवा के रूप में नवीन भाव में एवं वैचारिक गतिशीलता से छात्रों को परिचित किया
		मैथिली शरण गुसा द्वारा साकेत जयशंकर प्रसाद द्वारा कामायनी सूर्यकांत त्रिपाठी द्वारा राम की शक्ति पूजा एवं जूही की कली आदि रावण का अध्ययन छात्रों को हुआ छात्रों को हुआ और उन्होंने अपने लेखन में अवगत किया
		नागार्जुन की कविताएं चंद्र मने सपना देखा , उनको प्रणाम , बादलों को चढ़ते देखा इन कविताओं में से छात्रों को प्राकृतिक प्रेरणा मिली और सृजनात्मक दृष्टिकोण निर्माण हुआ
		आधुनिक कविता के प्रति छात्रों में रुचि उत्पन्न हुई
		छात्रों को काव्य निर्मिति की प्रेरणा मिली
	आधुनिक गद्य साहित्य	आधुनिक काल में गद्य साहित्य से छात्रों को परिचित कराया गया
		चंद्रगुप्त जयशंकर प्रसाद, आधे अधूरे मोहन राकेश, महाभोज मनु भंडारी आदि गद्य साहित्य का अध्ययन छात्रों ने किया और उन्हें पाचन कौशल निर्माण हुआ
		हिंदी गद्य किंग उद्भव और विकास से छात्रों को अवगत किया और उन्हें जानकारी प्राप्त हुई

		गद्य साहित्य के माध्यम से छात्रों को शब्द भंडार में वृद्धि हुई
		छात्राओं को गद्य साहित्य के विभिन्न शैली का परिचय हुआ
	भाषा विज्ञान एवं हिंदी भाषा	भाषा विज्ञान एवं हिंदी भाषा के उद्भव और विकास के बारे में जानकारी मिली
		भाषा में सामाजिक और भौगोलिक रूप से जो परिवर्तन होते हैं उसे छात्रों को अध्ययन हो गया
		छात्रों को व्याकरण दृष्टि से सक्षम बनाया और छात्रों के वर्ण शब्द तथा वाक्यों के उच्चारण में शुद्धता उत्पन्न हुई
		देवनागरी लिपि की विशेषताएं एवं मानकीकरण के संदर्भ में भेद स्पष्ट हुआ
		छात्रों को अर्थ परिवर्तन की दिशा उनसे अवगत कराकर शास्त्रीय दृष्टि से वाक्य निर्माण करने के लिए उपयुक्त किया
		भाषा विज्ञान समझने साथ हिंदी भाषा के संदर्भ में मशीनी अनुवाद, आंकड़ा संसाधन, मेल आईडी, पंजीकरण, सर्च करना, आदि को समझने तथा सीखने का कौशल छात्रों में प्राप्त हुआ
	निबंध / परियोजना	हिंदी साहित्य के विविध विमर्श की जानकारी छात्राओं को मिली
		दलित, आदिवासी, बाल विमर्श, स्त्री विमर्श, किसान विमर्श आदि की जानकारी छात्राओं को मिली और उन्हें इनके प्रति संवेदना प्राप्त हुई
		हिंदी विमर्श में आए विविध विधाओं से छात्राओं को परिचय हुआ और उन्हें विधान की जानकारी मिली.
		छात्रों में हाशिए के समाज के प्रति अपनत्व का भाव उत्पन्न हुआ
		नवविमर्शा साहित्य की उपयुक्तता के बारे में छात्राओं में रुचि उत्पन्न हुई
Marathi Literature		
B.A. Part-I	धग (कादंबरी) - उद्धव शेळके विशाखा (काव्यसंग्रह)- कुसुमाग्रज प्रेमा तुझा रंग कसा? (नाटक) - वसंत कानेटकर	विद्यार्थ्यांची मराठी बोली समृद्ध होते. उपरोक्त काव्यसंग्रहातून सामाजिक जाणीव व सुधारणावादी विचार कळतात वयपरत्वे प्रेमात कसा दुरावा निर्माण होतो. याचे आकलन होते.
B.A. Part-II	लीळाचरित्र (एकांक)- म्हाइंभट ग्रामगीता (अध्याय ११-१५)- राष्ट्रसंत तुकडोजी महाराज साहित्य विचार - डॉ. दत्तात्रय पुंडे	प्राचीन साहित्याची ओळख, सामाजिक स्थिती, भाषा व संस्कृती याची जाणीव होते. ग्रामीण जीवन, वास्तवता व मानवी मूल्यांची ओळख होते. कथा, कादंबरी, नाटक, कविता व ललित साहित्य निर्मितीची शास्त्रीय प्रक्रियेचे आकलन होते.
B.A. Part-III	बि-हाड (आत्मचरित्र) - अशोक पवार जावे त्यांच्या देशा (प्रवास वर्णन)- पु. ल.देशपांडे	मागासवर्गीय जातीची बोली, राहणीमान, सामाजिक स्थिती उपरोक्त आत्मचरित्रातून समजते. विविध संस्कृतीची जाणीव, जीवन जगण्याच्या पद्धती, मानवी मूल्ये प्रस्तुत साहित्यकृतीतून प्राप्त होते. ऐतिहासिक व वर्णनात्मक भाषेची ओळख होते. भाषा उत्पत्ती, सिद्धांत, व्याकरणाची व भाषेच्या शास्त्रीय माहितीचे

	भाषाविज्ञान - संपादन	आकलन होते.
English Literature		
B.A. Part-I	English Literature	Understand the contents, elements of literature and analyze various forms of literature.
		Acquaint them with the forms of structure and aesthetics of style and techniques of literary works
		Competence and clarity about the development of English literature through various theories
		Collaborate wherever needed and linguistically communicate with other students in English and kindle their critical skills
		Enhance their poetic skills, appreciate poetry as literary art, recognize rhythms and metrical aspects of poetry and Identify various elements of poetry, figures of speech, symbolism, themes etc
B.A. Part-II	English Literature	Comprehension of the English literature structure and background
		Understand the terminology and depth of poetry
		Competence and clarity about the development of English literature through various theories
		Linguistic analysis about the structure and style of short stories
		To be able to effectively compose and narrate their own ideas and concepts through creative writing
B.A. Part-III	English Literature	Acquire a critical attitude, approach and gain literary knowledge. The students will understand the cultural importance of Literature.
		Acquire enhanced sensibility and emotional depth and maturity in his/her expression.
		Competence and clarity about the development of English literature through various theories
		Enhance their poetic skills, appreciate poetry as literary art, recognize rhythms and metrical aspects of poetry and identify various elements of poetry, figures of speech, symbolism, themes etc
		Learn and understand literary terms.
Hindi Literature		
B.A. Part-I	हिंदी साहित्य	हिंदी साहित्य के प्रति छात्रों कि रुची बढ़ती है तथा विविध विधाओं से परिचित होते हैं.
		कहानी, कविता, एकांकी, साक्षात्कार, रेखाचित्र, काव्य, उपन्यास आदि विद्याओं के माध्यम से विद्यार्थी अवगत होता है.
		छात्रों का चिंतन तथा लेखन कौशल्य विकसित होता है.
		उपन्यास के संबंधित पढ़ने का कौशल्य निर्माण होता है.
		रंगमंच से संबंधित जानकारी प्राप्त होती है तथा नाटक के प्रति आकर्षण निर्माण होता है.
		मानक लिपी एवं भाषा का महत्व स्पष्ट होता है.

B.A. Part-II	हिंदी साहित्य	साहित्य के माध्यम से जीवन मूल्य एवं जीवन दर्शन का परिचय होता है
		चिंतामणी पाठ्यपुस्तक के निर्धारित निबंधोंसे अवगत होता है
		अलंकार, रसनिष्पत्ती, रसभेद आदि से परिचित होता है
		हमारे संस्कृति का परिचय होता है
		महान संतोंको पढ़ना और उनके व्यक्तित्व से प्रेरणा लेना तथा नाटक विद्या का परिचय होता है
B.A. Part-III	हिंदी साहित्य	कथा साहित्य के माध्यम से छात्रों को समस्याओंसे अवगत होता है और उन समस्याओंके समाधान के लिये प्रेरित होता है
		कविता विद्या का परिचय छात्रोंको देना और कविताओंसेछात्रों में प्रकृति प्रेम, देशप्रेम जागृत होता है
		साहित्य का शास्त्रीय पद्धतिसे अध्ययन करके, साहित्य के प्रती शास्त्रीय दृष्टिकोण विकसित होता है
		कौशल्य विकास के माध्यम से राष्ट्रनिर्माण में योगदान होता है
		बदलते भाषा परिवेश में परंपरागत भाषाई मौलिकता और लोकभावनाओं को समझता है
Economics		
B.A. Part-I	Micro Economics	Analyze about various definitions of economics and describe and apply the methods for analyzing consumer behavior through demand and supply
		To analyse the concept of elasticity, its types and various factors affecting on it
		To analyse the different theories of population, Theory of production costs & revenue analysis
		To be aware about Price determination of firms under different market structures Perfect and Imperfect Market.
		To have a better awareness regarding different Factor Pricing Rent, Wages, Interest, Profit.
B.A. Part-II	Macro Economics	Understand macro economic variables like money and inflation
		Understand classical & Keynesian theories of output and employment.
		Understand the functions of banks and Recent services provided by Banks
		Understand various concepts regarding Public Finance
		Understand international and inter regional trade, identify and understand the theory of international trade, analyze advantages and disadvantages of international trade.
B.A. Part-III	Development and Environmental Economics	Develop ideas of the basic characteristics of Indian economy, its potential on natural resources.
		Understand the role of agriculture in Indian economy.
		Understand the role of industry in Indian economy.
		Create awareness among the students about internal and external issues of Indian economy
		Understand the causes of various types of environmental pollution and suggest appropriate measures to correct environmental degradation.

MA Part-I	Paper-I, History of Economic Thought	Exposed the thoughts of mercantile and naturalist economist.
		Introduced to the economic thoughts of classical economist.
		Gained knowledge of historical school and socialist school thoughts.
		Understand of subjective economist.
		Know the economic thoughts of Indian economist.
	Paper-II, Agricultural Economics	Learned about the Agricultural Economics & Importance in Indian Economy.
		Understood the role of land, Irrigation, resources, labour & technology in Agricultural Economics.
		Get idea of labour market, Land Reform and wages of male - female Labour
		Understand the role of NABARD & Rural Banking and agriculture price policy
		Understand importance & Role of Recent Trend in Agriculture
		Learned about the Agricultural Economics & Importance in Indian Economy.
	Paper-III, Micro Economic Analysis	Learned about general equilibrium.
		Get idea about different theory of demand.
		Get to know about different types of production cost.
		Realise how prices of goods are determined in various markets
		Gained knowledge of theory of distribution.
	Paper-IV, Macro Economic Analysis	Learned about the relationship between national income and consumption.
		Understood the relationship between investment and supply of money.
		Realised the demand for money depends on which factor.
		Get an idea of macroeconomics in a free economy.
Come to know about various causes of business cycles.		
Paper-V, Economics of Statistics	Realised basic idea & Concept concern to subject of Statistics for Economics.	
	Get to know the Correlation & Regression problem solving method.	
	Get understanding the Role of CSO, NSSO, Population Census agricultural and Industrial Statistics.	
	Learned about the method of F, T & χ^2 test.	
	Gained knowledge and problem solving method in statistics	
MA Part-II	Paper-I, Economic of Growth and Development	Learned about the Economic Growth & Development and understood its various models
		Realised concept of Development, poverty & institutions market.
		Understand Classical theory of development & structural view of development
		Get idea of GATT, WTO, and international trade as engine of growth.
		Know the Role of Monetary and Fiscal Policy, IMF, Review of Indian plan mode
	Paper-II, Economics of International	Get an idea of the reason for international trade.
		Understand the gains of international trade.
		Gained knowledge on how imbalances in balance of payment are redressed.

	Trade & Finance	Know about international organizations.
		Get an idea of India's international trade.
	Paper-III, Labour Economics	Realised what is called labour market
		Get an idea of employment in various sectors of Indian economy
		Gained knowledge of various theories of labour.
		Get to know about labour organisation in India.
		Learned about state and social security of labour.
	Paper-IV, Business Cycle	Get to know about the various fluctuations that occur in the economy.
		Noticed the causes of business cycle.
		Understand the modern theory of business cycles
		Get to know the history of business cycles
		Introduced to the various policies that govern the business cycle.
Political Science		
B.A. Part-I	Indian Government and Politics	Understand the historical significance of Indian Constitution.
		Analyze the Preamble, Fundamental Rights and Guiding Principles of the Constitution of India.
		Understand the power judicial process of the president, Prime minister, independent judiciary in the Indian Central Government system.
		Know the powers and judicial process of Governor, Legislature, Chief Minister and High Judiciary in Maharashtra system of government.
		Compare and contrast the Supreme Court, political parties and pressure groups
		Understand the success and failure of caste, language, religion, linguistic regionalism in Indian politics.
B.A. Part-II	Comparative Govt. and Politics	Identify the difference between constitution and constitutionalism by studying comparative politics and explaining its approach and political process
		Know features of the constitution of England and importance of legislature, executive, judiciary, political parties and pressure groups
		Understand the background of the US Constitution and its executive branch, legislature, judiciary, political parties and pressure groups
		Know the constitution of Switzerland and explain its pluralism, federal assembly, judiciary, direct democracy, pressure groups and political parties
		Understand the governance and politics of China and features of its democratic republican constitution, the role of the executive, legislature, judiciary and the Communist Party.
B.A.	Political Theory	Understand the concept of power and authority by analyzing the nature and development of political theory

Part-III		in line with the subject of political science.
		Comparatively discuss the divine development theory, social contract theory, historical idealist theory and jurisprudential approach to the origin of the state.
		Explain the characteristics of Austin's universalism and evaluate citizenship liberties, rights. Distinguish between theory of natural right, legal theory of social right.
		Describe the characteristics of a successful democracy with the concept of equality and justice.
		State the theories of social change and the factors affecting social change by evaluating the concept of development and the concept of the welfare state.
MA Part-I	Paper-1 (Modern Indian Political Thought)	Understand the social contribution of Indian political thinkers and their works.
		Gain the knowledge of Jahalist and Mawalist Indian nationalism.
		Know Jaiprakash Narayan's Socialism and Nehru's Liberalism.
		Analyze the socio political thought of Mahatma Gandhi and Communism of MN Roy
		Know the views of Dr. Ambedkar and Perrier on United Nationalism and Unity in Diversity in India.
	Paper-2 (Indian Government And Politics)	Know the historical significance of Indian Constitution.
		Analyze the Preamble, Fundamental Rights and Guiding Principles of the Constitution of India
		Gain the Knowledge of social change demand for constitutional amendment federalism and autonomy.
		Know the power of Governor, Legislature, Chief Minister in Maharashtra system of government.
		Compare and contrast the Supreme Court, political parties and pressure groups.
		Understand the success and failure of caste, language, religion, linguistic regionalism in Indian politics.
	Paper-III (Public Administration)	Analyze the nature and approach of public administration.
		Know the Environmental Approach for Decision Making, Development and Understand the important approaches in public administration.
		Understand the importance of formal and informal organization by explaining the humanistic concept of organization and its basic problems.
		Understand the centralization and decentralization on the basis of organization i.e. employees and division of authority
		Know the important role of civil service in bureaucracy, modernization of bureaucracy and principles of budgeting.
		Analyse importance of control and influence of legislature, judiciary, parties, and public opinion pressure groups on administration.
		Know the impact of globalization, liberalization and information technology on administration by stating theories of personnel administration.
	Paper-IV	Understand the International Relations and its development approach.

	(Theories of International Relations)	<p>Identify the elements of power and the status quo of power struggles.</p> <p>Know the contribution of balance of power, collective security and cooperative security in the management of power and the transformation of national power.</p> <p>Understand the importance of SAARC and ASEAN Organization by explaining the contribution of CTBT, NPT, PNE in disarmament, arms control.</p> <p>Know the major issues of human intervention, sanctions, human rights, environmentalism, and terrorism.</p> <p>Understand the expansion of democracy by mentioning the importance of liberalization, privatization, and globalization.</p>			
MA Part-II	Paper-I, (Western Political Theory and Thought)	<p>Know importance of political theory in political science and the end of political theory and ideology.</p> <p>Understand nature of political theory of Greek political thinker Plato Aristotle.</p> <p>Compare the study of Bodine and Machiavelli on the nature of political theory of St. Augustine and St. Thomas Aquinas,.</p> <p>Acquire knowledge about the rise of secularism, theory of sovereignty and nationalism with reference to Marsiglio of Padua</p> <p>Know the significances of T. H. Green's idealist and liberal theory</p> <p>Understand and analytically knowthe ideas of Karl Marx, Lenin, Lawsky in Marxist, Socialist context.</p>			
		Paper-II, (Research Methodology)	<p>Know the difference between natural science research and social science research.</p> <p>Understand the different methods of social research in terms of political science and difference between behaviourist revolution research and post-behavioural research in politics</p> <p>Understand the role of hypothesis in scientific research Hypothesis is essential for ideal research.</p> <p>Analyze the different techniques for measuring the problem in social research for considering different methods of data collection.</p> <p>Know the difference between report writing and thesis writing by mentioning various techniques of research prospective.</p>		
			Paper-III, (Theory And Practical of Diplomacy)	<p>Know the nature and role of diplomacy in foreign policy and the difference between secret and open diplomacy</p> <p>Analyze the special powers and immunities of an ideal state.</p> <p>Understand the types of diplomacy and its role in the United Nations summit, the contribution of diplomacy to international negotiations and treaties.</p> <p>Gain the knowledge of relationship between national affairs and embassies by stating the strategy of diplomacy to achieve foreign policy objectives.</p> <p>Understand influences of diplomacy on the foreign policy of India, USA, Russia, China after World War second.</p>	
				Paper-IV,	Understand the scope of International Law Development.

	(International Law and International Organization.)	<p>Know the importance of law to international peace Evaluate state intervention, state jurisdiction and treaty termination in relation to international law.</p> <p>Understand the nature of war, types and instruments of war and the end of war at the international level</p> <p>Compare the relationship between neutral chinitnaka types of mercenaries, neutral kings state powers and duties state rules of neutrality.</p> <p>Know the differences between embargo and countermeasures and promote biligates rights area.</p> <p>Gain the functioning of the United Nations as an international organization and its failure</p>
History		
B.A. Part-I	History of India (From Earliest Times to 1526.A. D.)	<p>Acquired knowledge sources of ancient India and study the Harappan Civilization and Vedic period.</p> <p>Acquire knowledge of Rise of Territorial States & Macedonian Invasion.</p> <p>Know about Mauryan Empire, Significance of Kaling War, Shungas, Kushans & Satvahnas, Gupta Age and Concept of Golden Age</p> <p>Understand about the Vardhan Empire, Chalukyas, Pallawas and Cholas as well as they know about the Growth of Education in Ancient India and Position of Women.</p> <p>Understand the Foundation of the Sultanate, Administration & Religious Policy of Allaudin Khilgis.</p> <p>Learn about Timur's Invasion, Impact, Decline of Sultanate, Bahamani & Vijaynagar Kingdom</p> <p>Learn Social, Economical & Technological Development under the sultanate period.</p>
B.A. Part-II	History of India (From 1526 to 1947 A.D.)	<p>Understand about the Mughal rule & empire in India and emergence of Maratha power.</p> <p>Acquire knowledge of Mughal ascendancy, economy, society and religion under the Mughals.</p> <p>Know about the consolidation of British rule as well as they will know about economic, socio and religious changes.</p> <p>Know about the nationalism and acquire knowledge on constitutional developments</p> <p>Gather the knowledge of ideas and movements</p> <p>Aware towards Gandhian ideology and movements.</p>
B.A. Part-III	History	<p>Understand about the French Revolution. They will know about emergence of Napoleon Bona Porte, congress of Vienna, making of the nation's states of Italy and Germany.</p> <p>Acquire knowledge towards the foreign policy of Germany under Bismarck.</p> <p>Acquire knowledge on Germany under Kaiser William II, the first world war cause and effects.</p> <p>Know about the Russian revolution, Paris Peace conference. As well as they will know Hitler and his</p>

		policies.	
		Know about the second world war, entry of the U.S.A. into the second world war and acquire knowledge on world power.	
		Gather knowledge of post war world the cold war, military alliances, the Suez crisis, They will aware non-aligned movement and the third world, origin and progress.	
MA Part-I	Paper-I, Historiography	Understand the basic skill of History writing and Research. They can get knowledge of meaning and scope of History.	
		Able to integrate knowledge of History and other Disciplines. As well as they will learn Kinds of History and Laws of History.	
		Gather knowledge about the Traditions of Historical writing and major Theories of History.	
		Get the knowledge of Approaches to the History various. They can know about Marxist, Subaltern History.	
		Identify and define basic terms and concepts. They should be able to knowledge of major theories of history.	
	Paper-II, History of Ancient India (From Earliest Times to 1200 A.D.)	Able to understand the sources of Ancient Indian History. They will know about the origin and development of different civilization.	
		Able to understand knowledge about Mouryan and Post Mouryan period. They will learn about Asoka's Dhamma and Kaling war.	
		Differentiate the history between age of Guptas and post Gupta period.	
		Able to demonstrate about the Society, Religion, philosophy, Literature, Art and Architecture Post Vardhan period.	
	Paper – III History of Medieval India	Know Foundation, Expansion and Consolidation of the Delhi Sultanate.	
		Understand the political structure during Sultanate and Mughal Period.	
		Know the agrarian economy, trade, commers and the monetary system in medieval period.	
		Understand towards the structure of society and status of women in Medieval India.	
	Paper - IV Twentieth Century World	Acquire knowledge about growth of capitalism and imperialisan UK, France, Germany and Japan.	
		Know about Americas entry in the World War–I st and Russian Revolution.	
		Understand the foreign policies of Italy, Germany and Japan between the two World War.	
		Learn about Second World War, the new political order, cold war and its effects.	
		Acquire knowledge about the Disintegration of Socialist Block and end to Cold War.	
	MA Part-II	Paper-I, History of India (1757-1964)	Understand towards the Globalization and its economic and political impact
			Understand the politics during colonial India (1757-1857) and imperial India (1858-1947)
		Analyse the rural and urban economics, trade, banking and fiscal policies during colonial India(1757-1857) and imperial India (1858-1947)	

		Understand the social reforms and emerging social classes, education during colonial India(1757-1857) and imperial India (1858-1947)
		Understand the nationalism and national movement pre 1857 tillindependence.
		Know the making of constitution, integration of states, beginning of planned economy, land and industrial policy, education, foreign policy and Hindu code bill of Independent India.
		Understand the politics during colonial India (1757-1857) and imperial India (1858-1947)
	Paper-II HISTORY of MARATHAS (1600 to 1818)	Learn about the rise of marathas and Maratha Kingdom under Shahaji Maharaj and Shivaji Maharaj, relations with Adilshahi Mughals and Foreigners under Chhatrapatis.
		Acquire knowledge about descendency of Peshwa's, third battle of Panipat, post Peshwa consequences and downfall of Maratha power.
		Understand the concept of Hindaviswarajya, administration, military organisation, judicial system under Chhatrapati Shivaji Maharaj and peshwas.
		Know the land rules, sources of revenue and fiscal policies, agriculture economy, urban trade, currency and development of textile and agro industry under Chhatrapati and peshwash.
		Acquire knowledge about rural and urban society, development of education and literature, status of women, religious traditions, regional cults, art and literature during this era
	Paper - III Women in Indian History	Acquire knowledge about the contributions of women to philosophy and religion.
		Learn about Customary, Legal and Educational status of women during ancient, Medieval, Colonial and Post-Independence period.
		Acquire knowledge about the economical status of women and women's participations in reform movements.
		Know about women's organisation and participation in the Colonial and Post-Independence period.
	Paper – IV History of Social Movement and Social Reformers in Maharashtra (From 1848 to 1980 A.D.)	Acquire knowledge about the women's representation and participation in financial activities.
		Know about the Geographical and Political condition in 19 th century and effects of British rule on society in Maharashtra.
		Acquire knowledge about background of Social Movements and work of great socialist Mahatma Fule and organisation Satyashodhak Samaj.
		Learn the rise and growth of Dalit Movement and the work of Depressed Classes Mission before Dr. B. R. Ambedkar.
		Acquire knowledge about reforms for welfare of OBC and work of Kakasaheb Kalelkar and Mandal Commission.
		Understand the social reforms of Sant Gadge Maharaj.
Philosophy		

B.A. Part-I	Indian & Western Philosophy	Evaluate the difference between Buddhist, Jaina's, Yoga's and Charvaka's ethics.
		Remember the nature, definition and relation of ethics with metaphysics and psychology.
		Understand the hedonism between good and bad.
		Apply the Bentham and J.S. Mill utilitarianism in different spheres of life.
		Remember the concept of goodwill and theory of punishment
B.A. Part-II	History Indian Philosophy	Understand the nature of Indian philosophy, Vedic and upanishadic.
		Acquire the knowledge of materialism, naturalism and hedonism and Jainas theory of philosophy.
		Understand the Buddhist philosophy and moral values.
		Understand the philosophy of Nyaya and Vaiishesika..
		Acquire the knowledge of satkaryvada, prakriti and purusha and theory of evolution.
B.A. Part-III	History Indian Philosophy	Understand the concept of Brahman, atma, theory of causation and concepts of Maya and moksha
		Understand the sources of theory of knowledge for Indian philosophy.
		Understand theory of relativity with reference to Indian philosophers Charvaka, Jain, Vaisheshika, Samkhya and Advait Vedanta.
		Acquire knowledge regarding logic and inferences
		Understand the theories of truth and important concept such as A-priori and A-posteriori and analytic and synthetic.
		Understand the Metaphysical concept such as substance, causality, space and time, universal materialism and idealism.
Music		
B.A. Part-I	Indian Vocal Music	Do practical session revision and practice of raag based alankar is done to make Students good at sur.
		Develop and apply foundational knowledge and skills in music theory, music history, musical and cultural diversity.
		Develop basic Harmonium and Tanpura skill in regular classroom.
		Learn and practice about different prevalent ragas.

		During practical student develop ability to recognize ragas and talas in the songs they listen to.
B.A. Part-II	Indian Vocal Music	In almost daily practical session revision and practice of raag based alankar is done to make Students good at sur.
		Learn and practice about different prevalent ragas.
		During practical student develop ability to recognize ragas and talas in the songs they listen to.
		During the course the students develop vision and mission of making career in music related field.
B.A. Part-III	Indian Vocal Music	Do practical session revision and practice of raag based alankar is done to make Students good at sur.
		Learn and practice about different prevalent ragas.
		During practical student develop ability to recognize ragas and talas in the songs they listen to.
		During the Graduation Students develop in-depth knowledge and performance skill.
		Become Music Educator if they peruse B.Ed after Graduation in Music.

AMOLAKCHAND MAHAVIDYALAYA, YAVATMAL-445001

COURSE OUTCOME (CO) [Subjects covered under Faculty of Commerce and Management]

Marathi		
Class	Course	Outcome (Students will be able to.....)
	वैचारिक	म्हाइंभट यांच्या साहित्याचा अभ्यास करून प्राचीन काळातील मराठी भाषेची ओळख होईल.
		मराठी भाषेत म्हाइंभट यांचे योगदान लक्षात येईल.
		भाषा व संस्कृती आणि साहित्य व संस्कृती यांचा अनुबंध समजून घेता येतो.
		नवनिर्मितीक्षमता व अभिव्यक्तिक्षमता विकसित होते.

B.Com Part-I	ललित	ललित साहित्याची ओळख होते.
		आज्ञापात्रातून- छत्रपती शिवाजी महाराजांच्या विचाराची ओळख होईल.
		त्यांनी पर्यावरनाविषयीची घेतलेली दखल आजच्या काळात लक्षात येईल.
		गद्य हा प्राचीन काळातील महत्वाचा लेखनप्रकर आहे.
	कविता	कविताया साहित्य प्रकारची ओळख विद्यार्थ्यांला होईल.
		संत ज्ञानेश्वर यांच्या या कवितेतून मानवी जीवनाची उंची लक्षात येईल.
		संत ज्ञानेश्वर यांच्या लेखनाची ओळख विद्यार्थ्यांला होईल.
		साहित्यप्रकाराचा अभ्यास लक्षात घेताना नव कवितेचा प्रवाह लक्षात येतो.
	उपयोजित मराठी	पत्रव्यवहार लेखनकौशल्य विकसित होते.
		पत्रव्यवहार क्षेत्रात नोकरीच्या संधी शोधता येतात.
		लेखनकौशल्य विकसित होऊन अर्ज लेखनकौशल्य निर्माण होते.
		सारांशलेखनाचे तंत्र अवगत होते.
B.Com Part-II	वैचारिक	छत्रपती शिवाजी महाराज यांचे धर्मनिरपेक्षता विषयक विचार विद्यार्थ्यांना नैतिक बळ देईल
		डॉ. बाबासाहेब यांचा पाणीप्रश्नाचा दृष्टीकोन विद्यार्थ्यांच्या लक्षात येईल.
		बाबासाहेबांच्या चौकस बुद्धीची जाणीव होईल.
		वैचारिक दृष्टीकोन निर्माण होतो.
	ललित	अण्णा भाऊ यांच्या चरित्राची माहिती विद्यार्थ्यांला होईल.
		ललित लेखनातून पुढे आलेले जीवनदर्शन मानवतेची शिकवण देईल.
		स्वातंत्र्योत्तर काळातील साहित्यातील अण्णा भाऊ यांचे योगदान विद्यार्थ्यांला लक्षात येईल.
		मराठी साहित्यात अर्वाचीन मराठी गद्याची भूमिका महत्वाची आहे
	कविता	केशवसुत यांच्या कवितेतून कवितेची रुपरेषा लक्षात येते. त्यांच्या लेखनाची ओळख होते.
		सुरेश भट यांच्या कवितेतून मानवी जीवनातील उत्कटता लक्षात येते.
	उपयोजित मराठी	लेखनकौशल्य निर्माण होऊन रोजगाराच्या संधी निर्माण होते.
		भाषेवर प्रभुत्व निर्माण करता येते.
पत्रव्यवहार क्षेत्रात नोकरीच्या संधी शोधता येतात.		

B.Com Part-III	वैचारिक	आजच्या काळात बाबासाहेबाचे पाणीप्रश्नाचे विचार किती महत्वाचे आहे याची जाणीव होईल .
		लक्ष्मणराव किलोस्कर यांच्या जीवनाची ओळख विद्यार्थ्यांना होऊन त्यांच्या आर्थिक विचाराची गरज लक्षात येईल .
		वैचारिक दृष्टीकोन निर्माण होतो .
	ललित	स्वातंत्र्योत्तर काळातील बाबाराव मुसळे यांच्या आधार या ललित लेखनातून माणसाच्या जीवनातील गुंतागुंत लक्षात येईल .
		आधार या ललित लेखातील जीवनदर्शन जीवनातील तानेवाने अधोरेखित करून तात्विक बाजूने जगण्याची दिशा देईल
		ललित साहित्याची ओळख होते .
	कविता	साहेबराव पाटील ह्या कवितेतून ग्रामीण भागातील जीवनदर्शन अधोरेखित होते .
		अविष्कार आणि देवभाताची थोंब या दोन्ही कवितेतून मानवी मनाचा अविष्कार दर्शित होतो .
		कविताया साहित्य प्रकारची ओळख विद्यार्थ्यांला होईल .
	उपयोजित मराठी	लेखनकौशल्य विकसित होऊन अर्ज लेखनकौशल्य निर्माण होते .
निविदासूचनाचे तंत्र अवगत होते .		
लेखनकौशल्य विकसित होऊन अर्ज लेखनकौशल्य निर्माण होते .		
English		
B.Com Part-I	Compulsory English	Understand the prose content , poetry and communication skills
		Apply four skills of the English language in his daily routine.
		Will be honed The drafting Skills of learners through grammar and writing skill and become proficient in the language.
		Become efficient in reading and writing skills and become able to communicate in business correspondence.
		Communicate effectively, proficiently with enhanced level of English usage by using their own ideas, thoughts and concepts & acquaint with the violent nature of market and corporate world .
B.Com Part-II	Compulsory English	Understand native cultural experiences & situation; develop human values&socialawareness.
		Understand dignity of labour, work ethics and selflessness.
		Acquire ability to read, appreciate and critically evaluate the poetry independently.

		Acquire life lessons through the poetry.
		Comprehension of Linguistic Skills and Techniques among students.
		Get overall communicative skills, necessary for business communication.
B.Com Part-III	Compulsory English	Comprehension of the English literature structure and background
		Understand the terminology and depth of poetry
		Competence and clarity about the development digital technology and their uses
		Linguistic analysis about the structure and style of Oratory skills
		Effectively compose and narrate their own ideas and concepts through creative writing and speaking
Hindi		
B.Com Part-I	SAHITYA SARITA	Understand the basic concept and subject of Hindi and its origins
		Evaluating the concept of Hindi from past to present and making the society more closely through literature.
		Hindi is used as an official language as well as second language so they can easily be employed easily in those countries also.
		As they are practicing translation from Hindi to English and English to Hindi and some other language as well as they can become translators in many central government offices.
		Having good command over particular language one can present himself in better way.
		Learning Hindi and non Hindi region definitely one can achieve anything.
		To be able to understand the stories,poems, sanvadlekhan ,essay writing and letter writing.
B.Com Part-II	VANIJY SANKAY	Understand the basic concept and subject of Hindi and its origins
		Evaluating the concept of Hindi from past to present and making the society more closely through literature.
		Hindi is used as an official language as well as second languageso they can easily be employed easily in those countries also.
		As they are practicing translation from Hindi to English and English to Hindi and some other language as well as they can become translators in many central government offices.
		Having good command over particular language one can present himself in better way.

		Learning Hindi and non Hindi region definitely one can achieve anything
		Understand the stories,poems, sanvadlekhan,eassay writing and letter writing.
		Understand theadharbhutpathykram and sandarbhas.
B.Com Part-III	HINDI GADHYA	Understand the basic concept and subject of Hindi and its origins.
		Evaluating the concept of Hindi from past to present and making the society more closely through literature
		Hindi is used as an official language as well as second language so they can easily be employed easily in those countries also.
		As they are practicing translation from Hindi to English and English to Hindi and some other language as well as they can become translators in many central government offices.
		Having good command over particular language one can present himself in better way.
		Learning Hindi and non-Hindi region definitely one can achieve anything .
		To be able to understand the stories, poems, sanvadlekhan, essay writing and letter writing.
		Able to understand the adharbhut pathykram and sandarbhas.
B.Com Part-I	Business Economics	Able to understand the story of Ashok ke full, Ghisa and Khokababu and understand the sansmaran
		Analyze about various definitions of economics and describe and apply the methods for analyzing consumer behavior through demand and supply
		To analyse the concept of elasticity, its types and various factors affecting on it
		Perform analysis to analyse the impact of economic events on Markets,
		To be aware about Price determination of firms under different market structures Perfect and Imperfect Market.
	Demonstrate marginal productivity theory of distribution, theory of wages, identify different types of rent, and illustrate different theories of interest and profits.	
	Financial Accounting	Gets important basic accounting knowledge at applicable to business i.e. meaning of accountancy and will be able to handling account transaction. Students would be able to Rectify the accounting errors occurred while recording transaction.
		Maintain all types of Subsidiary Books i.e. Purchase Book, Purchase Return Book, Sales Book, Sales Return Book, Cash Book.
Prepare final accounts of individual i.e. preparation of trading account, profit and loss account and balance sheet.		

		Record and prepare depreciation accounting transactions by applying different methods of depreciation i.e. Straight line Method, Reducing Balance Method.
		Differentiate between bank pass book and cash book and learn to prepare bank reconciliation statement.
	Principles of Business Management	Understand commerce and industries meaning scope evolution and effect, student understand MNC emergency of Indian and MNC Indian business and new millennium
		Understand business sector and its form organization how to business form in mom and pop. Stores students able to understand on line trading marketing and commerce cashless transaction.
		Understand merger and acquisition of meaning franchising, dealership and business outlet student able to understand trade work copyrights.
		Understand class work and opportunity and idea generation, Role of creative innovation with business plan and decision.
		Understand transport, insurance policy communication development and other services import and export of trade project and explain discuss the topic
	Computer Fundamentals Operating System	Get information about evolution and application of computer & its development.
		Know about different elements of computer & system.
		Aware about different types of memory.
		Get to know about different input devices and output devices.
		Learn to prepare a text document with complete formatting and page setting.
B.Com Part-II	Business Mathematics & Statistics	Calculate Integers H.C.F. & L.C.M
		Calculate Percentage, Discount, Commission and Brokerage.
		Calculate Average and Profit and Loss.
		Calculate Simple Interest and Compound Interest.
		Calculate Simple and Compound proportion.
	Information Technology & Business Data Processing	Understand Data processing data concept and use of data in computing, Data processing concept and advantages of Data processing and Application of data processing in Business.
		Understand Data base concept objectives and need of Database, database users. Data warehousing and concept Need and advantages of Data warehousing. Data mining Concept and advantages of data Application of Data Mining.
		Understand Database management system and DBMS concept Characteristics objectives advantages

		<p>limitations components of DBMS.DBMS model hierarchical Network and Relational, Architecture of DBMS, internal level conceptual level and External level.</p> <p>Understand spreadsheet package, MS-Excel 2007/Higher and introduction to spreadsheet package and components of spreadsheet Windows, spreadsheet Basic and concept columns and Rows cell, cell address, Cell range, cell pointer, sheet tabs, working in worksheet Editing and formatting worksheet Alignment of data in cell, inserting and deleting cell Rows and columns changing the column width and row height page setup saving and printing of worksheet.</p> <p>Understand Formulas, functions and Chart in excel introduction to formulas functions and categories of functions, working with common excel functions TODAY DATADIF, NOW, UPPER, LOWER, PROOPER CONCATENATE, AVERAGE, MAX MIN, COUNT, COUNTBLOANK, COUNTIF, SUM, SUMIF, AUTOSUM, IF. And chart in excel introduction, types, creating and formatting and chart displaying saving and formatting a chart displaying saving and printing.</p>
	Monetary & Financial System	<p>Get basic knowledge about money, i.e. Barter System, Functions Brief History, Meaning, Definition and Nature of Money, Kinds of Money, Demonetisation</p> <p>Learn value of money, Demand and supply of Money in economics system. Their Meaning and Determinants.</p> <p>Learn price fluctuations like Inflation and deflation -Meaning, Definition and Causes. Their effects and measures and students also learn Trade Cycle their Concept and Meaning</p> <p>Learn about money market their Meaning, Definition, Nature, Features and Objectives. Impact of Demonetisation on Indian Money Market</p> <p>Learn about capital market like their Concept, Meaning, Definition, Features, Nature and Objectives of Capital Market. SEBI: Organisational Structure, Functions, Powers and Responsibilities.</p>
	Corporate Account	<p>Explain the various methods of issue of shares and debentures. Understand the provisions relating to issue of shares at a discount, utilization of securities premium account, right issue of shares, sweat equity shares.</p> <p>Reconstruct the capital structure in the financial statement of joint stock company ltd.</p> <p>To understand the Profit prior to Incorporations.</p> <p>Develop the procedure involved in Amalgamation of companies.</p> <p>Develop the procedure involved in Absorption of companies.</p>
	Income Tax and Auditing	<p>Understand basic concepts of auditing and types of audit.</p>

		Learn audit programme, voucher checking and verification of assets and liabilities.
		Learn power, duties and liabilities of auditor.
		Prepare audit report.
		Learn auditing of banks, insurance and educational institutions.
B.Com. Part-III	Essentials of E- Commerce	Understand the basic concepts of E-commerce.
		Describe Internet trading relationships including Business to Consumer, Business to Business, Intra organization.
		Describe about consumer search and resource Discovery.
		Describe about Business-to-Business Relationships including e-commerce, Key technologies for B2B ecommerce, E- Marketplace models of B2B- Supplier oriented marketplace, Buyer oriented marketplace and Intermediary oriented marketplace
		Learn the basics of e- Payment and e- Banking& its Components Like Electronic fund transfer (EFT), Credit cards and debit cards-based payment, Use of mobile applications (apps) for e-payment, Meaning of electronic banking, online banking services, benefits of online banking, Future of online financial services in India
	Business Regulatory Framework and Company Law	Learn the basics laws governing commercial contracts and nuances of competency to contract, rules of consideration and objects of contracts with case laws and illustrations.
		Learn the rules regarding the contract of sale, Distinction between sale and agreement to sell, condition and warranty, right of unpaid seller and remedies for breach of contract sale.
		Acquire problem solving techniques and to be able to present coherent, concise legal argument.
		Learn various provisions related to the Negotiable Instrument Act, 1881 with Amendment Act 2015. Rules related to Bills of Exchange, Promissory Note and Cheque. Legal process on Dishonour Cheque and penalties.
		It will help students to understand the legal structure of GST, and its implementation in India.
	Cost and Management Accounting	Learn the basic concepts and tools used in Cost Accounting and applications of Cost Accounting techniques for determination of cost of production.
		Prepare Cost Sheet of Production.
		Calculate labour cost by using different labour costing methods.
		Learn reconciliation of cost accounting and financial statement.
		Open cost sheet of different process of production.

	Internet and WWW	Understand the basic concepts of Networking including its types, structures, models, etc.
		Learn fundamentals of computer system.
		Open Mail account, sending E-mail, attaching files to E-mail, reading captcha etc.
		Understand functioning of web sites, browser and searching in web sites etc.
		Learn basic structure of HTML and designing web site.
	Business Environment	Understand the internal and external components of business environment.
		Learn Indian agricultural environment.
		Learn Indian industrial environment.
		Learn Indian service environment.
M.Com. Part-I, Sem.-I	Managerial Economics	Know India and Foreign Trade Environment.
		To help the students form a clear idea of Managerial Economics.
		Ability to forecast demand in light of changing circumstances and to formulate business plans.
		Understand the situation of market supply and demand.
		Understand determination of price under different market forms.
	Services Marketing and Customer Relationship Managements	To describe the concept of Inflation and Deflation and its consequence in an economy.
		Learn about service marketing basics nature and types and their environment.
		Learn to service marketing process like service market segmentations, needs, pricing determination of service.
		Aware about service marketing sectors and areas for applicable services like financial service, hospital, tourism, education etc.
		Learn about customer relationship i.e. meanings, needs, scope, how to work rational exchange in business etc.
	Advanced Financial and Cost Accounting	Knowledge about the consumer decision making process.
		Able to know the accounting standards. Journal entries, valuation of Goodwill etc.
Analyse and interpret the financial statement and take different business decisions.		
Know the financial and cost accounting principles and procedure for analysing the different cost of the organizations.		
		Learn about on Cost Ascertainment and classification of cost, calculation of Machine-Hour-Rate, Operating costing.

		Get knowledge about cost audit in organization
	Banking and Insurance Services	Provide to Students fundamental understanding of the structure of commercial banking in India and its management
		Understand the functions and significance of RBI in India. To understanding about SBI bank's function and working methods.
		Understand the basic information about insurance companies' formation, meaning, needs, nature and scope.
		Get knowledge about kinds of insurance in India i.e., Life Insurance, Fire Insurance, Marine Insurance, Crop Insurance, Livestock Insurance, Motor, Personal, Accident, Sickness and other liability cover
		Understand the operations and working of insurance companies in India. i.e., IRDA, IDBI, FCI, ICICI,IBRD.
M.Com. Part-I, Sem.-II	Accounting for Managerial Decisions	Absorb about basic accounting fundamentals and to prepare Vertical financial statements as per Indian Companies Act 2013.
		Mature in financial analysis skills and learn to prepare Fund Flow and Cash Flow Statement, Estimated Working Capital and Receivables management.
		Understand, develop and apply the techniques of management accounting in the financial decision making in the business corporate.
		Analyse ratios and core concepts of business finance and its importance in managing a business.
		Prepare budgeting and get basic knowledge about budget.
		To make the students develop competence with their usage in managerial decision making and control.
	Strategic Management	Familiarization with the strategic management process.
		Aware about the techniques to scan an environment and the role of environment scanning in hurdle less strategic management of an organization.
		Understand about the equal importance of strategy formulation and strategy implementation.
		Clarity about the strategies policies, and functional strategy. i.e. Marketing policies, Production policies, Personal policies, financial policies.
		Learn about the implementation, evaluation of strategies.
	Management Concept and Organizational Behaviour	To develop students an understanding regarding the role of leaders in decision making process in an organization.
		Ability to execute managerial tasks of planning, organizing, staffing, controlling, directing.

		Understand management and organization behaviour, concept associated with continuous improvement in individual and group processes.
		Understand themselves and other people at work and will be able to learn how to create effective work groups at workplaces.
		Translate management and organizational behaviour theories into practice that will result in organization effectiveness, efficiency, and human resource development.
	Computer Applications in Business	Understand the application of business Knowledge in both theoretical and practical aspects.
		Understand the operating systems and MS Office for preparing documents and mathematical work.
		Determine the procedures and schedules to be followed on preparing financial statements of companies.
		Understand the basic concepts and functions of accounting, trade and computer software.
M.Com. Part-II Sem.-III	Research Methodology	Analysing the scope of business by adopting modern technology in the business practice.
		Understand some basic concept of research and its methodologies.
		Understand the data collection and its process to select and define appropriate research problem parameters.
		Learn to Analysis & Interpretation of Data like Classification, Coding-Tabulation of Data- Statistical analysis of data- Interpretation & Generalisation, Graphic Presentation etc.
		Conversant with the basic principles and theoretic concepts of the research and guide them in their applications, so the students will be able to write project report and thesis.
	Statistical Analysis	Enable the students in-depth understanding of the concept of probability, sampling, correlation and their applicability.
		Knowledge about the applicability of various parametric and non-parametric tests.
		Ability to use formulae to solve statistical problem.
		Gain a comprehensive view of the usage and importance of statistics formulae in solving different statistical problems.
		Ability to make decisions under uncertain business situations.
		Development of logical reasoning ability in students.
	Corporate Tax Planning and Management	Ability to identify the difference between Tax Evasion, Tax Planning and Tax Avoidance.
		Understanding of various deductions, rebates and reliefs to reduce the taxable income and tax liability,
Skill to take managerial decisions keeping in view the Income Tax Rules.		

	E-Commerce and Legal Security	Get knowledge about the Double Taxation Avoidance Agreement.
		Familiarize with the relevant provisions and procedure to compute total income of a company.
		Ability to start and operate e-commerce website.
		To help the students learn to evaluation e-commerce website using major e-commerce revenue models.
		To enable the students how to use various tools to build a dynamic website.
		Go through familiarization with online payment services and different cyber laws
M.Com. Part-II Sem.-IV	Entrepreneurship and Skill Development	Knowledge of cyber world and scope of cyber laws in E-commerce.
		Introduce the originating theories of Entrepreneurship.
		Explain the various opportunities in business.
		Learn to identify to know the tools and techniques to upgrade entrepreneurship.
		Learn communication and improving their communication skills,
	Entrepreneurship education has enhanced the student's perception of their networking skills significantly.	
	International Financing	To introduce about the foreign exchange system prevalent in international trade and business.
		Clarity about the role of central bank in international financial management.
		Get knowledge about international monetary system
		Get Knowledge about Global financial market and their work like how to exchange money, their interest rate, global market instrument.
		Get Knowledge about IMF, World Bank, international monetary system and their role and importance in international financing.
	Sales and Distribution Management	Comprehend the information related to understanding of the sales & distribution processes in organizations.
		Comprehend concepts, approaches and the practical aspects of the key decision-making variables in sales management and distribution channel management.
		Analyse various market analysis methods and selling concepts.
		Explore evaluation techniques in sales performance and trends in sales & distribution management.
		Link distribution with other marketing variables.
	Co- Operative Management	Understand basic principles and characteristics of Co-operation.
		Understand functioning of various co-operative societies.

		Understand functioning of various co-operative financial societies and banks.
		Understand government policies for co-operative sector.
		Understand history of co-operative legislation in India