

## Course outcome

1)

### **Food Nutrition and hygiene(Cocurricular Course)**

- To learn the basic concept of the Food and Nutrition
- To study the nutritive requirement during special conditions like pregnancy and lactation • To learn meal planning
- To learn 100 days Nutrition Concept
- To study common health issues in the society
- To learn the special requirement of food during common illness

2)

#### **Co-curricular course**

Programme/Class: Certificate	Year: First	Semester: Second
Co-Curricular Course		
Course Code: Z020201	Course Title: First Aid and First Aid and Health	

#### Course outcomes:

- *Learn the skill needed to assess the ill or injured person.*
- *Learn the skills to provide CPR to infants, children and adults.*
- *Learn the skills to handle emergency child birth*
- *Learn the Basic sex education help young people navigate thorny questions responsibly and with confidence.*
- *Learn the Basic sex education help youth to understand Sex is normal. It's a deep, powerful instinct at the core of our survival as a species. Sexual desire is a healthy drive.*
- *Help to understand natural changes of adolescence*
- *Learn the skill to identify Mental Health status and Psychological First Aid*

3)

Co-Curricular Course	
Course Code: Z030301	Course Title: Human Values and Environment studies
Course outcomes: The mission of the course on Human Values and Environmental Studies is to create morally articulate solutions to be truthful and just and to become responsible towards humanity. The course seeks to establish a continuous interest in the learners to improve their thought process with intent to develop a new generation of responsible citizens capable of addressing complex challenges faced by the society due to disruptions in human interactions effecting human values. This course works towards	
<ul style="list-style-type: none"><li>• Building fundamental knowledge of the interplay of markets, ethics, and law,</li><li>• Look at various challenges faced by individual to counter unethical issues</li><li>• Look at core concepts for business ethics</li><li>• Look at core concepts of anti-corruption</li><li>• Look at core concepts for a morally articulate solution evolver to management issues in general,</li><li>• Issues of sustainable development for a better environment.</li><li>• To know how environmental degradation has taken place.</li><li>• Be aware of negotiations and international efforts to save environment.</li><li>• How to develop sustainably?</li><li>• Efforts taken up by UN in Sustainable Development.</li><li>• Efforts taken by India in Sustainable Development.</li></ul>	

- The course intends to create a sense of how to be more responsible towards the environment. Upon finishing of the course students will be able to come up with using ethical reasoning for decision making and frame ethical issues as well as operationalise ethical choices. The course integrates various facets of human values and environment.

4)

*Syllabus: Physical Education and Yoga*

Programme: Certificate	Year: First	Semester: Forth
Co-Curricular Course		
Course Code: Z040401	Course Title: Physical Education and Yoga	
Course outcomes: Students will learn the introduction of Physical Education, Concept of fitness and wellness, Weight management and lifestyle of an individual. The student will also learn about the relation of Yoga with mental health and value Education. In this course student will also learn about the aspects of the Traditional games of India.		

5)

**Co-Curricular Course name: Analytic Ability and Digital Awareness**

Programme/Class: <b>Bachelor of Science</b>	Year: <b>Third</b>	Semester: <b>Fifth</b>
Subject: <u>Co-Curricular Course</u>		
Course Code: Z050501	Course Title: <b>Analytic Ability and Digital Awareness</b>	
<b>Course outcomes (Analytic Ability):</b>		
CO 1: Familiarize with analogy, number system, set theory and its applications, number system and puzzles.		
CO 2: To understand the basics of Syllogism, figure problems, critical and analytical reasoning.		
CO 3: Familiarize with word processing application and worksheet .		
CO 4: To understand the basics of web surfing and cyber security.		

6)

**Co-curricular Certificate course 'Communication Skills and Personality Development'**

Programme: Certificate	Year: Third	Semester: Sixth
Co-Curricular Course		
Course Code: Z060601	Course Title: Communication Skills and Personality Development	
Course outcomes:		
<ul style="list-style-type: none"><li>• To understand the concept of Personality.</li><li>• To learn what personal grooming pertains.</li><li>• To learn to make good resume and prepare effectively for interview.</li><li>• To learn to perform effectively in group discussions.</li><li>• To explore communication beyond language.</li><li>• To learn to manage oneself while communicating.</li><li>• To acquire good communication skills and develop confidence.</li></ul>		

# Psychology

## **Program outcome:**

Program Outcome (After 3 Years) The learning outcomes that a student should be able to exhibit on completion of a degree level program in Psychology are as follows: (i) Comprehension about the discipline, its research methods, related theories and models. (ii) Knack to link up theory with individual experiences and varied applied settings. (iii) Capacity to practice professional skills in the area of psychological testing, assessment and counseling. (iv) Development of skills in specific areas related to specific specialization (e.g. psych diagnostics, counseling, learning disability, health, community mental health and organizational behavior). (v) A general understanding about how knowledge of psychology can be applied to benefit the management and/or amendment of problems of mankind. (vi) Capability to articulate ideas in appropriate manner, with scientific writing and authentic reporting. (vii) Sensitivity towards diverse contexts, ethnic groups, minorities, marginalized groups and gender issues (viii) Development of skills and attributes of empathy, team work, coordination, cooperation, conflict resolution, and congruence.

## **Course Outcome:**

**1) Foundations of Psychology:-** The students will learn about the fundamental processes and core psychological concepts, models, classical theories, varied perspectives, and will be able to apply them in their own and in other's lives. It will also give the learner a clear understanding of the concepts like intelligence, motivation, emotion and personality. It will develop critical analytical skills regarding these individualistic traits.

**2) Lab Work/ Psychological Testing:-** Students will be imparted a variety of skills to design and conduct psychological experiments ensuring controlled conditions, report writing and interpretations of the report.

**3) Basic Methodology and Statistics:-** The learners will be able to comprehend psychological data and can put them on appropriate scaling method. Moreover, they will be getting hold of essentials of psychological testing along with various kinds of tests implemented.

**4) Lab Work/ Psychological Testing:-** Students will be conferred an array of skills to carry out experiments in lab settings, design and conduct psychological experiments ensuring controlled conditions, report writing and interpretations of the report.

**5) Psychology of Social Behavior:-** By the end of the course, students will be able to summarize general information, through in-class discussion and assignments, pertaining to social psychological theories and an opportunity to apply social psychological theories to their lives. Critically evaluate research to understand and explain distressing human social behavior and relate social psychological concepts and theories to the context of historic and current world, national, and local events.

**6) Lab Work and Measurement of Social Behavior :-** Students will be exposed to the mixture of skills such as how to conduct a psychological experiment for understanding social behavior as well as psychological measurements and scientific reporting of the data.

**7) Abnormal Psychology:-** The students will be able to understand criteria of abnormality and one's own behavior and behavior of others. By applying the knowledge of assessment, diagnosis, classification system and DSM categories, the learners' will develop the sensitivity towards individual diversity and various approaches to the diagnosis and treatment of psychological disorders. Summarize clinical features of symptoms, etiology and valid and reliable treatment of diagnostic categories of mental health disorders.

**8) Screening and Assessment :-** At the end of the course, the students will be imparted a variety of proficiency to conduct the screening and assessment of psychological tools for examining developmental issues and disorders. The practicum of case study will let the students learn and execute an indepth investigation of a single person, group, event or community.

**9) Human Development :-** At the end of the course, the student will able to develop an ability to identify the milestones in diverse domains of human developments across the child, adolescent and adulthood stages, understand the contributions of socio-cultural context toward shaping human development and acquire an ability to decipher key developmental challenges and issues.

**10) Positive Psychology:-**By the end of the course, the students will be able to understand the basic principles of positive psychology, the major areas within positive psychology that have received a considerable amount of attention, the use of positive psychology tools and techniques in own and in other's life. It will also ease the understanding of positive aspects of human behavior through the wisdom embedded in Indian scriptures like Vedas, Upnishadas, Shrimad Bhagvad Gita, Buddhist literature and folk tales.

**11) Lab Work/Survey/ Field Visit:-** After completing this practicum, the student will have an understanding about how to frame research objectives and questions, plan, decide and execute appropriate methods of research, data analysis, interpretation and discussion of the findings.

**12) Problem Identification & Research Proposal Writing:-** After completing this practicum, the student will have a comprehensive understanding about carrying out research project, how to frame research objectives and questions, plan, decide and execute appropriate methods of research, and intended data analysis.

**13) Community and Health Psychology:-** At the end of the course the student will be able to recognize that individuals relate to their communities and the reciprocal effect of communities on individuals and will be able to understand and resolve community issues, analyze the data, and recommend interventions that promote community wellness. Moreover, they will able to use the

psychological theories on health-related practices and will be able to examine persons' health history and describe and enact a positive, proactive attitude toward healthy living for oneself and others.

**14) Counseling Psychology:-** At the end of the paper, students will be able to understand how to establish rapport and use various approaches in counseling.

**15) Survey/Field Visit :-**After completing this practicum, the student will have an understanding about how to frame research objectives and questions, plan, decide and execute appropriate methods of research, data analysis, interpretation and discussion of the findings.

**16)Research Project:-** It will help the learner to critically reflect on, review the scientific basis for, and integrate what you have learned and accomplished as a psychology student and will prepare to explore the cultural, social, and ethical impact of psychological application on community and daily life.

## Hindi

### Program Outcome

- विद्यार्थियों को भारतीय ज्ञान परंपरा के अंतर्गत हिन्दी साहित्य एवं भाषा का आधारभूत ज्ञान प्राप्त होगा।
- साहित्य के मूलभूत स्वरूप, यथा विभिन्न विधाओं, हिन्दी के रोजगारपरक स्वरूप आदि की जानकारी प्राप्त होगी।
- विश्व की सर्वाधिक वैज्ञानिक भाषा अर्थात् हिन्दी में रोजगार कौशल प्राप्त होगा।
- भाषा, साहित्य तथा संस्कृति की अन्तर्सम्बद्धता के प्रति विद्यार्थियों में समझ विकसित होगी।
- विद्यार्थियों में राष्ट्रीयता तथा नैतिक चरित्र की भावना का विकास होगा।
- कंप्यूटर, सिनेमा, अनुवाद आदि के माध्यम से विद्यार्थियों को नए समाज की चुनौतियों का सामना करने में सक्षम बनाने का प्रयास किया जाएगा।

### Course Outcome:

➤ बी. ए. प्रथम वर्ष प्रथम सेमेस्टर के **'हिन्दी काव्य'** प्रश्नपत्र के अंतर्गत भारतीय ज्ञान परंपरा में हिन्दी साहित्य के विभिन्न कालों के प्रतिनिधि कवियों की कविताओं के विषय में जानकारी देना तथा हिन्दी काव्य के इतिहास की संक्षिप्त जानकारी देकर विद्यार्थियों को हिन्दी कविता के विकास क्रम से अवगत कराना।

➤ बी.ए. प्रथम वर्ष द्वितीय सेमेस्टर के **'कार्यालयी हिन्दी और कम्प्यूटर'** प्रश्नपत्र के अंतर्गत हिन्दी के विद्यार्थियों को कार्यालय के कार्यों की मूलभूत जानकारी प्रदान करना ताकि वे कार्यालय के समस्त कार्यों को सुगमतापूर्वक कर सकें एवं उन्हें कम्प्यूटर का मूलभूत ज्ञान देकर कम्प्यूटर पर हिन्दी में कार्य करने में सक्षम बनाना ताकि वे समुचित रोज़गार प्राप्त कर सकें।

➤ बी.ए. द्वितीय वर्ष तृतीय सेमेस्टर के **'हिन्दी गद्य'** प्रश्नपत्र के अंतर्गत विद्यार्थियों को हिन्दी गद्य की सभी विधाओं का सम्यक ज्ञान देना तथा उन्हें हिन्दी के प्रतिनिधि उपन्यासकारों, कथाकारों, नाटककारों, एकांकीकारों, निबंधकारों एवं अन्य गद्य विधाओं के लेखकों के महत्वपूर्ण प्रदेय से परिचित कराना, ताकि विद्यार्थी इन सभी विधाओं से परिचित हो सकें और इस क्षेत्र में करियर बनाने के इच्छुक विद्यार्थी को इस हेतु तैयार करना।

➤ बी.ए. द्वितीय वर्ष चतुर्थ सेमेस्टर के **'हिन्दी अनुवाद'** प्रश्नपत्र के अंतर्गत विद्यार्थियों को हिन्दी के साथ-साथ अंग्रेजी की प्रारंभिक जानकारी प्रदान करते हुए उन्हें वैश्विक प्रतिस्पर्धात्मक वातावरण के साथ सामंजस्य स्थापित करने में सक्षम बनाना तथा भारतीय संस्कृति और साहित्य के वैश्विक प्रचार प्रसार में सहायक बनाना और इस क्षेत्र में करियर बनाने के इच्छुक विद्यार्थी को इस हेतु तैयार करना।

➤ बी.ए. तृतीय वर्ष पंचम सेमेस्टर सेमेस्टर के प्रथम प्रश्नपत्र **'साहित्यशास्त्र और हिन्दी आलोचना'** के अंतर्गत विद्यार्थी को साहित्यशास्त्र एवं आलोचना के अर्थ, महत्व और विषय-क्षेत्र से परिचित कराना तथा उन्हें हिन्दी आलोचना के रूप में भारतीय एवं पाश्चात्य काव्यशास्त्र के आधुनिक विकास के विविध रूपों और दिशाओं का साक्षात्कार कराना।

➤ बी.ए. तृतीय वर्ष पंचम सेमेस्टर सेमेस्टर के द्वितीय प्रश्नपत्र **'हिन्दी का राष्ट्रीय काव्य'** के अंतर्गत हिन्दी साहित्य एवं सिनेमा की राष्ट्रीय काव्य चेतना से जुड़े कवियों की रचनाओं के माध्यम से विद्यार्थियों में राष्ट्र के प्रति अनुराग जाग्रत करना और उन्हें भारतीय संस्कृति की विशिष्टता और महानता के विविध पक्षों से अवगत कराना और इस क्षेत्र में करियर बनाने के इच्छुक विद्यार्थी को इस हेतु तैयार करना।

➤ बी.ए. तृतीय वर्ष षष्ठ सेमेस्टर सेमेस्टर के प्रथम प्रश्नपत्र 'भाषा विज्ञान, हिन्दी भाषा तथा देवनागरी लिपि' के अंतर्गत विद्यार्थियों को भाषा के अंगों, हिन्दी भाषा के उद्भव तथा विकास और देवनागरी लिपि के स्वरूप की जानकारी कराना एवं उन्हें हिन्दी की वैज्ञानिक एवं संवैधानिक स्थिति से परिचित कराना।

➤ बी.ए. तृतीय वर्ष षष्ठ सेमेस्टर सेमेस्टर के द्वितीय प्रश्नपत्र 'लोक साहित्य एवं लोक संस्कृति' के अंतर्गत विद्यार्थियों को भारतीय संस्कृति में जनश्रुति से निर्मित साहित्य के महत्वपूर्ण योगदान से विद्यार्थियों को परिचित कराना तथा लोक संस्कृति के विकास क्रम से विद्यार्थियों को अवगत कराना।

## Political Science

### Program Outcome (After 3 Years):

After the completion of three year course the student is expected to exhibit a fairly detailed understanding of the basic ideas, concepts, institutions, processes of politics and government at national, regional and international levels. Besides the programme has ability enhancing courses which provide the learner opportunities to explore subjects beyond the discipline of political science. Further he would be able to appreciate and cultivate

(i) Values, ethics, rights and duties

(ii) Capacity and ability to apply theoretical knowledge in problem solving

(iii) Effective communication skills to negotiate and comprehend different situations

(iv) Interdisciplinary method of critical thinking

(v) A general understanding about how knowledge of politics and how that can be applied to benefit the management and/or amendment of problems of mankind.

(vi) Capability to articulate ideas in appropriate manner.

(vii) Sensitivity towards diverse contexts, ethnic groups, minorities, marginalized groups and gender issues.

### Course Outcome:

**(1) Course Code - A060101T      Course Title- Indian National Movement & Constitution of India**

Acquaintance of the Inspirations of Indian National Movement & Constitution is indispensable for a student to make a sense of Indian Political System. The course is designed to provide a overview of Indian freedom Struggle and key concepts of the Indian constitution to the student, which would evolve him into a conscientious citizen.

**(2) Course Code - A060102P      Course Title - Awareness of Rights & Laws**



Course Outcome- This paper intends to arm the student with basic digital and legal awareness where by the student can leverage this in the job market. It also intends to make the student aware of his basic legal rights which would help him to stand up and help others

**(3) Course Code - A060201T                      Course Title - Political Theory & Concepts**

Course Outcome-Understanding Political theory is integral and indispensable for a comprehensive and critical study of political science. The course is designed to train a student in the foundational issues of political theory, which is relevant for any in depth study and research.

**(4) Course Code - A060301T                      Course Title - Political Process in India**

Course Outcome: Study of the functioning of Indian Democratic System is essential for a comprehensive understanding of the Indian Political System. The course is designed to train & acclimatize the student with the Indian Political System in action and explain the working relationship between citizens and state and among various units of the state. The student would be able to appreciate the trajectory of the Indian political system since independence.

**(5) Course Code - A060302P                      Course Title - Field Work Tradition In Social Sciences**

Course Outcome : This paper intends to train students in carrying out empirical studies and field work which would help him in research. This would sensitize him to the precautions that is required to carry a empirical study on socially relevant topics.

**(6) Course Code - A060401T                      Course Title - Western Political Thought**

This course introduces the students to the ancient, medieval and modern political thinking in the West. This would help them understand the manner in which ideas pertaining to ideal state, kingship, duties of the ruler and the ruled, rights, liberty, equality, and justice have evolved over a period of time.

**(7) Course Code -A060501T                      Course Title -Comparative Government And Politics UK, USA, Switzerland & China**

Course Outcome :Politics is the mirror of the society. This paper will help the student in furthering his understanding of the world around. This would help him to appreciate other systems and make him critically analyze the pros and cons of these systems. Comparison is widely used method of scientific knowledge. This would help the student to find out why a certain system is appropriate and suitable to a given society.

**(8) Course Code - A060502T                      Course Title - Principles of Public Administration**

Course Outcome :Administration being essential to every organization, this course aims to acquaint a student with fundamentals of public administration to. This would provide him an insight regarding the principles of administration in general and help him to bring out the best from existing set up. This would help him to prepare for administrative examinations too.

**(9) Course Code - A060503P                      Course Title - Public Policy Formulation & Administration in India**

Course Outcome: It aims to provide interface between public policy and administration in India. The essence of this paper is to appreciate the translation of governing philosophy into programmes and policies. Students will be able to understand Political Process as well as Policy formulation process and the difficulties in implementing Programmes and Policies promised in Manifestoes.

**(10) Course Code - A060504R**

**Course Title - PROJECT WORK**

Course Outcome- This paper intends to develop a comprehensive insight in the students so that given an opportunity they can initiate a minor research proposal or attempt a minor dissertation on their area of interest .

**(11) Course Code - A060601T**

**Course Title - Indian Political Thought**

This course is to familiarize the students with the larger political and social thinking and ideas in Modern India. Designed in a way to help students engage with various ideological dispensations that came to shape the normative thinking on India.

**(12) Course Code - A060602T**

**Course Title International Relations & Politics**

Course Outcome- This course seeks to equip students the basic tools for understanding International relations.It also introduces major events and developments that have shaped the contemporary international system.It aims to capture the changing dynamics of the international politics by taking up burning and relevant issues which have potential to alter its contours.

**(13) Course Code - A060603R**

**Course Title PROJECT WORK**

Course Outcome- This paper intends to develop a comprehensive insight in the students so that given an opportunity they can initiate a minor research proposal or attempt a minor dissertation on their area of interest.

## **Economics**

The Course is designed for the students pursuing graduation with Economics at graduation level in regular mode. The programme aims to inculcate economic thinking among the students in economic decision making by comprehending economic theory. It aims to develop analytical view point in the students about the economic behaviour of people. The objective is to nurture among student a view point of a socially responsible and ethical aware citizen. The under graduate programme will have 12 courses in 6 Semesters in 3 years. In the Fifth and the Sixth Semester 01 paper is given as optional. In the Fifth Semester it is proposed to have Dissertation/Project keeping in the spirit of the New Education Policy 2020 to introduce research at the graduation level. The structure of syllabus is based on the template of UGC proposed for the CBCS for undergraduates in Economic (Regular).

Programme Specific Outcomes (PSOs)- Student after completing graduation will be able to learn-

PSO 1:	The behavioural patterns of different economic agents, advance theoretical issues and their applications.
PSO 2:	Understand the basic concept of microeconomics.
PSO 3:	Understanding basic concepts of Macroeconomics.
PSO 4:	Acquaint with some basic statistical methods to be applied in economics.
PSO 5:	Acquaint with some basic mathematical methods to be applied in economics.
PSO 6:	Acquaint with some basic theoretical concept of public finance.
PSO 7:	Acquaint with the measurement of development with the help of theories along with the conceptual issues of poverty and inequalities with Indian perspectives.
PSO 8:	Delineate the fiscal policies designed for developed and developing economics.
PSO 9:	Facilitate the historical developments in the economic thoughts propounded by different schools. To familiarise students with the contribution of Indian Economic Thinkers and the relevance of their contribution.
PSO 10:	Learn the basic concept of monetary analysis and financial marketing in Indian financial markets.
PSO 11:	Learn the development issues of Indian economy.
PSO 12:	Acquaint with some basic concept of environmental economics along with the solution of the environmental problems.
PSO 13:	Learn the real and monetary sides of International economics.
PSO 14:	Familiarise and acquaint with the characteristics of the economy of Uttar Pradesh.
PSO 15:	To familiarize the students about issues of ethics in economic thinking and practice.

## Course Outcome:

(1)

Course Code: A080101T

Course Title: Principle of Micro Economics

Course Outcome:

- The students is familiarised and acquainted with basic concepts of microeconomics such as laws of demand and supply and elasticity etc so that he/she can comprehend them & familiarise with day today happenings.
- The students learn and understand the concepts of consumer behaviour like cardinal utility and ordinal utility analysis.
- The students learn and understand application of Indifference curve analysis in deriving demand curves, price effect, income effect and substitution effect.
- The students learn and understand the Theory of production- iso-quants, laws of returns to scale, law of variable proportion.
- The students learn, understand and compare between the Traditional and modern theory of cost.
- Demonstrate an understanding, usage and application of basic economic principles.
- Describe and apply the methods for analyzing consumer behavior through demand and supply, elasticity and marginal utility.
- Understand the role of alternative property rights in resource allocation.
- To analyze the behavioral patterns of different economic agents regarding profit, price, cost etc.
- The decision-making process in different market situations such as perfect competition, monopolistic competition, monopoly and oligopoly markets.
- To deal with the advance theoretical issues and their practical applications of distribution theories.
- General equilibrium, economic efficiency and market failure.

(2)

Course Code: A080201T

Course Title: Macro Economics

Course Learning Outcomes

- Explains national income, calculation methods of national income, and concepts related to national income.
- Relates factors determine national income such as consumption, saving and investment.
- Interprets macroeconomic issues such as money, foreign exchange, inflation,unemployment, economic growth, and foreign trade.
- Identify types of banks, explain the meaning and function of commercial banks.
- illustrate how banks create credit, and suggest the instruments to control credit.
- Analyze different phases of trade cycle, demonstrate various trade cycle theories, understand the impact of cyclical fluctuation on the growth of business, and lay policies to control trade cycle.

(3)

Course Code: A080301T	Course Title: History of Economic Thought
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**Course outcomes**

- To learn and discuss, at an advanced undergraduate level, how the economic thought has evolved over time.
- Introducing students to the critical comparison of the contributions of the main schools of economics.
- To introduce & highlight before the students about Indian Economic Thinkers and their valuable contribution in the field of Economics.
- The classical, the marginalize revolution and its application to the theories of general and partial equilibrium, the current macroeconomic debate between the neo-classical and the Keynesian school

(4)

Course Code: A080401T	Course Title: Money, Banking and Public Finance
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- Understand simple concepts related with monetary economics and banking theory.
- Correlate and apply to current events & key models and concepts of monetary economics and banking theory.
- Appreciate the potential importance of monetary phenomenon in the economy.
- Understand the sources of finance both public and private
- Demonstrate the role of government to correct market failures and possible advantage of public financing.
- Understand the possible burden, benefits and distribution of various types of taxes among various classes of people, know the general trend and impact on general welfare and arouse them to suggest good and bad tax system.

(5)

Course Code: A080501T	Course Title: Environmental Economics, Economic Growth and Development
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**Course outcomes**

- Basic concepts of ecology environment and economy
- Public good, Market failure, externalities and internalization of externalities
- Solution to environmental problems- the command and control approach, market based methods, tax tradable pollution permit, etc, carbon trading
- Sustainable development, environmental impact assessment CO 5: Global and local environmental concerns.
- It will be focussed on Local Issues of Economic Bearing.
- Realize the importance and influence of environment on the economy including the quality of manpower.
- Arouse their feelings to make cleaner environment so as to achieve harmonious development.

- Understand that environmental problem is not the problem of a single country or region but a global problem/issue.
- To understand specific contributions on themes of economic analysis and concerning figures of economists still important in the international economic debate at the international level, through selected readings of their texts and linking the different positions of economic thought to philosophical foundations and political implications. Demonstrate theoretical and empirical analysis of economic growth process.
- Demonstrate an understanding of economic growth theory, development and policy implications.
- Demonstrate an awareness of economic growth problems, issues in globalisation, and provide grounding in major growth strategies and development.
- Apply empirical analysis of growth models to developing countries and/or regions, and draw appropriate policy recommendations”

(6)

Course Code: A080502T	Course Title: Elementary Mathematics
<b>Course outcomes</b>	
<ul style="list-style-type: none"> <li>• Demonstrate the role of quantitative techniques in the field of business/industry.</li> <li>• Illustrate different types of equations, solve equations and system of equations, understand the concept of sets.</li> <li>• Illustrate and apply basic set operations.</li> <li>• If taken by the student then he can apply the basic concept learned in this paper to qualitatively enhance Dissertation/Project.</li> </ul>	

(7)

Course Code: A080503T	Course Title: Demography
<b>Course outcomes</b>	
<ul style="list-style-type: none"> <li>• To orient the students with the positive aspects of population and how it can help in the Economic Development of the nation</li> <li>• To orient the students with various Quantitative and qualitative aspects of population and various demographic Techniques.</li> <li>• To expose the students to recent concepts and developments in Demography.</li> </ul>	

(8)

Course Code: A080601T	Course Title: Indian Economy & Economy of Uttar Pradesh
<b>Course Outcome</b>	
<ul style="list-style-type: none"> <li>• Develop ideas of the basic characteristics of Indian economy,</li> <li>• Its potential on natural resources.</li> <li>• Understand the importance, causes and impact of population growth and its distribution, translate and relate them with economic development.</li> <li>• Natural resource, population, urbanization and occupational distribution of Uttar Pradesh</li> </ul>	

- Agriculture sector of Assam CO 3:  
Industrial sector of Assam
- Infrastructure of Assam including social infrastructure
- Human resource development, unemployment, immigration, flood and erosion, problems of agriculture labourers, border area development

(9)

Course Code: A080602T	Course Title: Ethics and Economics
<b>Course Outcome</b>	
<ul style="list-style-type: none"> <li>• To help the students to recognize legal and ethical issues when making business decisions.</li> <li>• To gain an enhanced understanding of following ethical rules and ethical constraints.</li> <li>• To improve analytical problem solving and ethical decision making skills.</li> <li>• Have a good command of the conceptual vocabulary of policy-making and policy-analysis.</li> <li>• Distinguish between ethical, economic and political dimensions of public policy.</li> </ul>	

(10)

Course Code: A080603T	Course Title: Elementary Mathematics
<b>Course Outcome</b>	
<ul style="list-style-type: none"> <li>• Work with matrices and determine if a given square matrix is invertible.</li> <li>• Learn to solve systems of linear equations and application problems requiring them.</li> <li>• Learn to compute determinants and know their properties.</li> <li>• Learn to find and use values of a matrix in economics.</li> <li>• Learn about and work with vector spaces and subspaces.</li> </ul>	

## English

- Demonstrate comprehension of and listener response to aural and visual information
- Comprehend and contextualise contemporary films adapted from literature, to describe objectively its importance and usefulness for the society while analysing its plot and characters.
- Comprehend translation as a useful bridge between various linguistic regions
- Assist students in the development of intellectual flexibility, creativity, and cultural literacy so that they may engage in life-long learning

- Acquire basic skills to pursue translation as research and career
- Introduce the learners to the nuances of the changing media scenario in terms of production of media content
- Inculcate in them the skills of reporting, editing and feature writing in print medium to have a career perspective in media and journalism.
- Deepen knowledge in English literature for higher studies
- Help the students to prepare for competitive exams
- Create a possibility to emerge as prospective writers, editors, content developers, teachers etc.

Course Code: - **A040101T**

Course Title:  
**English Prose and Writing Skills**

**Course Outcomes:**

After completing this course, the students will be able to:

- Understand Indian English Writing as a new form of Indian culture and voice in which India converses regularly. They will be able to understand contributions of various authors in the growth of Indian English Writing.
- Understand the formal qualities of a text, intricacies of structure, stylistics and figurative elements found in the text.
- Analyse the difference in the prose techniques of different writers like Addison, Lamb and Bacon.
- Make use of word choices, word order, figurative language and imagery to convey meaning/emotion.
- Identify the writings of classic prose and short story writers like Chekhov, Maupassant and O' Henry.
- Understand the prominence of logic and reason in the 18th century British literature.
- Describe the literary terms related to prose.
- Get a wide exposure of eminent writers like Kalam, Amartya Sen, Anita Desai, Woolf and M.R. Anand.
- Understand the social, historical and political backgrounds of the short story writers like Anton Chekhov through the elaborate and allegorical descriptions in the prescribed text.
- Identify the content, language, style, tone and structure of the essays and short story.



- Comprehend the culture, author's biography and historical context of the prescribed prose works.
- Perform basic functions of a word processor, Excel spreadsheet and PowerPoint presentation practically.
- Do online communication like content writing and blogging.
- Do official communication by writing official letters/complaint letters.
- Practically explore their creative genius in creating blogs and personal websites for vocational purposes

**(2)**

Course Code: - <b>A040201T</b>	Course Title: <b>English Poetry</b>
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**Course Outcomes:**

After completing this course, the students will be able to:

- Understand the basic terminology and practical elements of poetry
- Comprehend the meaning of words, phrases and sentences in a given context
- Analyse the underlying meaning of a poem by using the elements of poetry
- Identify the representative poets and writers of 16th, 17th, 18th and 19th and 20th century
- Identify the devices used by the poet, the mood, the atmosphere, the voice, the stanzaic form, rhyme pattern and metre scheme
- Examine the difference between Shakespearean and Miltonic sonnet forms
- Comprehend the experimental poetry of Metaphysical age and the characteristics of Neo-classical poetry
- Reflect on didactic human values as virtually mirrored in Thomas Gray's poem
- Understand the concept of nature as stated by the romantic poets in literature
- Appreciate the simplicity and lucidity of expression of poets in romantic literature
- Understand the literary terms used by the Victorian poets
- Analyse the existing conflict between faith and doubt in Victorian society
- Discuss the significance of the literary period of the text by analysing the effects of the major events of that period
- Understand the difference between reason and imagination, literature and revolution
- Exposed to the trends in 20th century poetry of Eliot, Yeats and Larkin

**(3)**

Course Code: - <b>A040301T</b>	Course Title: <b>British and American Drama</b>
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**Course Outcomes:**

After completing this course, the students will be able to:

- Develop an understanding of various types of drama & related literary terms
- Learn the core elements of structure such as exposition, complication and resolution or denouement
- Trace the origin and growth of drama in England and America
- Comprehend the political, economic, social and intellectual background leading to the rise of drama in England and America
- Analyse and appreciate the representative works of British and American Drama
- Comprehend the general features of Shakespearean plays
- Develop an interest in Shakespearean language, his use of images, supernatural elements, music and the word play
- Demonstrate the ability to contextualize the works of American dramatists, interpret the thematic and stylistics elements of the plays and appreciate their literary worth, social relevance and timeless appeal
- Comprehend the trends in modern drama through the study of poetic drama and problem plays

**(4)**

Course Code: - <b>A040401T</b>	Course Title: <b>Indian Literature in Translation</b>
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**Course Outcomes:**

After completing this course, the students will be able to:

- Develop a comparative perspective to study the texts
- Understand the history of translation and various forms of translations
- Analyse the translation tools to make use of technology like computer and mobile in the process of translation
- Attain accessibility to regional literary forms
- Contextualize the texts of Jaishankar Prasad, Amrita Pritam, and Tagore in their respective social and cultural milieu
- Develop an insight into the philosophy of Kabir through his verses
- Gain a historical vision of the partition trauma and the contemporary issues of the tribal people through the writings of Bhisham Sahni and Mahasweta Devi

- Develop an insight about Indian familial conflicts and social evils
- Enhance job opportunities by fostering translation skills
- Understand Indian consciousness and review the past through translated texts

(5)

Course Code: - <b>A040501T</b>	Course Title: <b>Classical Literature &amp; History of English Literature</b>
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**Course Outcomes:**

After completing this course, the students will be able to:

- Develop an understanding of the historical background of Greek and Roman literature and history
- Recognise the great works of unparalleled classical writers like Plato, Homer and Sophocles
- Develop an understanding of the evolution of English Literature, the concept, causes and impact of Renaissance and Reformation
- Trace the origin and development of English drama through Miracle and Morality plays and the plays of University Wits
- Develop an acquaintance with major religious, political and social movements from 15th to 20th century and their influence on English literature
- Comprehend the basic difference and special characteristics of the major literary tendencies of various ages and develop familiarity with major literary works by British writers in the field of Poetry, Drama and Fiction
- Understand the characteristics of Elizabethan and Metaphysical poetry and special features of Neo-classical age and its literature
- Identify the reasons of the emergence of prose and novels and the decline of drama in England in the 18th century
- Comprehend the role of French Revolution in the evolution of romanticism in English literature
- Interpret the characteristics of Victorian age and the growth of literature in the age
- Appreciate the special characteristics of the poetry of Pre-Raphaelites and Naughty-Nineties
- Comprehend the trends in the poetry, drama and fiction of 20th century English literature

(6)

Course Code: - <b>A040502T</b>	Course Title: <b>Fiction</b>
<b>Course Outcomes:</b> After completing this course, the students will be able to: <ul style="list-style-type: none"><li>• Develop an understanding of the growth of novel form and its various types</li><li>• Enhance their reading skills and understand how to represent their experience and ideas critically, creatively, and persuasively through the medium of English language</li><li>• Get acquainted with different cultures, myths and social conservation through the reading of selected novels of Britain, America and India</li><li>• Learn human values and behavioural pattern from the prescribed novels and develop an understanding of the human race</li><li>• Exposed to the unflattering portrayal of the contemporary Indian society through popular works of Indian fiction writers in English</li></ul>	

(7)

Course Code: - <b>A040601T</b>	Course Title: <b>Indian &amp; New Literatures in English</b>
<b>Course Outcomes:</b> After completing this course, the students will be able to: <ul style="list-style-type: none"><li>• Develop an understanding of the Indian freedom struggle, the contemporary political, social and economic scenario and the also the trauma of the partition</li><li>• Develop an understanding of the themes, styles and poetic sensibilities of poets like Toru Dutt, Nissim Ezekiel, Jayant Mahapatra and Keki N. Daruwala</li><li>• Critically analyse the drama as a medium of exploration of existing social issues and prejudices through the work of dramatists like Mahesh Dattani and Asif Currimbhoy</li><li>• Understand the socio-cultural-political conditions of the contemporary India as explored in the fiction of writers like Kamala Markandaya</li><li>• Analyse and evaluate the difference in the theme and background of the works of Indian writers in English and the English writers already studied in the previous years</li><li>• Demonstrate, through discussion and writing, an understanding of significant cultural and societal issues presented in Indian English literature</li><li>• Appraise the values and issues arising from colonialism</li><li>• Familiarize themselves with the similar (yet different) socio-historic conditions reflected in the literature of the various colonies</li><li>• Comprehend how 'New Literatures' incorporates very different literary products, each with its own cultural, social and geographical specificity</li></ul>	

- Comprehend and analyse the poetic discourses of poets like Pablo Neruda, Margaret Atwood, Judith Wright, Patrick White and Sujata Bhatt and the variations in their themes, styles and responsiveness
- Address the identity issues and marginalization through a study of the works of Indira Goswami and Naipaul

(8)

Course Code: - <b>A040602T</b>	Course Title: <b>Media and Journalistic Writing</b>
<p><b>Course Outcomes:</b> After completing this course, the students will be able to:</p> <ul style="list-style-type: none"> <li>• Understand different types of journalism and their importance.</li> <li>• Comprehend various principles of mass communication.</li> <li>• Differentiate between various forms of media &amp; journalistic writing and reporting.</li> <li>• Understand the meaning and nature of public speaking.</li> <li>• Identify social media norms and online journalism.</li> <li>• Write in various journalistic formats effectively.</li> <li>• Understand the meaning and nature of public speaking.</li> <li>• Edit reports and create engaging advertisements.</li> </ul>	

## **B.A. in Sociology PROGRAMME SPECIFIC OUTCOMES (PSOs)-**

### **Program Outcome (After 3 Years of Study)**

- a. This course will introduce students to new concepts of Sociology discipline.
- b. These concepts will enhance the conceptual learning and understanding of the basic concepts used in Sociology.
- c. This course will contribute in enriching the vocabulary and scientific temperament of the students.
- d. The course is designed to incorporate all the key concepts of sociology which would enable the learner to develop keen insights to distinguish between the commonsense knowledge and Sociological knowledge.
- e. This course provides comprehensive understanding of Indian society.

#### **(1) Course Code A070101T**

#### **Course Title Introduction to Basic Concepts of Sociology**

Course Outcomes: This paper will introduce students to new concepts of Sociology discipline. These concepts will enhance the conceptual learning and understanding of the basic concepts used in Sociology. This paper will contribute in enriching the vocabulary and scientific temperament of the students. The course is designed to incorporate all the key concepts of sociology which would enable the learner to develop keen insights to distinguish between the commonsense knowledge and Sociological knowledge.

#### **(2) Course Code -A070201T**

#### **Course Title Society in India: Structure, Organization & Change.**

Course Outcomes: This paper is designed in this manner, so that students are introduced to the concepts related to Indian Society. They are made familiar with the Indian Society, its linkages and continuity with past and present. It also gives insights to analyze contemporary Indian society. This paper provides comprehensive understanding of Indian society.

#### **(3) Course Code- A070202P**

#### **Course Title-Writing skill development on topics of Contemporary Sociological Importance**

Course Outcomes: This is the practical paper introduced in the second semester of the certificate course in order to develop writing skills among the students of Sociology. This would enhance and inculcate the analytical skills among the students. The paper is designed to enrich the conceptual vocabulary of the students, such that they are equipped with the writing style in Sociology. This paper is presumably beneficial for the students who are interested in the field of Media, Journalism, Essay writer, Column writer, Psephology, Journalism.

#### **(4) Course Code A070301T**

#### **Course Title Social Change and Social Movement in India**

Course Outcomes: This paper is designed in a manner, so that students are introduced to the concepts related to Social change and Social Movement. This course will introduce students to the dynamic aspect

and dissension tendencies of society. The critical evaluation would enable students to come out with better suggestions, contributing in cohesion of society.

**(5) Course code- A070401T      Course Title -Social Problems &Issues of Development in India**

Course Outcomes: The syllabus is designed to introduce students to the emerging social problems, the concept and issues of development in Indian Society. The course intends to focus upon the deviant and delinquent behaviour, issue of corruption and other disorganizational and structural problems of Indian Society. The endeavour of the course is to make learners aware about the social problems and developmental issues in the Indian Society.

**(6) Course code- A070401R      Course title- Project on Sustainable Society**

Course Outcomes: The syllabus designed to introduce students to the emerging social problems and the concept and issues of development in Indian Society. The project work will engage students directly in practical knowledge about the conducting research project. This project work will help learners to know about the issue of sustainability and policies & programmes.

**(7) Course code- A070501T      Course title- Classical Sociological Thought**

Course Outcomes: The course syllabus is designed to help students to know about the classical contributions of Pioneers of Sociology. The paper will focus upon the history of Sociology and the intellectual traditions originated during the crisis in Europe and the impact it had on the structures of society. The learner will gain theoretical as well as methodological knowledge about the subject.

**(8) Course code -A070502T      Course -Research Methodology in Social Sciences**

Course Outcomes: The course of Research Methodology in Social Sciences/Sociology is structured in a way that it makes student to understand and comprehend the research problems, research techniques and nevertheless course intends to develop objective as well as subjective enquiry into the areas of Sociological studies. The main purpose of the course is to develop scientific and humanistic approach towards the research work in the subject.

**(9) Course code A070503P      Course- Application of Research Methodology/Project Work**

Course Outcomes: Research Methodologies comprise important part in the course structure of Sociology, hence the course is designed in such a way that student will learn the basic and useful techniques of research which will be beneficial in exploring the research questions and formulation of Research Design. The student will learn how to construct schedules, questionnaire and applicability of other research methods.

**(10) Course code- A070601T      Course -Pioneers of Indian Sociology**

Course Outcomes: The course outline has been delineated in a manner that the student of Sociology is able to gather knowledge about the esteemed Indian Pioneers of Sociology, who largely used indigenous methodology to understand the Indian society and its complexities. The learner will be able to grasp information and knowledge about the approaches and theoretical framework adopted by the Indian Sociologists and simultaneously they will know about the History of Sociology in India and Sociological traditions.

**(11) Course code -A070602T****Course- Gender and Society**

Course Outcomes: This course is gender sensitive and is directed towards engaging students to learn and rethink about the gender issues. The course will introduce students to the core gender issue and will equip them to come with suggestions which would be directed towards gender equity.

**(12) Course code- A070603R****Course- Field Work/Case Study/ Project Work**

Course Outcomes: The syllabus is designed to introduce students to get themselves engaged in the field work and project work so that they are equipped with the practical knowledge about the field work and research project. This will be an empirical learning for those who aspire to become future Social Scientists.

## 2) Mathematics

**(i) Differential Calculus & Integral Calculus**

CO1: The programme outcome is to give foundation knowledge for the students to understand basics of mathematics including applied aspect for developing enhanced quantitative skills and pursuing higher mathematics and research as well. CO2: By the time students complete the course they will have wide ranging application of the subject and have the knowledge of real valued functions such as sequence and series. They will also be able to know about convergence of sequence and series. Also, they have knowledge about curvature, envelope and evolutes and trace curve in polar, Cartesian as well as parametric curves. CO3: The main objective of the course is to equip the student with necessary analytic and technical skills. By applying the principles of integral he learns to solve a variety of practical problems in science and engineering. CO4: The student is equipped with standard concepts and tools at an intermediate to advance level that will serve him well towards taking more advance level course in mathematics.

**(ii) Practical**

CO1: The main objective of the course is to equip the student to plot the different graph and solve the different types of equations by plotting the graph using different computer software such as Mathematica /MATLAB /Maple /Scilab/Maxima etc. CO2. After completion of this course student would be able to know the convergence of sequences through plotting, verify Bolzano-Weierstrass theorem through plotting the sequence, Cauchy's root test by plotting  $n$ th roots and Ratio test by plotting the ratio of  $n$ th and  $(n + 1)$ th term. CO3. Student would be able to plot Complex numbers and their representations, Operations like addition, subtraction, Multiplication, Division, Modulus and Graphical representation of polar form. CO4: Student would be able to perform following task of matrix as Addition, Multiplication, Inverse, Transpose, Determinant, Rank, Eigenvectors, Eigenvalues, Characteristic equation and verification of the Cayley-Hamilton theorem, Solving the systems of linear equations.

**(iii) Matrices and Differential Equations & Geometry**

CO1: The subjects of the course are designed in such a way that they focus on developing mathematical skills in algebra, calculus and analysis and give in depth knowledge of geometry, calculus, algebra and other theories. CO2: The student will be able to find the rank, eigen values of matrices and study the linear homogeneous and non-homogeneous equations. The course in differential equation intends to



develop problem solving skills for solving various types of differential equation and geometrical meaning of differential equation. CO3: The subjects learn and visualize the fundamental ideas about coordinate geometry and learn to describe some of the surface by using analytical geometry. CO4: On successful completion of the course students have gained knowledge about regular geometrical figures and their properties. They have the foundation for higher course in Geometry.

#### (iv) Algebra & Mathematical Methods

CO1: Group theory is one of the building blocks of modern algebra. Objective of this course is to introduce students to basic concepts of Group, Ring theory and their properties. CO2: A student learning this course gets a concept of Group, Ring, Integral Domain and their properties. This course will lead the student to basic course in advanced mathematics and Algebra. CO3: The course gives emphasis to enhance students' knowledge of functions of two variables, Laplace Transforms, Fourier Series. CO4: On successful completion of the course students should have knowledge about higher different mathematical methods and will help him in going for higher studies and research.

#### (v) Differential Equations & Mechanics

CO1: The objective of this course is to familiarize the students with various methods of solving differential equations, partial differential equations of first order and second order and to have qualitative applications. CO2: A student doing this course is able to solve differential equations and is able to model problems in nature using ordinary differential equations. After completing this course, a student will be able to take more courses on wave equation, heat equation, diffusion equation, gas dynamics, non linear evolution equation etc. These entire courses are important in engineering and industrial applications for solving boundary value problem. CO3: The object of the paper is to give students knowledge of basic mechanics such as simple harmonic motion, motion under other laws and forces. CO4: The student, after completing the course can go for higher problems in mechanic such as hydrodynamics, this will be helpful in getting employment in industry.

#### (vi) Group and Ring Theory & Linear Algebra

CO1: Linear algebra is a basic course in almost all branches of science. The objective of this course is to introduce a student to the basics of linear algebra and some of its applications. CO2: Students will be able to know the concepts of group, ring and other related properties which will prepare the students to take up further applications in the relevant fields. CO3: The student will use this knowledge in computer science, finance mathematics, industrial mathematics and bio mathematics. After completion of this course students appreciate its interdisciplinary nature.

#### (vii) Graph Theory & Discrete Mathematics

CO1: Upon successful completion, students will have the knowledge of various types of graphs, their terminology and applications. CO2: After Successful completion of this course students will be able to understand the isomorphism and homomorphism of graphs. This course covers the basic concepts of graphs used in computer science and other disciplines. The topics include path, circuits, adjacency matrix, tree, coloring.. After successful completion of this course the student will have the knowledge graph coloring, color problem, vertex coloring. CO3: After successful completion, students will have the knowledge of Logic gates, Karnaugh maps and skills to proof by using truth tables. After Successful completion of this course students will be able to apply the basics of the automation theory, transition

function and table. CO4: This course covers the basic concepts of discrete mathematics used in computer science and other disciplines that involve formal reasoning. The topics include logic, counting, relations, hasse diagram and Boolean algebra. After successful completion of this course the student will have the knowledge in Mathematical reasoning, combinatorial analysis, discrete structures and Applications.

(vii) Differential Geometry & Tensor Analysis

CO1: After Successful completion of this course, students should be able to determine and calculate curvature of curves in different coordinate systems. CO2: This course covers the Local theory of Curves, Local theory of surfaces, Geodesics, Geodesics curvature, Geodesic polars, Curvature of curves on surfaces, Gaussian curvature, Normal curvature etc. CO3: After Successful completion of this course, students should have the knowledge of tensor algebra, different types of tensors, Riemannian space, Ricci tensor, Einstein space and Einstein tensor etc.

(i) METRIC SPACES & COMPLEX ANALYSIS

CO1: The course is aimed at exposing the students to foundations of analysis which will be useful in understanding various physical phenomena and gives the student the foundation in mathematics. CO2: After completion of this course the student will have rigorous and deeper understanding of fundamental concepts in Mathematics. This will be helpful to the student in understanding pure mathematics and in research. CO3: Students will be able to know the concepts of metric space, basic concepts and developments of complex analysis which will prepare the students to take up further applications in the relevant fields.

(ii) Numerical Analysis & Operation Research

Course outcomes: CO1: The aim of this course is to teach the student the application of various numerical technique for variety of problems occurring in daily life. At the end of the course the student will be able to understand the basic concept of Numerical Analysis and to solve algebraic and differential equation. CO2: The main outcome will be that students will be able to handle problems and finding approximated solution. Later he can opt for advance course in Numerical Analysis in higher Mathematics. CO3: The student will be able to solve various problems based on convex sets and linear programming. After successful completion of this paper will enable the students to apply the basic concepts of transportation problems and its related problems to apply in further concepts and application of operations research.

# Chemistry

## (Course Outcome)

5. Students will appreciate the central role of chemistry in our society and use this as a basis for ethical behavior in issues facing chemists including an understanding of safe handling of chemicals, environmental issues and key issues facing our society in energy, health and medicine.
6. Students will be able to explain why chemistry is an integral activity for addressing social, economic, and environmental problems.
7. Students will be able to function as a member of an interdisciplinary problem solving team.

2)

Paper-1	Theory	Subject: <b>Chemistry</b>
Course Code: B020101T	<b>Course Title: Fundamentals of Chemistry</b>	
<b>Course outcomes:</b> There is nothing more fundamental to chemistry than the chemical bond. Chemical bonding is the language of logic for chemists. Chemical bonding enables scientists to take the 100-plus elements of the periodic table and combine them in myriad ways to form chemical compounds and materials. Periodic trends, arising from the arrangement of the periodic table, provide chemists with an invaluable tool to quickly predict an element's properties. These trends exist because of the similar atomic structure of the elements within their respective group families or periods, and because of the periodic nature of the elements. Reaction mechanism gives the fundamental knowledge of carrying out an organic reaction in a step-by-step manner. This course will provide a broad foundation in chemistry that stresses scientific reasoning and analytical problem solving with a molecular perspective. Students will gain an understanding of		
<ul style="list-style-type: none"><li>• Molecular geometries , physical and chemical properties of the molecules.</li><li>• Current bonding models for simple inorganic and organic molecules in order to predict structures and important bonding parameters.</li><li>• The chapter Recapitulation of basics of organic chemistry gives the most primary and utmost important knowledge and concepts of organic Chemistry.</li><li>• This course gives a broader theoretical picture in multiple stages in an overall chemical reaction. It describes reactive intermediates , transition states and states of all the bonds broken and formed .It enables to understand the reactants, catalyst , stereochemistry and major and minor products of any organic reaction.</li><li>• It describes the types of reactions and the Kinetic and thermodynamic aspects one should know for carrying out any reaction and the ways how the reaction mechanism can be determined.</li><li>• The chapters Stereochemistry gives the clear picture of two-dimensional and three-dimensional structure of the molecules, and their role in reaction mechanism.</li></ul>		

3)

Course Code: B020102P	<b>Course Title: Quantitative Analysis</b>
<b>Course outcomes:</b>	
<p>Upon completion of this course the students will have the knowledge and skills to: understand the laboratory methods and tests related to estimation of metals ions and estimation of acids and alkali contents in commercial products.</p> <ul style="list-style-type: none"> <li>• Potability tests of water samples.</li> <li>• Estimation of metal ions in samples</li> <li>• Estimation of alkali and acid contents in samples</li> <li>• Estimation of inorganic salts and hydrated water in samples</li> </ul>	

4)

Course Code: B020201T	<b>Course Title: Bioorganic and Medicinal Chemistry</b>
<b>Course outcomes:</b> Biomolecules are important for the functioning of living organisms. These molecules perform or trigger important biochemical reactions in living organisms. When studying biomolecules, one can understand the physiological function that regulates the proper growth and development of a human body. This course aims to introduce the students with basic experimental understanding of carbohydrates, amino acids, proteins, nucleic acids and medicinal chemistry. Upon completion of this course students may get job opportunities in food, beverage and pharmaceutical industries.	

5)

Subject: Chemistry	
Course Code: B020202P	Course Title: Biochemical Analysis
<b>Course outcomes:</b> This course will provide basic qualitative and quantitative experimental knowledge of biomolecules such as carbohydrates, proteins, amino acids, nucleic acids drug molecules. Upon successful completion of this course students may get job opportunities in food, beverage and pharmaceutical industries.	

6)

Paper-1	Theory	Subject: <b>Chemistry</b>
Course Code: B020301T	<b>Course Title: Chemical Dynamics &amp; Coordination Chemistry</b>	
<b>Course outcomes:</b> Upon successful completion of this course students should be able to describe the characteristic of the three states of matter and describe the different physical properties of each state of matter. kinetic theory of gases, laws of crystallography, liquid state and liquid crystals, conductometric, potentiometric, optical methods, polarimetry and spectrophotometer technique to study Chemical kinetics and chemical equilibrium. After the completion of the course, Students will be able to understand metal- ligand bonding in transition metal complexes, thermodynamic and kinetic aspects of metal complexes.		

7)

Course Code: B020302P	<b>Course Title: Physical Analysis</b>
<b>Course Outcomes:</b> Upon successful completion of this course students should be able to calibrate apparatus and prepare solutions of various concentrations, estimation of components through volumetric analysis; to perform dilatometric experiments: one and two component phase equilibrium experiments.	

8)

Course Code: BO20401T	<b>Course Title: Quantum Mechanics and Analytical Techniques</b>
<b>Course Outcomes::</b> Upon successful completion of this course students should be able to describe atomic structure, elementary quantum mechanics ,wave function and its significance ;Schrodinger wave equation and its applications; Molecular orbital theory, basic ideas – Criteria for forming molecular orbital from atomic orbitals , Molecular Spectroscopy, Rotational Spectrum ,vibrational Electronic Spectrum: photo chemistry and kinetics of photo chemical reaction Analytical chemistry plays an enormous role in our society, such as in drug manufacturing, process control in industry, environmental monitoring, medical diagnostics, food production, and forensic surveys. It is also of great importance in different research areas. Analytical chemistry is a science that is directed towards creating new knowledge so that chemical analysis can be improved to respond to increasing or new demands.	
<ul style="list-style-type: none"><li>• Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.</li><li>• Students will be able to function as a member of an interdisciplinary problem solving team.</li><li>• Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems</li><li>• Students will gain an understanding of how to determine the structure of organic molecules using IR and NMR spectroscopic techniques</li><li>• To develop basic skills required for purification, solvent extraction, TLC and column chromatography</li></ul>	

9)

Course Code: B020402P	<b>Course Title: Instrumental Analysis</b>
<b>Course outcomes:</b> Upon completion of this course, chemistry majors are able to employ critical thinking and scientific inquiry in the performance, design, interpretation and documentation of laboratory experiments, at a level suitable to succeed at an entry-level position in chemical industry or a chemistry graduate program.	
<ul style="list-style-type: none"><li>• Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.</li><li>• Students will be able to function as a member of an interdisciplinary problem solving team.</li><li>• Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems</li><li>• Students will gain an understanding of how to determine the structure of organic molecules using IR and NMR spectroscopic techniques</li><li>• To develop basic skills required for purification, solvent extraction, TLC and column chromatography</li></ul>	

## 10)

Course Code: B020501T	Course Title: <b>Organic Synthesis A</b>
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**Course outcomes:** Hydrocarbons are the principal constituents of petroleum and natural gas. They serve as fuels and lubricants as well as raw materials for the production of plastics, fibers, rubbers, solvents and industrial chemicals. This course will provide a broad foundation in for the synthesis of hydrocarbons. Hydroxy and carbonyl compounds are industrially important compounds The industries of plastics, fibers, petroleum and rubbers will specially recognize this course. Students will gain an understanding of which are used as solvents and raw material for synthesis of drug and other pharmaceutically important compounds.

- Synthesis and chemical properties of aliphatic and aromatic hydrocarbons
- Synthesis and chemical properties of alcohols, halides carbonyl compounds, carboxylic acids and esters
- How to design and synthesize aliphatic and aromatic hydrocarbons.
- How to convert aliphatic and aromatic hydrocarbons to other industrially important compounds
- Functional group interconversion.

## 11)

Course Code: B020502T	Course Title: <b>Rearrangements and Chemistry of Group Elements</b>
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**Course outcomes:** This paper provides detailed knowledge of synthesis of various class of organic compounds and functional groups inter conversion. Organic synthesis is the most important branch of organic chemistry which provides jobs in production & QC departments related to chemicals, drugs, medicines, FMCG etc. industries.

- It relates and gives an analytical aptitude for synthesizing various industrially important compounds.
- This paper also provides a detailed knowledge on the elements present in our surroundings, their occurrence in nature. Their position in periodic table, their physical and chemical properties as well as their extraction. This paper also gives detailed understanding of the s, p, d and f block elements and their characteristics.

## 12)

Course Code: B020503P	Course Title: <b>Qualitative Analysis</b>
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**Course outcomes:**

Upon completion of this course the students will have the knowledge and skills to: understand the laboratory methods and tests related to inorganic mixtures and organic compounds.

- Identification of acidic and basic radicals in inorganic mixtures
- Separation of organic compounds from mixture
- Elemental analysis in organic compounds
- Identification of functional group in organic compounds
- Identification of organic compound

13)

Course Code: B020601T	<b>Course Title: Organic Synthesis B</b>
<p><b>Course outcomes:</b> This paper provides detailed knowledge of synthesis of various class of organic compounds and functional groups inter conversion. Organic synthesis is the most important branch of organic chemistry which provides jobs in production &amp; QC departments related to chemicals, drugs, medicines, FMCG etc. industries.</p> <p>The study of natural products and heterocyclic compounds offers an excellent strategy toward identifying novel biological probes for a number of diseases. Historically, natural products have played an important role in the development of pharmaceutical drugs for a number of diseases including cancer and infection.</p> <ul style="list-style-type: none"><li>• It relates and gives an analytical aptitude for synthesizing various industrially important compounds.</li><li>• Learn the different types of alkaloids, &amp; terpenes etc and their chemistry and medicinal importance.</li><li>• Explain the importance of natural compounds as lead molecules for new drug discovery.</li></ul>	

14)

Course Code: B020602T	<b>Course Title: Chemical Energetics and Radio Chemistry</b>
<p><b>Course outcomes:</b> Upon successful completion of this course students should be able to describe laws of thermodynamics and its applications, phase equilibria of one and two component system, electro chemistry ,ionic equilibrium applications of conductivity and potentiometric measurements</p>	

15)

Course Code: B020603P	<b>Course Title: Analytical Methods</b>
<p><b>Course Outcomes:</b> Upon successful completion of this course students should be able to quantify the product obtained through gravimetric method; determination of <math>R_f</math> values and identification of organic compounds through paper and thin layer chromatography laboratory techniques: perform thermo chemical reactions</p>	

## Physics

### (Course Outcome)

# 1)

Course Code: <b>B010201T</b>	Course Title: <b>Thermal Physics &amp; Semiconductor Devices</b>
<b>Course Outcomes (COs)</b>	

1. Recognize the difference between reversible and irreversible processes.
2. Understand the physical significance of thermodynamical potentials.
3. Comprehend the kinetic model of gases w.r.t. various gas laws.
4. Study the implementations and limitations of fundamental radiation laws.
5. Utility of AC bridges.
6. Recognize the basic components of electronic devices.
7. Design simple electronic circuits.
8. Understand the applications of various electronic instruments.

# 2)

Course Code: <b>B010202P</b>	Course Title: <b>Thermal Properties of Matter &amp; Electronic Circuits</b>
<b>Course Outcomes (COs)</b>	

Experimental physics has the most striking impact on the industry wherever the instruments are used to study and determine the thermal and electronic properties. Measurement precision and perfection is achieved through Lab Experiments. Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for modeling.

# 3)

Course Code: <b>B010301T</b>	Course Title: <b>Electromagnetic Theory &amp; Modern Optics</b>
<b>Course Outcomes (COs)</b>	

1. Better understanding of electrical and magnetic phenomenon in daily life.
2. To troubleshoot simple problems related to electrical devices.
3. Comprehend the powerful applications of ballistic galvanometer.
4. Study the fundamental physics behind reflection and refraction of light (electromagnetic waves).
5. Study the working and applications of Michelson and Fabry-Perot interferometers.
6. Recognize the difference between Fresnel's and Fraunhofer's class of diffraction.
7. Comprehend the use of polarimeters.
8. Study the characteristics and uses of lasers.

# 4)



Course Code: **B010302P**

Course Title: **Demonstrative Aspects of Electricity & Magnetism**

**Course Outcomes (COs)**

Experimental physics has the most striking impact on the industry wherever the instruments are used to study and determine the electric and magnetic properties. Measurement precision and perfection is achieved through Lab Experiments. Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for modeling.

## 5)

Course Code: **B010401T**

Course Title: **Perspectives of Modern Physics & Basic Electronics**

**Course Outcomes (COs)**

1. Recognize the difference between the structure of space & time in Newtonian & Relativistic mechanics.
2. Understand the physical significance of consequences of Lorentz transformation equations.
3. Comprehend the wave-particle duality.
4. Develop an understanding of the foundational aspects of Quantum Mechanics.
5. Study the comparison between various biasing techniques.
6. Study the classification of amplifiers.
7. Comprehend the use of feedback and oscillators.
8. Comprehend the theory and working of optical fibers along with its applications.

## 6)

Course Code: **B010402P**

Course Title: **Basic Electronics Instrumentation**

**Course Outcomes (COs)**

Basic Electronics instrumentation has the most striking impact on the industry wherever the components / instruments are used to study and determine the electronic properties. Measurement precision and perfection is achieved through Lab Experiments. Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for modeling.

## 7)

Course Code: **B010501T**

Course Title: **Classical & Statistical Mechanics**

**Course Outcomes (COs)**

1. Understand the concepts of generalized coordinates and D'Alembert's principle.
2. Understand the Lagrangian dynamics and the importance of cyclic coordinates.
3. Comprehend the difference between Lagrangian and Hamiltonian dynamics.
4. Study the important features of central force and its application in Kepler's problem.
5. Recognize the difference between macrostate and microstate.
6. Comprehend the concept of ensembles.
7. Understand the classical and quantum statistical distribution laws.
8. Study the applications of statistical distribution laws.

## 8)

Course Code: **B010502T**

Course Title: **Quantum Mechanics & Spectroscopy**

### Course Outcomes (COs)

1. Understand the significance of operator formalism in Quantum mechanics.
2. Study the eigen and expectation value methods.
3. Understand the basis and interpretation of Uncertainty principle.
4. Develop the technique of solving Schrodinger equation for 1D and 3D problems.
5. Comprehend the success of Vector atomic model in the theory of Atomic spectra.
6. Study the different aspects of spectra of Group I & II elements.
7. Study the production and applications of X-rays.
8. Develop an understanding of the fundamental aspects of Molecular spectra.

## 9)

Course Code: **B010503P**

Course Title: **Demonstrative Aspects of Optics & Lasers**

### Course Outcomes (COs)

Experimental physics has the most striking impact on the industry wherever the instruments are used to study and determine the optical properties. Measurement precision and perfection is achieved through Lab Experiments. Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for modeling.

## 10)

Course Code: **B010601T**

Course Title: **Solid State & Nuclear Physics**

### Course Outcomes (COs)

1. Understand the crystal geometry w.r.t. symmetry operations.
2. Comprehend the power of X-ray diffraction and the concept of reciprocal lattice.
3. Study various properties based on crystal bindings.
4. Recognize the importance of Free Electron & Band theories in understanding the crystal properties.
5. Study the salient features of nuclear forces & radioactive decays.
6. Understand the importance of nuclear models & nuclear reactions.
7. Comprehend the working and applications of nuclear accelerators and detectors.
8. Understand the classification and properties of basic building blocks of nature.

## 11)

Course Code: <b>B010602T</b>	Course Title: <b>Analog &amp; Digital Principles &amp; Applications</b>
<b>Course Outcomes (COs)</b>	
<ol style="list-style-type: none"> <li>1. Study the drift and diffusion of charge carriers in a semiconductor.</li> <li>2. Understand the Two-Port model of a transistor.</li> <li>3. Study the working, properties and uses of FETs.</li> <li>4. Comprehend the design and operations of SCRs and UJTs.</li> <li>5. Understand various number systems and binary codes.</li> <li>6. Familiarize with binary arithmetic.</li> <li>7. Study the working and properties of various logic gates.</li> <li>8. Comprehend the design of combinational and sequential circuits.</li> </ol>	

**12)**

Course Code: <b>B010603P</b>	Course Title: <b>Analog &amp; Digital Circuits</b>
<b>Course Outcomes (COs)</b>	
<p>Analog &amp; digital circuits have the most striking impact on the industry wherever the electronics instruments are used to study and determine the electronic properties. Measurement precision and perfection is achieved through Lab Experiments. Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for modeling.</p>	

## Botany (Course Outcome)

**1)**

Subject: <b>Botany</b>	
Course Code: <b>B040101T</b>	Course Title: <b>Microbiology &amp; Plant Pathology</b>
<p><b>Course outcomes:</b> After the completion of the course the students will be able to:</p> <ol style="list-style-type: none"> <li>1. Develop understanding about the classification and diversity of different microbes including viruses, Algae, Fungi &amp; Lichens &amp; their economic importance.</li> <li>2. Develop conceptual skill about identifying microbes, pathogens, biofertilizers &amp; lichens.</li> <li>3. Gain knowledge about developing commercial enterprise of microbial products.</li> <li>4. Learn host –pathogen relationship and disease management.</li> <li>5. Learn Presentation skills (oral &amp; writing) in life sciences by usage of computer &amp; multimedia.</li> <li>6. Gain Knowledge about uses of microbes in various fields.</li> <li>7. Understand the structure and reproduction of certain selected bacteria algae, fungi and lichens</li> <li>8. Gain Knowledge about the economic values of this lower group of plant community.</li> </ol>	

**2)**

Course Code: B040102P

Course Title: **Techniques in Microbiology & Plant Pathology**

**Course outcomes:** After the completion of the course the students will be able:

1. Understand the instruments, techniques, lab etiquettes and good lab practices for working in a microbiology laboratory.
2. Develop skills for identifying microbes and using them for Industrial, Agriculture and Environment purposes.
3. Practical skills in the field and laboratory experiments in Microbiology & Pathology.
4. learn to identify Algae, Lichens and plant pathogens along with their Symbiotic and Parasitic associations.
5. Can initiate his own Plant & Seed Diagnostic Clinic
6. Can start own enterprise on microbial products

3)

Course Code: B040201T

Course Title: **Archegoniates and Plant Architecture**

**Course outcomes:**

After the completion of the course the students will be able to:

1. Develop critical understanding on morphology, anatomy and reproduction of Bryophytes, Pteridophytes and Gymnosperms
2. Understanding of plant evolution and their transition to land habitat.
3. Understand morphology, anatomy, reproduction and developmental changes therein through typological study and create a knowledge base in understanding the basis of plant diversity, economic values & taxonomy of plants
4. Understand the details of external and internal structures of flowering plants.

4)

Course Code: B040202P

Course Title: **Land Plants Architecture**

**Course outcomes:**

1. The students will be made aware of the group of plants that have given rise to land habit and the flowering plants. Through field study they will be able to see these plants grow in nature and become familiar with the biodiversity.
2. Students would learn to create their small digital reports where they can capture the zoomed in and zoomed out pictures as well as videos in case they are able to find some rare structure or phenomenon related to these plants.
3. Develop an understanding by observation and table study of representative members of phylogenetically important groups to learn the process of evolution in a broad sense.
4. Understand morphology, anatomy, reproduction and developmental changes therein through typological study and create a knowledge base in understanding plant diversity, economic values & taxonomy of lower group of plants
5. Understand the composition, modifications, internal structure & architecture of flowering plants for becoming a Botanist.

5)

Subject: **Botany**

Course Code: B040301T

Course Title: **Flowering Plants Identification & Aesthetic Characteristics**

**Course outcomes:**

After the completion of the course the students will be able to:

1. To gain an understanding of the history and concepts underlying various approaches to plant taxonomy and classification.
2. To learn the major patterns of diversity among plants, and the characters and types of data used to classify plants.
3. To compare the different approaches to classification with regard to the analysis of data.
4. To become familiar with major taxa and their identifying characteristics, and to develop in depth knowledge of the current taxonomy of a major plant family.
5. To discover and use diverse taxonomic resources, reference materials, herbarium collections, publications.
6. For the entrepreneur career in plants, one can establish a nursery, Start a landscaping business, Set up a farm Or Run a plantation consultancy firm

6)

Course Code: B040302P	Course Title: <b>Plant Identification technology</b>
<p><b>Course outcomes:</b> After the completion of the course the students will be able:</p> <ol style="list-style-type: none"> <li>1. To learn how plant specimens are collected, documented, and curated for a permanent record.</li> <li>2. To observe, record, and employ plant morphological variation and the accompanying descriptive terminology.</li> <li>3. To gain experience with the various tools and means available to identify plants.</li> <li>4. To develop observational skills and field experience.</li> <li>5. To identify a taxonomically diverse array of native plants.</li> <li>6. To recognize common and major plant families.</li> <li>7. To Understand aesthetic characters of flowering plants by making-landscapes,gardens,bonsai,miniatures</li> <li>8. Comprehend the concepts of plant taxonomy and classification of Angiosperms.</li> </ol>	

7)

Course Code: B040401T	Course Title: <b>Economic Botany, Ethnomedicine and Phytochemistry</b>
<p><b>Course outcomes:</b> After the completion of the course the students will be able to:</p> <ol style="list-style-type: none"> <li>1. Understand about the uses of plants –will know one plant-one employment</li> <li>2. Understand phytochemical analysis related to medicinally important plants and economic products produced by the plants</li> <li>3. know about the importance of Medicinal plants and its useful parts, economically important plants in our daily life and also about the traditional medicines and herbs, and its relevance in modern times.</li> </ol>	

8)

Subject: <b>Botany</b>	
Course Code: B040402P	Course Title: <b>Commercial Botany &amp; Phytochemical Analysis</b>
<p><b>Course outcomes:</b> After the completion of the course the students will be able to:</p> <ol style="list-style-type: none"> <li>1. Know about the commercial products produced from plants.</li> <li>2. Gain the knowledge about cultivation practices of some economic crops.</li> <li>3. Understand about the ethnobotanical details of plants.</li> <li>4. Learn about the chemistry of plants &amp;herbal preparations</li> <li>5. Can become a protected cultivator, aromatic oil producer, Pharmacologist or quality analyst in drug company.</li> </ol>	

9)

Course Code: B040501T	Course Title: <b>Plant Physiology, Metabolism &amp; Biochemistry</b>
<p><b>Course outcomes:</b> After the completion of the course the students will be able to:</p> <ol style="list-style-type: none"> <li>1. Understand the role of Physiological and metabolic processes for plant growth and development.</li> <li>2. Learn the symptoms of Mineral Deficiency in crops and their management.</li> <li>3. Assimilate Knowledge about Biochemical constitution of plant diversity.</li> <li>4. Know the role of plants in development of natural products, nutraceuticals, dietary supplements, antioxidants</li> </ol>	

10)

Course Code: B040502T	Course Title: <b>Molecular Biology &amp; Bioinformatics</b>
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**Course outcomes:**

After the completion of the course the students will be able to:

1. Understand nucleic acids, organization of DNA in prokaryotes and Eukaryotes, DNA replication mechanism, genetic code and transcription process.
2. Know about Processing and modification of RNA and translation process, function and regulation of expression.
3. Gain working knowledge of the practical and theoretical concepts of bioinformatics

## 11)

Course Code: B040503P	Course Title: <i>Experiments in physiology, Biochemistry &amp; molecular biology</i>
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**Course outcomes:**

After the completion of the course the students will be able to:

1. Know and authentic the physiological processes undergoing in plants along with their metabolism
2. Identify Mineral deficiencies based on visual symptoms
3. Understand and develop skill for conducting molecular experiments for genetic engineering

## 12)

Course Code: - B040504R	Course Title: <b>Project in Botany for Pre-graduation</b>
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**Course outcomes:**

- Project work will supplement field experimental learning and deviations from classroom and laboratory transactions.
- project work will enhance the capability to apply gained knowledge and understanding for selecting, solving and decision-making processes.
- It will promote creativity and the spirit of enquiry in learners.
- They will learn to consult Scientists, libraries, laboratories and herbariums and learn importance of discussions, Botanical & field trips, print and electronic media, internet etc. along with data documentation, compilation, analysis & representation in form of dissertation writing.
- It will enhance their abilities, enthusiasm, and interest.

## 13)

Course Code: B040601T	Course Title: <b>Cytogenetics, Plant Breeding &amp; Nanotechnology</b>
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**Course outcomes:** After the completion of the course the students will be able:

1. Acquire knowledge on cell ultrastructure.
2. Understand the structure and chemical composition of chromatin and concept of cell division.
3. Interpret the Mendel's principles, acquire knowledge on cytoplasmic inheritance and sex-linked inheritance.
4. Understand the concept of 'one gene one enzyme hypothesis' along with the molecular mechanism of mutation.

## 14)

Course Code: B040602T	Course Title: <b>Ecology &amp; Environment</b>
<b>Course outcomes:</b>	
<ol style="list-style-type: none"> <li>1. acquaint the students with complex interrelationship between organisms and environment;</li> <li>2. make them understand methods for studying vegetation, community patterns and processes, ecosystem functions, and principles of phytogeography.</li> <li>3. This knowledge is critical in evolving strategies for sustainable natural resource management and biodiversity conservation.</li> </ol>	

## 15)

Course Code: B040603P	Course Title: <b>Lab on Cytogenetics, Conservation &amp; Environment management</b>
<b>Course outcomes:</b> After the completion of the course the students will be able:	
<ol style="list-style-type: none"> <li>1. To perform all experiments related to the semester-i.e. Plant tissue cultured plants, conducting breeding on field, conserving and depolluting the environment.</li> <li>2. Can be employed in environment impact assessment companies &amp; start his own venture</li> </ol>	

## 16)

Course Code: - B040604R	Course Title: <b>Project in Botany for Graduation</b>
<b>Course outcomes:</b>	
After completing this course a student will have:	
<ul style="list-style-type: none"> <li>• Project work will supplement field experimental learning and deviations from classroom and laboratory transactions.</li> <li>• project work will enhance the capability to apply gained knowledge and understanding for selecting, solving and decision-making processes</li> <li>• It will promote creativity and the spirit of enquiry in learners.</li> <li>• They will learn to consult Scientists, libraries, laboratories and herbariums and learn importance of discussions, Botanical &amp; field trips, print and electronic media, internet etc. along with data documentation, compilation, analysis &amp; representation in form of dissertation writing</li> <li>• It will enhance their abilities, enthusiasm, and interest.</li> </ul>	

# ZOOLOGY

## (Course Outcome)

1)

**Course Code:** B050101T

**Course Title:** Cytology, Genetics and Infectious Diseases

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**Course outcomes:**

The student at the completion of the course will be able to:

- Understand the structure and function of all the cell organelles.
  - Know about the chromatin structure and its location.
  - To be familiar with the basic principle of life, how a cell divides leading to the growth of an organism and also reproduces to form new organisms.
  - How one cell communicates with its neighboring cells?
  - Understand the basic principles of genetics and how genes (earlier called factors) are inherited from one generation to another.
  - Understand the Mendel's laws and the deviations from conventional patterns of inheritance.
  - Comprehend how environment plays an important role by interacting with genetic factors.
  - How to detect chromosomal aberrations in humans and study the pattern of inheritance by pedigree analysis in families.
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2)

**Course Code:** B050102P

**Course Title:** Cell Biology & Cytogenetics Lab

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**Course outcomes:**

At the completion of the course students will learn Hands-on:

1. To use simple and compound microscopes.
2. To prepare slides and stain them to see the cell organelles.
3. To be familiar with the basic principle of life, how a cell divides leading to the growth of an organism and also reproduces to form new organisms.
4. The chromosomal aberrations by preparing karyotypes.
5. How chromosomal aberrations are inherited in humans by pedigree analysis in families.
6. The antigen-antibody reaction.

3)



<b>Course Code:</b> B050201T	<b>Course Title:</b> Biochemistry and Physiology
<b>Course outcomes:</b>	
The student at the completion of the course will learn:	
<ul style="list-style-type: none"> <li>• To develop a deep understanding of structure of biomolecules like proteins, lipids and carbohydrates</li> <li>• How simple molecules together form complex macromolecules.</li> <li>• To understand the thermodynamics of enzyme catalyzed reactions.</li> <li>• Mechanisms of energy production at cellular and molecular levels.</li> <li>• To understand systems biology and various functional components of an organism.</li> <li>• To explore the complex network of these functional components.</li> <li>• To comprehend the regulatory mechanisms for maintenance of function in the body.</li> </ul>	

## 4)

<b>Course Code:</b> B050202P/R	<b>Course Title:</b> Physiological, Biochemical & Hematology Lab
<b>Course outcomes:</b>	
The student at the completion of the course will be able to:	
<ul style="list-style-type: none"> <li>• Understand the structure of biomolecules like proteins, lipids and carbohydrates</li> <li>• Perform basic hematological laboratory testing,</li> <li>• Distinguish normal and abnormal hematological laboratory findings to predict the diagnosis of hematological disorders and diseases.</li> </ul>	

## 5)

<b>Course Code:</b> B050301T	<b>Course Title:</b> Molecular Biology, Bioinstrumentation & Biotechniques
<b>Course outcomes:</b>	
The student at the completion of the course will be able to have:	
<ul style="list-style-type: none"> <li>• A detailed and conceptual understanding of molecular processes <i>viz.</i> DNA to trait.</li> <li>• A clear understanding of the processes of central dogma <i>viz.</i> transcription, translation <i>etc.</i> underlying survival and propagation of life at molecular level.</li> <li>• Understanding of how genes are ultimately expressed as proteins which are responsible for the structure and function of all organisms.</li> <li>• Learn how four sequences (3 letter codons) generate the transcripts of life and determine the phenotypes of organisms.</li> <li>• How genes are regulated differently at different time and place in prokaryotes and eukaryotes.</li> </ul>	

## 6)

**Course Code:**B050302P

**Course Title:** Bioinstrumentation & Molecular Biology Lab

**Course outcomes:**

The student at the completion of the course will be able to

- Understand the basic principles of microscopy, working of different types of microscopes
- Understand the basic techniques of centrifugation and chromatography for studying cells and separation of biomolecules
- Understand the principle of measuring the concentrations of macromolecules in solutions by colorimeter and spectrophotometer and use them in Biochemistry.
- Learn about some of the commonly used advance DNA testing methods.

7)

**Course Code:**B050401T

**Course Title:** Gene Technology, Immunology and Computational Biology

**Course outcomes:**

The student at the completion of the course will be able to:

- Understand the principles of genetic engineering, how genes can be cloned in bacteria and the various technologies involved in it.
- Know the applications of biotechnology in various fields like agriculture, industry and human health.
- To have an in depth understanding about Immune System & its mechanisms.
- Get introduced to DNA testing and utility of genetic engineering in forensic sciences.
- Get introduced to computers and use of bioinformatics tools.
- **Enable students to get employment in pathology/Hospital.**
- **Take up research in biological sciences.**

8)

**Course Code:**B050402P/R

**Course Title:** Genetic Engineering and Counselling Lab

**Course outcomes:**

The student at the completion of the course will be able to:

- Understand the principles of genetic engineering with hands-on experiments in mutation detection, testing of infectious diseases like Covid 19.
- Get introduced to DNA testing and utility of genetic engineering in forensic sciences.
- Apply knowledge and awareness of the basic principles and concepts of biology, computer science and mathematics existing software effectively to extract information from large databases and to use this information in computer modeling.
- Use bioinformatics tools to find out evolutionary/phylogenetic relationship of organisms using gene sequences.
- Get employment in Hospitals/Diagnostic and forensic labs/Counsel families with genetic disorders.
- **Enable students to take up research in biological sciences.**

9)

<b>Course Code:</b> B050501T	<b>Course Title:</b> Diversity of Non-Chordates and Economic Zoology
<b>Course outcomes:</b> The student at the completion of the course will be able to: The student at the completion of the course will be able to: <ul style="list-style-type: none"><li>• demonstrate comprehensive identification abilities of non-chordate diversity</li><li>• explain structural and functional diversity of non-chordate</li><li>• explain evolutionary relationship amongst non-chordate groups</li><li>• Get employment in different applied sectors</li><li>• Students can start their own business i.e. self employments.</li><li>• Enable students to take up research in Biological Science</li></ul>	

10)

<b>Course Code:</b> B050502T	<b>Course Title:</b> Diversity of Chordates and Comparative Anatomy
<b>Course outcomes:</b> The student at the completion of the course will be able to: <ul style="list-style-type: none"><li>• Demonstrate comprehensive identification abilities of chordate diversity</li><li>• Explain structural and functional diversity of chordates</li><li>• Explain evolutionary relationship amongst chordates</li><li>• Take up research in biological sciences.</li></ul>	

11)

<b>Course Code:</b> B050503P	<b>Course Title:</b> Lab on Virtual Dissection, Anatomy, Economic Zoology and Parasitology
<b>Course outcomes:</b> The student at the completion of the course will be able to: <ul style="list-style-type: none"><li>• demonstrate comprehensive identification abilities of chordate and non- chordates diversity</li><li>• explain structural and functional diversity of chordates and non- chordates</li><li>• explain evolutionary relationship amongst chordates and non- chordates</li><li>• Generate self employment</li><li>• Enable students to take up research in biological sciences.</li></ul>	

## 12)

<b>Course Code:</b> B050601T	<b>Course Title:</b> Evolutionary and Developmental Biology
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**Course outcomes:**

The student at the completion of the course will be able to:

- Understand that by biological evolution we mean that many of the organisms that inhabit the earth today are different from those that inhabited it in the past.
- Understand that natural selection is one of several processes that can bring about evolution, although it can also promote stability rather than change.
- Understand how the single cell formed at fertilisation forms an embryo and then a full adult organism.
- Integrate genetics, molecular biology, biochemistry, cell biology, anatomy and physiology during embryonic development.
- Understand a variety of interacting processes, which generate an organism's heterogeneous shapes, size, and structural features.
- Understand how a cell behaves in response to an autonomous determinant or an external signal, and the scientific reasoning exhibited in experimental life science.

## 13)

<b>Course Code:</b> B050602T	<b>Course Title:</b> Ecology, Ethology, Environmental Science and Wildlife
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**Course outcomes:**

The student at the completion of the course will learn:

- Complexities and interconnectedness of various environmental levels and their functioning.
- Global environmental issues, their causes, consequences and amelioration.
- To understand and identify behaviours in a variety of taxa.
- The proximate and ultimate causes of various behaviours.
- About the molecules, cells, and systems of biological timing systems.
- Conceptualizing how species profitably inhabit in the temporal environment and space out their activities at different times of the day and seasons.
- To interpret the cause and effect of lifestyle disorders contributing to public understanding of biological timing.
- To understand the importance of wildlife conservation.

## 14)

<b>Course Code:</b> B050603P	<b>Course Title:</b> Lab on Ecology, Environmental Science, Behavioral Ecology & wildlife
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**Course outcomes:**

The student at the completion of the course will be able to:

- To understand the basic concepts, importance, status and interaction between organisms and environment.
- Get employment in forest services, sanctuaries, conservatories etc.
- Enable students to take up research in wildlife.

# **Commerce**

## **Program / Course Outcomes**

### **Department – Commerce**

#### **Ramabai Ambedkar Govt. Degree College, Gajraula**

The Faculty of Commerce is running in the College science academic session 2005-06. The University has allotted 160 seats for students to take admission in B.com 1<sup>st</sup> year. Out of 160 seats, 20% seats have been reserved for girls of each category for admission in B.com 1<sup>st</sup> year. The faculty of Commerce of the college is progressing from its inception year 2005-06. The Faculty of Commerce of the college has been organizing various types of activities for the overall development of the students.

The Career options for students pursuing B.com. Programme is vast and candidates will always have interesting profiles to work at if they pay to their strengths. While many B.com. Graduates may choose the much tried and tested path of CA, CS, CMA AND other related field of study, one as ample opportunity to choose an out-of-the-box career option as one in travel and hospitality, media and telecommunications depending on the path and degree one chooses.

### **Career Opportunities in Commerce after passing B.com–**

#### **Govt. Job Opportunities**

#### **UPSC- (UNION PUBLIC SERVICE COMMISSION)**

1. IAS- Indian Administrative service
2. IPS- Indian police service
3. IFS-Indian Foreign Service
4. Revenue departments
5. Audit departments, etc.

## **Central Department services**

1. SSC, SSC(CGL)
2. Section Officer ( Commercial Audit)
3. Railway
4. Banking
5. N.T.P.C.
6. N.H.P.C.
7. N.A.B.A.R.D.
8. Insurance sector

## **Career Opportunities in state level services**

### **UPPSC ( UTTAR PRADESH PUBLIC SERVICE COMMISSION)**

1. PCS
2. PPS
3. PES
4. District Audit officer
5. Revenue departments

## **Career opportunities in private Sector**

1. Accountant
2. Chartered Accountant
3. Company Secretary
4. Cost Accountant

5. Finance Analyst
6. Finance Planner
7. Invest Analyst
8. Tax Advisor
9. Tax Consultant
  
10. Stock Broker
11. Portfolio Manager
12. Foreign trade
13. Stock Banking and Investment Analyst
14. Corporate Lawyer
15. Trade Consultant
16. Capital Market Advisor

## **Required Skill**

1. Computing skill
2. Analysing Numerical data
3. Quick Calculation
4. Organisational and Administrative
5. Accuracy & Neatness
6. Ability to work hard
7. Logical thinking
8. Practical business orientation
9. Decision making
10. General knowledge