HINDI COURSE

PROGRAMME ~~SPECIFIC~~ OUT COMES SESSION-2021-22

स्नातक प्रथम वर्ष प्रथम सेमेस्टर:- प्रथम सेमेस्टर के 'हिन्दी काव्य' प्रश्नपत्र के अन्तर्गत 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।

स्नातक प्रथम वर्ष द्वितीय सेमेस्टर:- द्वितीय सेमेस्टर के 'कार्यालयी हिन्दी और कम्प्यूटर' प्रश्न पत्र के अन्तर्गत हिन्दी के विद्यार्थियों को कार्यालय के कार्यों की मूलभूत जानकारी प्रदान करना ताकि वे कार्यालय के समस्त कार्यों को सुगमता पूर्वक कर सकें एवं उन्हें कम्प्यूटर का मूलभूत ज्ञान देकर कम्प्यूटर पर हिन्दी में कार्य करने में सक्षम बनाना ताकि वे समुचित रोजगार प्राप्त कर सकें।

स्नातक द्वितीय वर्ष :- (प्रथम प्रश्नपत्र)

स्नातक द्वितीय वर्ष के आधुनिक हिन्दी काव्य के अन्तर्गत द्विवेदी युगीन एवं छायावाद युग के हिन्दी काव्य परम्परा का इतिहास की संक्षिप्त जानकारी देना। उपरोक्त काल के पाठ्यक्रम में शामिल कवियों की कविताओं के विषय में जानकारी देना।

स्नातक द्वितीय वर्ष व द्वितीय प्रश्न पत्र में 'कथा साहित्य' के अन्तर्गत हिन्दी उपन्यास व हिन्दी कहानी के संक्षिप्त इतिहास से छात्रों को अवगत कराना। पाठ्यक्रम में शामिल उपन्यास (~~चित्रलेखा~~ एवं निर्मला) तथा विभिन्न कहानीकारों की कहानियों का वर्णन करना ताकि छात्रों में इन विधाओं में काफी जागरूकता हो।

स्नातक तृतीय वर्ष -

तृतीय वर्ष व प्रथम प्रश्नपत्र में

'अद्यतन हिन्दी एवं कौरवी लोककाव्य' के अन्तर्गत हिन्दी काव्य साहित्य के प्रगतिवाद, प्रयोगवाद एवं नई कविता तथा समकालीन कविता का संक्षिप्त इतिहास प्रस्तुत करना एवं छात्रों को जानकारी देना। कौरवी लोक काव्य के अन्तर्गत भारतीय संस्कृति में उसकी उपयोगिता से निर्मित साहित्य के महत्वपूर्ण योगदान से विद्यार्थियों को परिचित कराना।

तृतीय वर्ष के द्वितीयप्रश्न पत्र हिन्दी निबन्ध एवं अन्य गद्य विधाएँ के अन्तर्गत विद्यार्थियों को हिन्दी गद्य की निबंध तथा अन्य गद्य विधाओं का सम्यक ज्ञान देना तथा हिन्दी के प्रमुख निबन्धकारों एवं अन्य गद्य विधाओं के लेखकों के महत्वपूर्ण योगदान 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।

(डॉ श्याम बाबू
पूर्व समन्वयक हिन्दी)

GENERAL PROGRAMME OUTCOMES

विद्यार्थियों को भारतीय ज्ञान परंपरा के अन्तर्गत हिन्दी साहित्य का इतिहास 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 बैज्ञानिक भाषा अर्थात् हिन्दी में रोजगार कौशल प्राप्त होगा।

भाषा, साहित्य तथा संस्कृति की अन्तर्सम्बद्धता के प्रति विद्यार्थियों में समझ विकसित होगी।

विद्यार्थियों में समाज एवं साहित्य की समझ विकसित होगी।

कम्प्यूटर, सिनेमा, अनुवाद आदि के माध्यम से विद्यार्थियों के नए समाज की चुनौतियों का सामना करने में सक्षम बनाने में प्रयास किया जाएगा।

Shyambabu
डॉ० श्यामबाबू
हिन्दी विभाग

PROGRAMME OUTCOMES (SANSKRIT)

⇒ छात्राओं को लेखन, वाचन एवं अध्यापन की दृष्टि से भाषागत दक्षता प्राप्त होगी।

⇒ सहज एवं स्वाभाविक रूप से भाषागत पारंगतता प्राप्त कर उनमें प्रभावशाली अभिव्यक्ति की क्षमता उत्पन्न करना।

⇒ आत्मविश्वास से युक्त एवं नेतृत्व क्षमता के धारक होंगे।

⇒ नैतिक एवं चारित्रिक- दृष्टि से मूल्यवान व्यक्तित्वधारी होकर भारतीयता के बीच के साथ वैश्विक नागरिक के रूप में भावी चुनौतियों का सामना करने में सक्षम होंगे।

* COURSE OUTCOMES * (SANSKRIT)

⇒ सर्वाधिक वैज्ञानिक भाषा के रूप में संस्कृतभाषा के प्राचीनमहत्व एवं वर्तमान प्रासंगिकता को जानने-समझने योग्य होंगे।

⇒ संस्कृत साहित्य की गद्य, पद्य, नाटक, व्याकरण इत्यादि विधाओं से सुपरिचित होकर संस्कृत-मर्मज्ञ बन सकेंगे।

⇒ संस्कृत व्याकरण के विभिन्न अंगों के ज्ञान द्वारा भाषा के शुद्ध-अध्ययन; लेखन एवं उच्चारण-माध्यम से अभिव्यक्ति कौशल का विकास होगा।

⇒ आयुर्वेद, वास्तुशास्त्र, ज्योतिष, नित्यनैमित्तिक कर्मकाण्ड इत्यादि के माध्यम से जीविकोपार्जन के योग्य होंगे।

⇒ वैदिक एवं लौकिक संस्कृत-साहित्य की समृद्धता एवं तन्निहित-नैतिकता व आध्यात्मिकता को अनुभूत कर भारतीय संस्कृति के महत्व को वैश्विकस्तर तक पहुँचाने में सक्षम होंगे।

⇒ धर्म-दर्शन, आचार-व्यवहार, नीतिशास्त्र एवं भारतीय संस्कृति के मूलतत्वों को जानकर उत्तम-चरित्रवान-मानव एवं कुशल-नागरिक बनेंगे।

(डॉ० श्याम बाबू
प्रभारी
संस्कृत विभाग)

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B.A. English

Programme Outcomes:

The programme aims to:

- Sensitize students to the aesthetic, social and cultural aspects of literature.
- Make the students aware of literature written or translated in English speaking countries.
- Provide Job opportunities through 'skill-based' courses.
- Enhance creative potential of students through script-writing, dialogue-writing and also through online media like blogging.
- Assist students in the development of intellectual flexibility, creativity and cultural literacy to engage them in life-long learning
- 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 OUTCOMES AND PROGRAM OUTCOMES
B.A.
DEPARTMENT OF ECONOMICS

COURSE OUTCOMES

The Course is designed for the students pursuing graduation with Economies 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 10 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 OUTCOMES

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

G.W.P.G. College Kandhla, Shamli
Department of Sociology

Course outcome

Institution is conducting there years under graduate programme with eight main subjects, (sociology is one of them) under annual teaching-learning-evaluation system since 1979. After implementation of N.E.P. 2020 in academic session 2021-22 onward, now the course is being conducted under six monthly semester wise teaching-learning-evaluation system. Three years course in sociology is wel divided (into six semesters) and designed by board of study an authority of university. The course is designed to enhance societal understanding with scientific temperament of learners and enable the learners to develop keen insights regarding commonsense and sociological knowledge. It introduce the students with Indian Society, its linkages and continuity with past and present and also gives insights to analyze contemporary Indian society. The concepts like social change and movement helps the learners to understand the dynamic and dissension tendencies of society. The endeavor of course is to make students aware about social problems and developmental issues of Indian Society. The course is deigned to help the students to know about the classical contributions of pioneers of sociology and to gain theoretical and methodological knowledge about subject. The main purpose of the course is to develop scientific approach towards the research work in the subject. The pioneers of Indian Sociology is also the essential part of the course so that the learners can grasp the information and knowledge about the approaches and theoretical framework of Indian Sociologist and simultaneously help to learn the history of Indian Sociology and its traditions. Gender and Society is an important paper of the course to make the learner gender sensitive and engaging them to learn and rethink about gender issues.

Political Science

Course Outcome

Indian National Movement and Constitution of India

This Course is designed to ~~Students~~ Introduced the Students with Indian national movement and constitution. which is supposed to make sense student about the freedom struggle and key concepts of Indian constitutions. which would evolve them in to a conscientious citizen.

Awareness of Rights and Laws.

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

Political theory and Concepts

This course is designed to train a student in foundational issue of political theory, which is relevant for any in depth study and research

Political Process in India

Study of the functioning of Indian democratic system is essential for a comprehensive understanding of Indian political system. The course is designed to train and acclimatize the student with the Indian political system in action and explain the working relationship between citizen 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.

B.A First Year (outcomes)

Learn about the discipline of Home Science as a holistic field of study covering multiple facets and requirement of human beings in day to day living, for example, achievement of appropriate milestones in personal development, awareness, need and use of family resources, access to adequate nutrition for wholesome development, clothing fundamentals.

May have capabilities to start earning by enhancing their skills in the field of Nutrition and Textiles.

Methods:-

* ~~Lectures~~ Lecture
* Sessional
* Class test
* Assignment
* Demonstration
* ICT methods
* Learning by doing — practical experience
* Projects
* Online teaching
* Presentation by students

Manjari
Lucky

BA. Second year :

Program Specific Outcomes

- To develop sensitivity, resourcefulness and competence to render service to enhance development of individuals, families communities and the nation at large.
- Enhance abilities involved in acting as proactive agents of change in promoting the discipline of family and community sciences.
- Explore and decide upon viable avenues of self-employment and entrepreneurship.

Teaching Methods used.

- Lecture
- ICT Methods
- demonstrations
- Learning by doing like practical experience
- Assignment
- Projects
- Sessional exams
- class tests

Narayana Swamy

B.A. Third Year : Degree in Bachelor of Arts

Program Specific Outcomes

- Programme is framed to encourage a genre of responsible students with a passion for lifelong learning and entrepreneurship, it also generate multi-skilled leaders with a holistic perspective that cuts across disciplines.
- Promote research, innovation and design (product) development favouring all the disciplines in Home Science.
- Enhance digital literacy and apply them to engage in real time problem solving and ideation related to all fields of Home Science.
- Appreciate and benefit from the symbiotic relationship among the five core disciplines of Home Science – Resource management, Food Science and Nutrition, Textiles and Clothing, Human Development and Family Studies and Extension and Communication.
- After the degree programme students can be benefitted by getting jobs in various fields like government sector, working with NGOs, jobs as an extension worker, Education etc. and also they can feel the sense of entrepreneurship as well.

Nayana
Lucille Dsouza

Teaching methods used -

- Lecture
- ICT methods
- demonstration
- Learning by doing like practical experience
- Assignments
- Projects
- Sessional exams
- Class tests
- Online teaching
- Presentations by students

B.Com

Programme Outcome

→ To cater to the human resource needs of companies in accounting, tax, laws, financial analysis and costing

To inspire entrepreneurship and managerial skills within the learners and to enable them to manage business effectively

To impart in-depth knowledge of financial system, taxation policy and investment decision

To enrich learners with good communication, numeric ability, team work, leadership, research related skills and ethical values.

To nuture the students in intellectual, personal, interpersonal and social skills with a focus on Holistic Education and development.

To enable learners with ICT skills and enrich their digital literacy skills.

Course Outcome

B. Com

To inculcate statistical, and analytical ability among the students.

To provide basic knowledge to the students about the organization and management of business organization

To make them familiar with GAAP of financial accounting, taxation system of India, ~~and~~ costing policies and corporate accounting procedures.

To familiarize the students with the elements and tools of financial management, marketing management and human resource management.

To enable them to understand Indian Companies ~~Act~~, law, Corporate law and Income tax law and practices 1961.

To make students familiar with computer environment and create awareness about various accounting software, website creation and digital marketing.

Method used (B.Com)

1) Case Studies
2) Accounting Software (Tally)
3) ICT tools
4) Lectures
5) Assignment & Presentation
6) familiarising with amendments in Company and taxation Law.
7) Continuous Evaluation

COURSE OUTCOME — MA Homesc

- To understand the role of community Development programmes in India.
- To develop skills in entrepreneurship
- To understand the principles of planning, organizing and controlling in different units.
- Gain knowledge to manage manpower and establish good human relations.
- Gain experience in financial management.
- Prepare research tool applicable to development issues.
- Know the methods used for assessment of nutritional status.

Programme Outcome →

- Undirstand the role of agencies associated with extension education for rural development.
- Understand the role of community development programmes in India.
- To create an awareness among students about management in the family as well as the other systems.
- To impart more elaborate skills in clothing construction.
- Understand the Indian Rural Problem
- To impart knowledge within students related to traditional embroideries.
- To develop skills in entrepreneurship.

• PROJECT ON WOMEN ENTREPRENEURSHIP

* Details of students who had completed their projects (during last 5 years)

	YEAR (SESSION)	No. of students
1.	2017-2018	17
2.	2018 - 2019	05
3.	2019 - 2020	14
4.	2020 - 2021	11
5.	2021 - 2022	23

Alumni students (in job)

1- Arti Tawla, Batch-2018-2019, currently working in Private Degree college, Rampur, Maniharan She is MA. (Homescience) & NET (UGC) qualified.

PROGRAM OUTCOMES AND COURSE OUTCOMES
MA
DEPARTMENT OF ECONOMICS

Effective from Academic Session 2019-20 & onwards for regular Students
Revised Syllabus

There will be fifteen papers spread over four semesters. Out of these fourteen theory papers will be taught in the semesters. Twelve theory papers will be compulsory. Two optional papers will be taught in I and II semesters. The optional paper offered in semester I & II will be decided by the department each year depending upon the facilities available in the department. There will be one viva -voce in third semester based on one topic/practical/case study related to any paper of the syllabus will be presented on power-point. The maximum marks of M.A will thus be 1500 (Fifteen Hundred)

SEMESTER Ist

1. **Micro Economics-1**

   This paper analyses the economic behaviour of individuals, firms and markets. It is mainly concerned with the objective of equipping the students with various aspects of consumer behaviour and demand analysis, production theory, product pricing and market behaviour, welfare economies, general equilibrium and analysis of economic behaviour under uncertainty and game theory.

2. **Macro Economics-1**

   Macroeconomics analyses and establishes the functional relationship between the large aggregates. Macroeconomic analysis has assumed such a great significance in recent times that a prior understanding of macroeconomic theoretical structure is considered necessary for the proper comprehension of the different issues and policies. This paper equips the students at postgraduate level not only understanding of systematic facts and their empirical analysis but also latest developments in this field.

3. **Quantitative Methods**

   The emphasis of this paper is on understanding economic concepts with the help of mathematical methods rather than learning mathematics itself. The main objective of this paper is to equip the students to use the techniques of mathematics and statistical analysis to understand and analyse economic problems. The paper deals with simple tools and techniques of that will help a student to analyse data and draw inferences of various statistical hypothesis.

4. **Optional Paper (Any One)**

   4A. **Economics of Education and Health**

   Economics of education and health is the application of micro economics theories in the field of education and health. To convert a population into human capital education and health are the two important factors. This paper

gives an insight into basic concepts of these theories that can be applied in the field of education and health to develop the country.

4B. Agricultural Economics

The objective of this course is to provide a detailed treatment of issues in agricultural economics to those intending to specialize in this area. Its objective is to familiarize students with policy issues that are relevant to Indian agricultural economics and enable them to analyze the issues, using basic micro-economic concepts.

4C. Labour Economics

Issues pertaining to the labour market, wage theories, employment policies, trade unions and collective bargaining in the globalized economy have become vitally important for developing countries. In a country like India where the bulk of the labour force is in the unorganized sector and the organized sector is witnessing Jobless" growth, the importance of issues such as employment and unemployment as well as livelihood and social security for the growing millions continues to assume significance. This Paper exposes students to theoretical as well as empirical issues relating to the labour market with special reference to India.

4D. Economics of Infrastructure

The main objective of this course is to familiarize the students with role of infrastructure in economic development and growth and key issues in financing, governance and inter-regional disparities. The main objective of this paper is to equip the students with the components of infrastructure with special reference to India.

4E. Research Methodology

This Paper is designed to make the students well versed with entire process of research work. The main aim is to clarify the students with the concepts and steps of research and equip him/her to formulate a research proposal.

SEMESTER IInd

5. Micro Economics-II

The paper deals with the micro and macro theories of distribution, welfare economics, general equilibrium in closed and open systems and analysis of economic behaviour under uncertainty.

6. Macro Economics-II

Macro Economics Plays an important role in the economy of a country. The objective of this paper is to enable to students to understand theory, practice of Money and banking and analyse the interconnection between the monetary forces and real forces, their developmental role and limitations in shaping the economy.

7. Economics of Growth and Development

Growth and Development is the first requisite of any underdeveloped economy to come into category of Developed nations and provide employment to its vast

population. The objective of this paper is to familiar the students with various concepts and theories of Growth and Development and also various measurement of development at world level with special reference to India.

8. Optional Paper (Any One)

8A. Econometrics

Applications of economic theory need a reasonable understanding of economic relationships and relevant statistical methods. The econometric theory thus becomes a very powerful tool for understanding of applied economic relationships and for meaningful research in economics. This paper accordingly is devoted to equip the students with basic theory of econometrics and relevant applications of the methods. The Course also covers various econometric methods applicable to different topics in economics and those needed for applied economic research.

8B. Gender Economics

This course is motivated to familiarize students with the key theoretical concepts, approaches and views related to the role of women in the achievement of development.

8C. Industrial Economics and Entrepreneurship

The objective of this course is to provide basic knowledge to the students on key theoretical concepts and issues related to market structure, firms' motivations and conducts, productivity, and efficiency. It also provides a detailed understanding of policy debates involved in industrial development in India.

8D. Economics of Insurance

The vital role of insurance in the task of risk-bearing and risk-elimination in the economic affairs has not been appreciated adequately in our country. There is a wide spread recognition that insurance, particularly life insurance, is a prominent segment of applied economics. Insurance industry is an important constituent of financial services industry in India and is a major investment institution and prominent player in the capital market. However, in our country, study of the subject of insurance has largely remained neglected. This course on Insurance Economics attempts to give a fairly comprehensive view of the subject to the postgraduate students in Economics and pave the way for their career and side caring also

8E. Computer Applications in Economics

Computers are now have become integral part of our life as well as of any study. Economic being a dynamic subject and based on data analytics requires it more. This paper is to orient the students with the basic knowledge of the computers as well as the packages that are most useful in analysis of any data and their interpretation along with report writing and presentation. Emphasis will be more on practical part l.e. hands on experience of the students on the computers along with preparation and presentation of their report.

SEMESTER IIIrd

9. Public Economics

With the increasing concept of welfare state, rule of government is increasing in state activities, hence the importance of public finance is increasing with every passing year. Many new dimensions are added to it with the passage of time. The objective of this paper is to orient the students not only with functions of government but what positive changes government can bring in the economy of a country with public money. This paper orients the students with basic theories of public finance while focusing on government of India's expenditure, budget and revenue aspect along with fiscal policy.

10. International Economics

This course provides the students an about the basic principles that tend to govern the free flow of trade in goods and services at the global level. This paper has become relatively more relevant from the policy point of view under the present waves of globalization and liberalization.

11. Financial Institutions and Markets

The positive and significant role of financial institutions in the process of growth and development has been very well recognized in the literature and indeed has become more important during the last two decades as the financial systems of different countries have become integrated in the process of globalization. India is no exception and has taken far reaching measures since 1991 in this direction. It is, therefore, essential that the student of economics should be well conversant with the theory and practice of different financial institutions and markets to understand and analyze the interconnection between the monetary forces and real forces, their developmental role and limitations in shaping and influencing the monetary and related policies both at the national and international levels.

12. Power point presentation &viva-voce (Based on Syllabus)

Student has to make a power point presentation on any topic of the syllabus or any practical work if he/she is doing in any field related to their syllabus For eg. Environment Protection or awareness, health or Education related activity etc. Case studies can also be presented an any field visit/practical work being done by the student. Accordingly, Questions can be asked in Viva-voce examination.

SEMESTER IVth

13. Indian Economy

The basic objective of this paper is not only to orient the students about basic features and indicators of Indian Economy but to orient them with the current problems of the Indian Economy and also future challenges so that they may be able to find out the solutions to solve these problems and challenges to bring the country to the path of development.

14. Demography

Now-days population is considered to be a resource rather than a burden provided a country does appropriate man power planning converting its population into a human

resource. For this it applies various techniques. The main objective of this paper is to orient the students with the positive aspect of the population how it can help economic development of a country provided it is converted Into human resource. This paper not only orients the students with various concepts of population but the quantitative and qualitative aspect of population along with various demographic techniques. The paper exposes the students with the recent concepts and developments in demography.

15. Environmental Economics

The objective of the Environmental Economics is to provide students with the necessary training for the application of economic theory and analysis to natural resource and environmental management issues. The subject will impart understanding on the environmental regulatory approaches for correcting market failures, and making use of economic evaluation techniques to assess environmental issues and policies.

DEPARTMENT OF BOTANY

Details of Programme outcomes & Course outcome

Programme outcomes (POs):

Transformed curriculum shall develop educated outcome-oriented candidature, fostered with discovery- learning, equipped with practice & skills to deal practical problems and versed with recent pedagogical trends in education including e-learning, flipped class and hybrid learning to develop into responsible citizen for nation-building and transforming the country towards the future with their knowledge gained in the field of plant science.

PO 1	CBCS syllabus with a combination of general and specialized education shall introduce the concepts of breadth and depth in learning
PO2	Shall produce competent plant biologists who can employ and implement their gained knowledge in basic and applied aspects that will profoundly influence the prevailing paradigm of agriculture, industry, healthcare and environment to provide sustainable development.
PO 3	Will increase the ability of critical thinking, development of scientific attitude, handling of problems and generating solutions, improve practical skills, enhance communication skill, social interaction, increase awareness in judicious use of plant resources by recognizing the ethical value system.
PO 4	The training provided to the students will make them competent enough for doing jobs in Govt. and private sectors of academia, research and industry along with graduate preparation for national as well as international competitive examinations, especially UGC-CSIR NET, UPSC Civil Services Examination, IFS, NSC, FCI, BSI, FRI etc.
PO 5	Certificate and diploma courses are framed to generate self- entrepreneurship and self-employability, if multi exit option is opted.
PO 6	Lifelong learning be achieved by drawing attention to the vast world of knowledge of plants and their domestication.

BSc Ist Year Semester 1st (NEP)

Course outcome- after the completion of the course the student will be able to-

1- Develop understanding about the classification and diversity of different microbes including virus, algae, fungi and lichen and their economic importance.

2- Develop conceptual skills about identifying microbes, pathogens, biofertilizers and lichen.

3- Gain knowledge about developing a commercial enterprise of microbial products.

4- Host pathogen relationship and disease management.

5- Learn presentation skills in life science by using computers and multimedia.

6- Understanding the structure and Reproduction of certain selected bacteria algae Fungi and lichen.

7- Gain knowledge about the economic values of the lower group of the plant community.

8- Understand the instruments technique, lab etiquettes it and good lab practices for working in a microbiology laboratory.

9- Develop skills for identifying Microbes and using them for industrial agriculture and environment purposes.

10- Practical skills in the field and laboratory experiments in microbiology and Pathology.

11- Can start your own enterprise on microbial products.

BSc Ist Year Semester IInd (NEP)

Course outcome- after the completion of the course the student 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 there in through typological study and create a knowledge base in understanding the basis of plant diversity, economic value and taxonomy of plants.

4- Understand the details of the external and internal structure of flowering plants.

5- The students will be made a while of the groups of plants that have given rise to land habit and the flowering plants.

6- Students would learn to create their small digital reports where they can capture the zoom in and zoom out picture as well as videos in case, they are able to find some rare structure of all phenomena related to these plants.

7- Develop an understanding by observation and table study of representative members of a phylogenetically important group to learn the process of evolution in a broad sense.

8- Understand the composition modification, internal structure and architecture of flowering plants for becoming a botanist.

BSc IInd Year Semester IIIrd (NEP)

Course outcome- after the completion of the course the student 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.
7-. To learn how plant specimens are collected, documented, and curated for a permanent record.
8- To observe, record, and employ plant morphological variation and the accompanying descriptive terminology.
9- To gain experience with the various tools and means available to identify plants.
10- To develop observational skills and field experience.
11- To identify a taxonomically diverse array of native plants.
12- To recognize common and major plant families.
13-To Understand aesthetic characters of flowering plants by making-landscapes, gardens, bonsai, miniatures
14-Comprehend the concepts of plant taxonomy and classification of Angiosperms.

BSc IInd Year Semester IVth (NEP)

Course outcomes: after the completion of the course the student will be able to-

1. Understand about the uses of plants –will know one plant-one employment
2. Understand phytochemical analysis related to medicinally important plants and economic products produced by the plants
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.

4-Know about the commercial products produced from plants.
5-Gain the knowledge about cultivation practices of some economic crops.
6-Understand about the ethnobotanical details of plants.
7-Learn about the chemistry of plants &herbal preparations
8-Can become a protected cultivator, aromatic oil producer, Pharmacologist or quality analyst in drug company.

BSc IIIrd Year Semester Vth (NEP & NON-NEP)

Course outcomes:

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

1. Understand the role of Physiological and metabolic processes for plant growth and development.
2. Learn the symptoms of Mineral Deficiency in crops and their management.
3. Assimilate Knowledge about Biochemical constitution of plant diversity.
4.Know the role of plants in development of natural products, nutraceuticals, dietary supplements, antioxidants
5-Understand nucleic acids, organization of DNA in prokaryotes and Eukaryotes, DNA replication mechanism, genetic code and transcription process.
6-Know about Processing and modification of RNA and translation process, function and regulation of expression.
7- Gain working knowledge of the practical and theoretical concepts of bioinformatics
8- Know and authentic the physiological processes undergoing in plants along with their metabolism
9- Identify Mineral deficiencies based on visual symptoms
10- Understand and develop skill for conducting molecular experiments for genetic engineering.

BSc IIIrd Year Semester VIth (NEP)

Course outcomes: after the completion of the course the student will be able to-

1- Project work will supplement field experimental learning and deviations from classroom and laboratory transactions.
2-Project work will enhance the capability to apply gained knowledge and understanding for selecting, solving and decision-making processes.
3-It will promote creativity and the spirit of enquiry in learners.
4-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.
5-It will enhance their abilities, enthusiasm, and interest.
6-Acquire knowledge on cell ultrastructure.
7- Understand the structure and chemical composition of chromatin and concept of cell division.
8-Interpret the Mendel's principles, acquire knowledge on cytoplasmic inheritance and sex-linked inheritance.
9- Understand the concept of 'one gene one enzyme hypothesis' along with the molecular mechanism of mutation
10- Acquaint the students with complex interrelationship between organisms and environment;
11-Make them understand methods for studying vegetation, community patterns and processes, ecosystem functions, and principles of phytogeography.
12-This knowledge is critical in evolving strategies for sustainable natural resource management and biodiversity conservation.

13- To perform all experiments related to the semester-i.e., Plant tissue cultured plants, conducting breeding on field, conserving and depolluting the environment.

14-Can be employed in environment impact assessment companies & start his own venture

PROGRAMME OUTCOMES : B.Sc. (with Physics) NEP-2020

Students having Degree in B.Sc. (with Physics) should have knowledge of different concepts and fundamentals of Physics and ability to apply this knowledge in various fields of academics and industry. They may pursue their future career in the field of academics, research and industry.

PROGRAMME SPECIFIC OUTCOMES

CERTIFICATE IN BASIC PHYSICS & SEMICONDUCTOR DEVICES

After completing this certificate course, the student should have

- Competence in the methods and techniques of calculations using Newtonian Mechanics and Thermodynamics.
- Students are expected to have hands on experience in modeling, implementation and calculation of physical quantities of relevance.
- Students are expected to have an insight in handling electrical and electronic instruments.
- Student should be able to handle basic electronic instruments, which are being used in electronics, telecommunication and instrumentation industry.

DIPLOMA IN APPLIED PHYSICS WITH ELECTRONICS

After completing this diploma course, the student should have

- Knowledge of different concepts in electromagnetic theory, Modern Optics and Relativistic Mechanics.
- Knowledge of electromagnetic wave propagation, which serves as a basis for all communication systems and deals with the physics and technology of semiconductor optoelectronic devices.
- A deeper insight in electronics to address the important components in consumer Optoelectronics, IT and communication devices, and in industrial instrumentation.
- Knowledge of basic concepts of optical instruments and lasers with their applications in technology.

DEGREE IN BACHELOR OF SCIENCE

After completing this degree course, the student should have

- Knowledge of different aspects of classical, quantum and statistical computational tools required in the calculation of physical quantities of relevance in interacting many body problems in physics.
- Develop the basic knowledge and proficiency of solid-state physics and nuclear physics, which have utmost importance at both undergraduate and graduate level.
- Proficiency in this area will attract demand in research and industrial establishments engaged in activities involving applications of these fields.
- Comprehensive knowledge of Analog & Digital Principles and Applications.
- Learn the integrated approach to analog electronic circuitry and digital electronics for R&D.

SUBJECT: PHYSICS

Semester-wise Titles of the Papers in B.Sc. (Physics) and Course Outcome

Class : First Year, Semester I

Title of the Paper : Mathematical Physics & Newtonian Mechanics

Paper Code : B010101T, Paper Type : Theory, Paper Credit : 04

Course Outcomes:

- Recognize the difference between scalars, vectors, pseudo-scalars and pseudo-vectors.
- Understand the physical interpretation of gradient, divergence and curl.
- Comprehend the difference and connection between Cartesian, spherical and cylindrical coordinate systems.
- Know the meaning of 4-vectors, Kronecker delta and Epsilon (Levi Civita) tensors.
- Study the origin of pseudo forces in rotating frame.
- Study the response of the classical systems to external forces and their elastic deformation.
- Understand the dynamics of planetary motion and the working of Global Positioning System (GPS).
- Comprehend the different features of Simple Harmonic Motion (SHM) and wave propagation.

Class : First Year, Semester I

Title of the Paper : Mechanical Properties of Matter

Paper Code : B010102P, Paper Type : Practical, Paper Credit : 02

Course Outcome:

- Experimental physics has the most striking impact on the industry wherever the instruments are used to study and determine the mechanical 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

Class : First Year, Semester II

Title of the Paper : Thermal Physics & Semiconductor Devices

Paper Code : B010201T, Paper Type : Theory, Paper Credit : 04

Course Outcomes:

- Recognize the difference between reversible and irreversible processes.
- Understand the physical significance of thermodynamical potentials.
- Comprehend the kinetic model of gases w.r.t. various gas laws.

- Study the implementations and limitations of fundamental radiation laws.
- Utility of AC bridges.
- Recognize the basic components of electronic devices.
- Design simple electronic circuits.
- Understand the applications of various electronic instruments.

Class : First Year, Semester II

Title of the Paper : Thermal Properties of Matter & Electronic Circuits

Paper Code : B010202P, Paper Type : Practical, Paper Credit : 02

Course Outcomes:

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.

Class : Second Year, Semester III

Title of the Paper : Electromagnetic Theory & Modern Optics

Paper Code : B010301T, Paper Type : Theory, Paper Credit : 04

Course Outcome:

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

Class : Second Year, Semester III

Title of the Paper : Demonstrative Aspects of Electricity & Magnetism

Paper Code : B010302P, Paper Type : Practical, Paper Credit : 02

Course Outcome:

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.

Class : Second Year, Semester IV

Title of the Paper : Perspectives of Modern Physics & Basic Electronics

Paper Code : B010401T, Paper Type : Theory, Paper Credit : 04

Course Outcomes:

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

Class : Second Year, Semester IV

Title of the Paper : Basic Electronics Instrumentation

Paper Code : B010402P, Paper Type : Practical, Paper Credit : 02

Course Outcomes:

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.

Class : Third Year, Semester V

Title of the Paper : Classical & Statistical Mechanics

Paper Code : B010501T, Paper Type : Theory, Paper Credit : 04

Course Outcomes:

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.

Class : Third Year, Semester V

Title of the Paper : Quantum Mechanics & Spectroscopy

Paper Code : B010502T, Paper Type : Theory, Paper Credit : 04

Course Outcome:

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.

Class : Third Year, Semester V

Title of the Paper : Demonstrative Aspects of Optics & Lasers

Paper Code : B010503P, Paper Type : Practical, Paper Credit : 02

Course Outcomes:

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.

Class : Third Year, Semester VI

Title of the Paper : Solid State & Nuclear Physics

Paper Code : B010601T, Paper Type : Theory, Paper Credit : 04

Course Outcomes:

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.

Class : Third Year, Semester VI

Title of the Paper : Analog & Digital Principles & Applications

Paper Code : B010602T, Paper Type : Theory, Paper Credit : 04

Course Outcomes:

1. Study the drift and diffusion of charge carriers in a semiconductor.

2. Understand the Two-Port model of a transistor.

3. Study the working, properties and uses of FETs.

4. Comprehend the design and operations of SCRs and UJTs.

5. Understand various number systems and binary codes.

6. Familiarize with binary arithmetic.

7. Study the working and properties of various logic gates.

8. Comprehend the design of combinational and sequential circuits.

Class : Third Year, Semester VI

Title of the Paper : Analog & Digital Circuits

Paper Code : B010603P, Paper Type : Practical, Paper Credit : 02

Course Outcomes:

Analog & 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.

PROGRAMME OUTCOME

B. Sc. (Subject : PHYSICS) Unified Syllabus

The topics covered in the course build a basic foundation of undergraduate physics students to study the advance branches: quantum physics, nuclear physics, particle physics and high energy physics. This undergraduate course in Physics Would provide the opportunity to the students:

- To understand the basic laws and explore the fundamental concepts of physics
- To understand the concepts and significance of the various physical phenomena.
- To carry out experiments to understand the laws and concepts of Physics.
- To apply the theories learnt and the skills acquired to solve real time problems.
- To acquire a wide range of problem solving skills, both analytical and technical and to apply them.
- To enhance the student's academic abilities, personal qualities and transferable skills this will give them an opportunity to develop as responsible citizens.
- To produce graduates who excel in the competencies and values required for their future career.
- To motivate the students to pursue PG courses in reputed institutions.
- To introduce students to the methods of experimental physics where emphasis be given on laboratory techniques specially the importance of accuracy of measurements.
- Providing a hands-on learning experience such as in measuring the basic concepts in properties of matter, heat, optics, electricity and electronics.

Course Outcome

B.Sc. First Year

THEORY PAPER I : MECHANICS AND WAVE MOTION (Paper Code - B 116)

The students would learn about the behaviour of physical bodies and the basic concepts related to the motion of all the objects around us in our daily life. The course comprises of the study of vectors, laws of motion, momentum, energy, Colkision in one and two dimensions, rotational motion, elasticity, central forces, gravitation, simple harmonic motion and wave motion, study of superposition of harmonic oscillations, waves motion (general), oscillators and sound. The course builds a foundation of various applied field in science and technology, especially in the field of mechanical engineering.

THEORY PAPER II : KINETIC THEORY AND THERMODYNAMICS (Paper Code - B 117)

The course contains the study of kinetic theory of gases, laws of thermodynamics, thermodynamic description of systems, thermodynamic potentials and theory of radiation.The course makes the students able to understand the basic physics of heat and temperature and their relation with energy, work, radiation and matter. The students also learn how laws of thermodynamics are used in a heat engine to transform heat into work.

THEORY PAPER III: CIRCUIT FUNDAMENTALS AND BASIC ELECTRONICS (Paper Code - B 118)

After successful completion of the course, students will be able to

- Apply the nodal and mesh methods of circuit analysis.
- Express complex circuits in their simpler Thévenin and Norton equivalent forms.
- Analyze RL, RC, and RLC circuits..
- Analyze two port networks.
- Gain knowledge about A.C. bridges and its applications.
- To analyse the characteristics and theories in semiconductor materials in terms of crystal structures, charge carriers and energy bands.
- To describe the crystalline structure of semiconductors to explain the properties of n-type and p-type semiconductors.
- To describe the physical characteristics such as electronic structure, optical and transport properties and current-voltage characteristics of semiconductors.
- To describe the band structures and forbidden band gap of semiconductors.

- To explain how to find the fermi energy level and carrier density in n-type and p-type semiconductors.
- To describe the basic principles of p-n junction diodes and transistors.
- To describe the application of p-n junction diode as rectifier and filter.
- To describe the application of zener diode as voltage regulator.
- To describe the application of transistor as amplifier and oscillator.
- To explain the elements of transmission, reception, modulation and demodulation.
- To describe the principle, design and application of linear multimeters and cathode ray oscilloscope.

PRACTICAL PAPER (Paper Code - B 416)

- Students perform basic experiments related to mechanics and mechanical properties of matter and also get familiar with various measuring instruments.
- Students learn the importance of accuracy of measurements and fundamentals of measuring instruments theoretically as well as practically.
- Students attain practical knowledge of wave motion doing experiments: Tuning fork, electric vibrations, etc.
- Students learn to measure low resistances, voltage, current

B.Sc. Second Year

THEORY PAPER IV : PHYSICAL OPTICS AND LASERS (Paper Code - B 216)

The course comprises of the study of wave optics, interference, diffraction, polarization and LASER. The course is important for the students to make their career in various branches of science and engineering, especially in the field of photonic engineering.

THEORY PAPER V : ELECTROMAGNETICS (Paper Code - B 217)

Electricity and Magnetism: It gives an opportunity for the students to learn about one of the fundamental interactions of electricity and magnetism, both as separate phenomena and as a singular electromagnetic force. The course contains vector analysis, electrostatics, magnetism, electromagnetic induction and Maxwell's equations. The course is very useful for the students in almost every branch of science and engineering.

THEORY PAPER VI : ELEMENTS OF QUANTUM MECHANICS, ATOMIC AND MOLECULAR SPECTRA (Paper Code - B 218)

The course plays a fundamental role in explaining how things happen beyond our normal observations. The course includes the study of Schrodinger equations, One dimensional motion in step potential, Rectangular barrier, Square well potential, Particle in a box, normalization Simple Harmonic Oscillator. After successful completion of the course, students will be able to :

- Describe models for Hydrogen, Helium and multielectron atoms, and their electronic spectra, and distinguish various angular momentum coupling schemes and their consequences.
- Analyse emission and absorption spectra of atoms, transition probabilities, apply selection rules to explain electronic spectra of atoms.
- Understand basic elements of practical spectroscopy.
- Understand many electron atoms and interaction of spins i.e. LS and JJ coupling.
- Understand rotational, vibrational, electronic and Raman spectra of molecules and their applications.

PRACTICAL PAPER (Paper Code - B 516)

- Students gain practical knowledge about electricity and magnetism.
- Students learn optical phenomena such as interference, diffraction and dispersion and do experiments related to optical devices: Prism, grating, spectrometers

B.Sc. Third Year

THEORY PAPER VII : RELATIVITY AND STATISTICAL PHYSICS (Paper Code - B 316)

After successful completion of the course, students will be able to understand the special theory of relativity and its applications to understand length contraction, time dilation, relativistic addition of velocities, conservation of momentum and variation of mass, relativistic momentum, relativistic energy, and mass energy relation.

THEORY PAPER VIII : SOLID STATE AND NUCLEAR PHYSICS (Paper Code - B 317)

After successful completion of the course, students would be able to

- Understand various types of crystal structures and symmetries and understand the relationship between the real and reciprocal space.
- Understand the Bragg's X-ray diffraction in crystals.
- Understand the crystal bonding, lattice, lattice vibrations and phonons.
- Understand the ideas of basics of nucleus and their energy.
- Understand the procedures for nuclear fission and fusion.
- Understand the nuclear properties and models that describe the reactions of nuclei.
- Understand basics of the Standard Model of elementary particles and interactions.

THEORY PAPER IX : SOLID STATE ELECTRONICS (Paper Code - B 318)

To gain the knowledge of different electronics devices: Zener and Avalanche diodes, Tunnel diodes, Point contact diode, LED, photodiodes and transistors.

- To Study the comparison between various biasing techniques.
- To Study the classification of amplifiers.
- To Comprehend the use of feedback and oscillators.

PRACTICAL PAPER (Paper Code - B 616)

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. Students learn about various types of Amplifier and Oscillator circuits their working and applications in domestic, industrial and scientific devices/equipments.

Department of Zoology

Programme Outcomes:

1. The program has been designed in such a way so that the students get the flavor of both the classical and modern aspect of Zoology. It aims to enable the student to study animal diversity in the Indian subcontinent, environmental science and behavioral ecology.

2. The modern areas including the cell biology and genetics, molecular biology, biochemistry, physiology followed by biostatistics, evolutionary biology, bioinformatics and genetic engineering have been included to make the study of the animal more interesting and relevant to human studies which is the requirement in recent times.

3. The basic tools of bioinformatics will enable students to analyze large amounts of genomic data and its application to evolutionary biology. Apply knowledge and Awareness of the basic principles and concept of biology, computer science and mathematics existing software effectively to extract information from large databases and to use this information in computer modeling.

4. At the end of the course the student will be capable enough to comprehend the reason behind such a huge diversity of animals and reason out why two animals are grouped together or remain separate due to similarities and differences which exist at many levels along with ecological environmental and cellular inputs.

5. The students will have hands on training in the technique like microscopy, centrifugation and chromatography and various biochemical technique, preparation of slides which will help them in getting employment in pathology lab and contribute to Health care service system

6. Certificate course will make students eligible for technical positions in government and private labs/Institutes.

7. The diploma courses will ensure employability in hospitals/diagnostic and Pathology Labs with good hands-on training. It will also enable students to take up

higher studies and research as their career and work in renowned labs in the country and abroad.

8. The degree courses will enable students to go for higher studies like Masters and PhD in zoology and allied subjects

Course Outcomes:

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

1. Understand the structure and function of cell organelles and also learn and understand the structure of biomolecules like proteins, lipids, carbohydrates with thermodynamics of enzyme catalyzed reactions.

2. Understand the Mendel laws and deviations from conventional pattern of inheritance

3. Know about the chromatin structure and its location and to be familiar with the basic principles of life i.e., how a cell divides, leading to growth of an organism.

4. Understand system biology and various functional components of an organism to explore the complex network of these functional components and to comprehend the regulatory mechanism for maintenance of function in the body.

5. A detailed and conceptual understanding of molecular processes of Central dogma: DNA to trait, transcription, translation etc.

6. Understanding of how genes are ultimately expressed as proteins which are responsible for the structure and function of all organisms.

7. How are genes regulated differently at different times and places in prokaryotes and eukaryotes.

8. Understand the basic principle of microscopy and basic techniques of centrifugation, chromatography and also learn about some of the commonly used advanced DNA testing methods.

9. Understand the principles of genetic engineering and know the application of biotechnology in various fields like agriculture industry and human health and they also get introduced to computers and the use of bioinformatics tools.

10. Apply the knowledge of awareness of 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.

11. Use of bioinformatics tools to find evolutionary relationships of organisms using gene sequences.

12. Demonstrate comprehensive identification ability of non-chordate and chordates diversity and also explain structural and functional diversity of non-chordates and chordates.

13. Understand the concept of biological evolution and understand how the single cell formed at fertilization from an embryo and then a full adult organism.

14. Learn integrated genetics, Molecular Biology, biochemistry, cell biology, anatomy and physiology during embryonic development.

15. Complexities and interconnectedness of various environmental levels and their functioning with global environmental issues with their causes, consequences and amelioration.

16. The proximate and ultimate cause of various behavior in animals and also to interpret the cause and effect of lifestyle disorder contributing to public understanding of biological timings.

CHEMISTRY

5. **Programme and Course Outcome :** The purpose of the undergraduate chemistry program at the university and college level is to provide the key knowledge base and laboratory resources to prepare students for careers as professionals in various industries and research institutions.
   1. Students will have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in analytical, Inorganic, Organic and Physical Chemistries.
   2. Students will be able to design and carry out scientific experiments as well as accurately record and analyse the results of such experiments.
   3. Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
   4. Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.
   5. Students will appreciate the central role of chemistry in our society and use this as a basis for ethical behaviour 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.

CHEMISTRY

6. **Methods of Measuring the Level of Attainment of Programme & Course Outcome :** By the following ways we can measure the level of attainment of programme outcome :
   a. How many students are taking admission in PG programmes
   b. How many students are successful in making career in the field of science and technology.