

# Learning Outcomes

The college is running with all the three streams in undergraduate; Arts, Commerce and Science. Their Learning outcomes are well defined under the heads; Programme Outcomes and Course Outcomes. The Course Outcomes are listed below for each paper taught in the institution.

## Arts Stream DEPARTMENT OF ECONOMICS

### Bachelor of Arts (B.A.) Economics

#### Programme Outcomes:

Here are few Program Outcomes for the Bachelor of Arts (BA) in Economics:

#### 1: Critical Thinking and Economic Reasoning

Graduates will develop critical thinking skills and the ability to apply economic reasoning to real-world issues. They will be able to evaluate various economic problems and propose solutions using logical and evidence-based approaches.

#### 2: Economic Data Interpretation and Application

Students will gain proficiency in collecting, analysing, and interpreting economic data. They will use statistical tools and economic models to derive insights and communicate findings effectively to both specialized and non-specialized audiences.

#### 3: Understanding Economic Policies and Institutions

Graduates will have a comprehensive understanding of the functioning of economic institutions, markets, and policies at both the national and international levels. They will be able to evaluate the effects of different economic policies on individuals, businesses, and societies.

#### 4: Ethical Awareness and Societal Impact

Students will become aware of the ethical dimensions of economic decisions and policies. They will be able to assess the societal impact of economic activities, including issues of inequality, environmental sustainability, and social welfare, promoting responsible and inclusive growth.

#### 5: Lifelong Learning and Professional Development

Graduates will cultivate a habit of lifelong learning and adaptability in the field of economics. They will be prepared to continuously upgrade their knowledge and skills to meet the evolving demands of a dynamic and complex global economic environment.

These outcomes aim to foster well-rounded economics graduates equipped for diverse career paths in academia, government, industry, and international organizations.

## Course Outcomes:

Sr No	Name of the Course	Nature of Course	Course Outcomes
1	Principles of Micro Economics I and II (ECONA 101 &102)	Discipline Specific Core Courses (DSCs) Compulsory	Students will understand and apply the laws of demand and supply to analyse market behaviour, including the determination of equilibrium prices and quantities.
			Graduates will gain insights into consumer decision-making processes through the concepts of utility, budget constraints, and indifference curves. They will be able to explain how price, income, and substitution effects influence demand and how to derive individual and market demand curves.
			Students will understand the production process of firms, including the law of diminishing returns, production functions, and the distinction between short-run and long-run costs. They will be able to analyse the cost structures of firms and determine how firms maximize profits and minimize costs under different production conditions.
			Graduates will distinguish between different market structures such as perfect competition, monopoly, monopolistic competition, and oligopoly. They will assess how these structures influence pricing, output decisions, and overall market efficiency, and evaluate the role of firms in competitive and non-competitive markets.
			Students will understand the theories of factor pricing, including the marginal productivity theory of distribution. They will analyse how wages, rent, interest, and profit are determined.
2	Principles of Macro Economics I and II (ECONA 201 &202)	Discipline Specific Core Courses (DSCs) Compulsory	Students will be able to explain the concept of national income, its measurement methods (GDP, GNP, NDP, NNP), and its significance in assessing the economic performance of a country.
			Students will evaluate classical and Keynesian theories of employment, the role of aggregate demand and supply, and the impact of government policy on employment and output levels.
			Students will analyse the determinants of investment, the multiplier effect on output, and identify the phases of trade

			<p>cycles, including causes and consequences of economic fluctuations.</p> <p>Students will understand the causes and consequences of inflation and deflation, differentiate between demand-pull and cost-push inflation, and assess the role of fiscal and monetary policies in controlling inflation.</p> <p>Students will critically analyse the components of the balance of payments, assess equilibrium in the goods and money markets (IS-LM model), and understand how domestic and international factors affect macroeconomic stability.</p>
3	Indian Economy (ECONA 301 & ECONA 314)	Discipline Specific Elective (DSE)/ Generic Elective Course (GEC)	Students will be able to explain the key phases in India's economic development, with a focus on the New Economic Policy (1991), including its impact on liberalization, privatization, and globalization.
			Students will gain insights into the objectives, strategies, and outcomes of economic planning in India, from the early Five-Year Plans to the current planning framework and its role in promoting sustainable growth.
			Students will examine the challenges and growth potential of India's agricultural sector, focusing on issues like land reforms, Green Revolution, agricultural productivity, and recent agricultural policies..
			Students will be able to analyze the role of the industrial sector in India's economic growth, including the evolution of industrial policy, the development of key industries, and the impact of Make in India and MSME sector growth.
			Students will assess the impact of economic reforms on key sectors like agriculture, industry, and services, as well as on employment, poverty reduction, income inequality, and overall economic performance.
4	Economy of Himachal Pradesh (ECONA 303 & ECONA 313)	Discipline Specific Elective (DSE)/ Generic Elective Course (GEC)	Students will be able to identify and evaluate the key natural resources of Himachal Pradesh and analyze their impact on the state's economic development and environmental sustainability.
			Students will gain insights into the historical and contemporary planning strategies of the state and assess the

			<p>trends in state income, including its sources, growth patterns, and contribution to regional development.</p> <p>Learners will critically examine the significance of agriculture and hydro energy in the state's economy, including the challenges, opportunities, and future prospects of these sectors in contributing to sustainable development.</p> <p>Students will be able to analyze the industrial landscape of Himachal Pradesh and evaluate the state's tourism sector as a driver of economic growth, identifying key challenges and opportunities for further development.</p> <p>Learners will assess the role of infrastructure development, including transport, power, and communication, in driving economic transformation and improving the quality of life in Himachal Pradesh.</p>
5	Development Economics (ECONA 305 & ECONA 315)	Discipline Specific Elective (DSE) Course/ Generic Elective Course (GEC)	<p>Students will be able to differentiate between economic growth and development, comprehend key development indicators such as HDI, and critically analyze their significance in assessing the well-being of nations.</p> <p>Students will explore and evaluate classical, neoclassical, and modern theories of economic development, understanding the factors that contribute to or hinder the development process in various countries.</p> <p>Students will grasp the concept of the vicious circle of poverty, identify its causes and effects, and assess strategies that governments and international organizations implement to break the cycle.</p> <p>Students will engage with the concept of sustainable development, analyzing its environmental, social, and economic dimensions, and assess progress towards achieving global SDGs.</p> <p>Students will critically examine and compare the growth experiences of various countries, identifying key lessons and patterns in development strategies and policies that have led to success or failure.</p>
			<p>Students will be able to explain and critically evaluate the fundamental theories of international trade, including the</p>

6	International Economics  (ECONA 306)	Discipline Specific Elective (DSE) Course	<p>Ricardian model, Heckscher-Ohlin theory, and new trade theories, and apply them to real-world trade patterns.</p> <p>Students will gain the ability to assess the economic impacts of various trade policies, such as tariffs, quotas, and subsidies, and analyze their implications for domestic and global economies.</p> <p>Students will demonstrate an understanding of exchange rate determination, including fixed and floating exchange rate systems, and be able to explain how currency fluctuations affect international trade and capital flows.</p> <p>Students will be able to describe and assess the roles of key international economic institutions such as the World Trade Organization (WTO), International Monetary Fund (IMF), and World Bank in regulating and facilitating international economic relations.</p> <p>Students will be able to critically analyze current global economic issues such as trade imbalances, the effects of globalization, regional trade agreements, and economic development, and propose solutions to the challenges faced by emerging economies in the global market.</p>
7	Statistical Methods –I & II  (ECONA 203 & 205)	Skill Enhancement Course (SEC)	<p>Students will be able to define and calculate key measures of central tendency (mean, median, mode) and dispersion (range, variance, standard deviation) to summarize and interpret data sets effectively.</p> <p>Students will learn to apply correlation techniques to assess the strength and direction of relationships between variables and use simple linear regression models to predict outcomes and analyze trends.</p> <p>Students will develop the skills to measure skewness and kurtosis to evaluate the asymmetry and peakedness of data distributions, and they will understand the construction and application of index numbers for economic and business data analysis</p> <p>Students will acquire the ability to analyze time series data for forecasting, and apply basic probability concepts to solve real-world problems involving randomness and uncertainty.</p>

8	Economics of Rural Development (ECONA 204)	Skill Enhancement Course (SEC)	Students will be able to explain the fundamental concepts, objectives, and scope of rural development, highlighting its importance for socio-economic progress in rural areas.
			Students will analyze the significance of agriculture, livestock, forestry, and other allied sectors in fostering rural development, and assess their contribution to rural livelihoods.
			Students will critically evaluate various rural development programs and policies implemented by the government, understanding their impact on poverty reduction, employment, and infrastructure development.
			Students will identify key challenges facing rural development, such as resource scarcity, migration, and socio-economic inequalities, while exploring opportunities for sustainable development through innovations and community participation.
9	Demography (ECONA 206)	Skill Enhancement Course (SEC)	Understand key demographic concepts such as fertility, mortality, and migration, and their measurement.
			Analyze population trends and their implications for economic and social development.
			Evaluate the impact of demographic changes on labor markets, healthcare, and policy planning.
			Apply demographic theories to assess population challenges in developing and developed regions.
10	Research Methodology (ECONA 309)	Skill Enhancement Course (SEC)	Understand the fundamental concepts and steps involved in the research process.
			Develop skills to formulate research questions and hypotheses based on theoretical frameworks.
			Apply appropriate research designs, sampling techniques, and data collection methods.
			Analyze and interpret research data using qualitative and quantitative techniques for informed conclusions.
11	Public Finance (ECONA 310)	Skill Enhancement Course (SEC)	Understand the role and functions of government in managing public revenues and expenditures.
			Analyze the impact of taxation and public debt on economic stability and growth.
			Evaluate different fiscal policies and their implications for resource allocation and income distribution.

			Apply theoretical concepts to assess government budgets, fiscal deficits, and public welfare programs.
12	Money and Banking (ECONA 311)	Skill Enhancement Course (SEC)	Understand the nature, functions, and types of money in modern economies.
			Analyse the structure and functioning of financial institutions, particularly central and commercial banks.
			Evaluate the role of monetary policy in influencing inflation, interest rates, and economic stability.
			Apply banking and financial theories to assess the impact of credit creation and regulatory frameworks on the economy.

## **DEPARTMENT OF ENGLISH**

### **Bachelor of Arts (B.A.) English**

#### **Programme Outcomes:**

1. English Literature courses in the Department of English expose students to a wide range of writing from British, American and Anglophone traditions. It helps students explore how writers use the creative resources of language-in fiction, poetry, nonfiction prose, and drama-to explore the entire range of human experience. Students are expected to strive, to be imaginative, rhetorically dexterous, and technically proficient and as a result, to gain a deeper insight into life., UG syllabus will help students build skills of analytical and interpretive argument, and become careful and critical readers. Again, students' engagement with various strategies of drafting and revising, style of writing and analytical skills, diagnosing and developing scholarly methodologies, use of language as a means of creative expression, will make them effective thinkers and communicators — qualities which are crucial for choosing careers in our information-intensive society
2. Specific learning outcomes for English courses include the following:
  - i. Reading: Students will gain awareness about the best literary traditions of the world. By learning how others live and handle their lives, one becomes connected with the world in a way we might not otherwise experience. They will discover that they are part of a huge conglomerate of human thought and emotion. All the great texts that a student of English will get chance to study will expand their range of experience. They can gain courage and strength by living vicariously through well-developed characters. Through reading students will have an awareness for varies perspectives. This will also expand their range of experience and in the process, they will learn to be more empathetic i. toward the plights

of others.

- ii. Literature, Nation and Tradition: The current syllabus in the UG level will provide students an opportunity to know India's age old literary and cultural tradition through their exposure to Sanskrit texts and modern Indian vernacular literature in translation. How reading literature in English can be an effective means to address the complex issues of identity, nationalism, historical tradition in Indian context, is a new focus area of the present course.
- iii. Awareness about Culture and History: Students gain an understanding of the relations between culture, history and texts. They learn to use texts as a gateway to various cultural traditions and interpret them in their historical contexts. How a literary text can appear as an ideal platform to locate dominant and marginalized voices of a society, is an important focus of the under-graduate literature programme.
- iv. Gaining of Critical Insight: An exposure to various social and cultural traditions and through the reading of representative texts from different periods help a student gain a critical insight about the reality as a whole. With the help of their knowledge of various critical theories
- v. Scope of employability: There is a vast scope for employability in the field of Media and Journalism and Department of Education.

It means on the successful completion of the programme; the students will be able to communicate effectively in the second language i.e., English. It will improve their soft skills; their intellectual, personal and professional abilities will be developed through effective communicative skills; ensuring high standard of behavioural attitude through literary subjects and shaping the students as socially responsible citizens.

### Course Outcomes:

Year	Paper Code	Course Name	Course Type	Course Outcome
1st	ENG CE 101	English-1 Core English (Compulsory for B.A. & B. Com)	Core Eng. Compulsory	On the completion of compulsory course, students will develop understanding of different layers of meaning and how these meanings are conveyed about a literary text. Ability to differentiate between prose, poetry and drama & Better vocabulary
	ENG DSC 102	DSC-1A English Literature 1	Discipline Specific Core (DSC) courses	Discipline Specific Core (DSC) courses serve as the foundation for students to



		(Essays, Stories & Poems)		acquire essential knowledge and skills in their discipline, while also introducing them to diverse writing genres.
	ENG DSC 103	DSC-1B English Literature 2 (Poems, Short Stories & Essays)	Discipline Specific Core (DSC) courses	Students learn to appreciate how literary texts reflect on life and ideas and on how people respond to these.
	ENG AECC 104	AECC-2 Writing Skills	Ability Enhancement Compulsory Course	On completion of the course students will learn: The ability to develop ideas with logical support, including the use of informed opinion, facts, and their interpretations; to increase the critical reasoning skills as they reflect the interdependence of critical thinking and written discourse
2nd	ENG CE 201	English-2 Core English (Compulsory for B.A. & B. Com)	Core Eng. Compulsory	To acquaint students to the art of essay writing and to make them aware of the various categories of essays used for articulation of one's perspective.
	ENG DSC 202	DSC-1C British Literature (Play & Novel) 6 Core	Core	Discipline Specific Core (DSC) courses serve as the foundation for students to acquire essential knowledge and skills in their discipline, while also introducing them to diverse writing genre
	ENG DSC 203	DSC-1D Literary Cross Currents	Core	At the end of the course students will: 1.Critically examine various scenes of the play 2.Explain the relevance of the two texts to modern times 3.Learn to appreciate the art of Drama and novel writing 4.Learn vocabulary appropriate to subject matter.
	ENG AECC/ SEC 204	AECC/SEC-1 Creative writing, Book & Media Reviews	Ability Enhancement Elective Courses/Skill Enhancement Courses	To acquaint students with various forms of creative writings and advance their knowledge of literary devices and technicalities used in creative writing.
	ENG AECC/ SEC 205	AECC/SEC-2 Translation Studies &	Ability Enhancement Elective Courses/Skill Enhancement Courses	Skill Enhancement (SEC) courses focus on value-based training, providing practical

		Principles of Translation		experiences to refine skills and competencies.
3rd	ENG AEEC/ SEC 301	AEEC/SEC-3 Technical Writing	Ability Enhancement Elective Courses/Skill Enhancement Courses	To provide students with the confidence to use written communication in work and personal experience beyond college.
	ENG AEEC/ SEC 302	AEEC/SEC-3 Business Communication		Skill Enhancement (SEC) courses focus on value-based training, providing practical experiences to refine skills and competencies.
	ENG DSE 303	DSE-1A Soft Skills	Discipline Specific Elective Courses	To make students aware of the importance, the role and the content of soft skills through instruction, knowledge acquisition, demonstration and practice.
	ENG DSE 304	AEEC/SEC-3 Academic Writing & Composition	Discipline Specific Elective Courses	Discipline Specific Elective (DSE) courses offer advanced opportunities for students to delve into other domains and further develop their skills.
	ENG GE 305	GE-1 Literature from Himachal	Generic Elective Courses	To differentiate between terms sex and gender and discuss their differences with in the larger social context of gender relations.
	ENG GE 306	GE-2 Contemporary India: Women & Empowerment	Generic Elective Courses	Generic Elective (GE) courses promote interdisciplinary learning by offering students from various disciplines the chance to study English courses, thereby expanding the breadth of their knowledge.

## DEPARTMENT OF HINDI

### Bachelor of Arts (B.A.) Hindi

#### Programme Outcomes:

On completion of the course the students will be able:
<ul style="list-style-type: none"> <li>• To make the students competent in various walks of life</li> </ul>
<ul style="list-style-type: none"> <li>• To make the students job ready and enhance their employability.</li> </ul>
<ul style="list-style-type: none"> <li>• To make the students aware of and responsible towards gender, religion, and class equality</li> </ul>
<ul style="list-style-type: none"> <li>• To enhance critical thinking by making them participate in social activities and imbibe</li> </ul>

human values among them.

- To encourage the students to participate in research at different levels through projects, interviews, surveys and field visits.

### Course Outcome:

S.No.	Course Title	Course Code	Class	Course Outcome
1	Prayojanmulak Hindi (compulsory)	HIND101	B.A/B.Co m1st Year	To understand the basic concepts of Hindi grammar and various forms of functional Hindi.
				Understanding the meaning, concept and importance of Functional Hindi.
				Understanding various forms of Functional Hindi according to its area of application.
2	Hindi Sahitya ka Etahaas DSC-1A	HIND102	B.A 1st Year	Understanding the origin of Hindi language and its literature.
				Identifying the dialects of Hindi language family.
				Analysing the development of Khariboli Hindi.
3	Madhyakalin Hindi Kavita DSC-1B	HIND103	B.A 1st Year	Understanding the role played by the poets of Bhakti cult in literature and society.
				Describing the progressive nature of Sant Kabir and his writings.
				Understanding the vision of Mira in context of her Krishna Bhakti poetry.
4	Hindi Bhasha Aur Sampreshan	HIND104	B.A/B.Co m1st Year	Students will be well versed in Hindi grammar use of noun, pronoun, verb, proverb, tenses, adjectives, antonyms, synonyms, sentence formation.
				Students is capable to write letters and essays in Hindi by using

				various grammatical tools they studied.
				Students will be Improve the reading power of language.
5	Rachnapunj 201 (Compulsory)	HIND201	B.A/B.Co m2nd Year	Students will be familiar with the history of devnagri lipi the various dialects, originated from devnagri lipi.
				The scientific and psychological improvements in the language,students will also be competent in typing in Hindi by using various fonts and styles available in MS worlds.
				Through prose and poetry students learn the human values and practice it in day-to-day life.
6	Aadhunik Hindi Kavita DSC-1C	HIND202	B.A 2nd Year	Students will be able to understand and identify the alankaar raas, chhand and language.
				students will be familiar with modern hindi poets.
				To describe the poem of "Chayawadi writers": Agey, Maithli Sharan Gupt , Nirala and Nagarjun.
7	Karyalyi Hindi SEC-1	HIND204	B.A 2nd Year	Students will come to know about the use of Hindi in official work.
				Students will identify the official Hindi and will be familiar with drafting and noting in Hindi language.
				Students will come to know about the use of Hindi in official work.
8	Anuvad Vigyan SEC-2	HIND206	B.A 2nd Year	Students will come to know the Indian concept of translation.
				Students will learn and understand the translation.

				Role of translation, principle, methods types of translation.
				Students will come to know the Indian concept of translation.
9	Rang Aalekh SEC-3	HIND301	B.A 3rd Year	To equip students with the concept of drama and acting.
				Student will be familiar with Indian plays written by Indian writers, able to understand and identify the writing styles of these playwrights.
10	Lok Sahitya DSC- 1A	HIND305	B.A 3rd Year	To know the concept of folk literature and correlation between folk literature and other branches.
				Students will able know the value and importance of folk literature in Hindi.
				Students will able to understand the folk idioms and phrases their meaning and use in hindi literature.
11	Aadhunik Bhartiya Sahitya	HIND307	B.A 3rd Year	Students will be made familiar with the changes in Indian Hindi literature post-independence, the various novels and plays writtenduring pre-independence and their impact on modern India.
12	Samachar Sankalan Aur Lekhan SEC-4	HIND304	B.A 3rd Year	To equip students with the fundamentals of journalism, principlessources formation and all the basic techniques required to make an emphatic news.
				Students will come to know the fundamentals of journalism by the means of newspapers.
				Students will learn the principles, sources, formation and all the basic techniques required to make an emphatic news.

13	Chhayavadotar Hindi Kavita DSE-1E	HIND306	B.A 3rd Year	To familiarize students with Alankaar, chhand and language.
				Students will be familiar with modern Chhayavadotar hindi kavita.
14	Sarjnatmak Lekhan Ke Vivedh Kshetra GE-2	HIND308	B.A 3rd Year	Students will come to know the creative works related to literature.
				All those compositions are called creative writing, which a person does according to his mind-brain, intellectual capacity, poetry is one in this sequence.

## DEPARTMENT OF HISTORY

### Bachelor of Arts (B.A.) History

#### Programme Outcomes:

On completion of the programme the students will be able to:

- Understand the basic themes, concepts, chronology and the Scope of Indian History
- Acquire knowledge of historical texts, sources and how historians interpret past.
- Describe the social, political, economic, religious and cultural interests of the past.
- Understand the basic themes, concepts, chronology and the Scope of Indian History
- Compare and contrast the major dynasties, art, architecture and literature of Ancient India.
- Explain the positive and negative impacts of travel and tourism and the importance of sustainability.
- Compare and contrast the history of the countries other than India (China, Japan, America and Europe)
- Understand the basic themes, concepts, chronology and the scope of Indian history.
- Think and argue historically and critically in writing and discussion.
- Critically recognize the Social, Political, Economic and Cultural aspects of history.

#### Course Outcomes:

Sr. no.	Course Title	Course Code	Nature of Course and Year	Course Outcomes
				Gain basic knowledge on the sources of early India.

1	History of India from the Earliest time up to 300CE	HIST(A)101	Discipline Specific Core (DSC)  B.A 1st Year	<p>Know about the developments and achievements of humans in the stone age.</p> <p>Understand the glory of Harappan civilization.</p> <p>Familiarize with Vedic period.</p> <p>Understand the birth and development of Indian religions like Jainism and Buddhism.</p> <p>Perceive influence of political support on religion.</p> <p>Know India in the age of Mauryan period and their achievements in art, architecture and politics.</p> <p>Know about the history of Satvahanas, Shungas and Kushanas.</p> <p>Understand the Sangam texts and age.</p>
2	History of India from 300 AD to 1206	HIST(A)102	Discipline Specific Core (DSC)  B.A 1st Year	<p>Students will know the history of Gupta empire and developments in science, arts, architecture mathematics, astronomy, metallurgy etc. during their reign.</p> <p>Understand the history of Pallavas, Chalukyas, Cholas Rastrakutas, Palas and Pratiharas.</p> <p>Comprehend the history of Harshavardhan.</p> <p>Know the origin and polity of Rajputs.</p> <p>Understand the emergence of feudal system in Indian Society.</p> <p>Invasions of Arabs and Turks and consequences of second battle of Terrain and foundation of the Muslim rule in India.</p>
3	History of India from 1206 to 1707 AD	HIST(A)203	Discipline Specific Core (DSC)  B.A 2nd Year	<p>Students will be understanding the establishment, expansion, and consolidation of Delhi Sultanate.</p> <p>Understand the administration, polity, society and religious policy of Sultans.</p>

				<p>Understand the rise of Vijayanagar empire in the south.</p> <p>Comprehend the Bhakti and Sufi movement and their impact on the policies of the Medieval ruler and society.</p> <p>Understand the condition of India on the eve of Babur's invasions.</p> <p>Grasp the territorial expansion of Mughal empire.</p> <p>Understand the emergence and achievement of Sher Shah.</p> <p>Understand the Mughal concept of divine right theory of kingship and administration of the Mughals and basic features of Mughal system.</p> <p>Comprehend the rise of Marathas and their polity.</p>
4	History of India from 1707 to 1950	HIST(A) 204	<p>Discipline Specific Core (DSC)</p> <p>B.A 2nd Year</p>	<p>Students will be able to acquaint with the establishment of the rule of East India company.</p> <p>Understand the policies adopted by the company to expand and consolidate its rule in India.</p> <p>Apprehend the various revolts especially the revolt of 1857 against the East India company.</p> <p>Understand the events or occurrences which led to the growth of nationalism in India.</p> <p>Acquaint himself with the major events of the freedom struggle under the leadership of Mahatma Gandhi.</p> <p>Know the concept of communalism and the causes and effects of the partition of India.</p>
5	Historical Tourism	HIST(A) 213	Skill Enhancement Courses (SEC)	<p>Students will understand meaning and importance of Historical Heritage.</p> <p>Acquaint with the importance of tourism, the role of tour</p>



			B.A 2nd Year	<p>operators and tourist guides in tourism.</p> <p>Understand the importance of built heritage like Stupas, Temples, Forts and Monuments as the main attractions of tourism.</p> <p>Acquaint with the tourist destinations of Himachal Pradesh i.e., Shimla, Manali, Chamba and Kullu.</p> <p>Understand like tourism as booster of economy of country and the state.</p>
6	An introduction to Archaeology	HIST(A) 215	<p>Skill Enhancement Courses (SEC)-III</p> <p>B.A 2nd Year</p>	<p>Students will understand the basics of archeology and basic techniques in archaeological study.</p> <p>Understand the method of surveying and techniques of excavation.</p> <p>Will understand the report writing on the findings, and visits of any museum, archives or as chorological sites.</p>
7	Modern and Contemporary World History (1871-1919)	HIST(A)305	<p>Discipline Specific Elective (DSE)</p> <p>B.A 3rd Year</p>	<p>After completion of the course students have understood relations between modernity and nationalism and its implications.</p> <p>The rise of unified Italy and Germany and beginning of Bismarkian diplomacy.</p> <p>Students have understood the process of colonialism in different part of the world and imperialistic revelry among the states.</p> <p>Understand the militarisation and division of the world in two rival groups which lead the world ultimately towards the First World War.</p>
8	Modern and Contemporary World History II 1919-1992	HIST(A) 307	Discipline Specific Elective (DSE)	<p>Students have understood the consequence of the war and quest for peace through league of nation.</p> <p>Understand the outbreak of great economic depression and rise of the dictatorship which</p>

			B.A 3rd Year	ended the peace and beginning of 2nd world war. Understand the post war development of social, political and economic scenarios, decolonization and the emergence of the third world. Acquaint with the origin of cold war and changing world Political Scenario. Students have understood the necessity of universal peace and brotherhood.
9	Social Religious Reform Movements in India (19th and 20th centuries)	HIST(A) 310	GENERIC ELECTIVE(GE) B.A 3rd Year	Students will understand the social cultural conditions of India in the 18th & 19th centuries. Understand the causes and impact of the socio-religious movement in India.
10	Indian History and culture	HIST(A) 317	Skill Enhancement Courses (SEC) B.A 3rd Year	Students will understand the richness of Indian culture during the ancient period and changes in after math. Understand the social inequalities and gender biasedness. Understand rich cultural heritage and unity in diversity in culture through fairs and festivals of India.
11	Museums and Archives	HIST(A) 318	Skill Enhancement Courses (SEC)	Students will learn what museums and archives are. Will understand what material archives and museums have. Will learn basic aspects of the history of archival science and museology. Will learn the collection documentation and preservation of archival material. Will learn history and development of Indian Archives and museums. Will learn digitization of archives and museums.
			Skill Enhancement Courses (SEC)	Students will understand characteristics and features of

12	Introduction to Indian Art	HIST(A)319	B.A 3rd Year	Indian art, types of art and concept of art. Understand the styles of rock cut temple architecture of Masrur and Pahari School of painting.
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## DEPARTMENT OF POLITICAL SCIENCE

### Bachelor of Arts (B.A.) Political Science

#### Programme Outcomes:

On completion of the programme the students will be able to:
<ul style="list-style-type: none"> <li>To provides the candidates with understanding, general proficiency, and methodical abilities on an advanced level required in industry, consultancy, education, or public administration.</li> </ul>
<ul style="list-style-type: none"> <li>To acquire knowledge and understanding in their specific field of study as well as into current research and development work.</li> </ul>
<ul style="list-style-type: none"> <li>To be able to demonstrate the ability to identify issues critically and to plan the assigned tasks accordingly.</li> </ul>
<ul style="list-style-type: none"> <li>The programme provides in-depth knowledge of Political Science and arouses interest of the students towards research in this field.</li> </ul>

#### Course Outcome:

Sr. No	Course Title	Course Code	Nature of Course and Year	Courses Outcome
1	Introduction to Political Theory	POLS 101	DSC-1A First Year	Clearly understand the various theories and concepts.
				Develop the ability to make logical inferences about social and political issues.
				Understand the significance of theorizing and of applying theory into practice.
2	Indian Government and Politics	POLS 102	DSC-1B First Year	Familiar with the debates around the origin and evolution of the Indian Constitution.
				Understand how the government functions through its various organs.
				Understand the social and economic issues that influence the working of Indian Polity.
3	Comparative Government and Politics	POLS 201	DSC-1B First Year	Students would understand the structure and function of institutions in comparative perspective.
				Understand the functioning of some major political systems of the world including UK, USA, Canada

				and China.
				Understand the functioning of party systems in comparative perspective.
4	Introduction to International Relations	POLS 202	DSC-1D Second Year	To have a comprehensive understanding of historical processes and contemporary practices in International Relations.
				Understand the foundational theories, concepts and approaches of International Relations.
				The students will be able to go beyond Eurocentric International Relations and reflect on emerging centers of power including India.
5	Legislative Support	POLS 203	SEC-I Second Year	Understand the structure and functions of law-making bodies in India at different levels.
				Understand the functioning of grass-roots democracy in India.
				Acquire basic knowledge of different legislative documents, especially the Budget Document.
6	Public Opinion and Survey Research	POLS 204	SEC-2-Second Year	Understand the importance and role of public opinion in democracy.
				Acquire basic skill to measure public opinion.
				Learn the methods of scientific research like sampling, survey, interview and questionnaire.
7	Themes in Comparative Political Theory	POLS 301(A)OR	DSE-1A Third Year	Students would be able to critically understand the features of Indian and Western Political Thought.
				The students will be able to know the evolution of modern India Political Thought.
				The course will familiarize students with the ideas of some key political thinkers of modern India.
8	Administration and Public Policy: Concepts and Theories	POLS 301(B)	DSE-1A Third Year	The students will be able to understand an overview of the discipline including its evolution.
				The students would be able to understand different administrative theories.

				Learn the process of policy formulation, its implementation and evaluation.
9	Democracy and Governance	POLS302(A)	DSC-1B Third Year	The students would be able to understand the structure and process of Governance at Union and State Level.
				Develop an insight into dynamics of civil society and newsocial movements.
				Understand the challenges of liberalization and prospects of E-Governance.
10	Understanding Globalization	POLS 302(B)	DSE-1B Third Year	The students will have foundational understanding of the meaning, nature and significance of globalization.
				The students would be able to understand the major actors of world politics like United Nations and World Trade Organization (WTO).
				This course will enhance the students' understanding of contemporary world issues, esp. Global Warming, Terrorism, Poverty and Inequality.
11	Democratic Awareness Through Legal Literacy	POLS 303	SEC-3 Third Year	Develop an understanding of structure and principles of the legal system of India.
				Develop Basic awareness and skills to safeguard the rights guaranteed to citizens and other persons
				Develop an understanding of law not merely as state sanctioned rules but also as a source of rights.
12	Conflict and Peace Building	POLS 304	SEC-4 Third Year	The students will be able to understand the various types of conflict.
				The course will enhance the ability of students to understand peaceful and non-violent techniques of conflict resolution.
				The study of diplomatic techniques- Track I and Track II Diplomacy will enhance their knowledge of this subject.
13	Society, Economy and Politics in Himachal Pradesh	POLS 305	GE-1 Third Year	Demonstrate the understanding of the evolution of Himachal Pradesh as a state of India.
				This course will enhance the knowledge of students about the economy and Hydro-Electric Power Projects of Himachal Pradesh.

				The study of political parties, electoral politics, role of caste and politics of sub-regionalism will further enhance their knowledge of Himachal Pradesh.
14	Human Rights, Gender and Environment	POLLS 306	GE-2 Third Year	This course will equip students with an understanding of debates on theoretical aspects of human rights.
				Taking case of India, students will be able to relate the issues of human rights in reference to the Constitution of India.
				The study of the discourse of gender, environment and sustainable development will develop the analytical ability of students and make them aware about structural violence.

**COMMERCE**  
**DEPARTMENT OF COMMERCE**

**Bachelor of Commerce (B. Com) 1<sup>st</sup> year**

**Course Outcomes:**

<b>Course title</b>	<b>Course type</b>	<b>Course code</b>	<b>Course learning outcome</b>
Financial accounting	Core course C-1	BC 1.1	After completing the syllabus student will be able know the theoretical of accounting process. The objective of this course is to familiarize students with the different accounting technique.
Business organisation and management	Core course C-2	BC 1.2	After finishing the program students will be the competent to gain the knowledge about the Indian business.
Business law	Core course C-4	BC 1.3	The objective of the course is to impart basic knowledge of the important business legislation along with relevant case laws applicable.
Business statistics and mathematics	Core course C-5	BC 1.4	The objective of this course is to familiarize students with the applications of statistical techniques and mathematics in business decision- making

**Bachelor of Commerce (B. Com) 2<sup>nd</sup> year**

**Course Outcomes:**

<b>Course title</b>	<b>Course type</b>	<b>Course code</b>	<b>Course learning outcome</b>
Company law	Core course C-7	BC 2.1	After the finishing the course student will be able to understand the administration of the company act 1956 as well as company act 2013
Income tax law and practice	Core course C-8	BC 2.2	After completing the course students will be aware the basic concept of income tax acts 1961 i.e. Residential status agriculture income, exempted income, taxable income, five head of income and filling of return.
Computer application in business	Skill-enhancement elective (SEC)-1	BC 2.3	After the course students will have better understanding about word processing, PowerPoint presentation, Microsoft excel and graphical presentation.
Corporate accounting	Core course C-11	BC 2.4	Acquire the knowledge in company accounts such as meaning of a company, characteristics of a company, definition of shares, debenture, underwriting and goodwill, types of shares, bonus share, right share, liquidation, amalgamation and cash flow statement.



Cost accounting	Core course C-12	BC 2.5	After completing the program student will be able to the different concept of cost accounting, element of the cost, material control techniques, accounting and control of labour cost, allocation, apportionment and absorption of overhead, job costing, marginal costing and standard cost.
E-Commerce	Skill-enhancement elective (SEC)-2	BC 2.6	To acquire the basic knowledge of the terms such as internet, WWW, hypertext, E-Commerce, EDI, VAN, security policy, Firewalls, transaction security and digital signature.

## Bachelor of Commerce (B. Com) 3<sup>rd</sup> year

### Course Outcomes:

Course title	Course type	Course code	Course learning outcome
Fundamental of Financial Management	Discipline specific elective (DSE)-1	BC 3.1(c)	The course aims to familiarize the students with the principles and practices of financial management.
Goods and service tax	Discipline specific elective (DSE)-2	BC 3.2(b)	The purpose of this course is to familiarize the students to acquire the fundamental knowledge and application of goods and service tax system in India. Acquire the basic knowledge of indirect taxation, GST, CGST, SGST, IGST, levy and collection of GST and Registration of GST.
Entrepreneurship	Skill-enhancement elective (SEC)-3	BC 3.3	The course aims to orient the learner toward entrepreneurship as a career option and creative thinking and behaviour.
Management accounting	Discipline specific elective (DSE)-3	BC 3.5 (c)	After the successful completion of the syllabus, students know the nature and scope of management accounting, financial statement analysis, different method of marginal costing, step-in decision-making process, various methods of budgeting and budgetary control, standard costing and variance analysis.
International Business	Discipline specific elective (DSE)-4	BC 3.6(a)	After the completing of the course student familiarize with the term of international business, globalisation, national and foreign environment, regional grouping, special economic zone and foreign trade promotion.
Personal selling and salesmanship	Skill-enhancement elective (SEC)-4	BC 3.7	The purpose of this course is to familiarize the students selling and the selling process. They will be able to understand selling as a career and what it takes to be a successful salesman.

**SCIENCE (NON-MEDICAL)**  
**DEPARTMENT OF CHEMISTRY**

**Bachelor of Science (B.Sc.) Chemistry**

**Programme Outcomes:**

On completion of the programme the students will be able to:
1. Apply knowledge in scientific concepts, fundamental principles and varied theories to extend their relevance in day-to-daylife.
2. Build the foundation in the current trends of chemistry with experimental skills.
3. Make use research-based knowledge in multidisciplinary approaches.
4. Extend the role and need of the chemist in societal, environmental contexts and demonstrate the knowledge for sustainable development.
5. Plan and organize as a member or leader in the diverse team and ability to engage in independent life – long learning in the broadest context of technological change.

**Course Outcomes:**

Sr. No	Course Title	Course Code	Year	Course Outcome
1	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons	CHEM 101	I	This Course explains various atomic theories, Quantum mechanical model and Quantum numbers.
				The students learn and understand the preparation, properties and uses of various organic substances with emphasis on aliphatic hydrocarbons (alkanes, alkenes and alkynes)
				It elaborates the fundamentals of organic chemistry and stereochemistry.
				It introduces a framework for learning about electronic configurations of elements, Ionic, covalent bonding and MO theories.
2	States of Matter and Chemical Kinetics and Functional Organic Chemistry	CHEM 102	I	It derives and provides a deep understanding about kinetic theory of gases and properties of liquids and solids.
				Students will learn about Chemical Kinetics and various theories of reaction rates.
				It describes various method of preparation and chemical properties

				of alkyl halides, alcohols, phenols and ethers.
				It explains thoroughly the structure, properties and uses of Aromatic hydrocarbons, aldehydes and ketones (aliphatic and aromatic).
3	Solutions, Phase Equilibrium, Conductance, Electrochemistry & Organic Chemistry	CHEM 201	II	To develop understanding of ideal and non-ideal solutions, concept of Raoult's Law, drawing phase diagrams of one and two component system.
				To develop understanding of conductivity, Kohlrausch's law, conductometric titrations.
				To clear the concept of transference number by Hittorf's method and Moving Boundary method.
				To clear the basic concepts of electrochemistry including types of electrodes, EMF, concentration cells, Liquid junction potential.
				Develop critical thinking, problem solving and analytical capabilities.
				Preparation and reactions of carboxylic acids, their derivatives, concept of nucleophilicity, Aliphatic and aromatic amines, Name reactions and some organic conversions.
4	Chemistry of Main Group Elements, Chemical Energetics and Equilibria	CHEM 202	II	This course aims to clear the basic concepts of s block and p block elements of the periodic table, properties and reactions of compounds of these elements.
				It also explains the potential energy stored in the arrangements or bonding's of atoms in a substance.
				This course is intended to provide students with the basic knowledge of chemical equilibrium and the factors that may affect a chemical equilibrium. It also explains the importance of chemical equilibrium in the day-to-day life.
5	Basic Analytical Chemistry (SEC 1)	CHEM203 (SEC)	II	This course is designed to introduce the students with Analytical chemistry, Analysis of soil, pH determination of soil.
				Analysis of water, determination of acidity and alkalinity and dissolved oxygen in sample of water, Introduction to complexometric titrations.

				<p>The students are introduced to the complete knowledge of Chromatography and analysis of mixture of ions and paint components by chromatographic techniques.</p> <p>Analysis of cosmetics, types of cosmetics, study of phenolphthalein in trap cases and analysis of arson accelerators &amp; gasoline.</p>
6	Fuel Chemistry & Chemistry of Cosmetics & Perfumes (SEC 2)	CHEM204 (SEC)	II	<p>It includes the study of energy resources, study of coal, lubricants including types and properties.</p> <p>This course is intended to provide students a general study and knowledge about the preparation of cosmetics and essential oils.</p>
7	Polynuclear Hydrocarbons, Dyes, Heterocyclic Compounds and Spectroscopy (UV, IR, NMR)	CHEM301	III	<p>This course is expected to provide students a better understanding of the various theories and principles related to UV, IR and NMR spectroscopy.</p> <p>It explains preparation and properties of different types of dyes and heterocyclic compounds.</p> <p>It also provides an understanding of polynuclear hydrocarbons and their comparative properties with respect to benzene.</p>
8	Industrial Chemistry and Environment	CHEM302	III	<p>It elaborates the production, uses, analysis, storage and hazards of industrial gases and inorganic chemicals.</p> <p>Students will learn about industrial metallurgy and various processes involved in it.</p> <p>It provides detailed knowledge about air and water pollution. Industrial waste management has been properly explained.</p> <p>It emphasizes energy &amp; environment, and gives an idea about nuclear pollution, biocatalysts and Green Chemistry.</p>

9	Quantum Chemistry, Molecular Spectroscopy & Photochemistry	CHEM 303	III	It explains about quantum chemistry in detail starting from postulates to solutions of Schrodinger wave equation.
				Molecular Spectroscopy (rotational & vibrational) has been explained in detail.
				Students will have an idea of electronic spectroscopy including Raman, NMR and ESR spectroscopies.
				Students will have an understanding of Photochemistry (Photophysical & Photochemical phenomena).
10	Chemistry of Transition and Inner Transition Elements, Organometallic Compounds	CHEM 304	III	Students will have a clear understanding of d and f block elements, their properties and their complex formation tendencies.
				Students will understand the concept of organometallic compounds and their utility in everyday science.
				It explains the chemistry of coordination compounds, their bonding, stability and preference of bonding with ligands to give specific geometries.
11	Polymer Chemistry	CHEM305	III	It provides classification of various types of polymers.
				Students will learn the identification, preparation, and properties of various types of polymers.
				It explains uses of polymers and their applications in diverse fields.
12	Molecules of Life	CHEM306	III	It explains bioinorganic chemistry with emphasis on lipids.
				Students will learn about classification, synthesis and structures of amino acids, peptides and proteins.
				It imparts detailed knowledge about enzymes and their correlation with drug action.
				Students will have an idea of different nucleic acids and the structures of DNA & RNA. They will learn about the concept of energy in biosystems.
13	Chemical Technology and Society & Business Skills for Chemistry	CHEM307 (SEC)	III	It explains the use of chemical technology in society.
				It provides the understanding of basic business skill in chemistry and explain various terms used in chemical industry.
14	Pesticide Chemistry and Pharmaceutical	CHEM308 (SEC)	III	Explain the preparation and use of various pesticides used in our daily life.
				Explain the preparation and use of various medicines used in our daily life.

## DEPARTMENT OF MATHEMATICS

### **Bachelor of Science (B.Sc.) Mathematics**

The Bachelor's Degree in B.Sc. with Mathematics is awarded to the students on the basis of knowledge, understanding, skills, attitudes, values and academic achievements sought to be acquired by learners at the end of this program. Hence, the learning outcomes of mathematics for this course are aimed at facilitating the learners to acquire these attributes, keeping in view of their preferences and aspirations for knowledge of mathematics. Mathematics is the study of quantity, structure, space and change. It has very broad scope in science, engineering and social sciences. The key areas of study in mathematics are Calculus, Algebra, Geometry, Analysis, Differential Equations and Mechanics.

#### **Programme Outcomes:**

- Think in a critical manner.
- Familiarize the students with suitable tools of mathematical analysis to handle issues and problems in mathematics and related sciences.
- Acquire good knowledge and understanding to solve specific theoretical and applied problems in advanced areas of mathematics and statistics.
- Provide students/learners sufficient knowledge and skills enabling them to undertake further studies in mathematics and its allied areas on multiple disciplines concerned with mathematics.
- Encourage the students to develop a range of generic skills helpful in employment, internships and social activities.
- Bachelor's degree in mathematics is the culmination of in-depth knowledge of algebra, calculus, geometry, differential equations and several other branches of mathematics. This also leads to study of related areas like computer science, Financial Mathematics, statistics and many more. Thus, this programme helps learners in building a solid foundation for higher studies in mathematics. The skills and knowledge gained has intrinsic beauty, which also leads to proficiency in analytical reasoning. This can be utilised in modelling and solving real life problems. Students undergoing this programme learn to logically question assertions, to recognise patterns and to distinguish between essential and irrelevant aspects of problems. They also share ideas and insights while

seeking and benefitting from knowledge and insight of others. This helps them to learn behave responsibly in a rapidly changing interdependent society. Students completing this programme will be able to present mathematics clearly and precisely, make vague ideas precise by formulating them in the language of mathematics, describe mathematical ideas from multiple perspectives and explain fundamental concepts of mathematics to non-mathematicians. Completion of this programme will also enable the learners to join teaching profession in primary and secondary schools. This programme will also help students to enhance their employability for government jobs, jobs in banking, insurance and investment sectors, data analyst jobs and jobs in various other public and private enterprises.

### **Course Outcomes:**

#### **1. Differential Calculus: (B. Sc-1<sup>st</sup>): Code: MATH101TH**

This course will enable the students to:

- i) Assimilate the notions of limit of a sequence and convergence of a series of real numbers.
- ii) Calculate the limit and examine the continuity of a function at a point.
- iii) Understand the consequences of various mean value theorems for differentiable functions.
- iv) Sketch curves in Cartesian and polar coordinate systems.
- v) Apply derivative tests in optimization problems appearing in social sciences, physical sciences, life sciences and a host of other disciplines.

#### **2. Differential Equations: (B. Sc-1<sup>st</sup>): Code: MATH102TH**

This course will enable the students to:

- i) Understand the genesis of differential equations.
- ii) Learn various techniques of solving Exact Differential Equations.
- iii) Learn to solve linear differential equations with constant and variable coefficients.
- iv) Grasp the concept of a general solution of a linear differential equation of an arbitrary order and also learn a few methods to obtain the general solution of such equations.
- v) Formulate mathematical models in the form of differential equations to suggest possible solutions of the day-to-day problems arising in physical, chemical and biological disciplines.

#### **3. Real Analysis: (B. Sc-2<sup>nd</sup>): Code: MATH201TH**

This course will enable the students to:

- i) Understand many properties of the real line  $\mathbb{R}$  and learn to define sequence in terms of functions from  $\mathbb{R}$  to a subset of  $\mathbb{R}$ .

- ii) Recognize bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate their limit superior, limit inferior, and the limit of a bounded sequence.
- iii) Apply the ratio, root, alternating series and limit comparison tests for convergence and absolute convergence of an infinite series of real numbers.
- iv) Learn some of the properties of Riemann integrable functions, and the applications of the fundamental theorems of integration.

#### **4. Algebra: ( B.Sc-2<sup>nd</sup> ) : Code : MATH202TH**

The course will enable the students to:

- i) Recognize the mathematical objects called groups.
- ii) Link the fundamental concepts of groups and symmetries of geometrical objects.
- iii) Explain the significance of the notions of cosets, normal subgroups, and factor groups.
- iv) Analyse consequences of Lagrange's theorem.
- v) Learn about structure preserving maps between groups and their consequences.

#### **5. Linear Algebra (B. Sc-3<sup>rd</sup>): Code: MATH303TH**

This course will enable the students to:

- i) Understand the concepts of vector spaces, subspaces, bases, dimension and their properties.
- ii) Relate matrices and linear transformations, compute eigen values and eigen vectors of linear transformations.
- iii) Learn properties of inner product spaces and determine orthogonality in inner product spaces.
- iv) Realise importance of adjoint of a linear transformation and its canonical form.

#### **6. Complex Analysis: (B. Sc-3<sup>rd</sup>): Code: MATH305TH**

This course will enable the students to:

- i) Visualize complex numbers as points of  $\mathbb{R}^2$  and stereographic projection of complex plane on the Riemann sphere.
- ii) Understand the significance of differentiability and analyticity of complex functions leading to the Cauchy Riemann equations.
- iii) Learn the role of Cauchy Goursat theorem and Cauchy integral formula in evaluation of contour integrals.
- iv) Apply Liouville's theorem in fundamental theorem of algebra.
- v) Understand the convergence, term by term integration and differentiation of a power series.



vi) Learn Taylor and Laurent series expansions of analytic functions, classify the nature of singularity, poles and residues and application of Cauchy Residue theorem.

**DEPARTMENT OF PHYSICS**  
**Bachelor of Science (B.Sc.) Physics**

**Program Outcomes:**

Physics is an exciting science subject that generates fundamental knowledge for advancement in technology and research. The technology in use today would not have been possible without traditional and modern physics. Physics plays an important role in the future progress of human kind globally. B.Sc. with physics has offered various theoretical and experimental courses during three years course work. The various program outcomes of the course are as follows:

- To understand the basic laws and explore the fundamental concepts of physics. This course emphasis on the concept of physics that includes modern physics, quantum physics, mechanics, relativity, thermodynamics, wave optics, nuclear physics etc.
- To understand the concepts and significance of the various physical phenomena and to carry out experiments to understand the laws and concepts of Physics.
- The course is design to help students with good understanding of subjects and also offer them opportunities to work as professionals and researchers in the departments that demand a good understanding of physics at both local and national level.
- Keeping in mind the application-oriented training, this program aims to give students the competence in the methods and techniques of theoretical, experimental and computational aspects of physics. So as to achieve an overall understanding of the subject for holistic and regional development.
- 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 leadership to serve a rapidly evolving global community. After completion of the course, students can go for higher studies or they can get a job in relevant fields.
- To apply the theories learnt and the skills acquired to solve real time problems. The course is so design that it trends the graduate to get entry level jobs in different private and government sectors. Besides higher education, this B.Sc. with Physics program opens up a wide range of job opportunities in the employment areas like civil services,

power generating companies, applied electronics, research and development firms etc. students may also take up various other jobs like data analysts, research assistants, consulting physicist etc.

- To motivate the students to pursue PG courses in reputed institutions.

### **Course details and Outcomes:**

<b>Sr. No.</b>	<b>Course name (Class and Course code)</b>	<b>Course Outcomes</b>
1.	Mechanics (B.Sc-I <sup>st</sup> year and PHYS101TH)	<p>Understand fundamental and derived units used for the measurement of various physical quantities.</p> <p>Get knowledge of error analysis and its application in the laboratory.</p> <p>Understand the concepts of momentum and energy and the motion of satellites in orbits.</p> <p>Learn basic concepts of the particular theory of relativity and its applications to length contraction and time dilation.</p> <p>Understand applications of Newton's laws of motion to solve various problems related to day-to-day life.</p> <p>Understand the concepts of rigid body dynamics regarding the moment of inertia.</p> <p>Acquire the knowledge of gravitation and its importance, Kepler's laws, and the motion of a satellite in a circular orbit.</p>
2.	Electricity Magnetism and EMT (B.Sc. - I <sup>st</sup> year and PHYS102TH)	<p>Understand Coulomb's Gauss law and its applications to calculate electric field due to various charge distributions.</p> <p>Understand the concept of electric potential and calculations due to point charge, solid sphere, infinite line charge, and an infinite plane sheet of charge.</p> <p>Determine potential energy due to a system of charges</p> <p>Understand electrostatic properties exhibited by a conductor when placed in an electric field.</p> <p>Understand the dielectric phenomenon and the effect of electric fields on dielectrics.</p> <p>Acquire knowledge about the capacitor, and derive the formula for capacitance for various capacitors, including parallel plate capacitors, spherical capacitors, and cylindrical capacitors.</p> <p>Explain Gauss's law in dielectrics.</p> <p>Understand electrical conductivity and Ohm's law in metals and semiconductors.</p> <p>Find the equivalent resistance of multiple resistors connected in series and parallel.</p> <p>Find equivalent capacitance and equivalent capacitance in series and parallel combinations.</p>

		<p>Study the concepts of the magnetic field, Ampere circuital law, Biot- savart law, and its applications.</p> <p>Understand magnetic force and its effect on moving charge and current-carrying conductor.</p> <p>Derive Maxwell's equations.</p> <p>Understand displacement current, the Nature of electromagnetic waves and their propagation through different media.</p> <p>Derive the Poynting theorem.</p> <p>Understand Diamagnetic, paramagnetic and ferromagnetic materials, B-H hysteresis curves.</p>
3.	<p>Statistical and Thermal Physics (B.Sc- II<sup>nd</sup> year and PHYS201TH)</p>	<p>Describe the assumptions made in the kinetic-molecular theory and use the theory to explain the nature of gas pressure and temperature.</p> <p>Understand the fundamental physics of heat and temperature and their relation with energy, work, radiation, and matter.</p> <p>Learn how laws of thermodynamics are used in a heat engine to transform heat into work.</p> <p>Understand the interrelationship between thermodynamic functions and the ability to use such relationships to solve practical problems.</p> <p>Gain knowledge about reversible and irreversible processes and calculate the change in entropy for various functions.</p> <p>Realise the importance of Thermodynamical functions and applications of Maxwell's relations.</p> <p>Learn about the Joule -Thomson effect and how it produces low temperature.</p> <p>Apply the concept of low-temperature Physics to produce liquid hydrogen and oxygen.</p> <p>Understand how cryogenic engines of rocket work after studying low temperature Physics.</p> <p>Derive classical laws of black body radiation—Wiens law, Rayleigh-Jeans law, ultraviolet catastrophe.</p> <p>Understand how Max Planck develops quantum mechanics.</p> <p>Study of basic postulates, application of classical distribution to ideal gases, imperfect gases, quantum statistics, and black body radiation.</p> <p>Study the Maxwell - Boltzmann statistics, Fermi-Dirac statistics, and Bose-Einstein statistics.</p>
4.	<p>Wave and Optics (B.Sc- II<sup>nd</sup> year and PHYS202TH)</p>	<p>Recognise and use wave equations and derive these equations for specific physical systems.</p> <p>Gain knowledge on applications of transverse and longitudinal waves.</p> <p>Understand the principle of superposition of waves, so thus describe the formation of standing waves</p> <p>Understand the principle of superposition of waves, so thus describe the appearance of Lissajous figures</p>

		<p>The motion of coupled oscillators, the study of Lissajous figures, and the behaviour of transverse and longitudinal waves can be learnt in this laboratory course</p> <p>Understand the events like reflection, refraction, interference, diffraction, Polarisation, etc.</p> <p>Understand the applications of interference, diffraction, and Polarization.</p> <p>Realise the importance of interference in thin films.</p> <p>To study the theory and experiment of interference using air wedge, Newton's rings, and Michelson interferometer.</p> <p>To learn the theory and experimental part of diffraction by Fresnel's and Fraunhofer's methods.</p>
5.	<p>Physics Workshop Skills (B.Sc- II<sup>nd</sup> year and PHYS203TH)</p>	<p>To learn measurement and dimensional analysis of various physical quantities</p> <p>Student learn basic mechanical skills and how to apply them in daily life.</p> <p>Student learn about power generation systems and transportation mechanisms.</p> <p>Gain knowledge about electrical and electronic skills and how to apply them in daily life</p> <p>This course introduces the students to the workshop skills like cutting, drilling, filing, different types of AC and DC generators, soldering- de soldering of electrical and electronics components, constructing regulated power supplies, etc.,</p> <p>After completing this course students will gain skills of using various workshop tools and also to find faults and general troubleshoots and wiring faults.</p>
6.	<p>Electrical Circuits and Network Skills (B.Sc- II<sup>nd</sup> year and PHYS205TH)</p>	<p>To know the concept of study of measurement.</p> <p>Students can inspect network theorems</p> <p>Students can analyse three phase power drawn by balanced circuits.</p> <p>To gain the knowledge of electrical and electronic skill.</p> <p>To study blueprints drawing and designing of the basic circuits.</p>
7.	<p>Nuclear and Particle Physics (B.Sc- III<sup>rd</sup> year and PHYS304TH)</p>	<p>Understand Rutherford's experiment of alpha particle scattering, derive Rutherford's scattering formula</p> <p>Gain knowledge about the available Properties of available Nucleus.</p> <p>Explain the Liquid drop model, Fermi gas model, Shell model, and magic numbers.</p> <p>Understand the basics of the alpha decay process, alpha particle spectra, and Gamow's theory of <math>\alpha</math>-decay Geiger Nuttal law.</p> <p>Understand types of <math>\beta</math> –decay, energy kinematics, Q value, and Pauli's neutrino theory of <math>\beta</math>- decay.</p> <p>Know about Gamma rays' emission, kinematics, and internal conversion.</p>

		<p>Gain knowledge of nuclear radiation detectors.</p> <p>Understand the construction and working of the G M counter, Scintillation Counter, and semiconductor detector.</p> <p>Understand types of nuclear reactions, Conservation laws.</p> <p>Derive of Q -value for reactions.</p> <p>Understand exoergic and endoergic reactions.</p> <p>Classify elementary particles.</p> <p>Understand Symmetries and Conservation Laws</p> <p>Understand the Concept of the Quark Model, Colour quantum number, and gluons.</p>
8.	<p>Elements of Modern Physics (B.Sc- III<sup>rd</sup> year and PHYS301TH)</p>	<p>Understand Planck's quantum theory.</p> <p>Understand the Failure of classical physics and the success of quantum mechanics to explain the phenomena such as the stability of an atom, atomic spectra, black body radiation, photoelectric effect, Compton effect, and specific heat of solids.</p> <p>Get to know about de Broglie's hypothesis of matter Waves, Thomson's and Davisson Germer's experiment to prove the existence of matter waves.</p> <p>Understand the concept of wave packets, phase velocity, and Group velocity. Relation between group velocity and phase velocity.</p> <p>Understand Heisenberg's uncertainty principle and the Gamma-ray microscope experiment.</p> <p>Understand the concept of the wave function and its physical significance.</p> <p>Develop Time-dependent and Time independent Schrodinger's wave equations.</p> <p>Know about Quantum Mechanical Operators, Eigen values, and Eigen Functions.</p> <p>Set up Schrodinger's Equation for a particle in a box. Atomic Spectra</p> <p>Understand Bohr's and Somerfield's atomic models, Variation of Rydberg constant with nuclear mass.</p> <p>Understand the Frank-Hertz experiment.</p> <p>Understand the vector atom model. Pauli's Exclusion Principle, Spectra of Alkali elements (Sodium-D lines), Stern-Gerlach experiment, and Zeeman effect.</p>
9.	<p>Radiation Physics (B.Sc- III<sup>rd</sup> year and PHYS307TH)</p>	<p>To have awareness and understanding regarding radiation hazards and safety.</p> <p>Understand types of <math>\beta</math> –decay, energy kinematics, Q value, and Pauli's neutrino theory of <math>\beta</math>- decay.</p> <p>Know about Gamma rays' emission, kinematics, and internal conversion.</p> <p>Gain knowledge of nuclear radiation detectors.</p> <p>Understand the construction and working of the G M counter, Scintillation Counter, and semiconductor detector.</p>

		Understand working of MRI and CT scan like instruments
10.	Renewable Energy and Energy Harvesting (B.Sc- III <sup>rd</sup> year and PHYS310TH)	<p>Understand different types of renewable energy resources</p> <p>Know about Solar cell, Solar Heaters and Active and Passive Solar Heating</p> <p>Learn about wind and tidal energies</p> <p>Study about Piezoelectric materials</p> <p>Understand Ocean Thermal Energy Conversion</p>