GOVERNMENT COLLEGE JUKHALA (BILASPUR)

Programme outcomes: Bachelor of Arts (B.A.)

Programme Outcomes: Bachelor of Arts (Economics)

Along with other courses in Arts, Science and Commerce, Government College Jukhala provides three years degree, Bachelor of Arts (BA) in Economics from Himachal Pradesh University, Shimla. After successful completion of the Bachelor of Arts (BA) in Economics, the student will be able;

1. To know the basic ideas of Economics. Why study of economics is needed?
2. To apply the basic knowledge of Economics in their daily life and activities.
3. To understand the major concepts of Economics and its applications in micro as well as macro level.
4. To know the facts that how an economy works in different economic systems.
5. To understand the changes in an economic scenario of an economy both international and national level.
6. To think logically about an economic problem, solve the problem, and interpret independently to draw relevant conclusions.
7. To build the subject concepts for competitive examination like Indian economic services, civil services and banking sector particularly.
8. To build the subject concepts for higher studies and research like M.A., Ph.D. & Post Doc. etc.

COURSE OUTCOMES: ECONOMICS	
CLASS: B.A. I, II, III	
Course	**Course outcomes**
Core Economics I: Principle of Microeconomics-I (ECONA101)	After studying the course, students will be able to: 1. Learn the basic concepts of Economics especially microeconomics.

	2. Learn the theory of demand & supply and its determinants. How price can be determined through it? 3. Learn consumer behavior through the concept of utility and consumer equilibrium. 4. Learn the producer behavior and input-output relation in the production process. 5. Learn the costs of production and the concept of revenue and its application. 6. Understand the market and its structure.
Core Economics II: Principle of Microeconomics-II (ECONA102)	After studying the course, students will familiarization with: 1. Market structure its types and functioning through different models. 2. The concepts of market failure, its causes, and how the situation of market failure can be resolved? 3. The concepts of factor pricing, How the products are distributed among different factors of production? 4. Or the measure to determinate the share of wages, rent, interests, and profits after the utilization of inputs such as labour, land, capital, and entrepreneur in the process of production respectively.
Core Economics III: Principle of Macroeconomics-I (ECONA201)	After studying the course, students will be able to: 1. Learn the fundamentals of macroeconomics. 2. Understand the concepts of national income, calculation methods of national income, and concepts related to national income such as consumption, saving and investment. 3. Explain the classical and Keynesian approaches to determinate aggregate output, employment and rate of interests.
Core Economics IV: Principle of Macroeconomics-II (ECONA202)	After studying the course, students will be able to: 1. Learn the concepts of multiplier and accelerator and its interaction. 2. Interpret macroeconomic issues such as money, foreign exchange, inflation, unemployment,

	economic growth and foreign trade etc. a) What is money? Its role and functions. b) Define foreign exchange? Its determination, exchange rate, foreign reserves and related issues. c) Inflation and its causes. How to control continues price rises? d) Level of unemployment and its measures. e) Economic growth and stability. f) Foreign trades and related concepts. 3. Recognize the fluctuations in economic activities popularly known as trade cycles or business cycles. 4. Learn the concept of balance of payments and its components. 5. Understand the macroeconomic stabilizers such as fiscal, monetary and foreign trade policies.
SEC-I (One out of the Following)	
SEC 1: Statistical Methods – I (ECONA203)	After studying the course, students will be able to: 1. Know about data, its types and sources. 2. Learn the methods of data collection by sampling and census methods. 3. Learn the methods of data presentation by tabulation, bar diagram, pie charts, maps etc. 4. Learn the methods of data analysis by simple statistical methods such as arithmetic mean, median, mode, mean and standard deviations etc.
SEC -II (One out of the Following)	
SEC 3: Statistical Methods – II (ECONA205)	After studying the course, students will be able to: 1. Learn the methods of data analysis by advance statistical methods such as correlation, regression analysis etc.

	2. Understand the concepts of time series in data and its methods. 3. Understand the index number techniques and its applications 4. Learn the methods of data interpretations.
DSE – GROUP I (One out of the Following)	
DSE 1: **Indian Economy** **(ECONA301)**	After studying the course, students will be able to: 1. Understand the nature of the Indian Economy. 2. Learn the historical background particularly the colonial era, present situation, and future perspective. 3. Understand the role of different sectors such as agriculture, industries, and services in the Indian Economy. 4. Understand the sectoral changes, growth rate, and estimation of the Indian Economy. 5. Learn the import and export of the Indian Economy. 6. Learn the banking sector in India and its importance. 7. Understand the constraints of the Indian Economy such as Poverty, Unemployment, Income inequality, and Food Insecurity. 8. Learn the role of government policy, planning, programs, and initiatives in developing the Indian Economy.
DSE – GROUP II (One out of the Following)	
DSE 5: **Development Economics** **(ECONA305)**	After studying the course, students will be able to: 1. Understand the meaning of economic development, its need, measures and importance. 2. Learn the difference between economic development, growth, progress and welfare.

	3. Learn the determinants of economic development. 4. Understand the basic theories of underdevelopment. 5. Learn the theories and models of growth and development.
SEC-III (One out of the Following)	
SEC 6: Public Finance (ECONA310)	After studying the course, students will be able to: 1. Learn the basic knowledge of government or public finances. 2. Learn the components of public finances as public expenditure and public revenue through taxation, public debt and deficit financing. 3. Understand the efficiency and equity aspects of taxation of the centre, states and the local governments and the issues of fiscal federalism and decentralization in India. 4. Learn the fundamental of union budget and its key features. 5. Learn the role of fiscal policy to fulfil the objectives of public finance in India.
SEC-IV (One out of the Following)	
SEC 7: Money and Banking (ECONA311)	After studying the course, students will be able to: 1. Understand the theory and functioning of the monetary and financial sectors of the economy. 2. Learn the highlights of the organization, structure and role of financial markets and institutions. 3. Explain the interest rates, monetary management and instruments of monetary control. 4. Learn the financial and banking sector reforms and monetary policy with special reference to India. 5. Understand the role of central bank, its role and functioning with special reference to India.
GEC 1: **Economy of Himachal Pradesh** **(ECONA313)**	After studying the course, students will be able to: 1. Understand the nature of the economy of Himachal Pradesh.

	2. Learn the geographical perspective of the state which determines the economic activities of the people, natural resources and its use. 3. Understand the role of different sectors such as agriculture, industries, and services in the state economy. 4. Learn especially the role of horticulture, tourism, hydro-power and pharmaceutical units in economy of Himachal Pradesh. 5. Understand the sectoral changes, growth rate, and estimation of the state economy. 6. Learn the role of government policy, planning, programs, and initiatives in developing the state economy.
GEC – II (One out of the following)	
GEC 2: **Indian Economy** **(ECONA314)**	After studying the course, students will be able to: 1. Understand the nature of the Indian Economy. 2. Learn the historical background particularly the colonial era, present situation, and future perspective. 3. Understand the role of different sectors such as agriculture, industries, and services in the Indian Economy. 4. Understand the sectoral changes, growth rate, and estimation of the Indian Economy. 5. Learn the import and export of the Indian Economy. 6. Learn the banking sector in India and its importance. 7. Understand the constraints of the Indian Economy such as Poverty, Unemployment, Income inequality, and Food Insecurity.

COURSE OUTCOMES B.A. (MUSIC)	
After the completion of this programme, the student will come to know what the basic terminologies of Indian music are, which will help him in the proper understanding of not just Hindustani music, but also Indian music as a whole. Having understood the basic concepts like Laya (tempo), Tala (rhythmic cycle), A lap (tonal elaborations), the student will be on course to becoming a performing artiste in Hindustani music. The student will develop the ability to read and write the notations of compositions according to a well-defined notion system, which in turn, will help him in learning new compositions by various composers of Hindustani music. They will grasp the various theoretical aspects of the prescribed ragas, like how it arises, what are the general grammatical rules that govern the ragas in this course, etc. They come to understand the concept of Tala and the use of various Talas in Hindustani music, especially ragas.	
COURSE OUTCOMES: MUSIC	
CLASS: B.A. I, II, III	
Course	**Course outcomes**
MUSA101TH and MUSA103TH -Basic Principals of Indian Music & Biographies of Musicians, Composers & Musicologists	The student will come to know how ragas were performed in ancient times He will learn the principles governing the Time Theory of Ragas, in that every raga is to be performed according to a designated time. This will enhance his understanding of the raga and their associated moods. The student will appreciate the pioneering work done by the aforementioned legends of Hindustani music, and how the state of modern music is a direct result of their tireless efforts in reviving the dying art. The student will be able to read compositions written in Western notation system and will also be able to make a comparative analysis with the notation system of Hindustani music Basic knowledge of the following instruments: - Tãnpura, Sitar, Tabla, Harmonium. Biographies & Contributions of the following Tansen, Ustad Shahid Parvez, Ustad Zakir Husain, Ustad Amir Khan
MUSA201TH and MUSA203TH Hindostani music	1. The student will come to know about the origin of many current musical forms of singing in Hindustani music, such as Dhrupad, Dhamar and Khayal. This

	Knowledge is useful for further study of musicology as well as for purposes of research. 2. He will understand how various musical instruments of India are made, and are categorized on the basis of solids, animal skin, wind and metallic strings. This will enhance his knowledge, and will be beneficial in future research on musical instruments. 3. He will gain valuable knowledge on the various musical forms, as they existed in ancient India, and how they gave rise to some of the musical forms that are sung today, such as Dhrupad, Dhamar and Khayal.
MUSA102, 202, 204 PR: Rãgas	The student will become well-versed with the techniques of singing or playing, as the case may be. The student will be able to achieve dexterity of the voice (singing) and hand (playing), through regular practice of the tonal exercises at home. The students will know how to tune their respective instruments – Tanpura for vocal students, and Sitar, Sarod etc. for instrumental students Having learnt the Notation system in the Theory, the student will able to read and learn new compositions in the prescribed ragas. He will grasp the various grammatical aspects of the prescribed ragas, like how they arise, what are the respective rules that govern these ragas, how do the notes move in the ragas, what are the performing times of the ragas etc. He will learn the art of singing or playing, especially with regard to having the Tabla as an accompanying instrument. He will possess a fairly good idea of how a raga is to be performed after learning the basic ragas.

Department of English

COURSE NAME	DURATION	ELIGIBILITY	ENROLMENT
BA/ B.Sc./B.Com	3 Years	10+2 with any stream	Compulsory
Discipline Specific Course (D.S.C.)	3 Years	10+2 with any stream	Optional

COURSES OFFERED AND OUTCOMES

YEAR	COURSE	COURSE CODE	COURSE TYPE	COURSE TITLE	COURSE OUTCOME
I	English -1	ENG CE 101	Core	English -1 Core English (Compulsory)	This course aims at familiarizing the students with nuances of literature to the teaching of poetry, short stories and essays. The students experience variety and depth of language and literature at the same time.
I	DSC-1A	ENG DSC 102	Core	DSC-1A English Literature-1 Essays, Stories and Poems	The literary contents of this course aim at bringing the ranges of literary richness of our cultures and traditions within the range of our students.
I	DSC-1B	ENG DSC 103	Core	DSC-1B English Literature-2 Poems, Short Stories and Essays	The literary text aims at making the students aware about the cultural diversity and literary traditions that exist in India through a living mixture of continuities and transmutations.
I	Ability Enhancement Compulsory Course AECC	ENG AECC 104	Core Compulsory	AECC-2 Writing Skills	The skill of writing stands at the very core of the capability to communicate; this course focuses on developing the skills of drafting and communicating in order to increase employability of the students.

II	English-2	ENG CE 201	Core	English-2 Core English (Compulsory)	With the suitable combination of prose and poetry this course focuses on developing capability of the students in addition to literature, the compulsory course also aims at improving grammatical skills of the students.
II	DSC-1C	ENG DSC 202	Core	DSC-1C British Literature: (Play and Novel)	Studying literature broadens one's horizon and opens up the mind to countless new possibilities and perspectives in addition to inculcating empathy in the readers. With canonical texts like The Merchant of Venice and Oliver Twist, students are introduced to the culture of the Glorious Elizabethan and Victorian ages enabling them to embark on a fruitful journey into the world of British Literature.
II	DSC -1D	ENG DSC 203	Core	DSC- 1D Literary Cross Currents	The most enduring aspect of this paper is that it includes poetry and prose which has come to us mostly through translation of literally achievements in Indian languages such as Bengali, Telugu, and Marathi etc. In this way the students get a chance to understand the various expects of culture and tradition to the literature.
II	AEEC/SEC-1	ENG AEEC/SEC 204	Ability Enhancement Elective Course/Skill Enhancement Course	AEEC/SEC- 1 Creative Writing: Book and Media Reviews	This course teaches not just about the process and art of creative writing but also the nuances of reviews of literature and writing in general.

II	AEEC/SEC-2	ENG AEEC/SEC-205	Ability Enhancement Elective Course /Skill Enhancement Course	AEEC/SEC-2 Translation Studies and Principles of Translation	The course acquaints students with the theory, approaches, descriptions, methods, applications and problems of translation. Its main objective is to familiarize students with the field of translation studies especially focusing on how to translate a text from English to Hindi and vice versa. The course is pertinent in the present time where focus is on multilingual and multicultural education.
III	AEEC/ SEC -3	ENG AEEC/ SEC 301	Ability Enhancement Elective Course /Skill Enhancement Course	AEEC/SEC-3 Technical Writing	This course aquatints the students with various aspects of writing technically in order to cater to the needs of a rapidly changing World. It's emerging need's in the field of commerce, economy and employment.
III	AEEC/ SEC -4	ENG AEEC/ SEC 302	Ability Enhancement Elective Course /Skill Enhancement Course	AEEC/SEC-4 Business Communication	Business communication has become imperative in today's scenario. The knowledge of the nuances of effective business communication is essential for the success and advancement of an individual's professional career and the success of the organization at large.
III	DSE -1A	ENG DSE 303	Discipline Specific Elective	DSE-1A Soft Skills	This course aims to equip the students with the knowledge of the essential soft skills like Emotional Intelligence, Adaptability, and Problem Solving etc which are the prerequisites of the holistic development of an individual. These skills facilitate human connections and enable a person to have good interpersonal relations both on the personal and professional front.

III	DSE -1B	ENG DSE 304	Discipline Specific Elective	DSE-1B Academic Writing and Composition	This course aims to enable the students to engage in writing for an academic purpose, equipping them with the tools to deal with the requirements of academic writing and its specific composition.
III	GE-1	ENG GE 305	Generic Elective	GE-1 Literature from Himachal Pradesh	The course introduces the students to the literature of Himachal Pradesh.
III	GE-2	ENG GE 306	Generic Elective	GE-2 Contemporary India: Women and Empowerment	The course introduces the students to Contemporary India with special focus on Women and Empowerment.

Geography B.A. (Programme) Outcomes

The aim of Learning Outcome based Curriculum Framework Committee (LOCF) constituted by the University Grants Commission (UGC) is to introduce the students of geography not only to the conventional and innovative courses but also to provide them an understanding of the basic principles of technology based practical courses such as Geographical Mapping, Remote Sensing, Spatial Information Technology, Satellite System, etc. It also intends to expose the learners the technical skills required to analyze and interpret the results by applying such techniques. The LOCF is designed to emphasize the teaching-learning process at the undergraduate B.A. level to sensitize and train the students to develop a sound and systematic approach regarding mechanism and processes of natural and human made hazards and disasters. The focus is to help the students to understand the latest tools and techniques, which would help in giving focused and precise understanding of geographical phenomenon. The purpose is to enhance the capability of the students in perceiving, creating and analyzing sound geographical bases and concepts.

This Learning Outcome based Curriculum Framework is designed to emphasize the teaching and learning process at the undergraduate B.A. from teacher centric to student centric by strengthening the quality of teaching and learning in the present day real life scenario of global, regional and local level. It is considered learning as an activity of creativity of innovations and analyzing geographical phenomena. The committee prepared the major objectives and learning outcomes, which would help the students to understand and critically analyze various dimensions of the geographical issues. The following objectives would be achieved:

- To orient the students towards identification and analysis of various facets of geographic and geographical features and processes.
- To develop students' aptitude for acquiring basic skills of carrying out field work.
- To facilitate the students to learn skills of map making.
- To guide students to learn the science and art of collecting, processing and interpreting the data.
- To expose the students to the use of the updated technologies of remote sensing and Geographical Information System (GIS).

Geography Course Outcomes and SDGs the global community has adopted the Sustainable Development Goals to ensure holistic and multi-faceted development of human societies across the world. The Indian Geographical community aims to harness the trans-disciplinary nature of the subject and link it with sustainable development goals through a range of multi-dimensional coreand elective papers.

COURSE CONTENT FOR BA (ANNUAL) SYSTEM

Year		CORE COURSES/ SEC/DSE/GE	CORE CODE
First	**CORE COURSE**	**Physical Geography**	**(GEOGP101-CC)**
		General Cartography (Practical)	**(GEOGP102-CC)**
Second	**CORE COURSE**	**Human Geography**	**(GEOGP201-CC)**
		Environmental Geography	**(GEOGP202CC)**
	SKILL COURSE	**Regional Planning and Development**	**(GEOGP203-SEC)**
		Remote Sensing and GPS (Practical)	**(GEOGP204-SEC)**
Third	**SKILL COURSE**	**Geographic Information System (Practical)**	**(GEOGP301-SEC)**
		Field Techniques and Survey based Project Report (Practical)	**(GEOGP302-SEC)**
	ELECTIVE COURSE	**Geography of India**	**(GEOGP303-1DSE)**
		OR	
		Economic Geography	**(GEOGP303-2DSE)**
		Disaster Management	**(GEOGP304-1DSE)**
		OR	
		Geography of Tourism	**(GEOGP304-2DSE)**
	GENERIC ELECTIVE	**Disaster Risk Reduction**	**(GEOGP305-GE-1)**
		Sustainability and Development	**(GEOGP306-GE-2)**

1. Physical Geography:

Learning Outcomes: After the completion of the course, the students will have the ability to:

1. Understand the components of the earth system – atmosphere, lithosphere and hydrosphere;

2. Appreciate and understand various features of the spheres with local, regional and global examples;

3. Associate and bring out the relationships of the features of one sphere with other spheres.

2. Cartographic Techniques

Learning Outcomes: After the completion of the course, the students will have the ability to:

1. Distinguish between various types of maps and also appreciate the elements of map;

2. Appreciate how projections are applied to prepare maps from the globe;

3. Acquire knowledge to prepare maps from geographic data and also the ability to interpret them.

3. Human Geography

Learning Outcomes: After the completion of the course, the students will have the ability to:

1. Understand the basic concepts in various sub-fields of human geography;

2. Appreciate the growth, distribution and composition of population in different parts of the world;

3. Analyse the types and patterns of rural and urban settlements, urbanisation and related issues in India and other regions of the world.

4. Environmental Geography

Learning Outcomes: After the completion of the course, the students will have the ability to:

1. Appreciate the structure and functions of ecosystems with examples;

2. Understand the environmental problems and relevant management strategies;

3. Acquire knowledge about the new environmental policies and the need to revise policies to tackle the environmental issues of India, in particular.

5. Regional Planning and Development

Learning Outcomes: After the completion of the course, the students will have the ability to:

1. Appreciate the basics of regional planning methodology and the need for adopting newer models in the planning process;

2. Understand the history of adopting various planning strategies for balanced national development;

3. Capable of diagnosing the regional issues and the necessity to adopt suitable SDGs in India.

6. Remote Sensing and GPS

Learning Outcomes:

After the completion of the course, the students will have the ability to:

1. Appreciate the development and uses of aerial and satellite remote sensing system and navigation satellite systems in India and other nations;

2. Understand the basics of EMR and energy interaction in atmosphere and on earth surface features;

3. Analyze and interpret the aerial and satellite data products and GNSS/GPS survey results.

7. Geographic Information System

Learning Outcomes: After the completion of the course, the students will have the ability to:

1. Appreciate the basic principles and components of GIS;

2. Apply raster and vector data structure for GIS analysis;

3. Analyze the basic resources, land use and urban related data using GIS software for meaningful interpretation

8. Field Techniques and Survey based Project Report

Learning Outcomes: After the completion of the course, the students will have the ability to:

1. Conduct field work in physical and human geography, besides investigating socio-economic and environmental issues;

2. Develop tools to collect primary data from the field and interpret them meaningfully;

3. Prepare field report with suitable tables, maps and diagrams based on the data collected from the field and secondary sources.

9. Geography of India

Learning Outcome: After the completion of the course, the students will have the ability to:

1. Learn the differences in terms of varied physiography of India;

2. Understand the demographic component and settlement structure in India;

3. Study the economy and various types of resources in India.

10. Economic Geography

Learning Outcome: After the completion of the course, the students will have the ability to:

1. Appreciate the basic concepts and approaches of economic geography;

2. Examine the significance and relevance of theories in relation to the location of different economic activities;

3. Distinguish different types of human activities and try to understand their inter and intra relationships.

11. Disaster Management

Learning Outcomes: After the completion of the course, the students will have the ability to:

1. Understand the basic concepts and the classification method of disasters;

2. Acquire knowledge on the causes, impacts, distribution and mapping of disasters of India;

3. Appreciate the responses and mitigation measures of disasters in India.

12. Geography of Tourism

Learning Outcomes: After the completion of the course, the students will have the ability to:

1. Appreciate the basic concepts and geographical parameters of tourism;

2. Acquire knowledge on the recent trends and patterns of tourism development in India and other countries;

3. Understand the impacts of tourism on national, regional and local economy, environment and society.

13. Disaster Risk Reduction

Learning Outcome: After the completion of the course, the students will have the ability to:

1. Acquire knowledge on concepts, types, distribution and mapping of disasters in India;

2. Understand the man-made disasters and human negligence in the context of environment;

3. Bring awareness about the preparedness, mitigation and processes of disaster risk reduction.

DEPARTMENT OF PHYSICAL EDUCATION

The department strives to inculcate appropriate values and qualities required to develop sports persons and physical education professionals at various levels. This department was established with the following objectives:

1.To conduct various Training Programmes of Physical Education & Sports.

2.To provide the opportunities to conduct research on various aspects of physical education and sports.

3.To conduct professional/socially relevant sports programmes independently or in collaboration with various departments on different aspects on psychology, yoga and other related health & physical education fields.

Learning Course Programme Outcome of Physical Education:

COURSE TITLE	**COURSE CODE**	**LEARNING OUTCOME on the completion of course, students will able to-**
BA 1st **COURSE-1**Introduction to physical education	DSC-1A (PED101TH)	• Improve the understanding of the importance of maintaining a healthy lifestyle. • A variety of skills and abilities related to lifetime leisure activities.
COURSE-2 Athletics and game-1	DSC-1A (PED101PR)	• Increased confidence and reduce stress. • Improved lung function and improve mental health.
COURSE-3 Olympic movement and organization of tournaments	DSC-1B(PED102TH)	• Promoting sports and the Olympic values in society. • People inspired by the values of olympism. • Three main outcomes of olympism are excellence, friendship, and respect.
COURSE-4 Athletics and game-II	DSC-1B (PED102PR)	• Sports builds leaders and improved cardiovascular health. • Lower risk of heart disease, stroke, and diabetes.
BA 2nd **COURSE-1** Human anatomy and physiology	DSC-1C (PED201TH)	• Tells the basic knowledge of human anatomy and physiology. • Define the main structures comparing human body. • Tells about the nervous system and sense

		organs.
COURSE-2 Athletics and game-III	DSC-1C (PED201PR)	• Helps manage weight and enhanced aerobic fitness. • Reduce blood pressure and improve muscular strength and endurance.
COURSE-3 Sports psychology	DSC-1D (PED202TH)	• Effectively develop and apply health, physical activity and psychological principles as they relate to human performance. • Demonstrate effective written and oral skills in various formats and for various purposes.
COURSE-4 Athletics and game-IV	DSC-1D (PED202PR)	• Improve joint flexibility and range of motion. • Encourages healthy living habits and develops time management and organizational skills.
COURSE-5 SEC1: Sports medicine, psychotherapy and rehabilitation	PED203TH	• Knowledge about psychotherapy and rehabilitation.
COURSE-6 SEC2: Sports training	PED204TH	• Knowledge of sports training.
B.A 3rd **COURSE-1** Recreation	DSE-1A (PED305TH)	• Learn skills through play and sports. • Improve moods, reduce stress and enhance a sense of wellness.
COURSE-2 Officiating and coaching	DSE-1B (PED308TH)	• Provide leadership and guidance to participants, ensuring that the competition is conducted in a safe and fair manner. • Officiating affords an individual the opportunity to develop interpersonal skills and to hone one's judgement skills.
COURSE-3 Kinesiology and biomechanics	DSE-1A (PED306TH)	• Learn about biomechanics.
COURSE-4 Methods of teaching in physical education	DSE-1B (PED307TH)	• To learn about methods in physical education.
COURSE-5 SEC3 Specialization in Kabaddi	PED303PR	• Improve stamina, speed, agility, multitasking abilities. • Enhance presence of mind.

COURSE-6 SEC4 Specialization in athletics	PED304PR	• Demonstrate traits of good sportsmanship and team work in both competition and practice. • Demonstrate an expert knowledge of the strategies and skills of sport.
COURSE-7 GENERIC 1: Health education and nutrition	PED309TH	• Nutrition education provides participants with the skills and resources to make better nutritional choices to combat obesity and chronic disease. • Chronic disease awareness and prevention. • Nutrition, exercise, and obesity prevention. • Injury and violence prevention.
COURSE-8 GENERIC 2: Yoga	PED310TH	• Increased. Flexibility. • Maintaining a balanced metabolism. • Improve respiration, energy, and vitality. • Increase muscle strength and tone.

DEPARTMENT OF SANSKRIT

Programme Learning Outcomes:

The completion of the learning activity associated with a study program ensures the qualification attributes are attained. The term 'Programme is used to define the entire study scheme which ultimately qualifies the learners. Certificate/Diploma/Degree is the outcomes of the Individual programmes.

The programme learning outcomes are aligned with the relevant qualification descriptors. To be awarded a specific Degree/Certificate etc., the students have to demonstrate skills and competencies which are both subject specific as well as generic. The learning outcomes are so designed that they prepare the student either for further study, employment and also to be a good citizen. The course design helps in comparison of academic standards across colleges/universities to provide a broad picture of the graduate's competency level.

Bachelor's degree in Sanskrit is awarded upon completion of three full years of the subject study at the undergraduate level. The learning at the end of the course enables the student to have the academic, behavioural and social competencies as given below:

Proficiency in Academics

- Basic communication skills in understanding Sanskrit with LSRW (Listening, Speaking, Reading & Writing) capacities.
- Skills adaptability in specific areas. Usage of critical thinking while correlating concepts with personal experiences.
- Usage of critical thinking while correlating concepts with personal experiences.
- Usage of Shastricdiscipline and ancient traditional learning while discriminating others.
- Articulation of ideas, literacy writing, innovations and effective presentation skills in Sanskrit as well as in other native Indian languages and English.
- Building confidence to explore and study various Indian sciences.
- Ability to explore ancient Indian sciences with confidence.
- Competency building to convey the society at large about Indic Knowledge and wisdom.

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- Confidence in the chosen discipline knowledge along with the methodology – like data analysis, computer literacy.
- Being technically sound to utilize various e-resources, social media network etc. for furthering the purposes of Sanskrit education.

Personal &Behavioural Competence

- Self-respect and respect for others.
- Self-development, health and hygiene, self-regulation skills.
- Self-confidence in executing and planning and execution of tasks.
- Development of positive attributes such as empathy, compassion, social participation, accountability etc.
- Development of cultural and historical sensibility particularly indigenous traditions, socio-cultural context and diversity.
- Competency in communicating, interacting, listening, speaking and observational skills.
- Appreciate and tolerate various perspectives.
- Art of negotiation, working in group and independently, interacting with stakeholders.
- Developing patriotism with a sense of responsibility
- Accentuating memory power and concentration in a specific area.

Social Competence

- Ethical, social and ecological responsibility and acknowledging the dignity and presence of others, learning of values and social concerns reflected in social participation
- Objective and unbiased work attitude, avoiding unethical behaviours such as data fabrication and plagiarism, observing code of conduct, respecting intellectual property rights and being aware of the implications and ethical concerns of research studies.
- Commitment to health and wellbeing at different levels (e.g. individual, organization, community, society).
- Collaboration, cooperation and realizing the power of groups and community.
- Analyzing social problems and understanding social dynamics.
- Gender sensitization including gender respect, respect for one's own gender, dealing with gender confusion and gender identity issues.
- Commitment to keep the environment clean and green.
- Awareness of Patriotism from literature and the ethical awareness towards our country and our duties for it.
- Being and ambassador to the Shastric literature.

Program Outcome for Core (CC)

PO1: Sanskrit Poetry

PO2: Sanskrit Prose

PO3: Classical literature drama
PO4: Critical survey of Sanskrit literature

Courses Program Outcome for Discipline Specific Elective (DSE) Courses
PO1: Vedic Literature
PO2: Political Thought
Program Outcome for Generic Courses
PO1: Basic sanskrit
PO2: Sanskrit prose and Poetry
PO3: Ancient Indian polity.
PO4: Manusanhitasaptamadhyay
PO5: Koutilya'sArthasastha
Program Outcome for Skill enhancement (SE) courses
PO1: Communication in Sanskrit
PO2: Sanskrit Grammer (General)
PO3: Dramaturgy
PO4: Indian philosophy (only six AstikDarshan)

DEPARTMENT OF POLITICAL SCIENCE

COURSE TITLE	COURSE CODE	LEARNING OUT COME On the completion of course ,students will able to-
B.A 1st **COURSE -1 Introduction toPolitical Theory**	DSC-1A(POLS 101)	• Distinguish systematic normative inquiry from other kinds of inquiry within the discipline ofpolitical science. • Identify the most important contributors to modern Western political thought and explain why their contribution are important. • Demonstrate the ability to apply abstract theory to concrete problems by using the ideas of political theorists to address contemporary social issues such as affirmative action ,pornography and capital punishment
COURSE -2 Indian Government and Politics	DSC-1B(POLS 102)	• Demonstrate knowledge about the significance of current issues of Indian politics • Analyze political andpolicy problems and formulate policy options. • Discuss and evaluate the institutional structure and operations of the major national and state political institutions.
B.A 2nd **COURSE-3 Comparative Government and politics**	DSC-1C(POLS 201)	• Discuss the theory and apply the methodology of comparative analysis within the discipline of political science. • Analyze contemporary problems in the countries under

		consideration in light of the conceptual frameworks presentedin class. • Write an analysis of the institutions, political behavior and political ideas of another country.
COURSE-4 Introduction to International Relation	DSC-1D(POLS 202)	• Identify the names and geographic location of most contemporary states. • Discuss the main international relations theories ,and the values implicit in each of these different ways of looking at the world ,thus giving them the tools necessary to understand the day − to-day events reported in the media . • Describe the role of individual and cultural values and perception, and the important of empirical evidence in analyzing international problems.
COURSE-5 LegislativeSupport	SEC-1 (POLS 203)	• Demonstrate an understanding of the policy making process by preparing a legislative history of a major law , including an analysis of the statement of Administration policy as well as all stages of the legislative process. • Play the role of a member of either institution in an in-class simulation with ahigh level of

		authenticity.
COURSE-6 Public Opinion and Survey Research	SEC-2 (POLS204)	• Conduct a literature review for a question
		in political scienceresearch. • Design an elite interview protocol. • Write up research findings in correct format. • Present research findings to an audience using visual aids.
B.A 3RD COURSE-7 Themes in Comparative Political Theory	DSE-1A POLS 301(A)	• Identify different political philosopher inIndia. • Discuss the role thatsymbols play in the Political process
COURSE-8 Democracy and Governance	DSE-1B POLS 302(B)	• Analyze political and policy problems and formulate policy option • Accountable ,legitimate ,responsive government • Free and fair election
COURSE-9 Democratic Awareness Through Legalliteracy	SEC-3 POLS 303	• Compare and contrastthe various theories of constitutional interpretation.
COURSE-10 Conflict andPeace building	SEC-4 POLS 304	• Identify the core normative philosophyof the field of conflictand peace. • Explain the cause of war at several levelsof analysis. • Describe and analyzecases in the past century in which conflict was resolvedwithout

		violence.
COURSE-11 **Society, economy and Politics in Himachal Pradesh .**	GE-1 POLS 305	• Awareness regardingsocial, cultural and politics of H.P. • Discuss how political factors shapes the policy formulation and implementation.

Department of History

Courses Offered & Outcome

Year	Course Type	Course Title	Course Code	Course Outcome
First	DSC I	History of India From Earliest Times up to 300 CE	DSC-1A: HIST(A)101	Students will be able to know about the Literary & Archaeological Records of the Ancient past, About Indian Civilization, Vedic Culture, students will be able to understand the philosophy of Buddhism and Jainism and political History of Ancient India. Overall students will be able to understand the various perspectives and diverse experiences of people in the past.
	DSC II	History of India From c. 300 to 1206	DSC-1B: HIST(A)102	Students will know the political, social and economic structure of ancient India. They will understand the cultural practices, religious faith like Bhaktism and Sufisim and scientific knowledge of the people of ancient India. It will create a sense to understand where we stand today.
Second	DSC III	History of India, c. 1206-1707	DSC-1C: HIST(A)203	In this particular course, students will be able to know the history of medieval India. In which they will understand the political structure and various kingdoms and empire established during the period. Students will also familiarize with social and cultural practices of the period.
	DSC IV	History of India, 1707-1950	DSC-1D: HIST(A)204	This course aims at to inculcate a reverence and sense of belonging to the nation among the students by making Students able to understand the advent of Britishers in India, their policies and their administration. They will know about the national movements led by various leaders of India to make India free from foreign Powers. Students will be able understand the struggle of freedom fighters. This course will help students to build empathy, respect to each other by studying the lives and struggle of others.
	SEC-I	Historical Tourism	SEC-1: HIST(A)213	This course particularly focuses to enhance the skills of reading, speaking and exploring the different Historical places. Other than that students will be able to understand and appreciate the various historical places and rich cultural heritage of India.
	SEC-III	An Introduction to	SEC-2: HIST(A)215	This course will help students to make them research oriented by knowing the

		Archaeology		concept of archaeology. It will help students to enhance their reasoning ability e.g. asking a question about the past, assessing clues together to tell a story or any event.
Third	DSE-I	Modern and Contemporary World History I: 1871-1919	DSE-1A: HIST(A)305	Students will be able to understand and demonstrate the knowledge about world history particularly the events and causes after completion of the course.
	DSE-III	Modern and Contemporary World History II: 1919-1992	DSE-1B: HIST(A)307	Students will know the political, social and economic structure of the 20th century of the world. They will also be able to understand and demonstrate the cause and effect of any event happened during the period.
	SEC-V	Indian History and Culture	SEC-3: HIST(A)317	This course aims at to get knowledge of different Historical Periods, changing nature of political institutions or kingdoms, culture and society.
	SEC-VII	Introduction to Indian Art	SEC-4: HIST(A)319	The course will help students to enhance their creative skills by understanding the history of Indian art. Students will able to understand and recognize the art of different historic period prescribed in the course.
	GE-I	Women in Indian History	GE-1:(A)HIST 309	By studying the course, students will know the roles and struggle of women in history. Knowledge of women's strengths and contributions will help students to build respect to them and will create a sense of empowerment among students.
	GE-IV	History of Himachal Pradesh, 1815-1972	GE-2:(AHIST 312)	At the completion of the course, students will get the knowledge of political, social, economic and cultural History of Himachal Pradesh. They will know the historical sites, monuments and folk culture of Himachal Pradesh.

PROGRAMME OUTCOMES: BACHELOR OF SCIENCE (B.SC.)

COURSE OUTCOMES: CHEMISTRY	
CLASS: B.Sc. I, II, III	
Course	**Course outcomes**
CHEM101TH: ATOMIC STRUCTURE, BONDING, GENERAL ORGANIC CHEMISTRY & ALIPHATIC HYDROCARBONS	*After studying the course, students will able to:* 1. Learn atomic theory and its evolution. 2. Learn scientific theory of atoms, concept of wave function. 3. To predict the atomic structure, chemical bonding, and molecular geometry based on accepted models. 4. Characterize bonding between atoms, molecules, interaction and energetics 5. Explain hybridization and shapes of atomic, molecular orbitals, bond parameters, bond-distances and energies. 6. Explain stereochemistry of organic molecules – conformation and configuration, asymmetric molecules and nomenclature. 7. Understand concept of aromaticity, mechanism of aromatic reactions. 8. Understanding hybridization and geometry of atoms, 3-D structure of organic molecules, identifying chiral centers. 9. Define electrophile, nucleophiles, free radicals, electronegativity, resonance, and intermediates along the reaction pathways.
CHEM102TH: STATES OF MATTER, CHEMICAL KINETICS & FUNCTIONAL ORGANIC CHEMISTRY	*After studying the course, students will familiarization with:* 1. Various states of matter and physical properties of each stateof matter and laws related to describe the states. 2. Kinetic model of gas and its properties. 3. Maxwell distribution, mean-free path, kinetic energies. 4. Behavior of real gases, its deviation from ideal behavior,equation of state, isotherm, and law of corresponding states. 5. Liquid state and its physical properties related to temperatureand pressure variation. 6. Familiarization about classes of organic compounds and theirmethods of preparation. 7. Basic uses of reaction mechanisms 8. Preparation and uses of various classes of organic compounds. 9. Organic chemistry reactions and reaction mechanisms.
CHEM201TH: SOLUTIONS, PHASE EQUILIBRIUM, CONDUCTANCE, ELECTROCHEMISTRY & ORGANIC CHEMISTRY	*After studying the course, students will familiarization with:* 1. Understanding phases, components, Gibb's phase rule and itsapplications. 2. Construction of phase diagram of different systems and theapplication of phase diagram. 3. Electrolytes and electrolytic dissociation, salt hydrolysis andacid-base equilibria 4. Ionic equilibria – electrolyte, ionization, dissociation. 5. Salt hydrolysis (acid-base hydrolysis) and its

	application inchemistry.
CHEM202TH: CHEMISTRY OF MAIN GROUP ELEMENTS, CHEMICAL ENERGETICS AND EQUILIBRIA	*The student will able to understand and apply:* 1. Chemistry of s and p-block elements. 2. Chemistry of noble gases. 3. Inorganic polymers and their use. 4. Understanding redox reactions in hydrometallurgy processes. 5. Structure, bonding of s and p block materials and theiroxides/compounds. 6. Understanding chemistry of boron compounds and theirstructures. 7. Chemistry of noble gases and their compounds; application ofVSEPR theory in explaining structure and bonding.
CHEM203TH: BASIC ANALYTICAL CHEMISTRY	*After studying this skill enhancement course, student will be able to:* 1. Understand the basics of analytical chemistry
	2. Undertake Soil analysis, water analysis and various aspects food analysis *3. Undertake analysis using chromatographic techniques* *4. Undertake the analysis of cosmetics like deodorants and antiperspirant, talcum powder etc*
CHEM204TH: FUEL CHEMISTRY & CHEMISTRY OF COSMETICS & PERFUMES	*After studying the course, students will familiarization with:* *1. Energy sources (renewable and non-renewable)* *2. Coal in various industries, composition and processing* *3. Petroleum and Petrochemical Industry* *4. Classification of lubricants, lubricating oils, Properties of lubricants* *5. preparation and uses of the following: Hair dye, hair spray, shampoo, suntan lotions etc.* *6. Essential oils and their importance in cosmetic industries*
CHEM301TH: POLYNUCLEAR HYDROCARBONS, DYES, HETEROCYCLIC COMPOUNDS AND SPECTROSCOPY	*After studying the course, students will familiarization with:* *1. Polynuclear hydrocarbons and their reactions.* *2. Heterocyclic compounds and their reactions.* *3. Understanding the structure and their mechanism of reactions of selected polynuclear hydrocarbons.* *4. Understanding the structure, mechanism of reactions of selected heterocyclic compounds* *5. To study UV, IR and NMR spectroscopy.* *6. Determine structure of compound by spectroscopic methods*
CHEM302TH: INDUSTRIAL CHEMICALS AND ENVIRONMENT	*After completion of the course, the learner can be able to understand:* *1. Industrial Gases: Large scale production, uses, storage and hazards in handling of* *2. General Principles of Metallurgy.* *3. Air Pollution* *4. Water quality parameters* *5. Atmospheric chemical phenomena and environmental pollution* *6. Water pollution, parameters of water pollution, treatment of polluted wate* *7. Nuclear Pollution*
CHEM303TH: QUANTUM CHEMISTRY, SPECTROSCOPY & PHOTOCHEMISTRY	*The students will able to understand:* *1. De-Broglie hypothesis and Uncertainty principle* *2. To derive Schrodinger time dependent and independent equations, know the Eigen function, Eigen value, operator and postulates of quantum mechanics.*

	3. *Learn two- and three-dimensional box, mechanics of particle.* 4. *Study of photochemistry* 5. *Role of photochemical reactions in biochemical processes*
CHEM304TH: CHEMISTRY OF TRANSITION AND INNER TRANSITION ELEMENTS, COORDINATION CHEMISTRY, ORGANOMETTALICS, ACIDS & BASES	*The students will able to understand the:* 1. *Coordination compounds – its nomenclature, theories, d- orbital splitting in complexes, chelate.* 2. *Transition metals, its stability, colour, oxidation states and complexes.* 3. *Lanthanides, Actinides – separation, colour, spectra and magnetic behaviour* 4. *Understanding the nomenclature of coordination compounds/complexes, Molecular orbital theory, d-orbital splitting in tetrahedral, octahedral, square planar complexes, chelate effects.* 5. *Understanding the transition metals stability in reactions, origin of colour and magnetic properties.* 6. *Know the shapes of d-orbital and degeneracy of d-orbital*
CHEM305TH: POLYMER CHEMISTRY	*After completion of the course, the learner can be able to understand:* 1. *Introduction and history of polymeric materials.* 2. *Molecular weight and structure property relationship* 3. *Kinetics of Polymerization* 4. *Characterization of polymers: Crystallization and crystallinity* 5. *Physical, thermal, Flow & Mechanical Properties of polymers.*
CHEM306TH: MOLECULES OF LIFE	*After completion of the course, the learner can be able to understand:* 1. *Bioinorganic chemistry – metal ions in biological system,* 2. *Amino Acids, Peptides and Proteins, lipids* 3. *Enzymes and correlation with drug action* 4. *Components and functions of Nucleic acids* 5. *Concept of Energy in Biosystems*
CHEM307TH: CHEMICAL TECHNOLOGY & SOCIETY AND BUSINESS SKILLS FOR CHEMISTRY	*On completion of this course, the students will be able to:* 1. *Various processes and instruments used in chemical technology such as distillation, solvent extraction, extruders, pumps, mills, emulgators.* 2. *Scaling up operations in chemical industry.* 3. *Introduction to clean technology.* 4. *Exploration of societal and technological issues from a chemical perspective* 5. *Key business concepts: Business plans, market need* 6. *Current challenges and opportunities for the chemistry-using industries* 7. *Concept of intellectual property rights and patents.*
CHEM308TH: PESTICIDE CHEMISTRY & PHARMACEUTICAL CHEMISTRY	*The students will have the knowledge of:* 1. *Various pesticides, insecticides, fungicides and herbicides.* 2. *Synthesis of DDT, Malathion, Parathion, Carbofuran.* 3. *Drugs & Pharmaceuticals Drug discovery* 4. *Synthesis of the drugs like analgesics agents, antipyretic agents, anti-inflammatory agents.* 5. *Production of Ethyl alcohol and citric acid, Penicillin, Cephalosporin, Chloromycetin and Streptomycin, Lysine,* *Glutamic acid, Vitamin B2, Vitamin B12 and Vitamin C.*

Department of Physics
Course outcomes of B.Sc. Physics

Course Name	Outcomes After completion of these courses students should be able to;
Mechanics (PHYS101TH)	1. Know the Cartesian, spherical polar and cylindrical co-ordinate systems. 2. To understand the Special Theory of Relativity. 3. Discuss the Michelson- Morley Experiment. 4. To obtain the series solution by Frobenius method . 5.Understand Newton‟s Laws of motion and their applications such as projectile and rocket motion 6. Gain the knowledge of motion in central force field
Electricity and Magnetism (PHYS102 TH)	1. Understand Charge, Electric Fields. 2. Know the Electric Potential And Basic Circuit Elements. 3. Magnetic Fields and Magnetic Forces. . 4. Learn about magnetic flux, Coulomb's Law Point charge etc.
Statistical and Thermal Physics (PHYS201 TH)	1. To study kinetic theory of Gases. 2. To study Maxwell Relations and Application. 3. Know the elementary concept of statistics. 4. Understand statistical distribution of system of particles. 5.To study statistical ensembles.
Waves and Optics (PHYS202 TH)	1. To study the Coherent and Incoherent addition of Waves. 2. Discuss the type Diffraction. 3. Know the Interference of light and Young's experiment. 4. Understanding Polarisation and Huygens Principle. 5.Study the Refraction and Reflection of plane Waves.
Physics Workshop Skill (PHYS203 TH)	1. To study Vernier calliper, Screw gauge and their utility. 2. To study volume of cylindrical glass, diameter of thin wire . 3. Know the types of welding joints and welding defects. 4. Understand gear system, wheel, lifting of heavy weights and pulleys.
Electrical Circuits and Network Skills (PHYS205 TH)	1. To understand the Electricity Principles and power supply. 2. To study the Resistance, AC and DC Electricity and Ohm's law 3. To know the Generators and Transformers. 4. To study the single phase and three phase and DC motors.
Solid State Physics and Electronics (PHYS302 TH)	1. Know the principles of structures determination by diffraction 2. To understand the principles and techniques of X-rays diffraction 3. Know the fundamental principles of semiconductors and be able to estimate the charge carrier mobility and density 4. To give an extended knowledge about magnetic properties like diamagnetic, paramagnetic, ferromagnetic, ferrites and Superconductors. 5. Know the special purpose Diode. 6. To study the Transistor Amplifier. 7. To understand the FET, JFET, MOSFET. 8. To study the Operational Amplifier and their types.
Quantum Mechanics (PHYS305TH)	1. Understand De-Broglie hypothesis and Uncertainty principle 2. Derive Schrodinger‟s time dependent and independent equations 3. Solve the problems using Schrödinger‟s steady state equation 4. Get knowledge of rigid rotator 5. Understand different operators in Quantum Mechanics
Radiation Safety (PHYS307 TH)	1. To know the uses of X-rays. 2. To understand the photons and charged particles. 3. To study the solid states Detectors and Neutron Detectors. 4. To study the applications of medical science. 5. To understand the biological effects of ionizing radiation.

Renewable Energy and Energy Harvesting (PHYS310 TH)	1. To understand the Fossil fuels and alternate sources of energy. 2. To study solar energy and its importance and solar pond. 3. To know the Ocean, Geothermal and Hydro energy. 4. To study Piezoelectric energy harvesting and electromagnetic energy harvesting.

DEPARTMENT OF MATHEMATICS
Course outcomes

Programme Specific Outcomes

- Understanding of the fundamental axioms of mathematics and capability of developing ideas based on them.
- Nurture problem solving skills, thinking, and creativity through assignments.
- Empowering the students to pursue higher degree at reputed academic institutions.
- Motivate the students to prepare for competitive examination.

Title of Course	**Courses Outcomes**
DIFFERENTIAL EQUATIONS MATH102TH	● Understand the concept of differential equations, classification of differential equations. ● Recognize and solve homogeneous and non homogeneous differential equations by using different methods. ● Learn the methods of variation of parameters and reduction of order. ● Learn to determine linear dependence and independence of function. ● Learn the concepts of total differential equations. ● Learn the formation of partial differential equation and solve partial differential equation using Lagrange's and Charpit's method. ● Will able to classify second order partial differential equations.
REAL ANALYSIS MATH301TH	● Construct mathematical proofs of basic results in real analysis. ● Learn sequence and series of real numbers and their convergence and uniform convergence. ● Use comparison test, condensation test, D'Alembert ratio test ,Cauchy's root and Leibnitz's test for convergence of series. ● Comprehend bounded sets, Archimedes properties and Bolzano-Weierstrass theorem. ● Produce proofs of results of real analysis.
INTEGRAL CALCULUS MATH304TH	● Establish various Reduction formulae. ● Learn to find area and length of curves. ● Integration by partial fractions and properties of definite integrals. ● Evaluation of double and triple integrals
ALGEBRA MATH401TH	● Learn the concept of group, subgroup, and normal subgroup and Quotient groups. ● Use the concept of homomorphism, isomorphism and endomorphism of groups . ● Cyclic group, permutation group, polynomial ring, polynomial rings and quotient rings.
VECTOR CALCULUS MATH402TH	● Learn the concept of scalar and vector product. ● Study differentiation and partial differentiation of vectors. ● Learn the concept of divergence, curl and gradient of vectors.
LINEAR ALGEBRA MATH503TH	● Learn the concept of linear independence and dependence, linear span, basis and dimensions. ● Study vector spaces and subspaces. ● Linear transformations ● Inner product spaces and Cauchy Schwarz's inequality.

PROBABILITY AND STATIATICS MATH504TH	• Learn the concept of sample space, random variables, cumulative distribution function, probability mass and probability density function. • Concept of mathematics expectation, moments, moment generating function, characteristic function. • Different kind of distribution i.e. binomial, continuous, Poisson, uniform, exponential and normal distribution. • Learn about function of two random variables, conditional expectation and independent random variables.
NUMERICAL METHODS MATH601TH	• Study to find the appropriate rules of solving non linear equations by different methods such as bisection, Secant and Newton Raphson's method. • Concept of interpolation and extrapolation. • To find the value of a definite integral from the set of tabulated values of the integrand by using trapezoidal and Simpsons rule.
TRANSPORTATION AND GAME THEORY MATH605TH	• Learn mathematical formulation of transportation problem and solution using Northwest-corner method, least cost method and Vogel method. • Assignment method its mathematical formulation and Hungarian method for solving assignment. • Learn the concept of Game theory, formulation and solution of two people zero sum games, mixed strategies games and graphical solution procedure.

Department of Botany

PROGRAMME OUTCOMES (POs)

- To inculcate scientific temper among the students
- To equip students with knowledge and technical skills pertaining to plants.
- It aims to train the students in all the areas of plant sciences with a unique combination of core and elective papers withsignificant interdisciplinary components as per CBCS.
- To enable them to apply the knowledge of Botany wherever needed.
- To prepare students for obtaining employment in the government or private sector.
- To equip students with Logical and Analytical Thinking Ability so that they are ready to take up a career in research.
- Students acquire relevant knowledge and skills appropriate to professional activities.
- To inculcate Social responsibility and Effective citizenship.
  Graduates will understand the environmental issues and sustainability development.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

- Nurture problem solving skills, thinking, and creativity through assignments.
- Empowering the students to pursue higher degrees at reputed academic institutions.
- Motivate the students to prepare for competitive examinations.

Paper Title/ Course Code	**Course outcome**
	The knowledge of: • **Classification of algae and fungi and their Economic & ecological importance.Morphology and life cycle of algae like**

Biodiversity (Microbes,Algae, Fungi and Archegoniate) BOTA101	**Nostoc, Oedogonium, Vaucheria, Diatoms, Ectocarpus and Polysiphonia and fungi like Rhizopus, Saccharomyces, Neurospora, Agaricus and Colletotrichum** ● **Symbiotic relationships between fungi and algae: Lichens: Classification, Morphology, anatomy, Special vegetative structures associated with lichen thallus; Reproduction; Ecological and Economic importance.** ● **Definitions, symptoms, classification and etiology of major plant diseases** ● **Able to perform laboratory techniques (Whole mounts, Maceration, Smearing, Section cutting, Squash, Light microscopy, Digital image projection and Micrometry and also prepare temporary mounts of type specimen of algae and fungi** ● **General characters, classification up to orders Morphology, anatomy, reproduction and life history of Bryophytes, Pteridophytes and gymnosperms.**
Plant Ecologyand Taxonomy BOTA102	**Students are familiar with:** ● **The various biotic and abiotic factors of ecosystem** ● **Various plant communities** ● **Knowledge of food chain, food web, ecological pyramids and biochemicalcycles** ● **Succession & its mechanism.** ● **Flow of energy in various trophic levels.** ● **How various components of ecosystem** ● **How energy flows from one trophic level to other** ● **Biogeochemical Cycles** ● **They are able to understand the complex interaction between abiotic andbiotic components and know the importance of environment conservation** ● **Binomial nomenclature, principles and rules; Principle of priority** ● **Type concept and keys to identification of plants;** ● **Herbarium and Botanical Garden's functions, important herbaria andbotanical gardens of world and India** ● **Taxonomic evidence from palynology, cytology, photochemistry andmolecular data.**
Plant anatomy andembryology BOTA 201	● **Students learn the Meristematic and permanent tissues** ● **They understand the Shoot System Shoot, leaf and root system of plants.** ● **They know the histological organization of the Shoot, leaf and root.** ● **They know the morphology and modifications of these structuresstudents learn about:** ● **Microsporangium, Microsporogenesis, pollen grains and detailed account of its structure ; Pollen aperture type and NPC system; Pollination; Pollen-pistil interaction; Self incompatibility; Pollen germination and development of male gametophyte** ● **Megasporangium (Ovule); Megasporogenesis and Examples of female gametophyte, Double fertilization; Endosperm types and its biological importance; Embryogenesis in dicot (Capsella) and monocot (Sagittaria); Polyembryony;Apomixis (Vegetative reproduction and Agamospermy. Structure of dicot and monocot seed; Fruit types; Dispersal mechanism in**

	fruits and seeds.
Plant Physiology andmetabolism BOTA204	**Students will enable to understand the following topics:** ● **Plant water relations, transpiration, guttation and stomatal movement.** ● **Mineral nutrition and their absorption and transport mechanisms.** ● **Photosynthesis: pigments, photosystems, photophosphorylation,photorespiration** ● **Respiration: glucose breakdown pathways and energy synthesis.** ● **Enzyme: structure, function and properties.** ● **Plant hormones and their role**
Economic Botany &Biotechnology BOTA301	● **The students will understand the concept of the centre of origin of major economic crops. Name of research centres and institute of Rice, Wheat,Maize, Potato.** ● **Students know the Distribution, botanical description and brief idea of cultivation and uses of major Cereals, Vegetables, Fibres, Oils, Medicinal plants, Beverages, Spices.** ● **To understand the techniques of Plant tissue culture techniques, Genetic Engineering, Gene sequencing and ELISA.** ● **to understand the effect of Biotechnology on agriculture and horticulture .**
Cell and Molecular Biology BOTA 303	**The students will understand-** ● **Chemistry of the Cell** ● **Brief account of Basic Techniques used in Cell Biology** ● **Viruses and Bacteria** ● **Eukaryotic Cell Structure** ● **Chromosomes and Cell Division** ● **Discovery, Properties, Chemistry and functioning of DNA, RNA etc.** ● **Processes like replication and translation.**
Biofertilizer BOTA203	● **The students will understand about the types of fertilizers, various microorganisms used as biofertilizers, organic farming, Green manuringetc.**
Gardening andFloriculture BOTA 204	● **The students will have an idea about Landscape Gardening and Floriculture, history of gardening, importance, status and scope of Floriculture and Landscaping along with gardening operations, designsand types of flora and propagation of the plants used in gardening**

Medicinal botany and ethnobotany BOTA306	• **The students will understand Brief history of use of medicinal herbs; Introduction, concept, scope and objectives of Ethnobotany; Major and minor ethnic groups or Tribes of India, and their lifestyles along with the plants used by them. habitat and morphology of some ethnobotanically important plants.**
Mushroomcultivationtechniques BOTA307	• **The students will know about the requirement and scope of mushroom cultivation. The techniques of cultivation of some edible mushrooms by different types including low cost growing techniqes, their nutritive values, different types of mushroom dishes and pest management etc.**

Programme Outcomes: B. Sc. Zoology

Programme outcomes	After successful completion of three-year degree program in Zoology a student should be able to:
	PO1. Able to know the various animals from different taxa
	PO2. General characters and classification up to classes of different animals
	PO3. To inculcate good laboratory practices in students and to train them about proper
	handling of lab instruments.
	PO4. Distinguish between various animals in accordance with their morphological characteristics.
	PO5. Know the connecting links, different larval forms, parasites.
	PO6. Analyse complex interactions among the various animals of different phyla, their distribution and their relationship with the environment.
	PO7. Understands the complex evolutionary processes and behaviour of animals.
	PO8. Correlates the physiological processes of animals and relationship of organ systems.
	PO9. Understands about various concepts of genetics and its importance in human health.
	PO10. Apply the knowledge and understanding of Zoology to one's own life and work.
	PO11. Develops empathy and love towards the animals .
	PSO1. Understand the nature and basic concepts of non chordates and chordates, comparative anatomy of vertebrates and developmental biology, physiology and biochemistry, genetics and evolutionary biology, applied zoology and immunology.
	PSO2. Analyse the relationships among different animals.
	PSO3. Perform procedures as per laboratory standards in the areas of animal diversity, comparative anatomy of vertebrates and developmental biology, physiology and biochemistry, genetics and evolutionary biology, applied zoology and immunology.
	PSO4. Understand the applications Apiculture, Aquaculture, Sericulture and Medical Diagnostics.

B.Sc 1st Year	
Animal Diversity (Zool-101)	CO1-Familiar with the non-chordate world that surrounds us. Describe the life histories of some protozoan and helminth.

	CO2-Able to identify the invertebrates and classify them up to the class level with the basis of systematic.
	CO3-Understand the basis of life processes in the non-chordates and recognize the economically important invertebrate fauna.
	CO4-Describe the diversity in form, structure and habits of vertebrates.
	CO5-Explain general characteristics and classification of different classes of vertebrates.
	Classify and characterize Phylum-Protozoa and Phylum Porifera to Mammals.
Comparative Anatomy and Developmental Biology of Vertebrates (Zool-102)	CO1-Describe the anatomy of Integumentary System, Skeletal System, Respiratory System, Circulatory System, Urinogenital System, Nervous System and Sense Organs.
	CO2-Develop the basic concepts of Developmental Biology.
	CO3-Explain the fundamental concept of embryogenesis, organogenesis, placentation and programmed cell death
B.Sc. 2nd Year	
Physiology and Biochemistry (Zool-201)	CO1-Understand the function of various systems (Nervous system, Digestion, Respiration, Excretion, Cardiovascular system, etc.).
	CO2-Fundamental understanding of metabolism of carbohydrates, proteins and lipids.
	CO3-Familiar with various biochemical pathways.
	CO4-Explain Enzyme catalysis and kinetics.
	CO5-Apply the knowledge to lead a healthy life.
Genetics and Evolutionary Biology (Zool-202)	CO1-Appreciate the contribution of Mendel's work on transmission of traits.
	CO2-Explain Mendelian Genetics and its Extension (Principles of Inheritance, Chromosome theory of inheritance, Incomplete dominance and co-dominance, Multiple alleles, Lethal alleles, Epistasis, Pleiotropy, sex linked inheritance, extra-chromosomal inheritance).
	CO3-Describe Linkage, Crossing Over and Chromosomal Mapping.
	CO4- Different types of Mutations and Sex Determination.
	CO5- Understand Evolutionary Theories and Direct Evidences of Evolution.
	CO6- To correlate the theories with the evidence.
Medical Diagnostics (Zool-203)	CO1- Familiarize with different Diagnostics Methods Used for Analysis of Blood (i.e. DLC, ESR, PCV, etc.).

Apiculture (Zool-204)	CO2- Know various Diagnostic Methods used for Urine Analysis; Physical characteristics and Abnormal constituents of Urine.
	CO3- To distinguish infectious (Tuberculosis and Hepatitis) and non-infectious diseases (Diabetes, Hypertension).
	CO4-Familiar with the tools and techniques eg. Medical imaging: X-Ray of Bone
	fracture, PET, MRI and CT Scan (using photographs).
	CO1-Understand Biology of Bees.
	CO2- Familiarize with Beehives – Newton and Langstroth; Bee Pasturage; Beekeeping Equipment; Methods of Extraction of Honey (Indigenous and Modern); Entrepreneurship in Apiculture.
	CO3- Acquainted with Various Diseases of Honey Bees; Products of Apiculture Industry and its Uses (Honey, Beeswax, Propolis), Pollen, etc.
	CO4- Apply the knowledge and understanding.
B.Sc. 3rd Year	
Applied Zoology (ZOOL-301 A)	CO1- Identify various parasites and pests.
	CO 2- Explain various terms eg. Host, Definitive host, Intermediate host, Parasitism, Symbiosis, Commensalism, Reservoir, Zoonosis.
	CO3-Describe the life histories of Rickettsia prowazekii, Borrelia recurrentis and Treponema pallidum; Entamoeba histolytica, Plasmodium vivax and Trypanosoma gambiense; Ancylostoma duodenale and Wuchereria bancrofti.
	CO4- Explain the economic importance of some insects (Helicoverpa armigera, Pyrilla perpusilla and Papilio demoleus, Callosobruchus chinensis, Sitophilus oryzae and Tribolium castaneum).
	CO5- Aware of Medical importance and control of Pediculus humanus corporis, Anopheles, Culex, Aedes, Xenopsylla cheopis.
	C06- Understand techniques and management of Animal Husbandry, Fish Farming and Poultry Farming.
Immunology (ZOOL-302 B)	CO1- Appreciate the contribution of great immunologists
	CO2- Distinguish Innate immunity and Acquired Immunity
	CO3- Understand the importance of Immune system
	CO4-Describe various types of antibodies and their interaction with antigens
	CO5-Describe the molecular structure and function of major histocompatibility complexes and various types of hypersensitivity reactions.
Sericulture (ZOOL-303) **Aquarium Fish Keeping(ZOOL-304 A)**	CO1-Provide knowledge about different types of silkworms, Distribution and Races Exotic and indigenous races Mulberry and non-mulberry Sericulture.
	CO2- Explain life history of Bombyx mori (Mulberry silk moth).

	CO3- Understand various pests, predators and diseases of silkworms.
	CO4- Acquainted with techniques of Rearing of Silkworms and their benefits.
	CO1- Familiarize with scope of Aquarium Fish Industry as a Cottage Industry, Exotic and Endemic species of Aquarium Fishes; General characters and sexual dimorphism of Freshwater and Marine Aquarium Fishes such as Guppy, Molly, Sword tail, Gold fish, Angel fish, Blue morph, Anemone fish and Butterfly fish.
	CO2- Describe how to maintain Aquarium and Fish handling, packing and forwarding techniques.
	CO3- Apply the knowledge for employment.
	CO1- To identify various invertebrates and vertebrate specimens.
	CO2- Demonstrate various permanent slides with the aid of a microscope.
	CO3- To identify poisonous and non-poisonous snakes with the help of a key.
	CO4-Study disarticulated skeleton of frog and rabbit.
	CO5- Acquainted with different types of placenta- histological sections through permanent slides or photomicrographs.
	CO6- Students are able to handle microscopes.
	CO7- Recognize the live forms of vertebrates and invertebrates.
	CO1-Gain skill about histological slide preparation, staining and mounting.
	CO2- Students gain skill about estimation of total protein in given solutions by Lowry's method.
	CO3- Study of permanent slides/histological sections of spinal cord, duodenum, liver, lung, kidney, bone, cartilage, mammalian pituitary, thyroid, pancreas, adrenal gland, etc.
	CO4- Understand various human karyotypes.
	CO5- Describe homology and analogy from suitable specimens/ pictures.
	CO6- Tell about the Phylogeny of horses with diagrams/ cut outs of limbs and teeth of horse ancestors.
	CO1- Study of arthropod vectors associated with human diseases: Pediculus, Culex, Anopheles, Aedes and Xenopsylla.
	CO2- Visit to poultry farms or animal breeding centres. Submission of visit report.
	CO3- Acquainted with the knowledge of maintenance of freshwater aquariums.
	CO4- Learn various immunological techniques (ELISA, Immunoelectrophoresis ABO blood group determination, etc).
	CO5- Demonstrate various lymphoid organs.

Programme outcomes: Bachelor of Commerce (B.Com.)

Course No.	Course Title	Course Type	LEARNING OUT-COME ON THE COMPLETION OF THE COURCE, STUDENTS WILL ABLE TO-
BC 1.1	Financial Accounting	Core Course C-1	1. Know the conceptual knowledge of the Financial Accounting. 2. Recording various kinds of business transactions.
BC 1.2	Business Organization and Management	Core Course C-2	1. Get basic knowledge about the organization and management of a business enterprise.
BC 1.3	Business Law	Core Course C-4	1. Know the important Legislation along with relevant case law.
BC 1.4	Business Statistics and Mathematics	Course C-5	1. Know the applications of statistical techniques and mathematics in business decision – making.
Year II			
BC 2.1	Company Law	Core Course C-7	1. Get basic knowledge of the provisions of the Company act, 2013.
BC 2.2	Income Tax Law and Practice	Course C-8	1. Familiarize with applications of principles and provisions of INCOME TAX ACT, 1961.
BC 2.3	Computer Applications in Business	Skill-Enhancement Elective Course (SEC)-1	1. Enhance computer skills and understands of usefulness of information technology tools for business operations.
BC 2.4	Corporate Accounting	Core Course C-11	1. Acquire the basic knowledge of the corporate accounting and to learn the techniques of preparing the financial statements.
BC 2.5	Cost Accounting	Core Course C-12	1. Know the basic concepts used in cost accounting, various methods involved in cost ascertainment and cost

			accounting book-keeping systems.
BC 2.6	E-Commerce	Skill-Enhancement Elective Course (SEC)-2	1. become familiar with the mechanism for conducting business transactions through electronic means.
YEAR III			
BC 3.1(b)	Principles of Marketing	Discipline Specific Elective (DSE)-1	1. Get basic knowledge of concepts, principles, tools and techniques of marketing.
BC 3.2(a)	Corporate Governance and Auditing	Discipline-Specific Elective (DSE)-2	1. Get knowledge of auditing principles, procedures and techniques in accordance with current legal requirements and professional standards.
BC 3.3	Entrepreneurship	Skill-Enhancement Elective Course (SEC)-3	1. Know entrepreneurship as a career option and creative thinking and behavior.
ECONA313	Economy of Himachal Pradesh.	Economy of Himachal Pradesh.	1. Know the basic features, characteristics and developmental issues of the Himachal Pradesh economy.
BC3.5(c)	Management Accounting	Discipline- Specific Elective (DSE)-3	1. Get knowledge about the use of financial, cost and other data for the purpose of managerial planning, control and decision making.
BC3.6(b)	BC3.6(b)Office Management andSecretarial Practice	Discipline- Specific Elective (DSE)-4	1. The Purpose of this course is to familiarize the students with the activities in a modern office.
BC 3.7	Personal Selling and Salesmanship	Skill-Enhancement Elective Course (SEC)-4	1. Understand selling as a career and what it takes to be a successful salesman.
ECONA314 Indian Economy Generic Elective (GE)-2	Indian Economy	Generic Elective (GE)-2	1. Get in-depth knowledge of various problems and issues faced by Indian Economy.