


J.V.M.G.R.R College, Charkhi Dadri

(Affiliated to Chaudhary Bansi Lal University, Bhiwani)



2.6.1

Programme Outcomes (POs) and Course Outcomes (COs) for all Programmes offered by the institution are stated and displayed on website


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**JANTA VIDYA MANDIR GANPATRAI RASIWASIA COLLEGE
CHARKHI DADRI**

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**JANTA VIDYA MANDIR GANPATRAI RASIWASIA COLLEGE
CHARKHI DADRI**

Bachelor of Arts -Programme Outcomes

The B.A. programme in the college is affiliated to Chaudhary Bansi Lal University, Bhiwani, Haryana and follows the syllabus prescribed by the university. B.A Programme is a famous course in our university. Course allows you to study combination of subjects and is mostly opted by students. B.A Programme have subjects like English, Hindi, Political science, Economics, History, Geography, Mathematics, Environmental Science and Computer Application. The Outcomes of the Programme are as follows: -

- After completion of B.A. (Pass Course) students acquire knowledge in the field of Social Science, Literature and Humanities which make them sensitive and sensible enough.
- The B.A. Graduates will be acquainted with the Social ,Economical, Historical , Geographical ,Political , Ideological and Philosophical tradition and thinking.
- The Program also empowers the Graduate to appear for various Centre and State level Competitive examinations or choose the post graduate programs of their choice.
- The B.A. programme enables the students to acquire the knowledge with human values framing the base to deal with various problems in life with courage and humanities.
- The students will be ignited enough to think and act over for the solution of various issues prevailed in the human life to make this world better than ever.
- Programme provide a base to be a responsible citizen.
- The course also incorporate a variety of modes of learning and teaching.
- A B.A. graduate can also look for computer certified courses. Many certifications like web designing, Animations, coral draw etc. can help you in getting job/profession in media industry where you can use your skills or IT industry where you can help in terms of graphics and web designing.
- Communicate effectively and show ability to read, write, listen to and speak in chosen language with fluency.
- Students will acquire the knowledge about Indian culture, traditions and it's rich heritage. Students become aware of values in human life.

Department of Sanskrit

Programme Specific Outcomes

- Enhance communication skills-Listening, Speaking, Reading, Writing.
- Students will be able to write Devnagari scripts which provide them paleographical knowledge to read out the script of modern languages.
- Increase in depth knowledge of the Core Areas of the subject.
- Students will demonstrate the skill needed to participate in conversation that builds knowledge with collaboration.
- Reasonable understanding of multi-disciplinary relevance of literature of Sanskrit like Veda, Philosophy, Grammar, Kavya, Smitisastra etc.
- To make them eligible for higher education.
- Develop research aptitude and independent thinking
- After becoming graduate students can apply in the field of UPSC, State Civil Services etc. and also after post-graduation they can apply against teaching posts in schools, colleges and other educational institutions.

Course Outcomes

Course Name : Sanskrit Elective

Course Code: 21SKT101

- Appreciate the development of Sanskrit Literature
- Negotiate texts independently with grammatical analysis and poetic excellence.
- Acquainted with the work; Hitopadesha of the Great poet Vishnu Dutt Sharma.
- Know about origin and development of different types of Mahakavya and Geetikavya.
- The system of Traditional grammar, Sanskrit vocabulary and grammatical construction
- Sangya Prakarana, Shandhiprakarna and Procedures of formation of Sanskrit words.

Course Name : Sanskrit Elective

Course Code: 21SKT102

- Students would be able to know the origin and development of Sanskrit Prose literature.
- Know about the great literature of Ramayana by Maharashi Balmiki.
- They will be able to analysis compound formation.
- The course also seeks to help students negotiate texts independently.
- The system of Traditional grammar.
- Sanskrit vocabulary and grammatical construction.
- Vagvayahara in Sanskrit and SamasaPrakarana , Procedures of formation of Sanskrit words.

Course Name : Sanskrit Elective

Course Code: 2001333

- Students would be able to know the origin and development of Sanskrit Prose literature.
- Know about the great literature of Ramayana by MaharashiBalmiki.
- They will be able to analysis compound formation.
- The course also seeks to help students negotiate texts independently.
- The system of Traditional grammar.
- Sanskrit vocabulary and grammatical construction.
- Vagvayahara in Sanskrit and SamasaPrakarana, Procedures of formation of Sanskrit words.

Course Name : Sanskrit Elective

Course Code: 2001433

- Students would be able to know the origin and development of Sanskrit Prose literature.
- Know about the great literature of Bhagavat Gita by MaharashiVedvayas.
- They will be able to analysis compound formation.
- The course also seeks to help students negotiate texts independently.
- The system of Traditional grammar.
- Sanskrit vocabulary and grammatical construction.
- Maheshwar Sutra and formation of rules of Ashtadhayia in Sanskrit, Procedures of formation of Sanskrit words.

Course Name : Sanskrit Elective

Course Code: 2001533

- Students would be able to know the origin and development of Sanskrit Prose literature.
- Know about the great literature of Abhigayanashakuntlam by Mahakavi Kalidasa.
- They will be able to analysis compound formation.
- The course also seeks to help students negotiate texts independently.
- The system of Traditional grammar.
- Sanskrit vocabulary and grammatical construction.
- formation of words in Satripratiya in Sanskrit, Vagvayahara in Sanskrit, introduction about vedic literature and Procedures of formation of Sanskrit words.

Course Name : Sanskrit Elective

Course Code: 2001633

- Students would be able to know the origin and development of Sanskrit Prose literature.
- Know about the great literature of Abhigayanashakuntlam by Mahakavi Kalidasa.
- They will be able to analysis compound formation.
- The course also seeks to help students negotiate texts independently.
- The system of Traditional grammar.
- Sanskrit vocabulary and grammatical construction.
- Knowledge of Alankaras in Sanskrit, Vagvayahara in Sanskrit, introduction about classical literature and Procedures of formation of Sanskrit words.


Department of Hindi
Programme Specific Outcomes

- 1 व्यवहारिक व व्यावसायिक जीवन में भाषा का विशेषकर हिंदी भाषा का सही प्रयोग कर सकेगा। हिंदी भाषा के विकास के माध्यम से भाषा के सैद्धांतिक पहलुओं तथा उसके परिवर्तन की दिशाओं का बोध होगा।
- 2 समकालीन साहित्य के विविध गद्य व पद्य रूपों के माध्यम से अपने युग का बोध होगा।
- 3 साहित्य की विभिन्न विधाओं में रचनात्मक लेखन व संप्रेषण की क्षमता विकसित होगी।
- 4 साहित्य संसार व वास्तविक संसार के यथार्थ के प्रति आलोचनात्मक समझ विकसित होगी।
- 5 साहित्य के सौंदर्य, कला तथा वैचारिक मूल्यों के प्रति विवेक का निर्माण होगा।
- 6 व्यक्तित्व विकास व जीवनयापन के लिए भाषायी कौशल, कंप्यूटर, अनुवाद, पत्रकारिता, जनसंचार, रंगमंच, चलचित्र आदि के बारे में सैद्धांतिक व व्यावहारिक ज्ञान होगा।

Course Outcome

Course Name: हिंदीअनिवार्य
Course Code: UHND101

- हिंदी साहित्येतिहास की लेखन परंपरा से अवगत होना।
- हिंदी साहित्येतिहास के विभिन्न कालों के नाम करण, परिस्थितियों एवं काव्य प्रवृत्तियों को समझ पाना।
- रासो साहित्य के ज्ञान से परिचित होना।
- भक्तिकालीन चार काव्य परम्पराओं-संतकाव्य,सूफीकाव्य ,रामकाव्य और कृष्ण काव्य के माध्यम से भावात्मक , आध्यात्मिक और चारित्रिक विकास होना।
- रीतिसिद्ध,रीतिबद्ध और रीतिमुक्त काव्य के वैशिष्ट्य का बोध होना।


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Course Name: हिंदीअनिवार्य

Course Code: UHND102

- भाषा के विविध रूपों जैसे- राष्ट्रभाषा ,राजभाषा ,मानकभाषा आदि से अवगत होना।
- मानक भाषा की प्रवृत्तियों से परिचित होना।
- हिंदी वर्णमाला व उसके भेदो-स्वरव व्यंजन का ज्ञान होना।
- वर्णों के उच्चारण स्थानों से अवगत होना।
- हिंदी वर्तनी संबंधी समस्याओं को समझना तथा उनका समाधान करने में समर्थ होना।
- मुहावरे एवं लोकोक्तियों का बोध होना।
- शब्द भंडार में वृद्धि होना।
- संधि व समास के माध्यम से शब्द निर्माण की क्षमता में वृद्धि होना।
- संप्रेषण कौशल का विकास होना।
- भाषा संप्रेषण के चार चरणों - श्रवण ,अभिव्यक्ति ,पठन और लेखन को समझ पाना।

Course Name: सृजनात्मकलेखनकेविविधक्षेत्र

Course Code: UHND103

- सृजनात्मकलेखनकेस्वरूपएवंमहत्वकोसमझपाना।
- सृजनात्मकलेखनकीप्रवृत्तियोंकाबोधहोना।
- सृजनात्मकलेखनकेउद्देश्योंकोजानपाना।
- रिपोर्ताज, फीचर ,स्लोगन , भाषणआदिलेखनकीक्षमतापैदाहोना।
- साक्षात्कारकेउद्देश्य, प्रविधि, महत्वआदिकाबोधहोना।
- समाचारपत्रोंमेंस्तंभलेखनस्वरूपकोसमझपानाऔरलिखनेमेंसमर्थहोना।
- बालसाहित्यलेखनकेलिएप्रेरितहोना।
- रेखाचित्र, छायाचित्र ,कार्टूनलेखनआदिकाज्ञानहोना।

Course Name: आधुनिक हिंदी कविता

Course Code: UHND201

- आधुनिक हिंदी कविता के महत्वपूर्ण कवियों के व्यक्तित्व एवं कृतित्व से परिचित होना।
- भारतेंदु , हरिऔध , मैथिलीशरण गुप्त , जयशंकर प्रसाद , निराला, महादेवी वर्मा, नागार्जुन और नरेश मेहता के काव्य की प्रवृत्तियों से अवगत होना।
- भारतेंदु की कविता के माध्यम से हिंदी के प्रति प्रेम भावना जाग्रत होना।
- गुप्त एवं प्रसाद के काव्य के माध्यम से राष्ट्रीय चेतना और नारी के प्रति संवेदना का भाव जाग्रत होना।
- निराला और महादेवी के काव्य के माध्यम से छायावादी काव्य की प्रवृत्तियों को समझ पाना।
- विभिन्न कवियों के काव्य को पढ़ कर भावनात्मक विकास होना।

Course Name: हिंदी भाषा और संप्रेषण

Course Code: UHND202

- प्रभावी संप्रेषण कौशल का विकास कर पाना।
- भाषा की प्रकृति तथा उसके विविध रूपों को समझ पाना।
- हिंदी की वर्ण-व्यवस्था: स्वर और व्यंजन की जानकारी होना।
- वर्णों के उच्चारण स्थान को समझ पाना।
- भाषा संप्रेषण के विविध चरणों को समझ पाना।
- वाचन संप्रेषण की विविध विधियों को समझ पाना।
- भावार्थ और व्याख्या को समझ पाना।

Course Name: अनुवाद

Course Code: UHND203

- अनुवाद के अर्थ , स्वरूप एवं उपयोगिता को जान पाना।
- अनुवाद के प्रकारों- शब्दानुवाद , भावानुवाद , छायानुवाद और सारानुवाद आदिको समझ पाना।
- साहित्यिक , वैज्ञानिक , वाणिज्यिक अनुवाद के विषय में बोध होना।
- मुहावरे एवं लोकोक्तियों का अनुवाद कर पाने में समर्थ होना।
- भारत में उपस्थित अनुवाद प्रशिक्षण के प्रमुख केंद्रों की जानकारी होना।
- बैंक , रेलवे , कार्यालय और प्रशासन में प्रयुक्त होने वाली पारिभाषिक शब्दावली का ज्ञान होना।

Course Name: हिंदीअनिवार्य

Course Code: HI-03

- आधुनिकहिंदीकविताकीसामान्यप्रवृत्तियोंकोसमझपाना।
- हिंदीसाहित्यकेरीतिकालीनकाव्यकीपृष्ठभूमि, परिस्थितिएवंनामकरणकाज्ञानहोना।
- रितिसिद्धि, रीतिबद्धऔररीतिमुक्तकवियोंकेकाव्यवैशिष्ट्यकाबोधहोना।
- रीतिकालीनकाव्यकीउपलब्धियोंकाज्ञानहोना।
- प्रयोजनमूलकहिंदीसेपरिचितहोनातथाआधुनिकजीवनकेलिएइंटरनेटकीमहत्ताकोसमझपाना।
- अनुवादकीउपयोगिताकोसमझपाना।

Course Name: हिंदीअनिवार्य

Course Code: HI-04

- पाठ्यपुस्तकमेंसंकलितकहानियोंकेलेखकोंकेसाहित्यिकपरिचयतथाकहानियोंकेवस्तुपक्षऔरकलापक्षकोजानलेना।
- कहानीकीरचनाप्रक्रियाकाज्ञानहोना।
- हिंदीसाहित्यकेआधुनिककालकोसमझपानाऔरआधुनिककालकीपरिस्थितियोंकाबोधहोना।
- साहित्यकीविविधविधाओं (उपन्यास, कहानी, नाटक, निबंधआदि) कीविकासयात्राकोसमझपाना।
- पारिभाषिकशब्दावलीकाअध्ययनकरव्यावहारिकजीवनमेंउसकाप्रयोगकरपाना।

Course Name: हिंदीअनिवार्य

Course Code: HI-05

- आधुनिककालकेकाव्यकीसामान्यप्रवृत्तियोंकोसमझपाना।
- धर्मवीरभारती, अज्ञेय, नागार्जुन, नरेशमेहता, रघुवीर सहाय, कुँवरनारायण आदि आधुनिक काल के कवियोंकेसाहित्यिकपरिचयऔरउनकेकाव्यसौष्ठवकाज्ञानहोना।
- आधुनिककालकेविविधकाव्य-युगोंएवंउनकीकाव्यप्रवृत्तियोंकाज्ञानहोना।
- पत्रलेखनकीकलामेनिपुणहोना।
- संक्षेपणएवंपल्लवनकरनेमेंसमर्थहोना।

Course Name: हिंदीअनिवार्य

Course Code: HI-06

- आचार्यरामचंद्रशुक्ल, बालमुकुंदगुप्त
,हजारीप्रसादद्विवेदीजैसेनिबंधकारोंकेनिबंधोंकोपढ़करनिबंधलिखसकना।
- महादेवीवर्मकेसंस्मरणोंकेमाध्यमसेस्वानुभूतिकोसृजनात्मकतातकलेजानेकीक्षमताकाविकासहोना।
- हरिशंकरपरसाईकेव्यंग्यलेखोंकेमाध्यमसेसमाजकीअनेकविद्रूपताओंकाज्ञानहोना।
- हरियाणवीभाषाएवंसाहित्यकेइतिहासकेमाध्यमसेलोकसाहित्यकज्ञानअर्जितहोना।
- हरियाणवीभाषाकीप्रमुखबोलियोंकोसमझनातथासांगपरंपराकाज्ञानहोना।
- हरियाणवीगद्यसाहित्यकेमाध्यमसेहरियाणवीभाषाकीअच्छीसमझहोना।
- फीचरलेखनएवंशीर्षकसंरचनाकोसमझनातथालिखपाना।


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Department of English
Programme Specific Outcomes

- Communicate in English language with proper knowledge of the language.
- Evaluate teaching learning process through various teaching aids.
- Respond to the fecundity of imagination and verisimilitude of life which constitute the cognitive and rational response to society.
- Create social awareness with regard to society and culture.
- Students attain a good level of understanding on the sounds of English i.e. intonations and accurate word accent.
- The speaking skills will be improved with good conversation, interview, presentation and public speaking.
- The students possess good speaking skills with Role Play, Debate and Group Discussion.
- The students develop good writing skills with high quality vocabulary of spelling, punctuation and information transfer.

Course Outcome

Course Name: English Compulsory

Course Code: 20UENG01

- To initiate the students into the world of literature through value-based writings of Indian and English authors.
- To enhance the grammatical and writing skills of the students.

Course Name: Communicative English

Course Code: 20UENG1001

- Students should be able to understand the nature and importance of communication skills
- Student would gain knowledge of common courtesies conversational practices in various situations.
- students would be acquainted with the knowledge of skills necessary for personality development.
- Students would be able to understand the skills and knowledge of effective communication

Course Name: Creative Writing

Course Code: 20UENG1002

- To enhance the creativity of students with language and imagination so as to enable them to communicate effectively in writing and conduct themselves graciously in different spheres of life.

Course Name: English Compulsory

Course Code: 20UENG02

- To initiate the students into the world of literature through value- based writings of Indian and English authors.
- To enhance the grammatical and writing skills of the students.

Course Name: Translation Studies

Course Code: 20UENG2001

- To enable the students to understand the theory and practice in translation, and focus on precision and beauty of words and their interconnection in the creative texts to create a wholesome meaning.
- To fine-tune the students' imagination in trans creating a short text from Hindi to English and vice versa.

Course Name: English Compulsory


Course Code: 2001103

- Students will be able to appreciate various forms of poetry and literary devices used therein.
- Extensive study of grammar will help in correct usage of language.
- Will enrich the vocabulary of the students
- Will improve spoken English with correct pronunciation and accent

Course Name: English Compulsory

Course Code: 2001104

- Will be able to interpret and appreciate One Act Plays and their reflection on society.
- Will be able to understand literary devices and their applicability in literature
- Will improve spoken English with sufficient knowledge of stress and tone.
- Will improve writing skills.


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Course Name: English Compulsory

Course Code: 2001105

- Will enrich the sufficient knowledge of English novel and its various forms.
- Will have good understanding of techniques used in novel writing
- Will have knowledge of Indian novelists in English
- Will learn the art of précis writing.
- Will have improved knowledge of grammar.

Course Name: English Compulsory

Course Code: 2001106

- Will get familiar with English literature.
- Will learn about Shakespearean age, language and works.
- Will learn the art of correspondence in English through e mail and letter writing.
- Will improve vocabulary.
- Will improve comprehension and writing skills in English.

Department of Political Science

Programme Specific Outcomes

- Demonstrate a detailed knowledge and understanding of selected fields of study in core disciplines in the humanities, social sciences and languages.
- Apply critical and analytical skills and methods to the identification and resolution of problems within complex changing social contexts.
- Demonstrate a general understanding of the concepts and principles of selected areas of study outside core disciplines of the humanities, social sciences and languages.
- Apply an independent approach to knowledge that uses rigorous methods of inquiry and appropriate theories.
- Articulate the relationship between diverse forms of knowledge and the social, historical and cultural contexts that produced them.
- Communicate effectively and show ability to read, write, listen to and speak in a chosen language/s with fluency.
- Act as informed and critically discerning participants within the community of scholars, as citizens and in the work force.
- Work with independence, self-reflection and creativity to meet goals and challenges in the workplace and personal life.

Course Outcome

Course Name :Indian Government & Politics

Course Code: 20 UPOL 101

- This paper aims to develop understanding about the basics of Indian constitution including Preamble, Fundamental rights, Directive Principles, Federalism, Centre- State relations, President, Prime Minister, Governor, Parliament, Supreme Court along with Judicial review and Judicial activism. Knowledge about role of caste, class, religion and regions would also be provided. It is an essential paper to know about social movements in India mainly Peasants', Workers', Women's and Environmental.

Course Name:Introduction to Political Theory

Course Code:20 UPOL 201

- This paper will benefit students in getting knowledge of meaning& dimensions of Politics, meaning, nature, scope & relevance of political theory, definition & elements of state, theories of state including Socialist, Liberal & Neo-Liberal, meaning & types of liberty including Civil & Political liberty, meaning & types of equality, relationship of equality with liberty, meaning and models of democracy, citizenship, civil society, right and gender.

Course Name: Principles of Political Science-I

Course Code: 2001318

- Aims to understanding the basic principles of political science.
- The main focus would remain on learning the definition, nature & scope of political science along with knowledge of state, its elements and various theories.
- Students will be competent to understand the concepts of sovereignty and its various theories.
- The detailed study of welfare state would also be provided.

Course Name: Principles of Political Science-II

Course Code: 2001418

- Aims to help students in understanding the basic principles of political science.
- The main focus would remain on learning the definition, nature & scope of political science along with knowledge of state, its elements and various theories.
- Students will be competent to understand the concepts of sovereignty and its various theories.
- The detailed study of welfare state would also be provided.

Course Name: Comparative Politics

Course Code: 2001518

- Aims to develop the understanding of students regarding various dimensions of comparative politics including its traditional & modern concerns.
- To learn about Various approaches to the study of comparative politics
- Would also be learned along with constitutionalism and constitutional structure around the world from comparative perspective.

Course Name: Comparative constitution of UK & USA

Course Code: 2001618

- This course would benefit students in knowing the comparative constitutions of United Kingdom and United States of America.
- The main focus would remain in learning the executive, legislation & judiciary system of UK & USA along with understanding of their electoral processes, voting behaviour and recent trends of working system prevalent over there.

Department of Economics
Programme Specific Outcomes

- Demonstrate the knowledge and understanding of economic science i.e. vital processes of economy, consumer and producer behaviour at micro level and macro-level
- Critically think and correlate the economics knowledge with decision-making with regard to economic planning and economic policies, understanding of conflicts, trade-offs, and welfare implications of economic measures to improve the quality of life in person as well as of community.
- Demonstrate an understanding of the principles, methods of economic analysis in static and dynamic terms, analysis of economic data
- Concise and meaningful writing and reporting, effective presentation skills, and ability to work productively in a group with co-operation

Course Outcome

Course Name: Microeconomics-I

Course Code: 20UECO201

- Upon completion of this course, the students will be able to understand the fundamentals and basic terminologies of economics. Get an understanding of basic forces of demand and supply and how they affect the working of product and factor markets. Students also gets a framework of learning about consumer and producers'behavior.

Course Name: MICROECONOMICS-II

Course Code: 20UECO202

- Upon completion of this course, the students will be able to understand the fundamentals and basic terminologies of economics. Get an understanding of basic forces of demand and supply and how they effect the working of product and factor markets. Students also gets a framework of learning about consumer and producers'behavior.

Course Name: Macroeconomics

Course Code: 2001309 &2001409

- Upon completion of the course the students will be able to understand the concepts and issues of an economy at national level
- Learn to associate the current economic phenomenon with existing theory and put their view on contemporary economic issues.
- It enhances the economic knowledge of students about various concepts like national income, consumption, investment and their importance in solving national economic issues.

Course Name: Development Economics

Course Code: 2001509

- Upon completion of this course the students will be able to understand the determining factors and barriers of growth and development.
- Get a better understanding of the various economic features of Indian economy.
- Will be able to understand the economic planning adopted by India, five-year plans, NITI Aayog, new economic policy and LPG.

Course Name: International Economics

Course Code: 2001609

- Upon completion of this course the students will be able to describe the theories of international trade, analyse the impact of international trade and evaluate the impact of globalization.
- Students will be able to understand the relation between foreign trade and economic growth, the process of determining the exchange rate and its impact on foreign trade.
- Students will get insight about the international agencies like IMF, World Bank, WTO and SAARC.

Department of Geography
Programme Specific Outcomes

- Geography is a discipline bridging the social and natural sciences and includes the study of different spatial and social phenomena on the earth's surface.
- The subject is attached with natural science through the study of spatial characteristics of the various natural phenomena relating to the earth while on another side.
- It also deals with humanities or social science through the study about the human behaviour, processes and their interaction with physical space where they live.
- Geography, the study of the earth's surface, is an academic discipline that can lead to a career in mapping, planning, or environmental protection.
- Several colleges and universities offer undergraduate, master's, and doctoral degrees in geography, and many allow students a chance to focus in specific areas within this field, like global information systems (GIS) or environmental geography.
- Field study and lab work is often required in geography courses at all levels.

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Course Outcome

Course Name: Geography of India

Course Code: 20UGEO101

- The basic aim of the course is to provide comprehensive understanding of the geographical profile of India and establishing linkages with systematic and regional geography.
- Along with this course also provides understanding about geographical attributes in determining social and economic structure of the country.

Course Name: Economic geography

Course Code: 20UGEO201

- Main objective of this course to provide the basic understanding of spatial organization of economic activities, their types and basic determents.

Course Name: Physical Geography II

Course Code: 201

- Understand the theories and fundamental Concepts of Physical Geography.
- Acquire Knowledge about earth is tectonic and structural evolution.
- Gain Knowledge about earth Interior.
- Develop and Idea about concepts of plate electronic and resultant landforms.
- Understand the process of erosion, deposition and resulting landforms.

Course Name: Human Geography

Course Code: 203

- Gain Knowledge about Major themes of Human Geography
- Understand the approaches and process of Human Geography as well as diverse pattern of habitat and adaptation.
- Develop an idea about space and society.

Course Name: Economic Geography

Course Code: 301

- Understand the concept of Economic activity, factors affecting location of Economic activities.
- Acquire knowledge about different type of primary, secondary and tertiary activates.
- Map and interpret data on production economic indices transport networks and flows.

Course Name: Introduction To Remote Sensing, GIS and Quantitative Methods

Course Code: 303

- Have knowledge of the principles of Remote sensing, sensor resolutions and image interpretation.
- Learn about geographic information system and GPS.

Department of History
Programme Specific Outcomes

- Understand background of our religion, customs institutions, administration and so on.
- Understand the present existing social, political, religious and economic conditions of the people.
- Analyze relationship between the past and the present is lively presented in the history.
- Develop practical skills helpful in the study and understanding of historical events.
- Develop interests in the study of history and activities relating to history.
- The study of history helps to impart moral education.
- History installs the feeling of patriotism in the hearts of the pupils.
- It intends to present and overview of changes in historical context
- Introduce the students to the major element of politics and administration in Ancient India

Course Outcome

Course Name: History of India from earliest times up to 300 C.E.

Course Code: 20UHIS101

- As a history student will learn about the historiographical trends, interpretation of the historical sources of ancient India as well. They can acquire knowledge about the vadic period and the rise of Jainism and Buddhism culture in ancient times of India.

Course Name: History of India from 300A.D.to 1206 A.D.

Course Code:20UHIS201

- The students will be able to identify the major political developments in the history of India during the period between 300A.D. to 1206 A.D. They will be able to delineate changes in the realm of polity and culture, growth of vernacular languages and newer forms of art and architecture.

Course Name: History of Modern India

Course Code: 2001332

- The student will be able to trace the British colonial expansion in the political contexts of eighteenth century India.
- They will learn about the changes in society, politics, religion and economy during this period.
- They will also acquire knowledge about the freedom struggle. India Quest for independence and nation building are interwoven script of History, debated most widely at global level with various angles. Indeed, India's national movement has vast and divergent ideological base with inner contradictions.

Course Name: History of Haryana

Course Code: 2001432

- As a history student will learn about the historiographical trends, interpretation of the historical sources of Haryana as well.
- They can acquire knowledge about the Vedic period and the historicity of the battle of Mahabharata.
- Outline the Changes and continuities in the field of culture, especially with regard to art, architecture, freedom struggle and national movement

Course Name: History of Ancient World

Course Code: 2001532

- Student will acquire knowledge about the evolution of human society, and transformation of ancient civilizations like Mesopotamia, Greece, Egyptian, Roman and medieval Europe.
- They can acquire knowledge about the origin, features, nature and class composition of various societies.
- They can compare to each and other among the several societies of the world.

Course Name: History of Modern World

Course Code: 2001632

- This course aims to provide an understanding of an era of shifting history from euro-centric to world.
- It discusses the turbulent times when totalitarianism rose an alternative to democratic and liberal ideal and also the growing desire for peace through formation of organizations such as United Nations.

Department of Mathematics
Programme Specific Outcomes


- Have basic understanding and knowledge in different core areas of Mathematics such as algebra, analysis, calculus, differential equations, mechanics, numerical analysis and in some of the other elective areas. Demonstrate understanding of the concepts /theories/methods from such areas of Mathematics.
- Have a broad background in Mathematics and develop the essential mathematical reasoning, knowledge, skills and aptitude to pursue further studies and research in Mathematics.
- Communicate mathematics effectively and precisely by written, computational and graphical means.
- Apply knowledge, understanding, methods, techniques and skills of Mathematics to analyse, evaluate and solve problems of Mathematics and/or the mathematical problems having
- Aims to develop the ability to think critically, logically and analytically and hence used Mathematics in everyday life.

Course Outcome

Course Name:ALGEBRA

Course Code:20UMTH101

- After the successful completion of the course, the student will be able to find rank, eigenvalues and eigenvectors, understand the applications of matrix to solve a system of linear equations, solve equations using relation between roots and coefficients of the equation, describe the nature of the roots of equations, solve cubic and bi-quadratic equations.


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Course Name:CALCULUS

Course Code:20UMTH102

- Student will be able to know the basic rules of differentiation and use them to find derivatives of products and quotients and they will be able to find tangents and normal to graphs of functions given in the explicit, implicit and parametric form and apply the concept of calculus for tracing and rectification of the curves in Cartesian, parametric and polar coordinates and understand the reduction formulae and be familiar with the method of finding volumes and surfaces of solid of revolution.

Course Name:MATHEMATICAL LAB-1

Course Code:20UMTH103

- The students will be able to learn the basic of excel such as examine spreadsheet concepts and explore the Microsoft Office Excel environment, create, open and view a workbook, save and print workbooks, enter and edit data and to solve the problems for courses of 20UMTH102 and 20UMTH101.

Course Name: NUMBER THEORY AND TRIGNOMETRY

Course Code:20UMTH201

- Student would be able to understand the concepts of congruencies, residue classes and least residues, learn the operations of addition, subtraction, multiplication and calculation of powers of integers with respect to Modulo M, determine multiplicative inverses with respect to Modulo M and use these to solve linear congruencies, work with trigonometric form of complex number including de-Movier's formula and be familiar with the Euler form of complex number.

Course Name: Vector Calculus and Geometry

Course Code:20UMTH202

- Student would be able to find the derivative along a curve and directional derivatives, calculate and interprets gradient, divergence, curl and their related vector identities, be familiar with line, surface and volume integrals and use theorems of Gauss, Green and Stokes to compute integrals.

Course Name:Mathematical Lab II

Course Code:20UMTH203

- The students will be able to learn the basic of excel such as examining spreadsheet concepts and exploring the Microsoft Office Excel environment, creating, opening, and viewing a workbook, saving and printing workbooks, entering and editing data, and solving problems for courses of 20UMTH202 and 20UMTH201.

Course Name: Advance Calculus

Course Code: BM 231

This course will enable the students to:

- Understand and to prove Rolle's Theorem, mean value theorems and their geometrical interpretations. To determine indeterminate forms.
- Learn conceptual variations while advancing from one variable to several variables in calculus, limit and continuity, partial differentiation of such functions. To understand composite functions, homogeneous functions and to solve related problems.
- Understand differentiability of real valued functions of two variables and to prove associated results. To determine maximum and minimum of functions of two variables and to apply multivariable calculus in optimization problems.
- Evaluate double and triple integrals. To learn about Dirichlet integrals, Beta and Gamma functions and to solve related problems.

Course Name: Partial Differential Equation

Course Code: BM 232

This course will enable the students to:

- Apply theory of PDEs to determine integral surfaces through a given curve and to find orthogonal surfaces. To understand compatible systems and Charpit method, Jacobi method methods for solving PDEs. To learn techniques of solving second order PDEs.
- This course will focus on the formulation of first and second order partial differential equations(PDEs) for three basic types of hyperbolic, parabolic and elliptic equations. The concentration is on concrete examples and problem solving of PDEs which include heat, wave and Laplace' s equation that arise in various physical systems
- Learn classification of second order partial differential equations, their canonical forms, and methods of solving those. Find characteristic equations and curves. Apply this knowledge to solve problems of science and society. 4. Model physical phenomena using partial differential equations such as the Laplace, heat and wave equations and to solve these equations. Learn solving non-linear equations by Monge's method. Apply these methods as a tool for modelling and solving real world problems.

Course Name: Statics

Course Code: BM 233

This course will enable the students to:

- Understand the concepts of composition and resolution of forces, parallel forces, moments and couples
- Solve the problems based on analytical conditions of equilibrium of coplanar forces, friction and center of gravity

- Understand the concepts of virtual work, forces in 3d and poinsotes central axis
- Deal with wrenches, null lines and planes stable and unstable equilibrium. BM233

Course Name: Sequence and Series

Course Code: BM 241

This course will enable the students to

- Understand basic concepts of real number system and set theory. Preliminary results on neighborhood of a point, interior and limit points, open sets, closed sets etc.
- Learn real sequences, their limit, boundedness and convergence. To find convergence and divergence of a sequence. To understand Cauchy sequence, subsequence and to prove related theorems.
- Understand infinite series and its basic properties. Attain skills to determine convergence of a series of real numbers by applying various tests.
- Understand absolute and conditional convergence of alternating series and related tests. Learn the basic concepts of pointwise convergence and uniform convergence of sequence and series of functions.

Course Name: Special Function and Integral Transformation

Course Code: BM 242

This course will enable the students to

- Understand singular points of a differential equation and to solve such differential equation by power series method. Learn Hypergeometric differential equation, Hypergeometric function and its properties.
- Know Bessel's differential equation and its solution. Understand recurrence relations, generating function and orthogonality of Bessel's function. Understand Bessel integral. Attain skills to make use of Bessel functions in scientific problem solving.

- Familiarise with Legendre's differential equation and its solution in the form of Legendre functions. Understand recurrence relations, generating function and orthogonality of Legendre's function, Rodrigues' formula. Apply knowledge in problem solving.
- Know Hermite's differential equation and its solution in the form of Hermite functions. Understand recurrence relations, generating function and orthogonality of Hermite function, Rodrigues' formula. Attain skill to apply these tools for investigation and solution of problems
- Know about Laplace transforms and its properties in detail and to apply those in solving differential equations.
- Familiarize with Fourier transforms of functions, properties of Fourier transform, inverse Fourier transforms and relation between Laplace and Fourier transforms. Develop skill of applying Fourier transforms to solve differential equations.

Course Name: Programming in C and Numerical Methods

Course Code: BM 242

This course will enable the students to:

- Familiarize with C programming language. Learn elements of C, data types, constants and variables, operations and operators, statements and expressions. Use these tools for writing C programs.
- Learn Input/ Output functions in C, to write reading and writing statements in C, decision making statements and structures in C. Apply this knowledge to use as tools in writing C programs.
- Understand loops and arrays, their types, characteristics and structures. Attain the skill to write C programs which involve arrays and multiple iterations.
- Learn strings of characters, their declaration, input/ output, operations on strings and functions which handle strings. Learn declaration, types and calling of user defined functions in C.
- Understand errors and their types. Learn techniques to obtain numerical solutions of algebraic and transcendental equations

- Attain numerical skills to find solutions of system of linear equations by different methods.
- Learn different interpolation and extrapolation methods and their applications. Apply numerical methods to obtain derivatives.
- Understand numerical methods for evaluating integrals and solving differential equations and to develop skill of applying these methods for future use in scientific problems.

Course Name: Real Analysis

Course Code: BM 351

This course will enable the students to:

- Learn basic theory of Riemann integration. Learn fundamental theorem and mean value theorem of integral calculus.
- Understand improper integrals and to have knowledge to test their convergence. Understand integral as a function of a parameter. Apply this knowledge for problem solving.
- Understand concepts of metric spaces, sub spaces and their properties. Learn open, closed and bounded sets, interior and limit points, Cauchy sequence and completeness.
- Learn dense sets, compact and separable metric spaces and related results. Learn important theorems viz. Baire's category theorem, Banach contraction principle, BolzanoWeierstrass property, HeineBorel theorem. Use this basic knowledge for life -long learning purposes.

Course Name: Groups and Rings

Course Code: BM 352

This course will enable the students to:

- Recognize the mathematical objects called groups, their elementary properties, order of a group, subgroup, cyclic groups and their properties.

- Understand the notions of cosets, normal subgroups, and quotient groups. Know homomorphisms, isomorphisms and their properties and to prove three isomorphism theorems.
- Learn about ring, subring, integral domain, field and ideal and related results.
- Understand quotient rings, Euclidean ring, ring homomorphisms, ring isomorphisms and fundamental isomorphism theorems.

Course Name: Dynamics

Course Code: BM 353

This course will enable the students to:

- Understand the concepts of velocity and acceleration along the radial, transverse, tangential and normal directions. SHM and elastic string
- Deal with the problems related to mass momentum and force. Newton's laws of motions and work power and energy
- Understand the concepts of motion , projectile motion and angular velocity
- Understand the concepts of motion of a rigid body Kepler's law , motion in 3d etc.

Course Name: Real and Complex Analysis

Course Code: BM 361

This course will enable the students to:

- Deal with jacobians beta and gamma function , double and triple integral dirichlet's integral and change of order in double integration
- Understand the concepts of fourier's series half range series and change of intervals
- Understand the extended complex plane Visualize complex numbers as points of \mathbb{R}^2 and stereographic projection of complex plane on the Riemann sphere. Know De Moivre's Theorem and its Applications. Learn about trigonometric, circular and hyperbolic functions and their properties Understand the significance of differentiability and analyticity of complex

functions leading to the CauchyRiemann equations. Apply knowledge to solve related problems.

- Learn the concepts of mapping by elementary functions, conformal mapping etc.

Course Name: Linear Algebra

Course Code: BM 362

This course will enable the students to:

- Understand the concepts of vector spaces, subspaces, bases and their properties; linear transformations and their rank and nullity and to use those concepts for problem solving.
- Learn to determine eigen values, eigen vectors and characteristic polynomial of linear transformations and their further use in investigation and solution of problems.
- Have knowledge of inner product spaces, orthogonalization and diagonalization of matrices/ linear transformations and to apply that in further learning and for scientific applications.
- Learn adjoint operation, Hermitian, unitary, normal and triangular forms of linear transformations and related problem solving.

Course Name: Numerical Analysis


Course Code: BM 363

This course will enable the students to

- Understand errors and their types. Learn techniques to obtain numerical solutions of algebraic and transcendental equations.
- Attain numerical skills to find solutions of system of linear equations by different methods.
- Learn different interpolation and extrapolation methods and their applications. Apply numerical methods to obtain derivatives.
- Understand numerical methods for evaluating integrals and solving differential equations and to develop skill of applying these methods for future use in scientific problems.

Bachelor of Commerce -Programme Outcomes

- Students will learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.
- Learners will be able to recognize features and roles of businessmen, entrepreneur, managers, consultant, which will help learners to possess knowledge and other soft skills and react aptly when confronted with critical decision making.
- Learners will acquire the skills like effective communication, decision making, problem solving in day to day business affairs.
- Learners can also acquire practical skills to work as tax consultant, audit assistant and other financial supporting services.
- Learners will be able to do higher education and advance research in the field of commerce and finance.
- The students can get the knowledge, skills and attitudes during the end of the B.com degree course.
- By goodness of the preparation they can turn into a Manager, Accountant , Management Accountant, cost Accountant, Bank Manager, Auditor, Company Secretary, Teacher, Professor, Stock Agents, Government employments and so on.
- Students will prove themselves in different professional exams like C.A., C S, CMA, MPSC, UPSC. As well as other coeoces.
- The students will acquire the knowledge, skill in different areas of communication, decision making, innovations and problem solving in day to day business activities.


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Course Outcomes

Course Name: Financial Accounting I

Course Code: 19 BC 101

- To equip the students with the skill of preparing accounts and financial statement for various types of business units other than corporate undertakings.
- To introduce single entry system of accounts.
- To enable students with the skills to prepare royalty accounts.
- To understand the system of preparing consignment accounts.
- To familiar with the procedure involved in the farm accounts.

Course Name: Business Management I

Course Code: 19 BC 102

At the end of this course the student will be able to:

- Understand the topics like business ethics, market operations research, organizational behavior, strategic management etc.
- Will also imparts knowledge that helps students develop managerial skills and leadership qualities.
- Help the students to makes a base for the students which are beneficial for them at the time of internship and management training.

Course Name: Business Economics

Course Code: 19 BC 103

- Upon completion of this course the students will be able to understand the fundamentals and basic terminology of economics.
- Get an understanding of basic forces of demand and supply and how it effects the working of product and factor markets.
- Also get a framework of learning about consumer and producers'behavior. The basis of allocation of resources and taxes

Course Name: English

Course Code: 19 BC 104

- Will be able to comprehend and appreciate prose and story writing in English and culture and tradition reflected therein.
- Will be able to appreciate poetry and various poetic devices.
- Basic knowledge of grammar Will help in correct usage of English language.
- Will improve listening skills.
- Will improve communication skills.

Course Name: Fundamentals of Computer

Course Code: 19 BC 105

At the end of this course the student will be able to :

- Understand the basic terminology of hardware and software components of a computer system and
- Understand the working of input/output device and storage devices also the anatomy of the digital computer.
- Understand the Operating System, its types and functions.
- Use DOS internal & external commands.
- Use MS-Word & MS-Excel practically.
- understand data communication and basic terminology along with its hardware components.
- Understand and characterize various types of computer networks along with an overview of the standard OSI and TCP/IP reference models that illustrates the network architecture

Course Name: Financial Accounting II

Course Code: 19 BC 201

- To gain knowledge on preparation of accounts in Hire purchase and Installment.
- To acquire the skill to prepare different types of branch accounts.
- To transform the accounting knowledge in preparing departmental accounting.
- To familiar with the procedure involved in the dissolution of partnership firms.

- To familiarize students with the application of important accounting standard.

Course Name: Indian Economy and Business Environment

Course Code: 19 BC 202

- Upon completion of this course the students will be able to evaluate the legal, social and economic environments of business.
- Students will demonstrate sensitivity towards ethical and moral issues and have ability to address them.
- After studying the structural aspects of Indian economy students will be exposed to economic reforms in India at its problems.
- Better understanding of fiscal and monetary policies and New economic policies

Course Name: Business Mathematics

Course Code: 19 BC 203

This course will enable the students to:

- Understand the concepts of matrices, determinants and the inverse of matrices
- Understand the concepts of compound interest and annuities
- Understand the concepts of differentiation, maxima and minima
- Understand the concepts of permutations and combinations and sequence and series.

Course Name: Paryojanmulak Hindi

Course Code:19BC-204

- पत्र, प्रतिवेदन, प्रारूपण, टिप्पणकेलेखनआदिकोसमझपाना।
- पत्राचारकेसिद्धांतकेव्यावहारिकपक्षोंसेअवगतहोना।
- अनुवादकीपरिभाषा, प्रवृत्तिएवंमहत्वकोसमझपाना।
- मुहावरेएवंलोकोक्तियांकाप्रयोगकरभाषाकोप्रभावीबनापाना।
- मानकभाषाकेमहत्वकोसमझपाना।
- समानार्थी, विलोम, अनेकार्थी, वाक्यांशकेलिएकशब्दकाउचितप्रयोगकरपाना।

- प्रभावीसंप्रेषणकौशलकाविकासकरपाना।

Course Name: Business Communication Skills

Course Code: 19 BC 205

- Apply business communication strategies and principles to exchange information.
- learn to write business letters.
- Attain oral communication skill for effective oral presentation.
- Acquire skills to prepare reports.
- To enrich written communication skill for employability.

Course Name: Corporate Accounting I

Course Code: 19 BC 301

- To make the students familiarize with the rules relating to issues of shares and debentures.
- To make the students familiarize with the rules relating to underwriting of shares.
- To familiar with computation of the financial results of companies.
- To familiar with preparation of Investments account.
- To familiar with computation of Insurance claims.

Course Name: BRF

Course Code: 19 BC 302

- To understand the rules governing Indian Contract Act.
- To familiarize the rights and discharges of duties by parties in Indemnity, Gurantee, Bailment and pledge.
- To acquire knowledge of rules governs setting up of agency and termination of agency.
- To understand the legal provisions of sales of Goods Act.
- To know the legal provisions of laws relating to business.

Course Name: Corporate Accounting System**Course Code: 19 BC 306**

Computer Accounting System is very important for the students of commerce as it contains all the practical knowledge of accounting software, which is must in the current environment. At the end of this course the student will be able to:

- Understand the Computerized Accounting, its advantages and disadvantages.
- Explain about various accounting software available and considerations before sourcing accounting software.
- Create computerized accounts of any organization into Tally, Students will have all the practical knowledge how to configure a new company, how to create ledgers, how to post business transactions.
- Print reports and final accounts in the accounting software. The learner will get all the practical knowledge of the software, which is required to get the job in the market.

Course Name: Human Resource Management**Course Code: 19 BC 303**

- This course is aiming the importance of human resources managers, HR practices and its influencing factors.
- It provides students an understanding of a range of pay practices and how and when each of these can influence employee behavior and human capital to affect organizational performance.
- This course helps to improve the quality of work, provides the opportunities for personal development healthy relationship between employee and employer, promoting teamwork and development of human capital.

Course Name: Environmental Science**Course Code: 19 BC 304**

- To give the students an understanding of natural resources and ecosystems
- To create awareness among students about the importance of biodiversity and its conservation.

- To create awareness among students about the consequences of pollution and possible solutions to avoid pollution
- To familiarize students with human rights
- To examine the application of Human rights in the field

Course Name: E-Commerce

Course Code: 19 BC 305

- Understanding electronic payment system and its environment.
- Make ethical decisions related to e-commerce based on laws, privacy and security.
- Analyze the steps, tools and security considerations needed create an E-commerce websites.
- Recognize the impact of ICT on the internet in business operations.
- Acquire knowledge in identifying the main business and marketplace models for electronic communication & Trading.

Course Name: Computer Accounting System(CAS)

Course Code: 19 BC 306

- Understand the Computerized Accounting, its advantages and disadvantages.
- Explain about various accounting softwares available and considerations before sourcing accounting software.
- Create computerized accounts of any organization into Tally, Students will have all the practical knowledge how to configure a new company, how to create ledgers, how to post business transactions.
- Print reports and final accounts in the accounting software. The learner will get all the practical knowledge of the software, which is required to get the job in the market.

Course Name: Corporate Accounting II

Course Code: 19 BC 401

- To compute the final accounts for a corporate group like banking companies.
- To compute the final accounts for insurance companies.
- To give a detailed idea about internal reorganization of companies.

- To apply the knowledge gained in preparation of final accounts of amalgamated companies.
- To study the procedure followed for the liquidation of companies.

Course Name: Corporate Law

Course Code: 19 BC 402

- This course is beneficial for students to understand the provisions of Company Act 2013
- It familiarize the students on capital structure and the procedure of share allotment,
- to attain knowledge on rights and duties of shareholders, members and types of meetings in the companies.
- It makes familiar with rules and regulations relating to company's all aspects.
- It acquires the knowledge on modes and procedure of winding up of companies.

Course Name: Marketing Management

Course Code: 19 BC 403

- To understand the marketing concepts and marketing environment.
- To acquire knowledge on product planning and product life cycle.
- To gain knowledge on choice of distribution channels and pricing strategies.
- To understand the various methods of promotion.
- To understand the peculiarities of marketing, marketing of agricultural products and functions of commodity market

Course Name: Business Statistics

Course Code: 19 BC 404

- This course explains the features and methods of statistics,
- to apply the appropriate sampling survey method and collect data.

- It calculates an appropriate measure of central tendency, measure of dispersion.
- It provides exposure on calculation of measures of Correlation, calculation of Regression.
- It does acquaint students with the concept of index number; introduce the students about the concept of probability and knowledge about time series analysis

Course Name: Banking and Banking Law

Course Code: 19 BC 405

- To familiarize the students with the basic concepts and practice of banking.
- To provide the students an understanding about recent trends and innovation in banking sector
- To provide basic awareness to student about various types of risks in banking sector. (4) Gain knowledge on various kind of benefits in banking sector.

Course Name: Business Ethics

Course Code: 19BC-406

- To know role of ethics in corporate governance.
- To create knowledge about ethics and its application in functional areas of business.
- To create knowledge about ethics and corporate social responsibility.
- To bring up Value system in an organisation based on ethics and provide knowledge about ethical decision making.
- To recollect concept on ethical management practices in business and appreciate the value system of ancient time.

Course Name: SPSS

Course Code: 19 BC 407

- Students will be comfortable using SPSS as a data analysis tool
- Understand how to learn to use new features of SPSS
- Understand how to acquire samples

- Understand how to enter and recognize information within SPSS
- Students will be able to choose charts to successfully highlight their research results

Course Name: Income Tax Law

Course Code: 19 BC 501

- To collect the basic concepts and definitions of Income Tax Act 1961
- To know the residential status of assessee and incomes exempted from tax
- To familiar with the computation of income from salary
- To familiar with the computation of income from house property
- To familiar with the computation of income from business and profession

Course Name: Cost Accounting-1

Course Code: 19 BC 502

- To understand the concept of costing and related terms.
- To familiarity with the estimation and controlling of material cost
- To understand the estimation and controlling of labour cost
- To familiarity with the estimation of overhead cost
- To able to prepare cost sheet

Course Name: Management Accounting

Course Code: 19BC-503

- To enhance the abilities of learners to develop the concept of management accounting and its significance in the business.
- To enhance the abilities of learners to analyze the financial statements.
- To enable the learners to understand, develop and apply the techniques of management accounting in the financial decision making in the business corporate.
- To make the students develop competence with their usage in managerial decision making and control.

Course Name: Auditing

Course Code: 19 BC 504

- Introduced the students about the concepts and principles of auditing, auditing process and the objectives of auditing.
- It familiarize with basic terms used in auditing.
- Students know more about internal control and internal check system and to understand the duties and liabilities of a company auditor.
- It provides the knowledge about the preparation of audit report. Students understand more about government audit, audit of charitable and educational organizations, hospitals, clubs etc.

Course Name: Advertising & Sales Management

Course Code: 19BC 505(A)

- Demonstrate an awareness and understanding of the history of advertising.
- Demonstrate an understanding of how an advertising agency operates.
- Demonstrate an understanding of how media ratings are conducted.
- Demonstrate an understanding of companies advertising strategies and budgets.
- Recognize various targets reached by media.
- Have an understanding of media costs.

Course Name: Swachh Bharat Internship Programme

Course Code: 18-UGC-100

- Understanding the significance of the Swachh Bharat Abhiyan.
- Ability to analyse and predict the sanitation challenges of India.
- Determine the link between sanitation and development.
- Contribute to the Swachh Bharat Abhiyan through real time projects/fieldwork.

Course Name: Tax Procedure and Practices

Course Code: 19 BC 601

- To familiar with the computation of capital gain
- To familiar with the computation of income from other sources
- To know about the aggregation of income and deduction u/s 80C to 80U
- To know about the assessment of individuals
- To aware about the income tax authorities and their powers and duties.

Course Name: Cost Accounting II

Course Code: 19 BC 602

- To enable the students to understand about job costing, batch costing and contract costing.
- To understand the students the different operating methods to central and reduce cost of rendering services.
- To inform the students about the methods of costing and also used to ascertain the cost at each stage of manufacturing.
- To aware the students to analyse the behavior of cost in relation to changes in volume of output.

Course Name: Financial Management

Course Code: 19 BC 603

- To learn the theoretical foundations of financial management and financial management decisions.
- To familiarize the theories of capital structure and the concept of cost of capital
- To evaluate feasibility of various investment options
- To provide basic knowledge about working capital management.
- To understand the factors determining dividend policy adopted by companies.

Course Name: GST

Course Code: 19 BC 604

- To provide knowledge about goods-service tax.
- To create employability to the students in commercial tax practices.
- To understand the procedure for registration, payment and refund of G.S.T.
- To know tax related with movement of goods.
- To understand the appeals, offences and penalties with respect to G.S.T.

Course Name: F.M.O

Course Code: 19 BC 605B

- To introduce the operations of Indian financial system to the students.
- To create awareness regarding the operations of primary market in India.
- To understand the role of secondary market in financial market operations.
- To gain knowledge about the mutual funds, its operations, advantages and disadvantages.
- To acquire knowledge about the various derivative instruments deal in Indian financial market.

Course Name: Entrepreneurship and small-scale business


Course Code: 19 BC 606A

- This course plays a significant role in the overall economic development of country. Entrepreneurship education aids students from all socioeconomic backgrounds to think outside the box and nurture unconventional talents and skills.
- It creates opportunities, ensures social justice, instills confidence and stimulates the economy. Small scale business is important economic catalysts in a developing nation.
- The industry provides employment and earning opportunities, which contribute to economic growth and increase in the standard of living of the population.

Course Name: Yoga Health & Nutrition

Course Code: 18MPE-100

- Demonstrate basic skills associated with yoga.
- Demonstrate the ability to perform yoga movements in various combination and forms.
- Understand and apply the knowledge of basic choreography, and effective group management.
- Demonstrate the ability to create and present various yoga activities. Identify opportunities for participation in yoga activities in the community.
- Demonstrate an understanding of health-related fitness components: muscular strength, muscular endurance, and stress management.


Principal
J. V. M. G. R. R. College
Charkhi Dadri

Bachelor of Medical Science -Programme Outcomes

- Students studying in B.Sc. Medical, acquire the knowledge of various plants groups like algae, fungi, bryophytes, pteridophytes, seeds plants and microbes.
- Students are able to define, explore and explain the structure, function, metabolism of various groups of plants, animals and microorganisms including bacteria and viruses.
- Students get the theoretical and practical knowledge of subjects of Botany.
- Students communicate the biological knowledge for their career advancement, to society at various levels. It will be more beneficial to society in scientific development and hence growth and development of nation as a whole.
- Students get the knowledge about the structure, function and development of living organisms of molecular, cellular, organismic level and ecological level.
- They apply ethical principles to biological sciences and research.
- Students opting for B.Sc. Medical with Botany can make their career in Pharmaceuticals, Food Processing industries, Hospitals and Agriculture biotechnology.
- Botany students can move to serum/vaccine institutes, nanoparticle research and environmental biotechnology.
- Knowledge of Botany helps students in developing skills for wildlife and forest conservation.
- It gives the knowledge and skills to identify the plants used as Ethno botanical medicines/herbs etc.

Department of Zoology
Programme Specific Outcomes

- Students have option to prepare for various competitive exams like Civil Service, IFS, Indian Army, Bank PO, Income Tax Department *etc.*
- They may go for higher studies like M.Sc. *etc.*
- They can even setup their own small or large industrial setup.
- They may move to agriculture sector, marketing sector or in various government sectors.
- Such study will open their career in medical science, so that they can develop new vaccines and more effective medicines.
- Students have chance to move in education sector or in multinational companies to make their further career.
- Students get the knowledge about the structure, function and development of living organisms at molecular, cellular, organism level and ecological level.
- Students can apply the acquired knowledge in various day to day life activities like Health sanitization, Immunization and Nutritious diet.
- This will help in improving the quality of their life as well as the life of society in which they live, which ultimately will help in the development of the nation.

Course Outcomes

Course Name: Animal Diversity Non-Chordates 1 (Zoology)

Course Code: 20UZOO101

The student will be able to:

- Get aware with unique characters and classification of different Phyla (Protozoa to Helminthes).
- Understand the type study of different animals related to different Phyla.
- Recognise the biodiversity and economic importance of different Phyla.
- Develop understanding about the parasitic adaptations of Protozoa and Helminthes parasites and diseases caused by them.
- Learn about the polymorphism in order Siphonophora of Coelenterata Phylum and Canal system and Spicules of Porifera Phylum.

Course Name: Animal Diversity Non-Chordates 2 (Zoology)

Course Code: 20UZOO102

The student will be able to:

- Get aware with unique, general characters & classification up to order level and type study of different Phyla (Annelida to Hemichordata).
- Develop understanding to recognise the biodiversity and economic importance of different Phyla.
- Have knowledge about affinities and evolutionary significance of Trochophore larva.

Course Name: Animal Diversity Chordate 1, 2nd Semester (Zoology)

Course Code: 20UZOO201

The student will be able to understand-

- The origin, classification, salient and general features, biodiversity and economic importance of chordates, pro-chordates, cyclostomes and poses.
- The type study of Herdmania, Amphioxus, Petromyzon and Labeo.
- Ecological significance, different types of scales, parental care and migration in fishes.

Course Name: Animal Diversity Chordates 2, semester 2 (Zoology)

Course Code:20UZOO202

Student will be able to understand-

- The type study of Frog, Hemidactylus, Pigeon and Rat.
- Parental care in amphibia, extinct reptiles, poisonous and non-poisonous snakes, flight adaptations, migration in birds and dentition in rats.

Course Name: Life and Diversity of Chordates-1

Course Code:3.1

- To make students understand the basic characters of Chordates, origin and ancestor of chordates from protochordates and about the general characters, scale and fin pattern in class Pisces.
- Through this core course the students will be capable of identifying different protochordate and will be capable of Imparting conceptual knowledge of protochordates, their adaptations and associations in relation to their environment.

Course Name: Mammalian Physiology-1

Course Code:3.2

The learner will be able to:

- Understand the type, structural chemistry & role of different biomolecules (Carbohydrate, Protein and Lipids).
- Have knowledge about the different process of transport through biomembranes.
- Get aware with the symbiotic digestion.
- Learn about the structure and physiology of muscle.
- Gain fundamental knowledge about the type, structure and growth of bone.
- Learns the effect of aging on skeletal system and bone disorders.

Course Name: Life and Diversity of Chordates- 2

Course Code:4.1

- Students will be able to understand evolutionary lines of vertebrate class including amphibians, reptiles, birds, and mammals. Students will be able to identify (based on morphological characters) and understand adaptations in vertebrate class including amphibians, reptiles, birds, and mammals. Students will be able to classify and identify vertebrates' species and their skeleton Learners will also realize and understand economic importance of the vertebrate species and will be aware about their conservation.

Course Name: Mammalian Physiology-2

Course Code:4.2

The learner will be able to:

- Understand the physiology at cellular and system levels.
- Get aware with the role and function of different systems in detail (e.g Circulation, Respiration, Excretion and Neural integration).
- Have knowledge about the physiology of endocrine and reproductive systems to define normal and abnormal functions.
- Learns the different patterns of excretory products and urea formation in liver.

Course Name: Fish and Fisheries:

Course Code:5.1

- To apprise the students with the necessary basic information about fishery and aquaculture and to provide the technical and general knowledge necessary for competent fisheries management.
- Students will understand concepts of fisheries, fishing tools and site selection for a fishery/aquaculture industry.
- Students will be capable to undertake the small Aqua culture projects and will be able to explain induced breeding and post harvesting techniques

Course Name: Ecology & Evolution

Course Code:5.2

The student will be able to:

- Understand the relationship between the abiotic and biotic factors and their effects.
- Gain knowledge about the various biological interactions.
- Get aware with how the change in population affect the ecosystem.
- Develop understanding about the evolutionary history of man and phylogeny of horse.
- Know and understand the concept of origin of life, organic evolution and their theories and speciation process.

Course Name: Developmental Biology

Course Code:6.1

The student will be able to:

- Develop understanding about the events that led up to fertilization (spermatogenesis and oogenesis).
- Understand the pattern of cell cleavage in vertebrates and invertebrates.
- Have knowledge about different stages and cellular mechanism for blastulation and gastrulation.
- Differentiate between determination and differentiation process.
- Get aware with the structure, formation and significance of extraembryonic membrane in birds and mammals.
- Gain fundamental knowledge about the concept of regeneration and competence.

Course Name: Developmental Biology

Course Code:6.2

The student will be able to:

- Develop understanding about the events that lead up to fertilization.
- Understand the pattern of cell cleavage in vertebrates and invertebrates.
- Have knowledge about different stages and cellular mechanism for blastulation and gastrulation.
- Differentiate between determination and differentiation process.
- Get aware with the structure, formation and significance of extraembryonic membrane in birds and mammals.
- Gain fundamental knowledge about the concept of regeneration and competence.

Department of Botany
Programme Specific Outcomes

- Students have option to prepare for various competitive exams like Civil Service, IFS, Indian Army, Bank PO, Income Tax Department *etc.*
- They may go for higher studies like M.Sc. *etc.*
- They can even setup their own small or large industrial setup.
- They may move to agriculture sector, marketing sector or in various government sectors.
- Such study will open their career in medical science, so that they can develop new vaccines and more effective medicines.
- Students have chance to move in education sector or in multinational companies to make their further career.
- Students get the knowledge about the structure, function and development of living organisms at molecular, cellular, organism level and ecological level.
- Students can apply the acquired knowledge in various day to day life activities like Health sanitization, Immunization and Nutritious diet.
- This will help in improving the quality of their life as well as the life of society in which they live, which ultimately will help in the development of the nation.

Course Outcomes

Course Name: Diversity of Microbes

Course Code: 20UBOT101

On completion of the course, students will be able to:

- Understand the biological status of viruses, structure and reproduction in Bacteria.
- Know the systematic, morphology and structure of Algae.
- Understand the life cycle pattern of Algae.
- Understand the useful and harmful activities of Algae.
- Understand the systematic, morphology and structure of Fungi
- Know the economic Importance of Fungi
- Know the structure, economic importance of Lichens and Mycorrhiza

Course Name: Diversity of archegoniate and gymnosperms

Course Code: 20UBOT102

- On completion of the course, students will be able to:
- Know the taxonomic position, occurrence, structure and reproduction of Bryophytes
- Know the taxonomic position, occurrence, structure and reproduction of Pteridophytes
- Know the taxonomic position, occurrence, structure and reproduction of Gymnosperms
- Understand the economic importance of Bryophytes
- Understand the economic importance of Pteridophytes
- Understand the economic importance of Gymnosperms
- Understand the concept of stellar evolution, heterospory, apogamy, apospory and fossil plants.

Course Name: Ecology

Course Code:20UBOT201

On completion of the course, students will be able to:

- Know the different ecological factors such as abiotic and biotic factors
- Understand the adaptations of the plants to various abiotic factors
- Understand the concept of ecosystem and its functioning: flow of energy in the nature through food chain, trophic level or food web
- Understand the ecological succession
- Know the biogeochemical cycles of carbon, nitrogen and phosphorus
- Understand the concept of population and community ecology
- Know the Phyto-geographical regions of India

Course Name:Plant Systematics

Course Code:20UBOT202

On completion of the course, students will be able to:

- Understand the modern trend in plant taxonomy
- Understand the different system of taxonomic classification of plants proposed by different renowned taxonomist
- Knowledge on the principles and rules of binomial nomenclature i.e. ICBN.
- Get idea of flower morphology, Inflorescence and its types of Inflorescences.
- Learn about various Angiosperm families and their economic value.
- Gain proficiency in the use of keys and identification manuals

Course Name: Biology and Diversity of Seed Plants-1

Course Code: BOT 3.1

- The students will learn about the structure and reproduction of certain Gymnosperms (Cycas, Pinus and Ephedra).
- Understand the life cycle pattern and economic importance of Gymnosperms.
- Understand origin and evolution of Gymnosperms

- Understand the Phylogeny of angiosperms -A general account of the origin of Angiosperms.
- Know the scope of Paleobotany, types of fossils and geological time scale
- Understand the various fossil genera representing different fossil groups.

Course Name: Plant Anatomy

Course Code:BOT 3.2

On completion of the course, students will be able to:

- Understand the different kinds of tissues associated with plants
- Classify the meristematic tissue and permanent tissue based on origin and position
- Know the internal structure of monocotyledonous and dicotyledonous plants with typical examples
- Understand the normal and abnormal secondary growth and development of wood in plants
- Know different types of leaves, stomatal apparatus and types, anatomy of typical monocot and dicot leaf
- Understand root apical meristem and secondary growth in roots

Course Name: Biology and Diversity of Seed Plants-2

Course Code:BOT 4.1

On completion of the course, students will be able to:

- Understand the different system of taxonomic classification of plants proposed by different renowned taxonomist
- Knowledge on the principles and rules of binomial nomenclature i.e. ICBN.
- Get idea of flower morphology , Inflorescence and its types of Inflorescence.
- Learn about various Angiosperm families and their economic value.
- Learn the taxonomic evidences from cytology, numerical and chemicals.
- Gain proficiency in the use of keys and identification manuals.

Course Name: Plant Embryology

Course Code:BOT 4.2

- Understand microsporogenesis and megasporogenesis
- Understand the development of male and female gametophyte, double fertilization and triple fusion among the angiosperms.
- Understand the different agents involved in the pollination and its significance
- Know apomixis and polyembryony and their significance in the plant developmental biology
- Understand of the different types of fruits and their morphology.
- Get idea of seed formation and structure of monocot and dicot seed.

Course Name:Plant Physiology

Course Code:BOT.5.1

Semester-V

On completion of the course, students will be able to:

- Know importance and scope of plant physiology.
- Understand the plant cells in relation to water.
- Learn and understand about mineral nutrition in plants.
- Understand the growth and developmental processes in plants.
- Understand the process of photosynthesis in higher plants with particular emphasis on light and dark reactions, C3 and C4 pathways.
- Learn about the movement of sap and absorption of water in plant body
- Understand the process of translocation of solutes in plants
- Understand the plant movements.
- Know about the Plant Growth hormones (Auxins, Gibberellins.Cytokinins, Ethylene,ABA)

Course Name: Ecology

Course Code:BOT 5.2

On completion of the course, students will be able to:

- Know the different ecological factors such as abiotic and biotic factors
- Understand the adaptations of the plants to various abiotic factors

- Understand the concept of ecosystem and its functioning: flow of energy in the nature through food chain, trophic level or food web
- Understand the ecological succession
- Know the biogeochemical cycles of carbon, nitrogen and phosphorus
- Understand the community ecology through quadrates and transects
- Know the phyto-geographical regions of India
- Explain different types of environmental pollution and its management.
- Understand Biomagnification, global warming and climate change.

Course Name: Biochemistry and Plant Biotechnology

Course Code: BOT.6.1

On completion of the course, students will be able to:

- Know the nitrogen metabolism and its importance.
- Understand the respiration in higher plants with particular emphasis on aerobic and anaerobic respiration.
- Structure, general features of enzymes, concept of enzyme activity and enzyme inhibition
- Gain knowledge about various lipids and their metabolism.
- Understand the fundamentals of Recombinant DNA Technology.
- Understand the principle and basic protocols for Plant Tissue Culture.
- Understand the applications of biotechnology for human welfare
- Understand the importance of Transgenic plants

Course Name: Economic Botany

Course Code: BOT 6.2

On completion of the course, students will be able to:

- Understand the role plants in human welfare.
- Know the centre of origin and domestication of crop plants
- Gain knowledge about various plants of medicinal use.
- Appreciate plant & plant products encountered in day to day life.
- Understand the chemical contents of the plant products.
- Know about the origin, distribution and utility of common food plants, oil yielding plants and spices such as ginger, turmeric, cloves and coriander

- Gain knowledge about Beverages, timber yielding and fiber yielding plants

Course Name: Sanskrit Elective

Course Code:2005301

- Appreciate the development of Sanskrit Literature.
- Negotiate texts independently with grammatical analysis and poetic excellence.
- Acquainted with the work;Hitopadesha of the Great poet Vishnu Dutt Sharma and Charak Samhita by Maharashi Charak.
- Know about origin and development of different types of Mahakavya and Geetikavya.
- The system of Traditional grammar.
- Sanskrit vocabulary and grammatical construction
- Shabda roopa and Dhatu roopa, Procedures of formation of Sanskrit words.
- Translation of Hindi sentences in Sanskrit and Shandhiprakarna.

Course Name: Sanskrit Elective

Course Code:2005410

- Appreciate the development of Sanskrit Literature.
- Negotiate texts independently with grammatical analysis and poetic excellence.
- Acquainted with the work;Hitopadesha of the Great poet Vishnu Dutt Sharma.
- Know about origin and development of different types of Mahakavya and Geetikavya.
- The system of Traditional grammar.
- Sanskrit vocabulary and grammatical construction
- Shabda roopa and Dhatu roopa, Procedures of formation of Sanskrit words.
- Translation of Hindi sentences in Sanskrit.

Department of Computer Science

Programme Specific Outcomes

PROGRAMME SPECIFIC OUTCOMES

- Ability to apply knowledge of computing, mathematics, and basic sciences that may be relevant and appropriate to the domain.
- Ability to analyze a problem, identify and define the computing requirements, which may be appropriate to its solution.
- Ability to design, implement, and evaluate computer-based system, process, component, or program to meet desired needs.
- An ability to function effectively on teams to accomplish a common goal
- Understanding of professional, ethical, legal, security, social issues and responsibilities.
- Ability to communicate effectively among a range of audiences.
- Ability to analyze the local and global impact of computing on individuals, organizations, and society.
- Recognition of the need for and an ability to engage in continuing professional development.
- Ability to use current techniques, skills, and tools necessary for computing practices.
- Ability to use and apply current technical concepts and practices in the core development of solutions in the form of Information technology.
- Ability to identify and analyze user needs and take them into account in the selection, creation, evaluation, and administration of computer-based systems.
- Ability to incorporate effectively integrate IT-based solutions to applications
- Understanding of best practices and standards to develop user interactive and abstract application.
- An ability to assist and manage the execution of an effective project plan.
- Students will be able to acquire the basic understanding of the principles and working of the hardware and software aspects of computer systems.
- Explore technical knowledge in diverse areas of Computer Science and experience an environment conducive in cultivating skills for successful career, entrepreneurship and higher studies.

- Courses such as C++, JAVA, Python, Web designing give an effective and efficient real time solution in various domains.

Course Outcome

Course Name: Digital Electronics

Course Code:20UCS101

At the end of this course, the student will be able to:

- Understand computer arithmetic and Boolean algebra and simplification of Boolean expressions.
- Design Arithmetic and combinational circuits using logic gates.
- Design sequential circuits such as registers and counters using flip-flops.

Course Name: Virtual Lab based on 20UCS101

Course Code: 20UCS102

- After completion of practical the student will get the knowledge of Computer hardware & Software. He/ she will be able to create & use E-mail id. The student will have practical knowledge of Arithmetic and combinational circuits using logic gates. Students will be able to use these tools in the real world, which is very much required current era of technology.

Course Name: Communication and Networking

Course Code:3.1

At the end of this course, the student will be able to:

- Understand and characterize various types of computer networks along with an overview of the standard OSI and TCP/IP reference models that illustrates the network architecture;
- Define data communication and basic terminology along with its hardware components.
- conceptualize the various design issues related to data link layer and Network Layer.
- Understand Transport Layer and Application Layer with their protocols.

Course Name: Object-Oriented Design and C++

Course Code:3.2

At the end of this course, the student will be able to:

- Understand the basic concepts of Object-oriented programming system and object models
- Define Object oriented features of of C++, its operators, hierarchy and precedence and various control structures.
- Use various object-oriented features of C++ in programming.
- Understand pointers, constructor and destructors in C++;
- acquire the detailed knowledge of polymorphism and templates etc.

Course Name: Practical based on Course-3.2

Course Code:3.3

- Practical of C++ provide the practical knowledge of Programming in C++ in computer lab.
- Students learn how to write, compile and run a program code in C language compiler to solve a problem in the real world using all the basic and object-oriented features of C++.

Course Name: Data Structures with C/C++

Course Code:4.1

The subject Data structure provides the knowledge about the ways in which data could be store, manage and retrieve from the computer memory. At the end of this course, the student will be able to:

- Understand basics of data structure and algorithm complexities
- Implement arrays and various searching, sorting techniques
- Understand the idea of implementation for stack, linked list and queue
- Define tree traversal methods and graphs

Course Name: Operating Systems**Course Code:4.2**

Knowledge of the Operating System is very much useful for the learner. At the end of this course, the student will be able to:

- Understand the basic concepts of operating systems, its services, types and various functions such as Process Management, Memory Management, CPU Management, File Management etc.
- Define concept of process management and scheduling.
- Understand the process synchronization along with deadlock handling.
- define about File management and Directory management system.

Course Name: Practical & Viva-voce (Based on Course 4.1)**Course Code:4.3**

- Practical of Data Structure using C/ C++ provide the practical knowledge of implementation of various types of data structures(Array, Stack, Queue, Linked List etc.) in computer lab.
- Students learn how to write, compile and run a program code using C/C++ language for implementation of various types of data structures and various operations on them such as Insertion, Deletion, Updation, Searching, Sorting etc.

Course Name: Database Management System**Course Code:5.1**

At the end of this course, the student will be able to:

- Define basic concepts of data base along with its functions, advantages and disadvantages of DBMS.
- Understand architectures to DBMS and various data models.

- Understand E-R Model, E-R diagram and various Normal forms.
- Use SQL commands and also will be able to create Views.

Course Name: Introduction to Internet and Web Technologies

Course Code:5.2

At the end of this course, the student will be able to:

- Outline the idea of Internet, its benefits and its various tools.
- Understand the Internet terminology, Intranet and its applications, Search engines etc.
- Follow theoretical steps for developing a website and able to design simple web pages and HTML forms using HTML tags.
- Use simple and animated graphics on web pages and also able to use CSS to specify style to web pages.

Course Name: Practical based on Course-5.1 and 5.2

Course Code:5.3

- After completion of practical of DBMS, the learner will be able to perform various operations using SQL commands.
- After completion of practical of IWD, the learner will be able to develop Web pages using HTML tags and will be able to set styles using CSS.

Course Name: Visual Basic Programming

Course Code:6.1

The learner will get the knowledge about event driven programming with the help of this course. After completing this course, the learner will be able to

- The learner will be very much familiar with the environment of VB Language.
- The learner will get the knowledge about various controls available in Visual Basic.

- The learner also gets the knowledge about the data base programming using DAO &ADO.
- After completing this course, the learner will be able to design and develop a standalone app that could be use in real world.

Course Name: Software Engineering

Course Code:6.2

The knowledge of Software Engineering is very much important for software developers. After completing the course the learner will be able to :

- understand concept of Software Engineering and various steps required for the development of the computer software.
- about the various SDLC Software Development Life Cycle models.
- knowledge of all the essential steps that needs to be followed for successful software development.
- understand the fundamentals of Software Testing and Software Maintenance.

Course Name: Practical & Viva-Voce (Based on course 6.1)

Course Code:6.3

- Practical of Visual Basic provide the practical knowledge of Programming in Visual Basic in computer lab.
- The learner becomes familiar with the controls available in VB environment.
- The learner gets the practical knowledge about to write, compile and run a program code in VB environment to solve a problem in real world.

Department of Mathematics
Programme Specific Outcomes

- Have basic understanding and knowledge in different core areas of Mathematics such as algebra, analysis, calculus, differential equations, mechanics, numerical analysis and in some of the other elective areas. Demonstrate understanding of the concepts /theories/methods from such areas of Mathematics.
- Have a broad background in Mathematics and develop the essential mathematical reasoning, knowledge, skills and aptitude to pursue further studies and research in Mathematics.
- Communicate mathematics effectively and precisely by written, computational and graphical means.
- Apply knowledge, understanding, methods, techniques and skills of Mathematics to analyse, evaluate and solve problems of Mathematics and/or the mathematical problems having
- Aims to develop the ability to think critically, logically and analytically and hence used Mathematics in everyday life.

Course Outcome

Course Name: ALGEBRA

Course Code:20UMTH101

- After the successful completion of the course, the student will be able to find rank, eigenvalues and eigenvectors, understand the applications of matrix to solve a system of linear equations, solve equations using relation between roots and coefficients of the equation, describe the nature of the roots of equations, solve cubic and bi-quadratic equations.

Course Name: CALCULUS

Course Code:20UMTH102

- Student will be able to know the basic rules of differentiation and use them to find derivatives of products and quotients and they will be able to find tangents and normal to graphs of functions given in the explicit, implicit and parametric form and apply the concept of calculus for tracing and rectification of the curves in Cartesian, parametric and polar coordinates and understand the reduction formulae and be familiar with the method of finding volumes and surfaces of solid of revolution.

Course Name:MATHEMATICAL LAB-1

Course Code:20UMTH103

- The students will be able to learn the basic of excel such as examine spreadsheet concepts and explore the Microsoft Office Excel environment, create, open and view a workbook, save and print workbooks, enter and edit data and to solve the problems for courses of 20UMTH102 and 20UMTH101.

Course Name:NUMBER THEORY AND TRIGNOMETRY

Course Code:20UMTH201

- Student would be able to understand the concepts of congruencies, residue classes and least residues, learn the operations of addition, subtraction, multiplication and calculation of powers of integers with respect to Modulo M, determine multiplicative inverses with respect to Modulo M and use these to solve linear congruencies, work with trigonometric form of complex number including de-Movier's formula and be familiar with the Euler form of complex number.

Course Name: Vector Calculus and Geometry

Course Code: 20UMTH202

Student would be able to find the derivative along a curve and directional derivatives, calculate and interprets gradient, divergence, curl and their related vector identities, be familiar with line, surface and volume integrals and use theorems of Gauss, Green and Stokes to compute integrals.

Course Name: Mathematical Lab II

Course Code: 20UMTH203

- The students will be able to learn the basic of excel such as examining spreadsheet concepts and exploring the Microsoft Office Excel environment, creating, opening, and viewing a workbook, saving and printing workbooks, entering and editing data, and solving problems for courses of 20UMTH202 and 20UMTH201.

Course Name: Advance Calculus

Course Code: 12BSM231

This course will enable the students to:

- Understand and to prove Rolle's Theorem, mean value theorems and their geometrical interpretations. To determine indeterminate forms.
- Learn conceptual variations while advancing from one variable to several variables in calculus, limit and continuity, partial differentiation of such functions. To understand composite functions, homogeneous functions and to solve related problems.
- Understand differentiability of real valued functions of two variables and to prove associated results.

- To determine maximum and minimum of functions of two variables and to apply multivariable calculus in optimization problems.
- Evaluate double and triple integrals.
- To learn about Dirichlet integrals, Beta and Gamma functions and to solve related problems.

Course Name: Partial Differential Equation

Course Code: 12BSM232

The course will enable the students to:

- Apply theory of PDEs to determine integral surfaces through a given curve and to find orthogonal surfaces. To understand compatible systems and Charpit method, Jacobi method methods for solving PDEs.
- To learn techniques of solving second order PDEs.
- This course will focus on the formulation of first and second order partial differential equations(PDEs) for three basic types of hyperbolic, parabolic and elliptic equations. The concentration is on concrete examples and problem solving of PDEs which include heat, wave and Laplace' s equation that arise in various physical systems
- Learn classification of second order partial differential equations, their canonical forms, and methods of solving those. Find characteristic equations and curves.
- Apply this knowledge to solve problems of science and society.
- Model physical phenomena using partial differential equations such as the Laplace, heat and wave equations and to solve these equations.
- Learn solving non-linear equations by Monge's method.
- Apply these methods as a tool for modelling and solving real world problems.

Course Name: Statics

Course Code: 12BSM233

This course will enable the students to:

- Understand the concepts of composition and resolution of forces, parallel forces, moments and couples
- Solve the problems based on analytical conditions of equilibrium of coplanar forces, friction and center of gravity

- Understand the concepts of virtual work, forces in 3d and Poincaré's central axis
- Deal with wrenches, null lines and planes stable and unstable equilibrium.

Course Name: Sequence and Series

Course Code: 12BSM241

This course will enable the students to:

- Understand basic concepts of real number system and set theory. Preliminary results on neighborhood of a point, interior and limit points, open sets, closed sets etc.
- Learn real sequences, their limit, boundedness and convergence. To find convergence and divergence of a sequence. To understand Cauchy sequence, subsequence and to prove related theorems.
- Understand infinite series and its basic properties. Attain skills to determine convergence of a series of real numbers by applying various tests.
- Understand absolute and conditional convergence of alternating series and related tests. Learn the basic concepts of pointwise convergence and uniform convergence of sequence and series of functions.

Course Name: Special Function and Integral Transformation

Course Code: 12BSM242

This course will enable the students to:

- Understand singular points of a differential equation and to solve such differential equation by power series method. Learn Hypergeometric differential equation, Hypergeometric function and its properties.
- Know Bessel's differential equation and its solution. Understand recurrence relations, generating function and orthogonality of Bessel's function. Understand Bessel integral.
- Attain skills to make use of Bessel functions in scientific problem solving.
- Familiarise with Legendre's differential equation and its solution in the form of Legendre functions. Understand recurrence relations, generating function and orthogonality of Legendre's function, Rodrigues' formula.

- Apply knowledge in problem solving.
- Know Hermite's differential equation and its solution in the form of Hermite functions. Understand recurrence relations, generating function and orthogonality of Hermite function, Rodrigues' formula. Attain skill to apply these tools for investigation and solution of problems
- Know about Laplace transforms and its properties in detail and to apply those in solving differential equations.
- Familiarize with Fourier transforms of functions, properties of Fourier transform, inverse Fourier transforms and relation between Laplace and Fourier transforms.
- Develop skill of applying Fourier transforms to solve differential equations.

Course Name: Programming in C and Numerical Methods

Course Code: 12BSM243

This course will enable the students to:

- Familiarize with C programming language. Learn elements of C, data types, constants and variables, operations and operators, statements and expressions. Use these tools for writing C programs.
- Learn Input/ Output functions in C, to write reading and writing statements in C, decision making statements and structures in C.
- Apply this knowledge to use as tools in writing C programs.
- Understand loops and arrays, their types, characteristics and structures. Attain the skill to write C programs which involve arrays and multiple iterations.
- Learn strings of characters, their declaration, input/ output, operations on strings and functions which handle strings.
- Learn declaration, types and calling of user defined functions in C.
- Understand errors and their types. Learn techniques to obtain numerical solutions of algebraic and transcendental equations
- Attain numerical skills to find solutions of system of linear equations by different methods.
- Learn different interpolation and extrapolation methods and their applications. Apply numerical methods to obtain derivatives.

- Understand numerical methods for evaluating integrals and solving differential equations and to develop skill of applying these methods for future use in scientific problems.

Course Name: Real Analysis

Course Code: 12BSM351

This course will enable the students to:

- Learn basic theory of Riemann integration. Learn fundamental theorem and mean value theorem of integral calculus.
- Understand improper integrals and to have knowledge to test their convergence. Understand integral as a function of a parameter. Apply this knowledge for problem solving.
- Understand concepts of metric spaces, sub spaces and their properties. Learn open, closed and bounded sets, interior and limit points, Cauchy sequence and completeness.
- Learn dense sets, compact and separable metric spaces and related results. Learn important theorems viz. Baire's category theorem, Banach contraction principle, BolzanoWeierstrass property, HeineBorel theorem.
- Use this basic knowledge for life -long learning purposes.

Course Name: Groups and Rings

Course Code: 12BSM352

The course will enable the students to:

- Recognize the mathematical objects called groups, their elementary properties, order of a group, subgroup, cyclic groups and their properties.
- Understand the notions of cosets, normal subgroups, and quotient groups. Know homomorphisms, isomorphisms and their properties and to prove three isomorphism theorems.
- Learn about ring, subring, integral domain, field and ideal and related results.
- Understand quotient rings, Euclidean ring, ring of polynomials, ring homomorphisms, ring isomorphisms and fundamental isomorphism theorems.

Course Name: Dynamics

Course Code: 12BSM353

This course will enable the students to:

- Understand the concepts of velocity and acceleration along the radial, transverse, tangential and normal directions. SHM and elastic string
- Deal with the problems related to mass momentum and force. Newton's laws of motions and work power and energy
- Understand the concepts of motion, projectile motion and angular velocity
- Understand the concepts of motion of a rigid body Kepler's law, motion in 3d etc.

Course Name: Real and Complex Analysis

Course Code: 12BSM361

This course will enable the students to:

- Deal with jacobians beta and gamma function , double and triple integral dirichlet's integral and change of order in double integration
- Understand the concepts of fourier's series half range series and change of intervals
- Understand the extended complex plane Visualize complex numbers as points of \mathbb{R}^2 and stereographic projection of complex plane on the Riemann sphere. Know De Moivre's Theorem and its Applications.
- Learn about trigonometric, circular and hyperbolic functions and their properties Understand the significance of differentiability and analyticity of complex functions leading to the CauchyRiemann equations.
- Apply knowledge to solve related problems.
- Learn the concepts of mapping by elementary functions, conformal mapping etc.

Course Name: Linear Algebra

Course Code: 12BSM362

This course will enable the students to:

- Understand the concepts of vector spaces, subspaces, bases and their properties; linear transformations and their rank and nullity and to use those concepts for problem solving.
- Learn to determine eigen values, eigen vectors and characteristic polynomial of linear transformations and their further use in investigation and solution of problems.
- Have knowledge of inner product spaces, orthogonalization and diagonalization of matrices/ linear transformations and to apply that in further learning and for scientific applications.
- Learn adjoint operation, Hermitian, unitary, normal and triangular forms of linear transformations and related problem solving.

Course Name: Numerical Analysis

Course Code: 12BSM363

This course will enable the students to:

- Understand errors and their types. Learn techniques to obtain numerical solutions of algebraic and transcendental equations.
- Attain numerical skills to find solutions of system of linear equations by different methods.
- Learn different interpolation and extrapolation methods and their applications. Apply numerical methods to obtain derivatives.
- Understand numerical methods for evaluating integrals and solving differential equations and to develop skill of applying these methods for future use in scientific problems.

Department of Physics
Programme Specific Outcomes

- Be capable of understanding the core physical laws to understand the basic concepts, latest progress and applications of certain sub fields such as nuclear physics, spectroscopy of atoms & molecules, solid state physics, computational physics & electronics.
- Gain hands-on skills for carrying out basic experiments as well as experiments related to different fields of Physics and attain abilities of critical thinking, problem mapping & solving using fundamental principles of Physics, systematic analysis & interpretation of results.
- Have a new perspective to look at everything from 'Scientific' point of view that enabling them to pursue higher studies at postgraduate & research level
- Have awareness of the impact of Physics in social, economical and environmental issues.

Course Outcome

Course Name: Atomic and molecular Spectroscopy

Course Code: 20PHY602A

Students after the course will be able to:

- describe the atomic spectra of one and two valance electron atoms.
- explain the change in behavior of atoms in external applied electric and magnetic field.
- explain rotational, vibrational, electronic and Raman spectra of molecules.
- Describe electron spin and nuclear magnetic resonance spectroscopy and their applications.
- explain operational principles and construction of lasers.
- give an account of technological issues behind laser construction.
- relate the laser operation principles to atom and molecular physics, solid state physics, quantum mechanics and physical optics.

Course Name: Mechanics

Course Code: 20UPHY101

Students will be able to articulate and describe:

- Relative motion. Inertial and non-inertial reference frames.
- Parameters defining the motion of mechanical systems and their degrees of freedom.
- Study of the interaction of forces between solids in mechanical systems.
- Centre of mass and inertia tensor of mechanical systems.
- Application of the vector theorems of mechanics and interpretation of their results.
- Newton's laws of motion and conservation principles.
- Introduction to analytical mechanics as a systematic tool for problem solving.

Course Name: Electrostatic and Magnetism

Course Code: 20UPHY 102

After completion of above course, students will

- Apply knowledge of electricity and magnetism to explain natural physical processes and related technological advances.
- Use an understanding of calculus along with physical principles to effectively solve problems encountered in everyday life, further study in science, and in the professional world.
- Design experiments and acquire data in order to explore physical principles, effectively communicate results, and critically evaluate related scientific studies.
- Assess the contributions of physics to our evolving understanding of global change and sustainability while placing the development of physics in its historical and cultural context.
- Electromagnetism serves as a basic principle of working for many of the home appliances in household applications. These applications include lighting, kitchen appliances, air conditioning systems, etc. The most dominant use of power in homes as well as commercial buildings is lighting systems.

Course Name: Properties of Matter, Kinetic theory and Relativity

Course Code: PHY 201

- We can compare properties of different Phases of matter.
- We can describe relationship between motion of molecules and temperature.
- We can describe different characteristics of different Phases of matter.
- Can define what is and where we can find it.
- Can explain different physical properties of different matter.
- We can explain behavior of objects in space and time.
- Predict light bending due to gravity.
- Student can predict behavior of Mercury in its orbit.

Course Name: Electromagnetic induction and electronic devices

Course Code: PHY 202

Outcomes are as:

- Can know relationship between electricity and magnetism.
- Can use Faraday law to make a generator to produce electricity.
- Can make transformer.
- Shopping cashless using a card is possible with application of electromagnetic induction.
- Can identify basic tools to construct electronic circuits and systems.
- Can explain constitution and applications of standard circuit configuration.
- Can describe general operating principles of multiple electronic components.
- We can identify and describe the applied electronic principles used for radio, television.
- can describe electronic components used for communication purposes.

Course Name: Computer Programming and Thermodynamics

Course Code: PHY 301

After completion of course students will be able to:

- Understand the basics of computer organisation and its working. Also they will understand the Fortran language and its programming.

- Understand the basic concepts of thermodynamics, the first and the second law of thermodynamics, Joule Thomson effect, Joule-Thomson (Porous plug) experiment, the concept of entropy and the associated theorems, calculations of entropy of reversible & irreversible process, T-S diagram and Nernst heat law (third law of thermodynamics) and liquefaction of gases.
- Derive the Clausius-Clapeyron and Clausius latent heat equations and understand their significance. The students will also be able to learn about Maxwell's thermodynamic relations their physical interpretations.

Course Name: Optics

Course Code: PHY 302

- Learn the Fourier analysis of periodic functions and their applications in physical problems.
- Acquire knowledge to solve the complex integrals and differential equation using Fourier transformation.
- Learn about ray optics using matrix method.
- Have understand of interference by division of wave front.

Course Name: Statistical Mechanics

Course Code: PHY-401

- After completion of course, students will be able to:
- Understand the concepts of microstate, microstate, thermodynamic probability and also understand the studies of particles with their distinguishable or indistinguishable nature and statistical fluctuations.
- Learn the basic Postulates of statistical physics, Phase space, Division of Phase space into cells. Conditions which lead to the three different distribution laws e.g. Maxwell-Boltzmann distribution, Bose-Einstein distribution and Fermi-Dirac distribution laws of particles.
- Understand the need and application of Quantum Statistics: Bose-Einstein & Fermi-Dirac statistics and be able to articulate the connection as well as

dichotomy between classical statistical mechanics and quantum statistical mechanics.

- Learn to apply quantum mechanics to boson gas and fermion gas. Degeneracy and its effect.

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- Understand the need and application of Quantum Statistics: Bose-Einstein & Fermi-Dirac statistics and be able to articulate the connection as well as dichotomy between classical statistical mechanics and quantum statistical mechanics.
- Learn to apply quantum mechanics to boson gas and fermion gas. Degeneracy and its effect.

Course Name: Optics 2

Course Code: PHY 402

- Learn about Huygens Fresnel theory, diffraction at a straight edge and at a circular aperture, diffraction due to a narrow slit and due to a narrow wire
- Understand and explain the Fraunhofer diffraction, dispersive power of grating and resolving power of telescope & a grating.
- Understand the theories and laws of polarization along with under of (i) Plain polarized light (ii) circularly polarized light and (iii) Elliptically polarized light

Course Name: Physics Practical (4)

Course Code: PHY 403

After completing the course, students will be able to:

- Understand relation between wavelength and minimum deviation by plotting a graph.
- Understand the concept of interference and diffraction by measuring wavelength of Sodium light by using Newton rings and diffraction grating.
- Understand the concept of resonant circuits and their applications.
- Solve problems by using Fortran language.

Course Name: Quantum Mechanics

Course Code: PHY 502

- Know main aspects of the inadequacies of classical mechanics and understanding historical development of quantum mechanics and understand the theory of quantum measurement, wave packets and uncertainty principle.
- understand the central concepts of quantum mechanics, wave functions, momentum and energy operator, expectation values time dependent and time independent schrodinger equations, Eigen values and Eigen functions and their significance.
- solve Schrodinger equation for ground state energy and wave functions of various simple quantum mechanical one-dimensional potentials

Course Name: Physics Practical (V)

Course Code: PHY 503

- Design and study CB&CE AMPLIFIER AND also be able to carry out the measurement of voltage and frequency of periodic wave.
- design and study of hartley oscillator.
- Learn the fundamentals of the fortran programming languages and their applications in solving simple analytical problems.
- Hands on experience of using various optical instruments and resolving power of optical equipment.

Course Name: Nuclear Physics

Course Code: PHY 602

- Learn about nuclear composition & nuclear properties like size, spin, parity, statistics, magnetic dipole moment quadruple moment and basics of experimental methods to determine the mass and size of nuclei.
- learn about the mechanism of the emissions of alpha, beta, gamma particles. Also learn some basic aspects of interaction of heavy charged particles and interaction of gamma ray by photoelectric effect, Compton scattering and pair production, energy loss due to ionization.
- Understand the principles and basic constructions of particle accelerators and the detectors of nuclear radiations.
- Learn the basic aspects of nuclear reactions, the Q- value of such reactions and its derivation from conservation laws and understand the principle, working and uses of nuclear fission and fusion reactors, detectors and counters

Course Name: Physics Practical (VI)

Course Code: PHY 603

- learn to present observations, results and analysis in suitable and presentable form.
- Perform experiment to determine band gap of semiconductor materials
- to determine the hall coefficient of semiconductor sample.
- Familiar with the use and proper handling of different instruments such as G M counter

Department of Chemistry
Programme Specific Outcomes

- The students are acquiring knowledge of Chemical Thermodynamics, Kinetics, Electrochemistry, Organic synthesis, spectroscopy and skill in industrial chemistry.
- They get training to prepare soaps and candles on small scale so they can pursue industrial carrier.
- Chemistry plays an important role in the discovery of highly explosive material like TNT etc.
- Phonographs records are made up of polyvinyl chloride have added to our pleasure for listening to music.
- Chemistry also led to the discovery of preservatives.
- Life savings drugs like cisplatin and taxol are used to cure cancer and AZT FOR AIDS.
- New chemicals replaced CFC used in refrigerators. Also students will get knowledge about energy resources and good fuels which are part of our day to day life
- Chemistry also led to the various methods to get better quality of fuels

Course Outcome

Course Name: Atomic structure and Bonding and general organic chemistry1

Course Code: 20UCHE101

- To know dual behavior of matter and radiation, de Broglie relation, Heisenberg Uncertainty principle and Hydrogen spectra.
- To learn time independent Schrodinger equation and meaning of various terms in it and significance of these terms.
- To understand the significance of quantum numbers, orbital angular momentum and shape of s,p and d orbitals, nodal planes etc.
- To know Born Haber cycles and its applications, polarizing power and polarizability fajan's rule and ionic character in covalent compounds, bond moment, dipole moment and percentage ionic character.
- To understand VB Approach: Shapes of some inorganic molecules and VSEPR Theory.
- To learn comparison of VB and MO approach.
- To know physical effects such as Inductive effect, Electrometric effect, Resonance and Hyperconjugation etc.
- To understand structure, shape and reactivity of organic molecules
- To know strength of organic acid and base
- To understand the stereochemistry of organic compounds

Course Name: States of matters and Aliphatic hydrocarbons

Course Code: 20UCHE102

- To learn the postulates of kinetic theory of gases and derivation of kinetic gas equation, Derivation of real gases from ideal gas behavior, compressibility factor and cause of deviation.
- To know Maxwells Boltzmann distribution of molecular velocities and molecular energy.
- To understand viscosity of gases and effect of temperature and pressure on coefficient of viscosity.

- To learn surface tension and its determination using stalagmometer and determination of viscosity using Ostwald viscometer.
- To know symmetry elements and X- ray diffractions method.
- To study the method of preparations, physical and chemical properties of Alkanes, Alkenes and Alkynes

Course Name: Practical-1

Course Code: 20UCHE103

- To study the Estimation of oxalic acid by titrating it with potassium permanganate.
- To study the Estimation of water of crystallizations in Mohrs salt by titrating with Potassium permanganate.
- To study the surface Tension of a liquid.
- To study the process of sublimation of camphor and phthalic acid.
- To study the separation of mixtures by chromatography.

Course Name: Chemistry of s and p Block elements and Aromatic hydrocarbons, Alkyl and Aryl halides

Course Code: 20UCHE201

- To learn the chemistry of S block elements.
- To know the chemistry of P block elements (Carbon family, Nitrogen family, Oxygen family, Halogen family and chemistry of nobles' gases)
- To understand method of preparations of Aromatic Hydrocarbons and Electrophilic substitution reactions such as Halogenation, Nitration, Sulphonation and Friedal crafts reaction.
- To learn the Methods of preparation, physical properties and chemical property of Alky halides and Aryl halides

Course Name: CHEMISTRY OF s & p BLOCK ELEMENTS AND AROMATIC HYDROCARBONS

Course Code: 20UCHE202

- To learn the Thermodynamics-1 (Zeroth law of thermodynamics, First law of thermodynamics, Internal energy, Enthalpy, Heat capacity, Joules law and Joules Thomson law etc.)
- To understand the Thermodynamics -2 (Second law of Thermodynamics, Carnot cycles, Entropy, Third law of Thermodynamics, Gibbs and Helmholtz functions etc.)
- To know the Methods of preparations, physical and chemical property of Alcohols and Phenols.
- To know the Methods of preparation, physical and chemical property of Aldehydes and Ketones.

Course Name: Practical- 2

Course Code: 20UCHE203

- To study the Inorganic preparations (Prussian blue, Chrome Alum and Cuprous chlorides).
- To study the physical chemistry Experiments.
- To study the organic preparations (Iodoform, p-Bromo acetanilide).

Course Name: Inorganic Chemistry

Course Code: CH-301

- Discuss the classification & characteristics of solvents and explain the reactions in solvents like liquid NH₃ and HF
- Describe Werner's theory, valence bond theory, Valence bond theory of coordination compounds and explain isomerism in coordination compounds.
- Chemistry of d block elements

Course Name: Physical Chemistry

Course Code: CH-302

- The application of mathematical tool to calculate thermodynamics
- The relationship between microscopic properties of molecules with macroscopic thermodynamics observables
- State and apply the law of thermodynamic, perform calculation with ideal and real gas, design practical engine by using thermodynamic cycles, predict chemical equilibrium and spontaneity of reaction by using thermodynamic principles
- To learn depth knowledge about Distribution law.

Course Name: Organic Chemistry

Course Code: CH-303

- Explain the methods of preparation and properties of alcohols, ethers and carbonyl compounds
- The fundamental electronic structure and bonding in alcohol and epoxides
- The use of ultra violet spectroscopy for organic structure elucidation
- Methods of preparation and properties of phenols

Course Name: Inorganic Chemistry

Course Code: CH-401

- The properties of f-block elements, lanthanide contraction- its causes and consequences, actinide contraction, differences between lanthanides and actinides
- Differentiate between volumetric analysis and gravimetric analysis and different types of titrations
- Describes bonding models that can be applied to a consideration of the properties of f block elements

Course Name: Physical Chemistry

CourseCode: CH-402

- To learn depth knowledge about electrochemistry
- The use of simple models for predictive understanding of physical phenomena associated to chemical thermodynamics
- Third law of thermodynamics, Carnot cycle and spontaneity criteria for reversible and irreversible process and work function

Course Name: Organic Chemistry

Course Code: CH-403

- The use of Infra red absorption spectroscopy for organic structure elucidation
- Method of preparation and properties of amines, nitro compounds, diazonium salts
- The fundamental electronic structure and bonding in carbonyl compounds
- Substituents effects on Pka (in the case of carbonyl compounds)
- The reactant of carbonyl compounds with both hard and soft nucleophile
- The kinetics and thermodynamics of carbonyl condensation reaction

Course Name: Inorganic Chemistry

CourseCode: CH-501

- Metal ligand bonding in transition metal complexes
- Thermodynamic and kinetics aspect of metal complexes
- Magnetic properties of transition metal complexes
- Electronic spectra of transition metal complexes

Course Name: Physical Chemistry

Course Code: CH-502

- Quantum mechanics includes black body radiation, heat capacity of solids, planks radiation law and postulates of quantum mechanics, derivation of Schrodinger wave equation and its application.

- Current technological application as well as the most recent advance in the field are then detailed.
- Physical properties and molecular structure
- Physical spectroscopy includes rotational, vibrational and Raman spectroscopy and its application

Course Name: Organic Chemistry

Course Code: CH-503

- The use of nuclear magnetic resonance spectroscopy, Mass spectrometry and infrared spectroscopy for organic structure elucidation
- To learn depth knowledge about carbohydrates
- Application of organometallic reagents towards synthetic organic chemistry

Course Name: Inorganic Chemistry

Course Code: CH-601

- the concept of hard and soft acids and bases
- Application of essential and non-essential elements in biological system
- outline of silicone and phosphazenes
- Application of organometallics compounds towards inorganic chemistry

Course Name: Physical Chemistry

Course Code: CH-602

- Developed expertise relevant to professional practice of chemistry
- Developed an understanding of the breadth and concept of physical chemistry
- An appreciation of the role of physical chemistry in the chemical science and engineering
- An understanding of methods employed for problems solving in physical chemistry.

Course Name: Organic Chemistry

Course Code: CH-603

- How to use their understanding of organic mechanism to predict the outcome of reaction
- How to design synthesis of organic molecules
- How to determine the structure of organic molecules by using IR and NMR spectroscopic techniques
- Improve their theoretical knowledge about chemical reaction which are carried out by light

Course Name: हिंदीअनिवार्य

Course Code: HI-03

- विविधकालखंडोंकेकवियोंएवंउनकीकविताओंकेमाध्यमसेभावात्मकसमझपैदाहोना।
- पत्रोंकेविविधरूपोंकाप्रयोगकरपाना।
- निबंधलेखनकीकलाकेमाध्यमसेविचारोंकोव्यक्तकरपाना।
- मानवाधिकार,मद्यनिषेध,नैतिकशिक्षा,विज्ञान,
वैश्वीकरणआदिमहत्वपूर्णविषयोंपरनिबंधलिखनवीनज्ञानप्राप्तकरपाना।
- वैज्ञानिकशब्दावलीसेपरिचितहोनाऔरअभिव्यक्तिकाप्रभावीबनजाना।

Course Name: हिंदीअनिवार्य

Course Code: HI-04

- हिंदीसाहित्यकेमूर्धन्यरचनाकारोंऔरविविधमहापुरुषोंद्वारालिखितसंस्मरणोंकेमाध्यमसेउनकेजीवनकेविविधपक्षोंसेप्रेरणालेना।
- निबंधलेखनमेंपारंगतहोनाऔरविविधज्वलंतविषयोंकीजानकारीप्राप्तहोना।
- कंप्यूटरएवंइंटरनेटकेमहत्वकोसमझपाना।
- पत्रोंकेविविधप्रकारोंकाबोधहोनातथावैज्ञानिकशब्दावलीकाज्ञानप्राप्तहोना।
- बुनियादीकंप्यूटरसाक्षरताकीसमझहोनाऔरतकनीकीकौशलोंकाविकासहोना।

Master of Political Science

Programme Outcomes

The programme outcomes for Post graduate program in the political science are as follows:

- Students would be capable of demonstrating comprehensive disciplinary knowledge gained during course of students.
- it would develop ability to communicate effectively on general and political topics with in-depth manner.
- It would be beneficial to develop the ability of critical thinking, research-based knowledge and political approach.
- it would help in building ability to understand political science in a systematic manner.
- it would help in creating aptitude to apply knowledge and skills that are necessary for participating in learning activities throughout the life.

Programme Specific Outcomes

- Understand the world, their country, their society as well as themselves and have awareness of ethical problems, social rights, values and responsibility to the self and to others.
- Understand different disciplines from natural and social science to mathematics and art, and develop interdisciplinary approaches in thinking and practice
- Communicate effectively by oral, written, graphical and technological means.
- Develop knowledge of theories, concepts & research methods in humanities and social sciences.
- Develop the ability to make logical inferences about social & political issues on the basis of comparative and historical knowledge.
- The programme helps to understand the concept and origin of power and different types of power relationships.

- The programme is aimed at shaping the student's perception and outlook on social, economic and political environment of India and beyond.

Course Outcomes

Course Name: International relations-I

Course Code: 19POL103

- This course would help students in understanding the various concepts related to International relations.
- The knowledge of this course will surely assist in getting better whereabouts of national power, foreign policy, various theories and world system.

Course Name: Communication skills

Course Code: 19POL108

- This course is aimed for the holistic development of integrated body, mind and inner soul of the learner.
- It would help students in developing their communication skills in Hindi and knowing about various basic concepts of communication.

Course Name: International relations-II

Course Code: 19POL203

- This course would benefit students in developing understanding about the international relations at advanced level
- it would help in knowing about Cold War, globalisation, role and relevance of various regional organisations along with knowledge of emerging issues in a changing world such as nuclear politics, climate change, etc.

Course Name: Communication skills

Course Code: 19POL208

- This course would benefit students by improving their fluency in communication

- enable them to develop comprehension skills, improve vocabulary, using of proper grammar and basic of communication.
- It is useful course to develop the communication skills alongside listening and speaking skills.

Course Name: India's Foreign policy

Course Code: 19POL304

- This course would help students in learning about the basics of India's foreign policy
- the making of foreign policy and also about India & Global economy.
- It is also beneficial for learning about India and its new security challenges such as NPT, CTBT, NSG, terrorism, climate change and many other challenges.

Course Name: Human Rights & Duties-I

Course Code: 19POL305(I)

- This course is beneficial to know about human rights, human values, various kinds of duties along with historical foundation of human rights.
- It would help students in learning about UNO perspectives on human rights.
- This course offers so much insight into the human rights in advanced manner.

Course Name: Public Administration

Course Code: 19POL104

- This course would help students in knowing about basic of public administration such as public administration as a discipline
- various approaches and theories, basic of organisations and control of accountability of related.

Course Name: India and the World

Course Code: 19POL404

- This course would be useful to the students to learn about India & its neighbours, post-cold war countries, regional organisations and United Nations too.
- It would also help students to learn about India's perspective and its relations with SCO, West Asia, etc.

Course Name: Human Rights & Duties-I

Course Code: 19POL405(I)

- This course offers students learning about human rights & duties within special reference to India.
- It would be beneficial to students in learning about evolution of human rights & duties in India, various socio-religious movements, enforcement mechanisms and judiciary stands on human rights in India.

Course Name: Fundamental of Information technology (Theory & Lab)

Course Code: 19POL408

- This course would help students to get a basic understanding of the computer generally used in general office use.
- Students will also get acquainted with the basic IT tools and packages necessary for day to day office operations.

Course Name: Seminar

Course Code: 19POL107

- This course is aimed for the holistic development of integrated research aptitude of the students.
- This course would benefit students in building their better presentation skills and how to write a seminar.

Course Name: Seminar

Course Code: 19POL207

- This course is aimed to develop the writing & presentation skills in the students
- This course would benefit students in building their better presentation skills and how to write a seminar.

Course Name: Seminar

Course Code: 19POL307

- This course is aimed to develop the writing & presentation skills in the students
- This course would benefit students in building their better presentation skills and how to write a seminar.

Course Name: Seminar

Course Code: 19POL407

- This course is aimed to develop the writing & presentation skills in the students
- This course would benefit students in building their better presentation skills and how to write a seminar.

Course Name: Character building and comprehensive personality

Course Code: 19POL308

- This course is aimed for the holistic development of integrated mind.
- It would help students in building good character and understanding of various character-building related concepts.
- It is a good course to develop an individual having sound character.

Course Name: Hobby Club

Course Code:

- The Hobby club would benefit students in nurturing their hobbies.
- they will get an advantage of learning about the basics techniques & its practically implantation.

Course Name: Research Methodology

Course Code: 19POL105

- This course would help students in building the foundation of research, various sampling types and how to collect primary of secondary data.
- It would also assist in understanding of various of data such as primary & secondary along with techniques mainly about questionnaire, interview, observation, participation & non - participant.

Course Name: Current Affairs Analysis

Course Code: 19POL106

- This course would benefit students by having proper knowledge of various current affairs topics including UNO & it's agencies, major economic issues of India & global institutions, defense& strategic issues of India & major powers such as USA, RUSSIA, UK, CHINA, JAPAN along with many Political and judicial issues of national importance.

Course Name: Current Affairs Analysis

Course Code: 19POL206

- This course would benefit students by having proper knowledge of various current affairs topics including UNO & it's agencies, major economic issues of India & global institutions, defence& strategic issues of India & major powers

such as USA, RUSSIA, UK, CHINA, JAPAN along with many Political and judicial issues of national importance.

Course Name: Current Affairs Analysis

Course Code: 19POL306

- This course would benefit students by having proper knowledge of various current affairs topics including UNO & it's agencies, major economic issues of India & global institutions, defence& strategic issues of India & major powers such as USA, RUSSIA, UK, CHINA, JAPAN along with many Political and judicial issues of national importance.

Course Name: Current Affairs Analysis

Course Code: 19POL406

- This course would benefit students by having proper knowledge of various current affairs topics including UNO & it's agencies, major economic issues of India & global institutions, defence& strategic issues of India & major powers such as USA, RUSSIA, UK, CHINA, JAPAN along with many Political and judicial issues of national importance.

Course Name: Public Administration II

Course Code: 19POL204

- This course would benefit students in knowing the personnel administration in detailed manner along with financial Administration with special reference to India, various administration law, culture, reforms and public policy & it's process.

Course Name: Research Methodology

Course Code: 19POL205

- This course aims to develop the understanding of research methodology at advanced level.

- It would benefit students in getting whereabouts of processing of data, various statistical techniques, software, use of computer and also about Report of thesis writing.

Course Name: Contemporary Political Theory

Course Code: 19POL301

- This course is aimed to develop the basic understanding of contemporary Political Theory mainly about behaviouralism, post behaviouralism, major ideologies, sovereignty, state civil society and democracy.
- This course is necessary to acquaint with deeper knowledge of political theory.

Course Name: Contemporary Political Theory I

Course Code: 19POL302

- This course is designed to provide introduction to the comparative politics, various concepts including constitutionalism, judicial review, rule of law, separation of power various form of government.
- It is a good course to acknowledge the different government system around the global

Course Name: Contemporary Political Theory II

Course Code: 19POL401

- This course would be helpful in knowing about the basic of Political theory & various Political ideologies.
- it would also benefit students in knowing about liberty, equality, justice, rights, duties and many other theories in detailed manner.

Course Name: Comparative Politics and Political Analysis- II

Course Code: 19POL402

- This course offers learning about comparative politics & political analysis in advanced manner.

- it would be beneficial to the students to learn about Political modernization, socialization, Political Culture, Political Elite, Political Parties and also a out various challenges to the democracy.
- It is helpful course to know the democracy from comparative perspective.

Course Name: Western Political Thought 1

Course Code: 19POL101

- This course would help students to know about various Western political thinkers including Plato, Aristotle, st.augustine, st.thomas, Aquinas, Niccolo Machiavelli, Hobbes,Locke, Rousseau, Jeremy Bentham,and John Stuart mill.
- It would help students in building their basic understanding about Western thoughts.

Course Name: Indian government and politics 1

Course Code: 19POL102

- This course would assist students to get acquainted with the basic of Indian constitution, nature of Indian federalism, indian executive, legislatures and judicial system.
- the understanding of this course will provide a gate way to the Deep knowledge of Indian government and politics

Course Name: Western political thought (2)

Course Code: 19POL201

- This course would benefit students in knowing about the western political thought including Hegel, t.h.green, Karl Marx,MaoZedong,Gramsci,Rosa Luxembourg, John Rawls, Foucault and Hannah Arendt.
- It would help students in developing understanding about the various theories propounded by the above mentioned thinkers.

Course Name: Indian government and politics (2)

Course Code: 19POL202

- This course would keep students in developing the understanding of electrical process in india, various political parties electrical politics along with many social justice and statutory commissions and also about major issues and challenges in Indian politics.
- this course also provides in depth knowledge about indian politics in systematic manner.

Course Name: Indian Political Thought I

Course Code: 19POL303

- This course would benefit students in learning about various Indian political thinkers and their ideologies.
- the main thinkers to be taught in the curriculum include Guru Nanak, kabir,barni, vivekanand, swami dayanandsaraswati,panditaramabai,and many other.
- It is good course to get acquainted with Indian political mind.

Course Name: Indian Political Thought II

Course Code: 19POL403

- This course would keep students in learning about Indian political thought in advance manner as it offers learning about Lal, Bal,Pal, Gandhi, Ambedkar, Deen Dayal Upadhyay, Jai Parkash narayan, Ram Manohar Lohia, Savarkar SubhashChanderBose.
- It is quite beneficial course to know Indian minds and their political ideologies.

Master of Geography

Programme Outcomes

- Program learning outcomes (PLOs) are specific types of knowledge and skills that students are expected to acquire in the program and to be able to demonstrate upon completion. The Department expects that students who major in geography will be skilled in disciplinary theories, methodologies, and content. These expectations ground the following learning goals and objectives for undergraduate and graduate majors. Upon completion of the Master of Arts in Geography, students will be able to demonstrate the following:
 - Compare and contrast the theories, philosophies, and concepts in the discipline of geography, including unifying themes of spatial patterns and structures, the interrelationship between people and places, and the interactions between nature and society. Demonstrate an advanced understanding of and ability to differentiate among the various methodologies used in geographic research. Acquire, analyze, evaluate, interpret and critique geographic data and/or research. Communicate mastery of geographic data, theories, philosophies, and concepts in oral, written, and visual forms, with ethical engagement and respect for diversity of individuals, groups, and cultures. Identify and assess how geographic concepts apply in the workplace and in everyday life to solve real-world problems.

Programme Specific Outcomes

- Geography is a discipline bridging the social and natural sciences and includes the study of different spatial and social phenomena on the earth's surface.
- The subject is attached with natural science through the study of spatial characteristics of the various natural phenomena relating to the earth while on another side.
- It also deals with humanities or social science through the study about the human behaviour, processes and their interaction with physical space where they live.
- Geography, the study of the earth's surface, is an academic discipline that can lead to a career in mapping, planning, or environmental protection.
- Several colleges and universities offer undergraduate, master's, and doctoral degrees in geography, and many allow students a chance to focus in specific areas within this field, like remote sensing.
- Field study and lab work is often required in geography courses at all levels.

Course Outcomes

Course Name: Climatology

Course Code: 19GEO202

- Upon successful completion, students will have the knowledge and skills to:
- On satisfying the requirements of this course, students will have the knowledge and skills
- Critically analyse the interactions between the atmosphere and the surface (topography, vegetation, built structures), and apply this understanding in an environmental decision-making context.
- Apply an understanding of synoptic processes and the ability to interpret a range of graphical and visual data to the explanation of weather events and forecasting.
- Analyse and interpret the relationships between large-scale ocean-atmosphere processes and regional-local climates, using simple statistical techniques.
- Synthesise their understanding of climate processes at a range of scales to explain and critique the applications of climate modelling in research and policy contexts.
- Create an original piece of research on a self-selected topic, and communicate their results in oral and written formats.

Course Name: Biogeography

Course Code: 19GEO404

- to comprehend the basic principles of biogeography as a discipline;
- to develop capacity to apply the field methodologies and data analysis techniques used in biogeography;
- to understand critically human impacts on species distributions and modern conservation strategies

Course Name: Geomorphology

Course Code: 19GEO101

After the completion of the course, Students will be able to

- Describing human-environment, and nature-society interactions as well as global human and environmental issues.
- Identifying and explaining the planet's human and physical characteristics and processes, from global to local scales.
- Evaluating the impacts of human activities on natural environments.
- Applying knowledge of global issues to local circumstances to evaluate the local effects of the issues.
- Showing an awareness and responsibility for the environment.

Course Name: Economic Geography

Course Code: 19GEO102

After the completion of the course, Students will be able to

- Students would be able to understand how in an increasingly globalized world, economic activities occur unevenly over geographical space; how local places and global economy are intertwined, and how the regime of neoliberal policies are generating uneven geography of capitalist development.
- Students will be introduced to demographic, social and cultural attributes such as migration, social relations and cultural identity.
- The main objective is to underline that human activities are subject to adaptation and change.
- Understand the processes driving spatial economic differences in a global era, and the roles of key factors such as transnational firms and the state.
- Abstract and utilize information on economic change from a range of different sources.

Course Name: Physical & Socio-Economic Landscapes

Course Code: 19GEO205

- Provide theoretical background for conducting field Survey, its preparation & conduct field work for the understanding Physical & socio-economic landforms

Course Name: Environmental Geography

Course Code: 19GEO305

After the completion of the course, Students will be able to

- Describing human-environment, and nature-society interactions as well as global human and environmental issues.
- Identifying and explaining the planet's human and physical characteristics and processes, from global to local scales.
- Evaluating the impacts of human activities on natural environments.
- Applying knowledge of global issues to local circumstances to evaluate the local effects of the issues.
- Showing an awareness and responsibility for the environment.

Course Name: Social Geography

Course Code: 19GEO307

- To familiarize the students with the understanding of the society through concepts and social theories, philosophical approaches and spatial processes, social distortion and various components of social well-being in India.

Course Name: Lab work on Aerial Photographs & Satellite Images

Course Code: 19GEO310

After the completion of the course, Students will be able to

- Students will demonstrate knowledge of the foundations and theories of geographic information systems (GIS) and use the tools and methods of GIS.

- Students will demonstrate their knowledge of physical geography and the methods and techniques for observing, measuring, recording and reporting on geographic phenomena.
- Students will demonstrate their competence to work individually and as a team to develop and present a client-driven GIS solution.
- Student will be familiar with modern techniques in Geography.
- Students will be prepared to apply their skills in professional careers.
- Usage of diverse remote sensing data for extracting needed geo-spatial information.
- Execution of various analogue and digital information extraction techniques, both manually and using computers.

Course Name: Remote Sensing Project Report

Course Code: 19GEO311

After the completion of the course, Students will be able to

- Students will demonstrate knowledge of the foundations and theories of geographic information systems (GIS) and use the tools and methods of GIS.
- Students will demonstrate their knowledge of physical geography and the methods and techniques for observing, measuring, recording and reporting on geographic phenomena.
- Students will demonstrate their competence to work individually and as a team to develop and present a client-driven GIS solution.
- Student will be familiar with modern techniques in Geography.
- Students will be prepared to apply their skills in professional careers.

Course Name: Principles of GIS and Navigation System

Course Code: 19GEO409

After the completion of the course, Students will be able to

- Students will demonstrate knowledge of the foundations and theories of geographic information systems (GIS) and use the tools and methods of GIS.

- Students will demonstrate their knowledge of physical geography and the methods and techniques for observing, measuring, recording and reporting on geographic phenomena.
- Students will demonstrate their competence to work individually and as a team to develop and present a client-driven GIS solution.
- Student will be familiar with modern techniques in Geography.
- Students will be prepared to apply their skills in professional careers.

Course Name: Principles of GIS and Navigation System (Practical)

Course Code: 19GEO410

After the completion of the course, Students will be able to

- Students will demonstrate knowledge of the foundations and theories of geographic information systems (GIS) and use the tools and methods of GIS.
- Students will demonstrate their knowledge of physical geography and the methods and techniques for observing, measuring, recording and reporting on geographic phenomena.
- Students will demonstrate their competence to work individually and as a team to develop and present a client-driven GIS solution.
- Student will be familiar with modern techniques in Geography.
- Students will be prepared to apply their skills in professional careers.
- To familiarize and enhance the student's knowledge about the Remote Sensing and GIS techniques along with their application value in the Earth observation.

Course Name: GIS Project Report (Practical)

Course Code: 19GEO411

After the completion of the course, Students will be able to

- Students will demonstrate knowledge of the foundations and theories of geographic information systems (GIS) and use the tools and methods of GIS.
- Students will demonstrate their knowledge of physical geography and the methods and techniques for observing, measuring, recording and reporting on geographic phenomena.

- Students will demonstrate their competence to work individually and as a team to develop and present a client-driven GIS solution.
- Student will be familiar with modern techniques in Geography.
- Students will be prepared to apply their skills in professional careers
- Remote Sensing and GIS techniques along with their application value in the Earth observation and enable them to write the project report based on application of remote sensing.

Course Name: Statistical methods in Geography

Course Code: 19GEO104

After the completion of the course, Students will be able to

- Keeping in view the nature of data and purpose of study, students would be able to make a rational choice amongst listed various statistical methods.
- Demonstrate understanding of basic concepts of probability and statistics embedded in their courses.
- Show proficiency in basic statistical skills embedded in their courses.
- Students shall know how to organize, manage, and present data.
- Demonstrate ability to write reports of the results of statistical analyses giving summaries.

Course Name: Agriculture Geography

Course Code: 19GEO203

- The basic aim of this course is to provide fundamental understanding about concept, origin and development of agriculture; along with recent dynamics, contemporary issues and challenges faced by the agrigarian system and communities

Course Name: Geography of India

Course Code: 19GEO103

After the completion of the course, Students will be able to

- Identifying and explaining the Indian Geographical Environment, from global to local scales.
- Applying geographical knowledge to everyday living.

- Applying knowledge of global issues to a unique scientific problem.
- Showing an awareness and responsibility for the environment and India.
- Evaluating the impacts of human activities on natural environments special reference to India

Course Name: Urban Geography

Course Code: 19GEO302

- To understand the linkages between urban cities and the societal forces that shapes it.
- Critically analyse contemporary urban issues from a geographical perspective.
- Understand urban issues in order to engage with possible and effective planning and policy interventions.

Course Name: Fundamental of Remote Sensing

Course Code: 19GEO309

- Disseminate basic concepts and applications of Electromagnetic Spectrum in Remote Sensing, Energy Balance and Data acquisition platforms, sensors and their characteristics.
- Enhance student's knowledge about optical, thermal and microwaves based Remote Sensing and Applications for solving real life problems.
- Introduce students to digital image processing tools and techniques.

Course Name: Cartography and Morphometric Analysis

Course Code: 19GEO105

- The completion of the course, Students will be able to Students would be able to basic understanding of Cartography,
- Thematic mapping & to provide the training for spatial Data Analysis.

Course Name: Regional Development and Planning

Course Code: 19GEO401

- The basic aim of this course is to provide the theoretical foundations and conceptual framework for the regional development process.
- It also sensitizes the students about the changes taking place in regional structure of Indian economy, about the concept of region in Geography and the regional development and planning process in India.

Course Name: Settlement Geography

Course Code: 19GEO407

- This course aims to provide the understanding about historical development, patterns, types of settlement system in India and world.

Course Name: IT for Spatial Science

Course Code: 19GEO208

- Main objective of this course is to introduce the IT tools and its applications in Geography. It also aims to provide an understanding to the students about basic computing skills and its usefulness in GIS and other modern geographical technologies.

Course Name: Cartography Practical

Course Code: 19GEO106

- The aim of the course is to apprise the students with latest trends in the development of cartography as a tool in mapping thematic and quantitative data to facilitate spatial analysis and synthesis, and to provide training in application of modern tools and techniques to data in a variety of regional studies at local, regional and national levels.

Course Name: Morphometric Practical

Course Code: 19GEO107

- The aim of the course is to apprise the students with latest trends in the development of cartography as a tool in mapping thematic and quantitative data to facilitate spatial analysis and synthesis,
- to provide training in application of modern tools and techniques to data in a variety of regional studies at local, regional and national levels.

Course Name: Field work of Socio - Economic

Course Code: 19GEO207

- Main objective of this course is to provide the students with the understanding of ground reality of a chosen village/town by observation; mapping of land quality, land use and cropping pattern and conducting Socio-economic survey of the households with the help of a specially prepared questionnaire.

Course Name: Oceanography

Course Code: 19GEO301

- After the completion of the course, Students will be able to many facets of Oceans, such as, evolution of the oceans, physical and chemical properties of sea water, atmospheric and oceanographic circulation, the fascinating world of marine life and the characteristic of marine environment and the impact of man on the marine environment.

Course Name: Population & Settlement Geography

Course Code: 19GEO204

- After the completion of the course, Students will be able to fundamental understanding about population, its distribution, structure and composition and idea for settlement, evolution, types and its association with population geography.

Course Name: Geography of Haryana

Course Code: 19GEO402

- After the completion of the course, Students will be able to glorious past of the state of Haryana, its Physiography, Climate, People, Society, resource base and Economic structure.

Course Name: Project report based on Physical Landscapes

CourseCode: 19GEO206

- After the completion of the course, Students will be able to structure, landforms, their evolution & genesis and their association with the flora, fauna & human activities in the selected area.

Course Name: चरित्र निर्माण एवं समग्र व्यक्तित्व विकास

Course Code: 18ND100

- चरित्रनिर्माणकी अवधारणा एवं विकासको समझकर चरित्रनिर्माण कर पाना।
- व्यक्तित्वविकासके महत्वको जान व्यक्तित्वको निखारनेके लिए प्रयास करना।
- स्वामीविवेकानंद जी जैसे महापुरुषोंके जीवनसे प्रेरणा ग्रहण करना।
- उपनिषदोंमें वर्णित पाँचकौशलों (अन्नमयकोश, प्राणमयकोश, मनोमयकोश, विज्ञानकोश, आनंदमयकोश) का ज्ञान प्राप्त होना।
- शरीरको निरोग एवं स्वस्थ रखनेकी प्रेरणा पैदा होना।
- शरीरकी संरचनात्मक विकासकी प्रक्रिया एवं महत्वको समझ पाना।
- मनोविकारोंसे मुक्त होकर अपने लक्ष्यको प्राप्त करना।

Course Name: हिंदी संचार कौशल

Course Code: 18ND100

- संचारकेस्वरूपएवंभाषासंप्रेषणकेविभिन्नचरणोंकीसमझपैदाहोना।
- साक्षात्कार ,भाषणएवंपत्रलेखनकीकलामेंपारंगतहोपाना।
- हिंदीकीविविधबोलियोंएवंइतिहासकाज्ञानहोना।
- मुहावरेएवंलोकोक्तियोंकाप्रयोगकरअपनीअभिव्यक्तिकोप्रभावीबनानेकीक्षमताकाआजाना।
- अनुवादकेस्वरूपएवंमहत्वकोसमझपाना।
- प्रभावीसंप्रेषणकौशलकापैदाहोना।

Master of Mathematics

Programme outcome

- After successful completion of the program a student will be able to: -
- Have basic understanding and the knowledge in the different core areas of mathematics such as algebra, analysis, calculus, differential equation, mechanics numerical analysis and in some the Other elective areas demonstrate understanding of the concepts, theories methods from such area of Mathematics.
- Have a Broad background in mathematics and develop the essential mathematical reasoning, knowledge, skills aptitude to pursue further studies and research in mathematics.
- Communicate mathematics effectively precisely by written, computational and graphical means.
- Apply knowledge, understanding, methods, techniques and skills of mathematics to analyze, evaluate and the solve problem of mathematics and /or the mathematical problems having applications in engineering science, technology, life science, social sciences so as the enhance career prospects in different field.

Programme Specific outcome

- Mathematics is usually described as the abstract science of numbers, quantity and space along with their operations. The scope of Mathematics is very broad and it has wide range of applications in natural sciences and engineering, economic and social sciences.
- MSc course aims to develop the ability to think critically, logically and analytically and hence use Mathematics in everyday life.
- During MSc course we come across ordinary differential equation, real and complex analysis, topology, analytic number theory, partial differential equations, mechanics of solids, fluid dynamics and algebraic coding theory. Apart from this the students learn scientific aspects of various subjects with the help of programming languages like C++, FORTRAN and MATLAB.

Course Outcomes

Course Name: Abstract Algebra -1

Course Code: 18MTH101

- After studying this course learner will be able to illustrate the concept of some algebraic structure called groups, normal subgroups, solvable groups, rings and linear transformation.
- Student will also be able to explain about composition series of a group, number of Sylow subgroups, simple group and Jordan form of matrices.

Course Name: Ordinary Differential Equations

Course Code: 18MTH102

- Differential equations are very important in mathematical modelling of physical system. Many fundamental laws of Physics and Chemistry can be formulated

as differential equations. In biology and economics differential equation are used to model the behavior of complex system.

- After studying this course learner will be able to illustrate the concept of identification of differential equations some analytical technique to find solutions.

Course Name: Mechanics

Course Code: 18MTH103

- After studying this course, learner will be able to illustrate the concept of dynamics of system of particles and motion of rigid body.
- Also student will able to explain equation of motion for complicated mechanical systems.

Course Name: Measure and Integration

Course Code: 18MTH104

- After studying this course, students will able to illustrate the concept of countable and uncountable sets. measurability of sets and functions.
- Also study Lebesgue integral and LebasqueLp spaces to sharpen the student's appetite for the functional analysis.
- Learner will understand that Lebesgue is more general than Riemann integration theory.

Course Name: Mathematical Statistics

Course Code: 18MTH105

- After studying this course student will learn about the concept of probability, statistical distributions.
- Students will able to illustrate the concept of testing hypothesis.

- Student gets to learn the application of mathematics and its relation to the real world.

Course Name: Computing lab-1

Course Code: 18MTH106

After the end of the course students will able to: -

- apply the concept of Fortran 90 in Real world problems.
- use the knowledge gained to write F90 codes.
- Compile and run F90 codes and produce meaningful output.
- Learn about various elements of the Fortran 90 language.
- basic knowledge of MS Excel.

Course Name: Mathematical Lab-1 & Seminar

Course Code: 18MTH107

After end of this course students are able to :-

- Learn adopting time scheduling technique to solve problem in different field of mathematics.
- Also able to develop writing skill in manner of creativity and originality. The students are to the emphasis his/ her own ideas /words which he/she has learn from different book and general and newscourses.

Course Name: Mathematical Lab-2& Seminar

Course Code: 18MTH107

After end of this course students are able to :-

- Learn adopting time scheduling technique to solve problem in different field of mathematics.

- Also able to develop writing skill in manner of creativity and originality. The students are to the emphasis his/ her own ideas /words which he/she has learn from different book and general and newscourses.

Course Name: Mathematical Lab-3& Seminar

Course Code: 18MTH312

After end of this course students are able to:-

- Learn adopting time scheduling technique to solve problem in different field of mathematics.
- Also able to develop writing skill in manner of creativity and originality. The students are to the emphasis his/ her own ideas /words which he/she has learn from different book and general and newscourses.

Course Name: Mathematical Lab-4

Course Code: 18MTH412

After end of this course students are able to :-

- Learn adopting time scheduling technique to solve problem in different field of mathematics.
- Also able to develop writing skill in manner of creativity and originality. The students are to the emphasis his/ her own ideas /words which he/she has learn from different book and general and newscourses.

Course Name: Environment and Energy Management

Course Code: EEM100

- This course provides the basic understanding of the close relationships between the Environment and energy.
- will enlighten the challenges, our responsibilities, and multifaceted management of the resources to balance between the two.
- will also educate the students to apply their knowledge in understanding and solving the Environmental issues in day-to-day life.

Course Name: Abstract Algebra -1

Course Code: 18MTH201

- After studying this course student will be able to illustrate the concept of the models and the field extension.
- Will be familiar with the concept of Galois's theory.

Course Name: Complex Analysis

Course Code: 18MTH202

- After studying this course, Student will be able about functions of complex variables, Cauchy integral formula.
- Will be able to illustrate the concept of singularity, improper integral and some special transformations.

Course Name: Topology

Course Code: 18MTH203

- After studying this student will be familiar with the topological space's compactness connectedness and separation axioms.

- will be able to prove sum result of real line with the use of topological approaches.

Course Name: Operation Research Techniques

Course Code: 18MTH204

- After studying this course, students will be able to illustrate the concept of Optimization techniques and LPP.
- will be familiar with transformation problem, assignment problem, queuing models and inventory control models.

Course Name: Partial differential equations

Course Code: 18MTH301

- After studying this course, will be familiar with the theory of partial differential equations, solution methods.
- will be able to illustrate the solution of wave equation, heat equation and Laplace Equation using method of separation of variables.

Course Name: Mechanics of solids-1

Course Code: 18MTH303

- After studying this course, student will be able to illustrate the concept of cartesian tensor, stress, strain.
- Will learn about Complex state of stress. Student also be familiar with the theory of elasticity.

Course Name: Analytical Number theory

Course Code: 18MTH306

- After studying this course, Student will be able to illustrate the concept of the divisibility and linear congruences.
- will be familiar with the Diophantine equations, quadratic congruences and some theoretic functions.

Course Name: Functional Analysis

Course Code: 18MTH401

- After studying this course, Student will be able to illustrate the concept of normal spaces, inner product spaces, linear operators
- will be able to explain the natural embedding concepts and conjugate spaces.

Course Name: Integral Equations and Calculus of Variations

Course Code: 18MTH402

- after completion of this course, learner will be able to illustrate the concept of linear integral equation.
- will be familiar with the calculus of variations and extremization of functional

Course Name: Mechanics of solids-2

Course Code: 18MTH403

- After studying this course learner will be illustrate the concept of stress, strain, torsion of beams and variational method.
- will be familiar with the concept of viscoelasticity Elastic wave.

Course Name: Computing Lab-4

Course Code: 18MTH411

after the end of the course, students will be able to: -

- Understand the basic of latex and various command associated with it.
- Student able to manipulate the numerical and algebraically mathematical concept with the help of Mathematica.
- Understand the basic knowledge of mathematics and various command associated with it.

Course Name: Self Study Course

Course Code: 18MTH413

- This course creates habits of reading books and develop writing skills in the manner of creativity and originality in students.

Course Name: Computing Lab-2

Course Code: 18MTH206

After the course, students will be able to: -

- Identify situations where computational method and computers would be useful.
- Identify and the Abstract the programming tasks involved of the given problem.
- Write a program on the computer, edit, compile, debug, correct, Recompile and run it.
- Approached the programming task using the techniques learned and write a pseudo-code

Course Name: Computing Lab-3

Course Code: 18MTH311

After end of the course, students will be able to: -

- Use MATLAB effectively and analyze and visualization data.
- Design and document computer program and the analyses in careful and complete manner in the MATLAB.
- Create and control simple plot and user interface graphic object in MATLAB.

Course Name: Communication Skills

Course Code: 18CS100

- Students will be able to understand and apply knowledge of human communication and language processes as they occur across various contexts, e.g., interpersonal, intrapersonal, small group, organizational, media, gender, family, intercultural communication, technologically mediated communication, etc.

Course Name: HindiSancharKaushal Communication skill in Hindi

Course Code: 18HND100

- Students will be able to understand and apply knowledge of human communication and language processes as they occur across various contexts.

Course Name: Discrete Mathematics

Course Code: 18MTH305

- After studying this course, students learned about logics and proofs, recursion, graph theory, Boolean Algebra, Lattices and other important

discrete math's concepts. It helps students to choose the research area in the field of mathematics.

Course Name: Statistical Inference

Course Code: 18MTH408

- After studying this course students will be able to illustrate the conclusion about the whole population on the basis of sample.
- will be familiar with the concepts of estimation, unbiasedness, sufficiency, consistency, statistical hypothesis and non-parametric theory.

Course Name: Mathematical Modelling

Course Code: 18MTH406

- After studying this course students will be able to illustrate the concept of mathematical modelling using the various techniques to describe and explore real world data and phenomenon.
- will be learn about application of mathematical in various field.

Course Name: Differential Geometry


Course Code: 18MTH302

- After studying this course, Students will be able to know about the fundamentals of differential geometry primarily by focusing on the theory of curves and surface in three spaces.
- will be able to explain the differential properties of curves and theory of surfaces.

Course Name: Computational Techniques

Course Code: 18MTH205

- Will develop the mathematical skills in the area of numerical methods and use them in large number of engineering which requires solution of linear equations, finding eigen values, eigen vectors, interpolation and applications solving ODEs.
- To lay foundation of computational mathematics for post graduates' students, specialized studies and research, as these techniques are integral part of computer engineering. These techniques are mainly used in the area of mathematics and computer science that creates analysis and implements algorithms for solving numerical problems of continuous mathematics.


Principal
J.V.M.G.R.R. College
Charkhi Dadri