

Programme Outcomes

Subject Outcomes

Program Outcomes Bachelor of Arts (B.A.)

Student seeking admission for B.A. programme is expected to imbue with following quality which helps them in their future life to achieve the expected goals.

- a. Realization and practicing of moral values.
- b. To develop a sense of good citizenship and social service.
- c. To make students dutiful and responsible
- d. Critical understanding.
- e. Creative ability.
- f. Emotional intelligence

BACHELOR OF SCIENCE (B.Sc)

Students taking admission to this program of B.Sc. are expected to get equipped with following outcomes:

1. Explaining the basic scientific principles and methods.
2. Inculcating scientific thinking with keen observation and proper experimentation.
3. To inculcate rational methodologies in curriculum and in the behavior of students as well.
4. Understanding the issues related to nature and environmental contexts and sustainable development.
5. To help them develop critical thinking and qualitative reasoning skills.
6. To empower them to think creatively and critically about scientific problems and experiments.

Bachelor of Computer Applications (BCA)

The students admitted in the BCA programme are expected to get equipped with the following outcomes:

- a. Effectively communicating computing concepts and solutions to bridge the gap between computing industry experts and business leaders to create and initiate innovation.
- b. Ability to use approximately system design notations and apply system design engineering process in order to design, plan and implement software systems.
- c. preparing for a career in an information technology oriented business or industry or for graduate study in computer science or other scientific or Technical fields

d. Ability to complete successfully to program small –to-mid-size programs on their own. e. Effectively utilizing the knowledge of computing principles and mathematics theory to develop sustainable solutions to current and future computing problems.

BACHELOR OF COMMERCE (B.COM)

Students who have taken admission to this program of B.Com are expected to concentrate upon the following outcomes.

- a. Demonstrate the knowledge of data sources, sampling techniques, methods of data collection and data representation.
- b. Develop managerial skills.
- c. Entrepreneurial skill.
- d. Budgeting policy.
- e. Human Resources Management.
- f. Develop Numerical ability.
- g. Well versed with business regularity framework.

ARABIC

SUBJECT OUTCOME

Arabic is taught in the college as one of the core subjects as well as under the category of MIL. It is also taught as spoken language in the skill enhancement course. The subject prepares the students for have specialization in Arabic Language and Literature at University level. It is also taught as the language as one of the effective modern foreign language which is included in UNO's official languages. Subject aims at inculcating all the four language learning skills in a homogeneous way. It also leads them from communicative use of language to artistic and literary use. So in third year of the course some literary texts are also included so as develop aesthetic sense and sensibility towards the figurative use of language in prose and poetic forms. There are almost three hundred to four hundred students who take the subject annually and many of them persue their Masters in the same subject at university level

B. A. with <i>Arabic</i> as a subject				Program
I				Semester
Text and Grammer				Course Name
DSC-1				Course Code
فروع اللغة العربية 2	فروع اللغة العربية 1	من الدرس 9 إلى 19 دروس اللغة	من الدرس 1 إلى 8 دروس اللغة	Unit

ARABIC

Course Outcomes
<ol style="list-style-type: none"> 1. To Read the text correctly and understand and comprehend it grammatically and thematically. 2. To analyze and solve the exercises at the end of the lessons 1. To Read the text correctly and understand and comprehend it grammatically and thematically. 2. To analyze and solve the exercises at the end of the lessons 1. To learn the grammatical structures both syntactical and morphological and help students to implement practically what they learn. 2. To learn construction of different phrases such as possessive, adjectival with correct vowel signs. 3. To learn the 'rab. 1. To learn the grammatical structures both syntactical and morphological and help students to implement practically what they learn. 2. To learn construction of different phrases such as possessive, adjectival with correct vowel signs. 3. To learn the 'rab.

B. A. with Arabic as a subject	Program
I	Semester
Text and Grammar	Course Name
DSC-11	Course Code
<p>من الدرس 17 تروس اللغة إلى 23</p> <p>(الجزء الثاني) تروس اللغة 1 إلى 7 من الدرس</p> <p>قواعد اللغة العربية 3</p> <p>قواعد اللغة العربية 4</p>	Unit

ARABIC

Course Outcomes
<ol style="list-style-type: none"> 1. To Read the text correctly and understand and comprehend it grammatically and thematically. 2. To analyze and solve the exercises at the end of the lessons
<ol style="list-style-type: none"> 1. To Read the text correctly and understand and comprehend it grammatically and thematically. 2. To analyze and solve the exercises at the end of the lessons
<ol style="list-style-type: none"> 1. To learn the grammatical structures both syntactical and morphological and help students to implement practically what they learn. 2. To learn construction of different phrases such as possessive, adjectival with correct vowel signs. 3. To learn the 'i' rab.

B. A. with Arabic as a subject	Program
III	Semester
Text and Grammar	Course Name
DSC-III	Course Code

ARABIC

Unit	Course Outcomes
من الدرس 8 إلى دروس اللغة 15	<ol style="list-style-type: none"> To Read the text correctly and understand and comprehend it grammatically and thematically. To Analyze and solve the exercises at the end of the lessons
من الدرس دروس اللغة 16 إلى 23	<ol style="list-style-type: none"> To Read the text correctly and understand and comprehend it grammatically and thematically. To Analyze and solve the exercises at the end of the lessons
قواعد اللغة العربية 5	<ol style="list-style-type: none"> To learn the grammatical structures both syntactical and morphological and help students to implement practically what they learn. To learn construction of different phrases such as possessive, adjectival with correct vowel signs. To learn the 'r'ab.
قواعد اللغة العربية 6	<ol style="list-style-type: none"> To learn the grammatical structures both syntactical and morphological and help students to implement practically what they learn. To learn construction of different phrases such as possessive, adjectival with correct vowel signs. To learn the 'r'ab.

Program	Semester	Course Name
B. A. with <i>Arabic</i> as a subject	IV	Text and Grammar

ARABIC

Course Code	Unit	Course Outcomes	Program	Semester
DSC-IV	النثر العربي 1	<ol style="list-style-type: none"> To appreciate Arabic literary writings in prose form and analyze and evaluate the same critically. To translate the same into Urdu in correct metaphorical language. Understand the special usage of different Arabic words in context. 	B. A. with <i>Arabic</i> as a subject	V
	النثر العربي 2	<ol style="list-style-type: none"> To appreciate Arabic literary writings in poetry form and analyze and evaluate the same critically. To translate the same into Urdu in correct metaphorical language. Understand the special usage of different Arabic words in context. 		
	قواعد اللغة العربية 7	<ol style="list-style-type: none"> To learn the grammatical structures both syntactical and morphological and help students to implement practically what they learn. To learn construction of different phrases such as possessive, adjectival with correct vowel signs. To learn the 'i' rab. 		

ARABIC

Course Name	Course Code	Unit	Course Outcomes
Arabic		النثر	<ol style="list-style-type: none"> To appreciate Arabic literary writings in prose form and analyze and evaluate the same critically. To translate the same into Urdu in correct metaphorical language. Understand the special usage of different Arabic words in context.
		الشعر	<ol style="list-style-type: none"> To appreciate Arabic literary writings in prose form and analyze and evaluate the same critically. To translate the same into Urdu in correct metaphorical language. Understand the special usage of different Arabic words in context.
		اللغة قواعد	<ol style="list-style-type: none"> To appreciate Arabic literary writings in poetry form and analyze and evaluate the same critically. To translate the same into Urdu in correct metaphorical language. Understand the special usage of different Arabic words in context.
		الترجمة	<ol style="list-style-type: none"> Learn the translation from English to Arabic. Learn translation of phrases on different topics like politics, education, commerce etc.

B. A. with <i>Arabic</i> as a subject	Program
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ARABIC

Semester	Course Name	Course Code	Unit	Course Outcomes
VI	Arabic		الشعر	<ol style="list-style-type: none"> To Understand the socio-religious and politico-economic conditions of Pre- Prophetic period of Arabia To know the overall scenario of 7th century Arabian Peninsula
			اللغة قواعد	<ol style="list-style-type: none"> To learn the basics of Islam as a Faith/ Religion To understand the revelation, compilation, structure, and major teachings of the Qur' an—the basis of Islam
			الترجمة	<ol style="list-style-type: none"> To learn the grammatical structures both syntactical and morphological and help students to implement practically what they learn. To learn construction of different phrases such as possessive, adjectival with correct vowel signs. To learn the 'rab.
				<ol style="list-style-type: none"> To understand how the ' Islamic Civilization' , established by the Prophet (PBUH), was carried on successfully by later generations of Muslims To study the intellectual, scientific, administrative, cultural and artistic developments during these periods.

ARABIC

Program		B. A. with <i>Arabic</i> as a subject	
Semester		I	
Course Name		Reading and Writing Arabic- I	
Course Code		MIL-1	
Unit			
Course Outcomes			
	التواعد السامية الاولى		<ol style="list-style-type: none"> To learn the grammatical structures both syntactical and morphological and help students to implement practically what they learn. To learn construction of different phrases such as possessive, adjectival with correct vowel signs. To learn the 'r' rab.
	شوعا اكثر العربية الكلمات		<ol style="list-style-type: none"> To learn the grammatical structures both syntactical and morphological and help students to implement practically what they learn. To learn construction of different phrases such as possessive, adjectival with correct vowel signs. To learn the 'r' rab.
	العربي الحوار تعلم		<ol style="list-style-type: none"> Learning of Arabic conversation and idiom. To learn spoken form of Arabic language and introduce them to variants of dialects.

ARABIC

Program	B. A. with <i>Arabic</i> as a subject
Semester	II
Course Name	Reading and Writing Arabic- II
Course Code	MIL-11
Unit	
Course Outcomes	
القواعد السامية الثالثة	<ol style="list-style-type: none"> To learn the grammatical structures both syntactical and morphological and help students to implement practically what they learn. To learn construction of different phrases such as possessive, adjectival with correct vowel signs. To learn the 'l' rab.
القواعد السامية الرابعة	<ol style="list-style-type: none"> To learn the grammatical structures both syntactical and morphological and help students to implement practically what they learn. To learn construction of different phrases such as possessive, adjectival with correct vowel signs. To learn the 'l' rab.
القواعد السامية الخامسة	<ol style="list-style-type: none"> To learn the grammatical structures both syntactical and morphological and help students to implement practically what they learn. To learn construction of different phrases such as possessive, adjectival with correct vowel signs. To learn the 'l' rab.
القواعد السامية السادسة	<ol style="list-style-type: none"> To learn the grammatical structures both syntactical and morphological and help students to implement practically what they learn. To learn construction of different phrases such as possessive, adjectival with correct vowel signs. To learn the 'l' rab.

ARABIC

Program	B. A. with <i>Arabic</i> as a subject
Semester	III
Course Name	Spoken Arabic- I
Course Code	SEC-I
Unit	Course Outcomes
بين بديك من الدرس 1 العربية إلى 6	<ol style="list-style-type: none"> 1. Develop the speaking skill in students. 2. Teach the language using direct method and minimizing the use of second language. 3. Engage the students in one to one conversations.
بين بديك من الدرس 6 العربية إلى 12	<ol style="list-style-type: none"> 1. Develop the speaking skill in students. 2. Teach the language using direct method and minimizing the use of second language. 3. Engage the students in one to one conversations.
بين بديك من الدرس 13 العربية إلى 18	<ol style="list-style-type: none"> 1. Develop the speaking skill in students. 2. Teach the language using direct method and minimizing the use of second language. 3. Engage the students in one to one conversations.
بين بديك من الدرس 19 العربية إلى 24	<ol style="list-style-type: none"> 1. Develop the speaking skill in students. 2. Teach the language using direct method and minimizing the use of second language. 3. Engage the students in one to one conversations.

ARABIC

Program	B. A. with <i>Arabic</i> as a subject
Semester	IV
Course Name	Spoken Arabic- II
Course Code	SEC-II
Unit	Course Outcomes
بين بيتك من الدرس 25 العربية الى 30	<ol style="list-style-type: none"> 1. Develop the speaking skill in students. 2. Teach the language using direct method and minimizing the use of second language. 3. Engage the students in one to one conversations.
بين بيتك من الدرس 31 العربية الى 36	<ol style="list-style-type: none"> 1. Develop the speaking skill in students. 2. Teach the language using direct method and minimizing the use of second language. 3. Engage the students in one to one conversations.
بين بيتك من الدرس 37 العربية الى 42	<ol style="list-style-type: none"> 1. Develop the speaking skill in students. 2. Teach the language using direct method and minimizing the use of second language. 3. Engage the students in one to one conversations.
بين بيتك من الدرس 43 العربية الى 48	<ol style="list-style-type: none"> 1. Develop the speaking skill in students. 2. Teach the language using direct method and minimizing the use of second language. 3. Engage the students in one to one conversations.

BCA

Department of Computer Sciences

Course Learning Outcome for Courses prescribed for Semester I to VI of Bachelor Degree Programme under CBCS in the subject of Computer Application:

Semester	Course No.	Title	Credits	Nature of Course	Course Learning Outcome
1	UCATC-101	Computer Fundamentals and IT Tools	6	Core	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Understand basics of computer and working with OS. ● Develop working skills with productivity tools, graphics designing and Internet. ● Acquire basic programming skills.
2	UCATC-201	Problem Solving using C-language	6	Core	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Understand and use various constructs of the programming language such as conditionals, iteration, and recursion. ● Implement your algorithms to build programs in the C programming language. ● Use data structures like arrays, linked lists, and stacks to solve various problems.
3	UCATC-302	Object Oriented Programming Using C++	6	Core	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Demonstrate an understanding of algorithms in the problem-solving process. ● Identify the necessary properties of good problem-solving techniques. ● Create and analyze algorithms for solving simple problems. ● Use incremental program development to create, test, and debug algorithms for solving simple problems.
	UCAPS-351	PC Assembly and Installation	4	SEC	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Know software installation processes. ● Be able to prepare for software installation. ● Be able to install and configure software.
4	UCATC-401	Database Management System and SQL	6	Core	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Understand query processing in DBMS. ● Understand how queries are processed, optimized and evaluated in a DBMS. ● Be able to write SQL statements that create database objects. ● Understand the structure and design of relational databases. ● Understand the importance and major issues of database security and the maintenance of data integrity.
	UCAPS-451	Information Security	4	SEC	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Understand security management and incident response. ● Understand security in software and operating systems. ● Understand data security and secure system development. knowledge of privacy and data protection.
5	UCAPS-551	Multimedia Computing	4	SEC	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Define multimedia to potential clients. ● Identify and describe the function of the general skill sets in the multimedia industry. ● Identify the basic components of a multimedia project. Identify the basic hardware and software requirements for multimedia development and playback.
	UCATE-501	Fundamentals of Operating System	6	DSC	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Understand fundamental operating system abstractions such as processes, threads, files, semaphores, IPC abstractions, shared memory regions, etc. ● Analyze important algorithms e.g. Process scheduling and memory management algorithms.
	UCATE-503	Data and File Structures	6	DSC	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Program data structures and use them in implementations of abstract data types. ● Devise novel solutions to small scale programming challenges involving data structures and recursion. ● Understanding of basic algorithmic complexity.
	UCATE-511	Fundamentals of IT	6	GE	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Understand basics of computer and working with OS. ● Develop working skills with productivity tools, graphics designing and Internet. ● Acquire basic programming skills.
6	UCAPS-652	System Analysis and Design	4	SEC	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Work as an individual and as part of a multidisciplinary team to develop and deliver quality software. ● Demonstrate an understanding of and apply current theories, models, and techniques that provide a basis for the software life-cycle.
	UCATE-601	Networking and internet	6	DSC	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Recognize computer networks. ● List computer network typologies. ● Explain each computer network topology physically or logically. ● List required hardware to constitute computer network. ● Explain the mission of each computer network. ● Recognize essential computer network protocols.

	UCATE-602	Java Programming	6	DSC	<p>On Successful completion of the course, the student will be able to:</p> <ul style="list-style-type: none"> ● Read and make elementary modifications to Java programs that solve real-world problems. ● Validate input in a Java program. Identify and fix defects and common security issues in code. ● Document a Java program using Javadoc.
UCATE-605	UCATE-605	Basics of Internet	6	GE	<p>On Successful completion of the course, the student will be able to:</p> <ul style="list-style-type: none"> ● Understand what the Internet is, its purpose and function for users. ● Develop a clear online lexicon and a working understanding of online-related vocabulary.

BOTANY

Department of Botany, Learning outcomes

BSc Botany or Bachelor of Science in Botany is a 3-year undergraduate degree course, which deals with the study of plants and their physiology.

Candidates who have done their 10+2 with Physics, Chemistry, or Biology are eligible to take admission in this course. The course curriculum broadly focuses on the specialized scientific study of plants, fungi, algae, and covers subjects of Physiology and Anatomy in detail. After successfully obtaining the degree, students can also go for higher studies by taking up popular courses like [M.Sc. Botany](#) M.Sc Zoology MSc Chemistry and M.Sc. Environmental Management. This will help the students to get exposed to advanced jobs and research opportunities further. With the expansion of research practices all over the world, a candidate may also pursue an [M.Phil. in Botany](#) or a [PHD in Botany](#) as the next option to their career growth, after completing masters.

- BSc Botany course deals with the scientific study of the plants, algae and fungi.
- It broadly revolves around the aspects of plants including the growth, structure, reproduction, metabolism, diseases, physiology and chemical properties of the plants and plant anatomy in general.
- The course is a vast combination of studying from the basic cell structure to the workings and metabolism of plants on higher levels including their evolution.
- The course is very accurately structured as mostly all the theory based papers are accompanied by practical sessions.
- This 3 years course also provides a hands-on experience to the students in understanding the scientific concepts through practical knowledge.
- BSc Botany syllabus consists of core subjects like Diversity of Microbes, Cell Biology, Genetics, Plant Anatomy, Plant Embryology, Biodiversity- Algae and Microbiology and more.
- BSc Botany subjects are a mixture of both theoretical and practical classes.

Course outcome

Semester	Course No.	Title	Credits	Nature of Course
I	UBOTC101	Diversity of microbes and Cryptogams	4	CORE
Semester	UBOPC102	Diversity of microbes and Cryptogams	2	CORE (Practicals)
II	UBOTC201	Characteristics and Systematics of seed plants	4	CORE
	UBOPC202	Characteristics and Systematics of seed plants	2	CORE (Practicals)
III	UBOTC301	Plant Anatomy, Embryology and Ecology	4	CORE
	UBOPC302	Plant Anatomy, Embryology and Ecology	2	CORE (Practicals)
	UBOTS303	Nursery, Gardening and Floriculture	4	SKILL ENHANCEMENT
IV	UBOTC401	Plant Physiology and Metabolism	4	CORE
	UBOPC402	Plant Physiology and Metabolism	2	CORE (Practicals)
	UBOTS403	Ethnobotany	4	SKILL ENHANCEMENT
V	UBOTE501	Cell Biology and Genetics	4	DSE/GE
	UBOPE502	Cell Biology and Genetics	2	DSE/GE (Practicals)
	UBOTS503	Mushroom Cultivation Technology	4	SKILL ENHANCEMENT
VI	UBOTE601	Economic Botany and Biotechnology	4	DSE/GE
	UBOPE602	Economic Botany and Biotechnology	2	DSE/GE (Practicals)
	UBOTS603	Biofertilizers	4	SKILL ENHANCEMENT
Title and Learning out comes.				

I	Diversity of microbes and Cryptogams <ul style="list-style-type: none"> ➤ The course is designed to familiarize the students with microbes and cryptogams. ➤ These plant groups are of great human use in agriculture, horticulture, medical and biotechnology based industries. ➤ Therefore, students need to know about their structural diversity, biology and utilization. 	
II	Characteristics and Systematics of seed plants <ul style="list-style-type: none"> ➤ Gymnosperms and angiosperms represent the important botanical groups exhibiting great diversity. ➤ The course, therefore, is designed to study these groups for structural aspects and analyze these in a scientific manner for establishing scientific temperament. 	
III	Plant Anatomy, Embryology and Ecology <ul style="list-style-type: none"> ➤ Seed bearing plants represent the most advanced groups of plant kingdom. ➤ Proper knowledge about their structure, functions, mechanisms of multiplication and their interactions with the biotic and abiotic components of the ecosystems will assist in manipulating these for better human utility. ➤ This course will create awareness among students about proper utilization of important plant parts 	
	Nursery, Gardening and Floriculture	<ul style="list-style-type: none"> ➤ The student will be able to understand different branches of horticulture. ➤ To gain knowledge about role of weather elements ➤ Importance of Flowers and their commercial value .
IV	Plant Physiology and Metabolism <ul style="list-style-type: none"> ➤ The course is designed to make students appreciate the various mechanisms underlying the important activities of plants as absorption of water and minerals, solute transport, transpiration, flowering, nitrogen metabolism etc. ➤ Another aim is to impart students knowledge regarding the stresses that plants face and methods adopted by them to tackle/overcome these stresses. 	
	Ethnobotany	<ul style="list-style-type: none"> ➤ The course is designed to impart the knowledge of the local flora and its medicinal values . ➤ Use of the plants to cure some of the common diseases.
V	Cell Biology and Genetics <ul style="list-style-type: none"> ➤ The course has been devised to acquaint the students with the structural and functional aspects of cell. ➤ The chromosomes and their structures. ➤ Genes and alterations generally found in these. 	
	Mushroom Cultivation Technology	The course is designed to impart the practical knowledge of the cultivation of Mushrooms . To Make the students capable to earn once they complete the course .
VI	Economic Botany and Biotechnology <ul style="list-style-type: none"> ➤ The course is designed to make students aware of the conventional use of biological diversity in terms of the proper utilization of plant parts. ➤ An attempt is being made to impart students the training of using tissue culture tools and biotechnological techniques in the utilization as well as improvement of crops. 	
	Biofertilizers	The course is designed to provide comprehensive knowledge to the students regarding the general information, application and production technology of Biofertilizers.

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3	UCATC-302	Object Oriented Programming Using C++	6	Core	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> Demonstrate an understanding of algorithms in the problem-solving process. Identify the necessary properties of good problem-solving techniques. Create and analyze algorithms for solving simple problems. Use incremental program development to create, test, and debug algorithms for solving simple problems.
	UCAPS-351	PC Assembly and Installation	4	SEC	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> Know software installation processes. Be able to prepare for software installation. Be able to install and configure software.
4	UCATC-401	Database Management System and SQL	6	Core	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> Understand query processing in DBMS. Understand how queries are processed, optimized and evaluated in a DBMS. Be able to write SQL statements that create database objects. Understand the structure and design of relational databases. Understand the importance and major issues of database security and the maintenance of data integrity.
	UCAPS-451	Information Security	4	SEC	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> Understand security management and incident response. Understand security in software and operating systems. Understand data security and secure system development. knowledge of privacy and data protection.
5	UCAPS-551	Multimedia Computing	4	SEC	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> Define multimedia to potential clients. Identify and describe the function of the general skill sets in the multimedia industry. Identify the basic components of a multimedia project. Identify the basic hardware and software requirements for multimedia development and playback.
	UCATE-501	Fundamentals of Operating System	6	DSC	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> Understand fundamental operating system abstractions such as processes, threads, files, semaphores, IPC abstractions, shared memory regions, etc. Analyze important algorithms e.g. Process scheduling and memory management algorithms.
	UCATE-503	Data and File Structures	6	DSC	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> Program data structures and use them in implementations of abstract data types. Devise novel solutions to small scale programming challenges involving data structures and recursion. Understanding of basic algorithmic complexity.
	UCATE-511	Fundamentals of IT	6	GE	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> Understand basics of computer and working with OS. Develop working skills with productivity tools, graphics designing and Internet. Acquire basic programming skills.

6	UCAPS-652	System Analysis and Design	4	SEC	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Work as an individual and as part of a multidisciplinary team to develop and deliver quality software. ● Demonstrate an understanding of and apply current theories, models, and techniques that provide a basis for the software life-cycle.
	UCATE-601	Networking and internet	6	DSC	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Recognize computer networks. ● List computer network typologies. ● Explain each computer network topology physically or logically. ● List required hardware to constitute computer network. ● Explain the mission of each computer network. ● Recognize essential computer network protocols.
	UCATE-602	Java Programming	6	DSC	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Read and make elementary modifications to Java programs that solve real-world problems. ● Validate input in a Java program. Identify and fix defects and common security issues in code. ● Document a Java program using Javadoc.
	UCATE-605	Basics of Internet	6	GE	On Successful completion of the course, the student will be able to: <ul style="list-style-type: none"> ● Understand what the Internet is, its purpose and function for users. ● Develop a clear online lexicon and a working understanding of online-related vocabulary.

Department of Chemistry

Program Purpose

The purpose of the undergraduate and postgraduate chemistry programme in GDC Bhadarwah is to equip the students with the key knowledge base in theory & concepts along with an expertise in laboratory experimentation to prepare students for professional career seekers in chemistry at the industrial level or to pursue research at academic or industrial level.

Learning Outcomes

After studying this programme

- the students will have a firm foundation knowledge of the fundamentals and application of chemical theories & concepts which occur in Inorganic, Organic, Analytical and Physical Chemistry.
- the students will be able to design & carry out chemistry experiments & accurately record/ analyze the results of such experiments.
- the students will be skilled in solving problems, critical thinking & analytical reasoning.
- the students will be able to explore new areas of research in chemistry and allied areas of science and technology.
- the students will will propagate the ethical role of chemistry in society by solving the various ethical issues like making people understand the safe handling of chemicals, tackling environmental issues & key issues facing our society in energy, health & medicine.
- the students will will be able to understand & explain why chemistry is an essential field for addressing social, environmental & economic problems.

Semester	Course No	Title	Credits	Nature of Course	Learning Outcome
1 st	UCHTC-101	Atomic Structure, Bonding, General Organic Chemistry and Aliphatic HydroCarbons	4	Theory -Core	<ol style="list-style-type: none"> 1. To understand the basics of Quantum Mechanics 2. Understanding various theories related to ionic bonding 3. Understanding the fundamentals of Organic chemistry like inductive effects, electromeric effects, conjugation, resonance etc. 4. Understanding of conformation of Ethane, Butane and Cyclo Hexane.
1 st	UCHPC-102	Lab. Course-I	2	Practical -Core	<ol style="list-style-type: none"> 1. To get the basic knowledge of Volumetric Analysis 2. To estimate the amount of Na₂CO₃ and NaHCO₃ 3. To detect extra elements in Organic Compounds.
2 nd	UCHTC-201	Chemical Energetics, Equilibria and Functional Organic Chemistry	4	Theory- Core	<ol style="list-style-type: none"> 1. To get familiar with the basics of chemical energetics. 2. To understand the difference between G and G⁰ 3. Understand the difference between strong, moderate and weak electrolytes. 4. To understand substitution, nitration, halogenation and sulphonation of aromatic hydrocarbons 5. To understand the preparation of primary, secondary and tertiary alcohols
2 nd	UCHPC-202		2	Practical-Core	<ol style="list-style-type: none"> 1. Determining of heat capacity of calorimeter for different volumes 2. To Measure the PH of different solutions like Aerated drinks, fruit juices, shampoos and soaps.
3 rd	UCHTC-301	Solutions, Phase equilibrium,	4	Theory- Core	<ol style="list-style-type: none"> 1. To get better understanding of solution phase equilibrium and electrochemistry

		Conductance, Electrochemistry and Functional Organic Chemistry				2. To get better understanding of aliphatic/aromatic acids, amino acids, peptides, proteins and carbohydrates
3 rd	UCHPC-302	Lab Course III	2	Practical- Core		1. To verify distribution Law practically 2. To find out conductance of various solutions 3. To perform qualitative analysis of organic compounds
3 rd	UCHTS-303	Cosmetics, Perfumes and Medicinal Agents From Natural Sources	4	Skill		1. To understand the chemistry of products used in daily life. 2. To aware the students about the process of production of talcum powder, shampoo, enamels, face cream, hair remover etc.
4 th	UCHTC-401	Co-ordination Chemistry, States of Matter and Chemical Kinetics	4	Theory- Core		1. To get familiar with advanced concepts in coordination chemistry like CFT, VBT etc. 2. To have an in depth knowledge of the three states of matter. 3. To have basic knowledge of kinetics of a reaction.
4 th	UCHPC-402	Lab Course IV	2	Practical-Core		1. To analyze various salts quantitatively and qualitatively 2. To get trained in the experimentation in solution chemistry 3. To determine the order of various reactions
4 th	UCHTS-403	Pesticide Chemistry	4	Skill		1. To have an understanding of natural and synthetic pesticides. 2. Synthesis and technical manufacture of representative pesticides like DDT, Lindane etc.
5 th	UCHTC-501	Spectroscopy, Photochemistry and Organometallics and Bio Inorganic Chemistry	4	Theory-Core		1. To know about the changing properties of transition elements 2. To have basic understanding of molecular spectroscopy 3. To get the basic knowledge of photochemistry.
5 th	UCHPC-502	Lab Course V	2	Practical-Core		1. To verify Laws of photochemistry experimentally 2. To understand the use of spectrophotometer in UV-Visible spectroscopy
5 th	UCHTS-503	Fuel Chemistry	4	Skill		1. To understand the classification of Fuels and their calorific values 2. To understand the uses of coal in various industries 3. To have basic knowledge of various refining techniques
6 th	UCHTC-601	Inorganic Materials of Industrial Importance and Organic Spectroscopy	4	Theory-Core		1. To recapitulate the S and P block elements 2. To have knowledge of different types of fertilizers 3. To have basic knowledge of catalysts. 4. To know the applications of spectroscopy to simple organic molecules
6 th	UCHPC-602	Lab Course VI	2	Practical-Core		1. Experimentally analyze various industrial products like cement, fertilizers, pigments etc. 2. To perform spectroscopic study of various organic molecules
6 th	UCHTS-603	Green Methods in Chemistry	4	Skill		1. Understanding meaning of green chemistry. 2. To get aware of some of the cases in real world application of green chemistry

Learning Outcomes of Masters degree Program in Chemistry at GDC Bhaderwah

Semester	Course No	Title	Credits	Nature of Course	Unit	Unit title	Learning Outcome
1 st	C-411	Physical Chemistry-I	04	Theory-Core	I	Exact quantum mechanical results	The student should be able to learn about i. Operators, Orbital wave functions, ii. Average Energy calculations of various systems like Hydrogen atom, Harmonic Oscillator, rigid rotator
					II	Angular momentum and electronic structure of atom	The student should be able to learn about i. Angular momentum operators, ii. atomic term symbols iii. electronic coupling schemes
					III	Approximation methods	The student should be able to learn about i. most probable energy and wave function by variation theorem and variation principal ii. energy of perturbed electronic systems
					IV	Chemical Bonding	The student should be able to learn about i. VBT & MOT, LCAO-MO approximation, ii. calculation of energy levels from wave functions
					V	HMO method and its applications	The student should be able to learn about i. HMO theory for conjugated systems ii. calculation of delocalization energy, bond order & electron density
	C-410	Inorganic Chemistry I	04	Theory-Core	I	Stereochemistry and Bonding in Main Group Compounds	The student should be able to learn about i. Bonding in main group compounds ii. Structure & Hybridization of same
					II	Metal ligand Equilibria in Solution	The student should be able to learn about i. Various constants in metal ligand bond formation. ii. Determination of constants by various methods.
					III	Theories of Bonding	The student should be able to learn about i. CFT and its applications ii. MOT & MO diagrams for different geometries in complexes.
					IV	Reaction mechanism of Transition Metal Complexes-I	The student should be able to learn about i. Reaction mechanisms ii. Knowledge of Inert & Labile Complexes iii. Conjugate base mechanism and anion reactions

			04	Theory-Core	V	Reaction mechanism of Transition Metal Complexes-II	The student should be able to learn about i. Redox reactions and electron transfer reactions in metal complexes. ii. Various mechanisms of the same iii. Substitution reactions with emphasis on trans effect.
	C-412	Organic Reaction Mechanism-I	04	Theory-Core	I	Nature of bonding in organic molecules	The student should be able to learn about i. the delocalization of chemical bonding-conjugation ii. Understanding cross-conjugation, resonance, hyperconjugation iii. Aromaticity in benzenoid and non-benzenoid compounds iv. the application of Huckel's rule, energy level of molecular orbitals v. Having a basic knowledge of crown ether complexes and cryptands
			04	Theory-Core	II	Stereochemistry	The student should be able to learn about i. Conformational analysis of cyclohexanes. ii. effect of conformation on reactivity iii. Elements of symmetry iv. R&S configuration. v. difference between enantiotopic and diastereotopic atoms vi. Stereochemistry of the compounds containing nitrogen and sulfur.
			04	Theory-Core	III	Reaction Mechanism: Structure and Reactivity	The student should be able to learn about i. Various Types of reaction mechanisms ii. the thermodynamic and kinetic requirements of a reaction. iii. Defining Curtin-Hammett principle iv. Understanding the various methods of determining mechanisms v. Apprehending Structure, stability and reactivity of carbenes and nitrenes vi. Apprehending effect of structure on reactivity. vii. Understanding the Hammett equation and linear free energy relationship
			04	Theory-Core	IV	Aliphatic Nucleophilic Substitutions – I	The student should be able to learn about i. The S_N2 , S_N1 , mixed S_N1 and S_N2 and SET mechanisms. ii. the neighbouring group Mechanism iii. the neighbouring group participation by σ and π bonds iv. the Classical and non-classical carbocations. v. the common carbocation rearrangements vi. the S_Ni mechanism.
			04	Theory-Core	V	Aliphatic Nucleophilic Substitutions-II	The student should be able to learn about i. the nucleophilic substitutions at an allylic, aliphatic trigonal and a vinylic carbon reactivity ii. the effects of substrate structure iii. the leaving group and reaction medium dependencies. iv. phase transfer catalysis and ultrasound v. ambident nucleophile and regioselectivity vi. the difference between S_E2 and S_E1 vii. the electrophilic substitutions accompanied by double bond shifts. viii. the effect of substrates, leaving group and the solvent polarity on the reactivity
			04	Theory-Core		Aliphatic Electrophilic Substitution	
	C-413	Spectroscopy-I	04	Theory-Core	I	Unifying Principles	The student should be able to learn about i. basics of Electromagnetic Radiation, Characterization, Quantization of energy. ii. the relation between Width and intensity of spectral lines iii. basics of Doppler broadening. iv. relation between Population of states and Path length of sample v. To acquire a basic knowledge of Lasers
			04	Theory-Core	II	Microwave Spectroscopy	The student should be able to learn about i. rotational spectroscopy of diatomic molecules based on rigid approximation. ii. bond length and/or atomic masses from microwave data iii. Intensity of spectral lines iv. effect of isotopic substitution v. non-rigid rotator.
			04	Theory-Core	III	Vibrational Spectroscopy	The student should be able to learn about i. the energy of a diatomic molecule. ii. simple Harmonic oscillator. iii. The Anharmonic oscillator iv. Overtones and combination bands v. vibrations and their symmetry

							vi. the Influence of nuclear spin. vii. Quantum theory of Raman effect viii. Classical theory of Raman effect ix. Pure rotational Raman spectra of linear and Symmetric top molecules.
			04	Theory-Core	IV	X-Ray diffraction	The student should be able to learn about i. How To deduce Bragg condition ii. relation of the structure of simple lattices and X- ray intensities iii. Magnetic structure analysis iv. different methods of crystal structure analysis
			04	Theory-Core	V	Electron Diffraction & Neutron Diffraction	The student should be able to learn about v. electron diffraction. vi. Neutron diffraction
2nd	C-461	Physical Chemistry-II	04	Theory-Core	I	Chemical Dynamics – I	The student should be able to learn about i. various theories of reaction rates, ionic reactions, kinetic & thermodynamic control of reaction ii. Difference between thermal and photochemical reactions with examples & kinetics involved. iii. Enzyme catalysis, various methods of study of fast reaction.
			04	Theory-Core	II	Chemical Dynamics – II	The student should be able to learn about i. The theories of unimolecular reactions. ii. Polymerization kinetics iii. molecular mass determination of polymers by various techniques.
			04	Theory-Core	III	Surface Chemistry	The student should be able to learn about i. Laplace equation, Kelvin equation, Gibbs ii. Adsorption isotherm, BET equation. iii. Micelles; thermodynamics of micelle phase separation, reverse micelles.
			04	Theory-Core	IV	Electrochemistry-I	The student should be able to learn about i. Debye-Huckel limiting law, Debye-Huckel-Onsager treatment. ii. DebyeHuckel-Jerum mode iii. Lippman equation iv. Helmholtz-Perrin, v. Guoy-Chapman, vi. Stern models vii. Butler-Volmer equation, Tafel plot
			04	Theory-Core	V	Electrochemistry-II	The student should be able to learn about i. semiconductor-electrolyte interface ii. The Garrett-Brattain Space iii. Older and modern theories of membrane potentials iv. Nernst-planck equation v. Polarography theory vi. Ilkovic equation
	C-460	Inorganic Chemistry II	04	Theory-Core	I	Symmetry and Group Theory in Chemistry	Students will get to know about i. Symmetry elements and symmetry operations ii. Great orthogonality theorem. iii. Use of Character table
			04	Theory-Core	II	Electronic Spectra of Transition Metal Complexes	Students will get to know about i. Spectroscopic Ground states and Term symbols ii. Orgel and Tanbe Sugano diagrams iii. Jahn Teller Distortion and its effects iv. Charge transference from metal to ligand and vice versa
			04	Theory-Core	III	Magnetic Properties of Transition Metal Complexes	Students will get to know about i. Magnetic properties like Di, Para and Ferro magnetism in complexes ii. Spin orbit coupling and magnetic quenching iii. Magnetic exchange and spin state crossover
			04	Theory-Core	IV	Metal Complexes-I	Students will get to know about i. Carbonyls ii. Bonding, Structure iii. Preparation, Chemical reactions iv. Vibrational spectra of carbonyls
			04	Theory-Core	V	Metal Complexes-II	Students will get to know about i. Nitrosyls, Dinitrogen and Dioxygen complexes. ii. Bonding, Structure, Preparation, iii. Chemical reactions and Vibrational spectra of the same. iv. Isopoly and Heteropoly acids and salts of Mo & W
	C-462	Organic Chemistry-II	04	Theory-Core	I	Aromatic Electrophilic & Nucleophilic Substitutions	Students will get to know about i. The arenium ion mechanism ii. Friedel-Crafts reaction of alkenes and alcohol substrates iii. Vilsmer reaction iv. Gattermann-Koch reaction
			04	Theory-Core		Aromatic Nucleophilic Substitutions	Students will get to know about i. The S _N Ar, S _N 1, benzyne and S _{RN} 1 mechanisms ii. Reactivity effect of substrate structure iii. The Von Richter

							iv. Sommelet-Hauser and Smiles rearrangements.
			04	Theory-Core	II	Addition of Carbon-Carbon Multiple Bonds & Elimination Reactions	Students will get to know about i. Mechanistic and stereochemical aspects of addition reactions involving electrophiles ii. Regio- and chemoselectivity, orientation and reactivity iii. Sharpless asymmetric iv. epoxidation.
			04	Theory-Core		Elimination Reactions	Students will get to know about i. The E2, E1 and E1cB mechanisms ii. Base and stereo electronic effect on E2/S _N 2 competition iii. Reactivity: effects of substrate structures, attacking base, the leaving group and the medium iv. Mechanism and orientation in v. pyrolytic eliminations
			04	Theory-Core	III	Addition to Carbon-Hetero Multiple Bonds	Students will get to know about i. Mechanisms of metal hydride reduction of saturated and unsaturated carbonyl compounds ii. Mechanism of condensation reactions involving enolates -Aldol, Knoevenagel iii. Enamine based Aldol reaction iv. Hydrolysis of esters and amides
			04	Theory-Core	IV	Pericyclic Reactions	Students will get to know about i. Molecular orbital symmetry ii. Frontier orbitals of ethylene iii. Classification of pericyclic reactions iv. Sigmatropic rearrangements-suprafacial and antarafacial shifts of H v. Claisen, Cope and Ene reaction
			04	Theory-Core	V	Free Radical Reactions	Students will get to know about i. Types of free radical mechanisms (substitution at an aromatic substrate) ii. neighbouring group assistance iii. Allylic halogenations (NBS), iv. Oxidation of aldehydes to carboxylic acids v. Sandmeyer reaction and Hunsdiecker reaction
	C-463	Spectroscopy II	04	Theory-Core	I	Ultraviolet and Visible Spectroscopy	Students will get to know about i. How To deduce Beer-Lambert law. ii. the ultraviolet bands for carbonyl compounds iii. the unsaturated carbonyl compounds iv. the conjugated polyenes v. the Fieser-Woodward rules for conjugated dienes and carbonyl compounds vi. the principle of CD exciton chirality.
			04	Theory-Core	II	Infrared Spectroscopy	Students will get to know about i. the Basic principles of IR Spectroscopy. ii. Characteristic vibrational frequencies of Alkanes. iii. vibrational frequencies of carbonyl compounds. iv. the effect of hydrogen bonding and solvent effect on vibrational frequencies v. combination bands and Fermi resonance.
			04	Theory-Core	III	Nuclear Magnetic Resonance Spectroscopy	Students will get to know about i. Larmor frequency and its application. ii. the Chemical shift, causes and consequences. iii. Chemical shift values and correlation for protons bonded to carbon iv. Complex spin-spin interaction between two, three, four and five nuclei v. the simplification of complex spectra vi. Nuclear overhauser effect (NOE)
			04	Theory-Core	IV	Carbon-13 NMR Spectroscopy	Students will get to know about i. General considerations to be taken for a C ¹³ NMR Spectroscopy. ii. DEPT. iii. Two dimensional NMR spectroscopy
			04	Theory-Core	V	Mass Spectrometry	Students will get to know about i. mass spectroscopy. ii. Factors affecting fragmentation of organic compounds. iii. High resolution mass spectrometry iv. modern MS techniques.
3rd	C-510	Environmental Chemistry	04	Theory-Core	I	Environment/Soils	Students will get to know about i. Environment, heat budget and different Bio geochemical cycles occurring in the environment. ii. Composition of soils and how chemical reactions takes place in soil iii. Soil pollution.
			04	Theory-Core	II	Hydrosphere	Students will get to know about i. Hydrosphere and composition of water bodies ii. Water cycle and water quality parameters iii. BOD & COD, Methods of determination iv. Water treatment & purification

			04	Theory-Core	III	Industrial Pollution	Students will get to know about i. Industrial Pollution with special reference to Cement, Sugar, Distillery, Paper industry, thermal power plant and polymer industry ii. Waste management techniques
			04	Theory-Core	IV	Atmosphere	Students will get to know about i. Atmosphere and its composition ii. Chemical and photochemical reactions occurring in atmosphere iii. Greenhouse effect and global warming. iv. Smog, CFC and acid rain
			04	Theory-Core	V	Environmental Toxicology	Students will get to know about i. Some historical Catastrophes like Bhopal gas tragedy, Chernobyl disaster, three mile island and Minamata disease. ii. Hazardous waste and its management.
	C-511	Physical Chemistry-III	04	Theory-Core	I	Non-Equilibrium Thermodynamics	The student should be able to learn about 1. thermodynamic criteria for non-equilibrium states 2. Fluxes & forces 3. phenomenological equations 4. electrokinetics phenomena 5. coupled reactions
			04	Theory-Core	II	Transport Phenomenon	The student should be able to learn about 1. Ficks laws 2. Einstein relation, 3. Nernst-Einstein equation, 4. Stokes-Einstein equation, 5. Einstein-Smoluchowski equation
			04	Theory-Core	III	Thermodynamics of Mixtures	The student should be able to learn about 1. Partial molar properties 2. Fugacity & its determination 3. Activity and activity coefficient 4. Ionic strength
			04	Theory-Core	IV	Statistical Mechanics	The student should be able to learn about 1. Ensemble & its types 2. Types of statistics 3. Molecular partition function 4. thermodynamic properties & partition function
			04	Theory-Core	V	Applications of statistical mechanics	The student should be able to learn about 1. partition function 2. Evaluation & contribution of partition functions to thermodynamic functions 3. Heat capacities of solids & its Theories
	C-513	Spectroscopy III	04	Theory-Core	I	Vibrational Spectroscopy	The student should be able to learn about 1. To have a basic knowledge of Symmetry and shape of AB ₂ , AB ₃ , AB ₄ , AB ₅ and AB ₆ molecules. 2. To understand mode of bonding of ambidentate ligands 3. To differentiate Stokes and anti-stokes lines 4. To know about polarizability of ellipsoids. 5. To have the ability to differentiate Rotational and vibrational Raman spectroscopy
			04	Theory-Core	II	Electron Spin Resonance Spectroscopy	The student should be able to learn about 1. the basic Principles of ESR. 2. Hyperfine coupling, spin polarization and McConnell Relationship 3. Spin-orbit coupling and significance of g- tensor 4. Application of ESR to transition metal complexes(having one unpaired electron) including biological systems.
			04	Theory-Core	III	Mossbauer Spectroscopy	The student should be able to learn about 1. the basic Principle, spectral parameters and spectrum display. 2. The application of the technique to the studies of bonding and structure of Fe ²⁺ and Fe ³⁺ compounds 3. The detection of the oxidation state and inequivalent MB atoms.
			04	Theory-Core	IV	Nuclear Magnetic Resonance of Paramagnetic Substances in Solution	The student should be able to learn about 1. The chemical shift in Diamagnetic and Paramagnetic molecules 2. the contact and Pseudo-contact shifts. 3. ligands binding to metalloproteins and protein-protein interaction. 4. NMR of metal nuclide with emphasis on ¹⁹⁵ Pt and ¹¹⁹ Sn NMR
			04	Theory-Core	V	Photoelectron Spectroscopy	The student should be able to learn about 1. The Basic Principles of ESR 2. γ - photo-electric effect. 3. applications of photoelectron spectroscopy 4. Nuclear Quadrupole Resonance Spectroscopy (NQR). 5. Effect of a magnetic field on the Spectra
4th	C-573	Organ transition metal Chemistry	04	Theory-Core	I	Compounds of Transition Metals-Carbon Multiple bonds	Students will get to know about 1. Alkylidenes and Alkylidyne 2. Types, Preparation, Bonding, Structure and Chemical reactions of the same.

			04	Theory-Core	II	Transition Metal Pi Complexes	Students will get to know about 1. Metal alkene, alkyne, allyl, diene and arene complexes 2. Preparation, Bonding, Structure and Chemical reactions of the same.
			04	Theory-Core	III	Sigma Bonded Transition Metal Complexes	Students will get to know about 1. Hydrocarbyls 2. Types, Preparation, Bonding, Structure and Chemical reactions of the same 3. Organo copper compounds
			04	Theory-Core	IV	Homogeneous Catalysis	Students will get to know about 1. Activation of C-H bond 2. Asymmetric and Homogeneous hydrogenation reactions 3. Reactions involving Carbon monoxide (CO)
			04	Theory-Core	V	Fluxional Organometallic Compounds	Students will get to know about 1. Fluxionality 2. Non rigid behavior in olefin, allyl and dienyl compounds 3. Aluminohydrides and Borohydrides: Types, Synthesis and reactions.
4th	C-571	Solid State and Structural Chemistry	04	Theory-Core	I	Preparative Methods and Crystal Symmetry	The student should be able to learn about 1. Various preparative methods of materials in solid state 2. preparation of thin films & growth of single crystals 3. Closed packed structures with examples
			04	Theory-Core	II	Crystal Defects and Solid Solutions	The student should be able to learn about 1. Crystal defects & its various types 2. Thermodynamics of crystal defects 3. Line defects, plane defects & stacking faults 4. New superconductors 5. Solid solutions & its types
			04	Theory-Core	III	Structure of Solids	The student should be able to learn about 1. Bravais lattice, lattice planes, Miller indices 2. Symmetry & point groups 3. Space groups with examples
			04	Theory-Core	IV	Electronic and Ionic Conduction	The student should be able to learn about 1. electronic structure of solids 2. Semiconductions & their applications 3. Band structure of in organic solids 4. Solid electrolytes, Halide ion & Oxide ion conductors.
			04	Theory-Core	V	Magnetic and Dielectric Properties	The student should be able to learn about 1. Magnetic behavior of materials 2. Magnetic moment calculations 3. Ferro and anti-ferromagnetic ordering with its mechanism 4. Ferromagnetic & dielectric materials.
	C-572	Heterocyclic Chemistry and Asymmetric Synthesis	04	Theory-Core	I	Nomenclature of Heterocycles	The student should be able to learn about 1. Nomenclature of monocyclic & heterocyclic cyclic compounds 2. Chemical behavior, classification & aromaticity of aromatic heterocycles.
			04	Theory-Core	II	Benzo-Fused Five Membered Heterocycles	The student should be able to learn about 1. Synthesis & medical applications of pyrroles, furans & thiopenes 2. Synthesis & reactions of pyridinium salts, coumarins, chromones
			04	Theory-Core	III	Six Membered Heterocycles with two or more Heteroatoms	The student should be able to learn about 1. Synthesis and reactions of diazenes, trizenes, azapines, oxepines, thiapines
			04	Theory-Core	IV	Asymmetric synthesis: Non-enzymatic approaches	The student should be able to learn about 1. Naturally occurring chiral compounds: asymmetric synthesis, chiral auxiliaries. Cram's rule, Felkin Ahn model, Asymmetric reactions.
			04	Theory-Core	V	Asymmetric Synthesis: Enzymatic approach	The student should be able to learn about 1. Using enzymes in organic synthesis, enzyme triggered cyclization of haloalkyl oxiranes 2. Application to biomimetic natural product synthesis.

Semester	Course Code	Course Type	Credits	Learning Outcomes
1 st	C-416	Laboratory Course	08	The student should be able to perform the experiments on <ol style="list-style-type: none"> Quantitative & Qualitative analysis of metal ions in cationic and anionic form by volumetric & gravimetric methods preparation of inorganic complexes & study of their IR spectra & magnetic susceptibility phase equilibria of three component systems study the rate constant of ester/ionic reactions in micellar media & Iodine clock reaction. Determination of the molecular weight of non-electrolyte/electrolyte & activity coefficient of an electrolyte by cryoscopy method, degree of dissociation of weak electrolytes, viscosity of polymer solutions & interfacial surface tension, surface excess of the surfactant solutions. separation, purification & identification of the components of an organic mixture by chromatography Synthesis of organic compounds using acetylation, oxidation, Grignard's reaction, Aldol condensation.
2 nd	C-465	Laboratory Course	08	The student should be able to perform the experiments on <ol style="list-style-type: none"> Preparation of few Inorganic Compounds and their spectral studies. Qualitative analysis of metals Heat of solution of Benzoic acid/oxalic acid Adsorption of oxalic acid on charcoal Mutual solubility curve of phenol water system Determination of refractive index of organic liquid Determination of pH & dissociation constant of acetic acid/sodium acetate Determination of strength of mixture of strong & weak acids by pH metry, conductimetry Phase diagram of two component eutectic systems. Organic synthesis reactions like Sandmeyer reaction, Cannizzaro reaction, Knoevenagel reaction, Fridal Crafts reaction, Beckmann rearrangement. Characterization of organic compounds by spectral techniques Quantitative analysis for the determination of hydroxy groups & estimation of amines & Phenols
3 rd	C-514	Laboratory Course	08	The student should be able to perform the experiments on <ol style="list-style-type: none"> kinetics of bromination of phenol by clock reaction kinetics of a reaction between potassium bromate and potassium iodide determination of partial molar volumes of solute-solvent mixtures Temperature dependence of solubility of the compound in two solvents Determine the concentration of acids & salt in a given solution by conductimetry Determination of equivalent conductance of weak & strong electrolytes Determination of hydrolysis constant of organic salts. Determination of strength of acids like HCl and bases like NH₃ by pH metry Preparation of few Inorganic Compounds and their spectral studies. Flame photometric determination. Thin layer chromatography. Identification of organic compounds in a mixture by Thin Layer Chromatography & the spectral analysis the components Identification of sugars in a mixture by paper chromatography & analysis of their spectral data
4 th	C-575	Laboratory Course	08	Students will get to know about <ol style="list-style-type: none"> Preparation of few Inorganic Compounds and their spectral studies. Handling of air and moisture sensitive compounds

DEPARTMENT OF EDUCATION

Program specific outcomes of BA education

❖ Philosophical Foundations of Education (First semester)

A: The course is designed to expose the students to the general philosophy.

B: Ability to know the philosophical foundations of various theories of education.

C: This course is designed to provide modern techniques which were helpful to proof arguments. D: It introduces ethical principles which develops moral thinking among students

❖ Sociological Foundations of Education (2nd semester)

A: It provides initial knowledge about society

B: It prepares an individual for social life.

C: It gives knowledge about values, morals and manners.

D: It provides knowledge about communities in which a person interacts

❖ Psychological Foundations of Education (3rd Semester)

A: It provides the base for engaging in critical thinking

B: It describes the impact of society and culture on human diversity

C: Helps in understanding the behavior of human beings

D: Helps in understanding the concept of personality and intelligence

❖ Indian Education in Historical Perspective (4th semester)

A: Helps us to analyze the relationship between past and present.

B: It acts as torch of truth for students

C: Helps us to know the education system in early days

D: Helps us to know the relationship between teacher and student in ancient times

❖ Issues and trends in contemporary Indian education-1 (5th semester)

A: Helps us to understand the importance of environment.

B: Helps us to understand the importance of women education

C: Makes us aware about the importance of vocationalization of secondary

education.

D: it helps in inculcating morals among children.

❖ Issues and trends in contemporary Indian education II (6th semester)

A: It helps us to know the importance of special children.

B: Helps us to know the importance of guidance and counseling.

C: It helps in selecting appropriate statistical tools to investigate a research hypothesis.

D: Helps in understanding the importance of adult education.

SKILL PAPERS

❖ Pre-School Management(3rd Semester)

- A. Planning and execution of activities to enhance physical, motor, cognitive and speech development in infants.
- B. Planning of parent teacher meet.
- C. Methods and tools to assess progress of children.

❖ Early Childhood Care and Education (4th Semester)

- A. Focus first on children's safety, health and happiness
- B. Use observations and assessments to support every child's need across all developmental domains.
- C. Visit to nearby ICDS Centers for observation and record of activities carried at these centers.
- D. Visit to nearby Pre-Schools for observation and record of activities carried at these Schools.

❖ Guidance and Counselling (5th Semester)

- A. Helps the students in making the best possible adjustment to the current situation in the educational institutions, in the home and the community.
- B. It enables the students to accept the things which they cannot change in life and differentiate what they can change and cannot change in life.
- C. To enable the students to achieve self- development and self-realization.

❖ Educational Technology (6th Semester)

- A. To make education collaborative
- B. Technology allows for 24/7 access to information
- C. Easily created and shared digital content
- D. Improvement of teaching
- E. Analysis of the teaching process
- F. Teaching learning strategies.

GENERIC ELECTIVE

❖ Mental Health and Hygiene (5th Semester)

- A. Education and Mental Health are part of the basic human rights of children and youth
- B. Education for All requires attention to mental health as a learning enabler
- C. To train the students to recognize common mental health problems
- D. Enable the students in maintaining the abilities to adapt to change and to cope with stress.
- E. Maintaining productive daily activities and maintaining fulfilling relationships with others.

❖ Issues and trends in Indian Education (6th Semester)

It helps us to know the importance of special children.

B: Helps us to know the importance of guidance and counseling.

C: It helps in selecting appropriate statistical tools to investigate a research hypothesis.

D: Helps in understanding the importance of adult education.

DEPARTMENT OF ECONOMICS

SUBJECT OUTCOME

1. To understand the basic concepts in Economics.
2. To understand the concepts of consumer behavior, determination of price and national income calculation.
3. To provide the students with the opportunity to pursue higher studies in Economics.
4. To prepare our Graduate students for the Employment in Public and Private Sectors.

Course Learning Outcomes for Courses prescribed for I to VI Semester of Bachelor Degree (UG) Programme under CBCS in the Subject of Economics

Semester	Course No.	Title	Credits	Nature of Course	Course Learning Outcome
I	UECTC: 101	Principles of Microeconomics – I	6	CORE	On the successful completion of this course, the students will be able to: <ol style="list-style-type: none"> 1. Understand the basic concept of micro-economics. 2. Illustrate market equilibrium 3. Understand the concepts of consumer behaviour in light of cardinal utility and ordinal utility analysis. 4. Apply Indifference curve analysis in deriving demand curves, price effect, income effect and substitution effect. 5. Understand Theory of production- iso-quants, laws of returns to scale, law of variable proportion. 6. Understand the concepts of short run and long run cost functions.
II	UECTC: 201	Principles of Microeconomics – II	6	CORE	On completion of this course, the students will be able to: <ol style="list-style-type: none"> 1. Understand the determination of prices of product under different market structures; 2. Have a better awareness regarding different Factor Pricing 3. Understand the theory of general equilibrium and welfare economics.
III	UECTC :301	Macro Economics - I	6	CORE	On completion of this course, the students will be able to: <ol style="list-style-type: none"> 1. Understand basic concepts of macroeconomics. 2. Demonstrate the different concept related to national income accounting 3. Understand the methods of national income calculation. 4. Analyse the various income identities with government and international trade. 5. Understand Say's law of market, classical theory of employment and Keynes objection to the classical theory, demonstrate the principle of effective demand and income determination. 6. Explain different theories of consumption and investment
	UECTS: 302	Financial Economics	4	SEC	Upon completion of the course the students will be able: <ol style="list-style-type: none"> 1. Get knowledge about the working of Indian Financial System i.e. Banks & Non-Banking Financial Institutions; 2. Understand the knowledge of structure of Equity markets, Debt market & Mutual Funds.
IV	UECTC: 401	Macro Economics - II	6	CORE	On successful completion of the course the students will be able to: <ol style="list-style-type: none"> 1. Understand the working of goods & money markets and the linkages between them. 2. Have an understanding about the inflation, unemployment & business cycle occurrence, their causes and controlling instruments.
	UECTS: 402	Data Analysis	4	SEC	Upon successful completion of the course, the students will be able to: <ol style="list-style-type: none"> 1. Demonstrate the knowledge of data sources, sampling techniques, methods of data collection & data presentation; 2. Analyze economic data in a scientific manner by using statistical methods.
V	UECTE: 501	Money and Banking	6	Elective	On successful completion of the course students will be able to: <ol style="list-style-type: none"> 1. Identify the principles behind the working of the financial system; 2. Demonstrate the knowledge about evolution of money and its functions; 3. Analyse the operations of Index Numbers; 4. Demonstrate an understanding of operations & regulations of modern central banking and principles of commercial banking. 5. Analyse the design and conduct of monetary and fiscal policies.
	UECTE: 502	Economic Development and Policy in India	6	Elective	On successful completion of the course the students will be able to: <ol style="list-style-type: none"> 1. Analyse the knowledge of population structure, employment and poverty in India; 2. Demonstrate the knowledge of basic issues in Indian agriculture, industrial structure and services in Indian economy as well as foreign trade and capital in India;

VI	UECTE: 503	Development Economics	6	Elective	On successful completion of the course the students will be able to: 1. Analyse competing theories of economic development. 2. Demonstrate deep analytical understanding of contemporary economic development issues; 3. Demonstrate the knowledge of human development index. 4. Focus on essential aspects of choice of techniques of planning and its recent adaptations.
	UECTS: 504	Stock Market	4	SEC	On successful completion of the course the students will be able to: 1. Understand the basics of stock market; 2. Understand different investment alternatives in the market; 3. able to analyze and price different securities; 4. able to manage a portfolio; 5. Understand basics of derivative markets and mutual funds.
	UECTE: 505	Basic Economics	6	Generic/ Elective	After going through the Course, the learners are expected to: 1. Understand the nature and scope of economics, 2. Knowledge of Demand, supply and market structure; 3. Understand the knowledge of national income, banking system and business cycles.
	UECTE: 601	Quantitative Methods in Economics	6	E	On successful completion of the course the students will be able to: 1. Understand the use of basic mathematical tools in Economics 2. Demonstrate the theoretical and practical knowledge in the quantitative methods in economics 3. Analyze economic data in a scientific manner by using statistical Techniques.
	UECTE: 602	Public Finance	6	Elective	After going through the Course Module wise the learners are expected to: 1. Understand the Importance and applications of Public Finance; 2. Differentiate the Public and the Private Finance; 3. Know taxation and its types as well as applications; 4. Understand the Spending skills for Socioeconomic Development; 5. Debt Management Skills and its importance; 6. Understand and Apply Budgeting and its principles
	UECTE: 603	International Economics	6	Elective	After going through the Course Module wise the learners are expected to: 1. Understand the basic concepts of International Economy and global trade 2. Know the International trading skills by applying theories of trade by different economists 3. Know Tariff and Non- Tariff Barriers and their applications and importance 4. Understanding the importance of Intellectual Property Rights in Global trade 5. Know the difference between Balance of Trade and Balance of Payments and Skills of managing the deficits or surpluses 6. Understand the role played by international organizations in the Global trade
	UECTS: 604	Rural Development Programmes	4	SEC	After going through the Course Module wise the learners are expected to: 1. Know the importance of Rural Development and the concept of Rural Bharat 2. Understand the Strategy adopted during Planning period for rural India 3. Understand the Basics of Rural Poverty Eradication Schemes 4. Understand the utility of rural unemployment reducing schemes 5. Basic Skills of Rural Infrastructure facility and its relevance
	UECTE: 605	Indian Economy	6	Generic/ Elective	After going through the Course Module wise the learners are expected to: 1. Understand the Basic Features of Indian Economy 2. Know the Agriculture Sector, its importance, problems and possible solutions 3. Understand Industrialization in India, its Importance, problems and possible ways to tackle 4. Know and understand the importance of Human, Physical and Financial resources for the economic development 5. Understand why economic reforms are relevant 6. Know international trading relations, direction and composition of foreign trade 7. Understand the Local economy of J&K, its present status and future prospects of development

LIST OF COURSES			
Semester	Title	Credits	Course Code
1 st	ELECTRONIC CIRCUIT ANALYSIS	04	UELTC101
	ELECTRONIC CIRCUITS LAB	02	UELPC102
2 nd	ELECTRONIC DEVICES AND CIRCUITS	04	UELTC201
	ELECTRONIC DEVICES AND CIRCUITS LAB	02	UELPC202
3 rd	DIGITAL ELECTRONICS	4	UELTC301
	DIGITAL CIRCUIT LAB	2	UELPC302
4 th	RENEWABLE ENERGY AND ENERGY HARVESTING (Skill Enhancement Course)	4	UELTS303
	LINEAR INTEGRATED CIRCUITS	4	UELTC401
5 th	LINEAR INTEGRATED CIRCUIT LAB	2	UELPC402
	ELECTRICAL CIRCUITS AND NETWORK SKILLS (Skill Enhancement Course)	4	UELTS403
6 th	COMMUNICATION ELECTRONICS (Discipline Specific - Elective 1)	4	UELTE501
	ELECTRONICS COMMUNICATION LAB	2	UELPE502
7 th	MICROPROCESSOR AND INTERFACING – 8085 (Discipline Specific - Elective II)	4	UELTE 503
	MICROPROCESSOR LAB	2	UELPE504
8 th	ELECTRONIC INSTRUMENTATION (Discipline Specific -Elective III)	4	UELTE 505
	ELECTRONIC INSTRUMENTATION LAB	2	UELPE506
9 th	ANTENNA THEORY AND WIRELESS NETWORKS (Skill Enhancement Course)	4	UELTS507
	MICROPROCESSOR 8086 FAMILY (Discipline Specific - Elective 1)	4	UELTE601
10 th	MICROPROCESSOR 8086 LAB	2	UELPE602
	PHOTONIC AND POWER ELECTRONIC DEVICES (Discipline Specific - Elective II)	4	UELTE603
11 th	PHOTONIC AND POWER ELECTRONIC DEVICES LAB	2	UELPE604
	C- PROGRAMMING (Discipline Specific -Elective III)	4	UELTE605
12 th	C PROGRAMMING LAB	2	UELPE606
	C++ PROGRAMMING (Skill Enhancement Course)	4	UELTS607

S.No	Course title	Unit	Learning Outcomes
1	Electronic Circuit Analysis	Simple Circuit Analysis	<ul style="list-style-type: none"> Understand the different types of basic components and electronic circuits
		Network Theorems	<ul style="list-style-type: none"> Understanding the combination of circuits. Application of various principles of electric circuitry.
		AC Circuit analysis	<ul style="list-style-type: none"> Understanding frequency and bandwidth. Understanding resonance
		Analysis of RLC Circuits	<ul style="list-style-type: none"> Understanding Transient analysis of RLC circuitry. Understanding transformation of various physical functions Understanding application of Laplace's Transform
		Two Port Networks	<ul style="list-style-type: none"> Understanding open Circuit impedance, inter-relationship of different parameters
2	Electronic Devices & Circuits	Electronic Circuit Elements	<ul style="list-style-type: none"> Understanding basic electronic elements Fabrication process of basic circuit elements Classification of Integrated Circuits (ICs)
		Semiconductor diodes	<ul style="list-style-type: none"> Understanding nature of semiconductors Working and use of Diodes Employing PN Junction Diodes in basic circuitry Electrical transformer working.
		Special Diodes	<ul style="list-style-type: none"> Understanding the characteristics of various diodes Application of Diodes.
		Transistors	<ul style="list-style-type: none"> Working and Characteristics of BJT, FET, MOSFET, SCR, UJT etc. Configuration of Transistors.
		Amplifiers & Oscillators	<ul style="list-style-type: none"> Application of BJT as Amplifier, Analysis of different configurational modes of transistors Understanding working and use of oscillators
3	Combinational Logic Analysis & Design	Number Systems and Codes	<ul style="list-style-type: none"> Learning various number systems, viz. Decimal, Binary, Octal, Hexadecimal Boolean Algebra and logic Gates
		Combinational Logic Analysis & Design	<ul style="list-style-type: none"> Representation of Logic Functions Design of digital Adders/ Subtractors/Multiplexers,/counters

	Digital Electronics	Sequential circuits	<ul style="list-style-type: none"> Understanding working of Flip-Flops & Counters
		Registers & memories	<ul style="list-style-type: none"> Understanding ROM, PROM, Static & Dynamic RAMs
		D-A & A-D Converters	<ul style="list-style-type: none"> Understand the process of converting Analog signal into Digital signal and Vice versa
4	Renewable Energy & Energy Harvesting	Fossil Fuels and Alternate Sources of Energy	<ul style="list-style-type: none"> Understanding the importance of Fossil fuels and their judicious use. Encouraging the use of non-Conventional energy Sources and its subsequent development
		Solar Energy	<ul style="list-style-type: none"> Importance of Solar Energy. Storage of Solar Energy Characteristics of Photo-Voltaic Systems
		Wind Energy Harvesting	<ul style="list-style-type: none"> Identifying suitable places for generation of Wind energy Working and operation of Wind Energy Powered Systems
		Piezo- Electric Energy Harvesting	<ul style="list-style-type: none"> Understanding Physics of Piezoelectric effect. Modelling & Application of piezo-electricity
		Electromagnetic Energy Harvesting	<ul style="list-style-type: none"> Applications of Linear Power Generation.
5	Linear Integrated Circuits	Opamps	<ul style="list-style-type: none"> Basic Info. About opamps Working and application in Integrated Circuits
		Feed back in Opamps	<ul style="list-style-type: none"> Understanding different types of feedback and gain in Opamps
		Application of Opamps	<ul style="list-style-type: none"> Using Opamps for Summing, scaling and averaging. Application in differentiation and integration
		Comparators	<ul style="list-style-type: none"> Understanding various combinations of circuits using opamps
		Introduction to active filters	<ul style="list-style-type: none"> Understanding and working of First order Filters, oscillators Generation of different types of wave shaping circuits
6	Electrical circuits & network Skills	Basic Electricity Principles	<ul style="list-style-type: none"> Understanding voltage -current-resistance relationship AC & DC Electricity Familiarization with use of Multimeter
		Electrical Circuits	<ul style="list-style-type: none"> Understanding Rules to Analysing DC & AC Electrical Circuits Components of Power
		Electrical Drawing & Symbols	<ul style="list-style-type: none"> Learning schematics of E-circuits, Control Circuits. Learning Symbolic forms of different contributors to Power System
		Solid-State Devices	<ul style="list-style-type: none"> Understanding switches, circuit components, relays, protection devices and their application
		<i>Electrical Wiring</i>	<ul style="list-style-type: none"> Varieties of conductors Wiring arrangement in residential buildings Earthing, Isolation, insulation etc
7	Communication Electronics	Waves & Antennas	<ul style="list-style-type: none"> Understanding Frequency Spectrum, propagation of Waves Basic principle of antennas
		Fourier Transforms	<ul style="list-style-type: none"> Mathematical analysis of various signal Understanding the character of the basic information signals Analysing Energy Spectrum
		Amplitude Modulation & Demodulation	<ul style="list-style-type: none"> Understanding the need for Modulating a signal and subsequent demodulation. Understanding the use of SSB, DSB and power analysis of the signal
		Frequency Modulation & Demodulation	<ul style="list-style-type: none"> Representation of Frequency Spectrum Using different types of Angular Modulation Techniques.
		Analog Pulse Modulation	<ul style="list-style-type: none"> Combining the use of analog and digital principles for communication process
8	Micro Processor & Interfacing -8085	Microcomputer organization	<ul style="list-style-type: none"> Understanding the working, architecture, machine language, and interface of Microprocessor with other devices
		8085 Programming	
		Programming tools	
		Interfacing-I	
		Interfacing-II	
9		Measurements	<ul style="list-style-type: none"> Understanding accuracy, precision, errors and uncertainty. Understanding units of different systems
		Power Supply	<ul style="list-style-type: none"> Understanding and employing various instruments for power analysis.

	Electronic Instrumentation	Oscilloscopes	<ul style="list-style-type: none"> Using oscilloscopes for measuring various types of signals Understanding the working of oscilloscopes
		Lock-in Amplifiers	<ul style="list-style-type: none"> Employing use of various lock in Amplifiers viz. PLL, Phase Detector
		Transducers	<ul style="list-style-type: none"> Classification of transducers Usage in day to day life Energy conversion principle of transducers Sensors and actuators use in daily Life
10	Antenna Theory & WireLess NETworks	Antenna Theory	<ul style="list-style-type: none"> Understanding the working and use of Antennas Signal Transmission and reception using Antenna
		Antenna As Transmitter & Reciever	
		Propagation Of radiowaves	<ul style="list-style-type: none"> Understanding Modes of Prpagation of information Signal Mediums of wave propagation Understanding cellular & wireless Systemsideo of Global Mobile communication systems Understanding, 2G, 3G, 4G, 5G, WLL, WLAN, Bluetooth, Wi-fi,
		Wireless Networks	
	Modern Wireless Communication Systems		
11	Microprocessor 8086 Family	Architecture 8086	<ul style="list-style-type: none"> Working &Architecture Of Microprocessor
		8086 assembly Language-I	<ul style="list-style-type: none"> Understanding & Learning Assembly language for programming microprocessor & Microcontroller
		Assembly Language-II	
		80826 Micro Processor	<ul style="list-style-type: none"> Working, Architecture & Intefacing in 16-bit microprocessor
		80386 &80486 Microprocessor	
12	Photonic & Power Electronics Devices	Photonic devices	<ul style="list-style-type: none"> Understanding the use of Photonic devices, laser, 7 Quantum Well devices
		Photodetectors	<ul style="list-style-type: none"> Understanding Photoconductivity phenomenon in Photo-Transistors, Solar Cell, LCD & LED
		Introduction to fiber optics	<ul style="list-style-type: none"> Understanding the construction of optical Fiber Signal Transmission in Optical Fiber
		Power electronics	<ul style="list-style-type: none"> Use of Power Devices in daily Life Working and characteristics of power devices
		Power device application	<ul style="list-style-type: none"> Application in electric circuitry Industrial Use

DEPARTMENT OF ENGLISH

GENERAL ENGLISH: SUBJECT OUTCOME

- Read a variety of texts critically and proficiently to demonstrate—in writing or speech—the comprehension, analysis, and interpretation of the texts prescribed in syllabus.
- Demonstrate knowledge and comprehension of major texts and traditions of language and Literature written in English as well as their social, cultural, theoretical, and historical contexts.
- Explore secondary source material of various kinds; review and evaluate the collected material for the interpretation of literary texts as well as discover and/or explore new potential directions in the existing scholarship.
- To analyze and interpret texts written in English, evaluating and assessing the varied perspectives in written or oral arguments using appropriate research methodology, methods, and theoretical framework.
- To help the students develop all the four basic yet essential skills of English language learning viz. listening, speaking, reading, and writing.
- To develop students' interest in linguistic skills such as pronunciation, intonation, syllable/word stress etc. with an aim of connecting students with the world by Global English.
- To develop/inculcate interest of students in varied aspects of World Literature: introducing them to various cultures, milieus, literatures, and histories of both the English nations and Non-English nations.
- Recognize and embrace the lifelong process of working through failure toward eventual success.

ENGLISH (GENERAL)

PROGRAM	SEMESTER	COURSE TITLE	COURSE CODE	UNIT	COURSE OUTCOME
BA/BSC/BCA/BCOM WITH ENGLISH AS A SUBJECT	I TO VI	ENGLISH-I	UENTC-101	APPLIED GRAMMAR	<ul style="list-style-type: none"> Adopt language development activities have to enable students to acquire accuracy in the language. Creative exercises have been added to facilitate learners to understand the functional value of grammar in real life situations.
				ONE-ACT PLAYS	<ul style="list-style-type: none"> Apply critical approaches and theoretical frameworks to read and analyze texts, and performances both in writing and orally. Develop and demonstrate skills: acting, directing, playwriting. Develop mastery in speaking in English language spontaneously.

				POETRY	<ul style="list-style-type: none"> Acquaint students with various aspects of the genre of poetry: diction, tone, form and structure, poetic rhythm imagery, figures of speech, symbolism, theme et cetera. Identify a variety of forms and genres of poetry from diverse cultures and historic periods such as Haiku, Tanka, Sonnets, Ballads, Dramatic Monologues, Free Verse, Odes, Elegy et cetera. Develop a deeper appreciation of cultural diversity by introducing them to poetry from a variety of cultures throughout the world. Develop their own creativity; enhance their poetry writing skills.
				SHORT-STORIES	<ul style="list-style-type: none"> Acquaint students with the genre of short story and its various elements such as setting, characterization, plot, narration, tone, conflict, point of view. Recognize the didactic issues underlying the author's work—insights into the principles that govern human life and behavior. To flourish their craft of short story writing.
				NOVEL	<ul style="list-style-type: none"> Students should be able to identify, analyze, interpret and describe the critical ideas, values, and themes that appear in novels and understand the way these ideas, values, and themes inform and impact culture and society, both now and in the past. Identify and analyse psychological or sociological concerns raised by the novels under consideration.
				ESSAYS	<ul style="list-style-type: none"> Develop among them the craft of essay writing. Cultivate adeptness with disciplinary norms, the ability to construct interpretive arguments in essay form.
				PROSE	<ul style="list-style-type: none"> Familiarise students with different skills and techniques that goes in prose writing, and develop interest in prose reading. Stimulate the imaginative mind of students and develop their love for creative self-expression. Acquaint the students with various prose styles delineated by English prose writers.

ENGLISH-LITERATURE

PROGRAM	SEMESTER	COURSE TITLE	COURSE CODE	UNIT	COURSE OUTCOME
BA with ENGLISH LITERATURE as a Subject	I TO VI	ENGLISH-LITERATURE-I	UELTC-101	INTRODUCTION TO LITERARY TERMS	<ul style="list-style-type: none"> Introduce the students to the world of literary devices/poetic devices. Highlight the importance of literary devices vis-à-vis the history of English literature.
				HISTORY OF ENGLISH LITERATURE: (476 BCE – PRESENT)	<ul style="list-style-type: none"> Develops an inclusive insight of future by delving into the past. Acquaints students with various literary, intellectual, political, and social movements which contributed towards evolution of English literature. Students will be able to trace the trajectory of writings by Classical to modern writers.
				WRITINGS OF GEOFFREY CHAUCER – T.S. ELIOT	<ul style="list-style-type: none"> Familiarize students with English literature in general and contribution of English writers, particularly in the light of texts prescribed in the syllabus. Students are sensitized towards reading and critically analyzing selected texts as social, historical, and cultural documents.
				SONNETS	<ul style="list-style-type: none"> Acquaint students with sonnet form, and its historical and literary background. Understand the distinguishing characteristics of Italian and English Sonnets. Students will learn to play with the words, phrases, themes with an aim to initiate the literary and aesthetic development in them.
				DRAMA	<ul style="list-style-type: none"> Display a working knowledge of historic, socio-political, and dramatic trends in plays by the most important playwrights from differing time periods. Apply critical approaches and theoretical frameworks to read, describe, interpret, and analyze texts, and performances both in writing and orally. Develop and demonstrate skills: acting, directing, playwriting. Develop mastery in speaking in English language spontaneously.
				MODERN NOVEL	<ul style="list-style-type: none"> Identify, analyze, interpret, and describe the critical ideas, values and themes that appear in the literary and cultural texts. Engage students in the development of intellectual flexibility, creativity, and cultural literacy so that they may engage in lifelong learning. Introduce students to the genre of Novel and its various sub-genres viz. Allegory, Fable, Satire, Dystopian et cetera.
				SHORT-STORY	<ul style="list-style-type: none"> Acquaint the students to the genre of Short-stories in general and the modern short-stories in particular. Effective communication of ideas related to the literary genre of the short story during the group discussions and activities.

ENGLISH (COMMUNICATION SKILLS)

PROGRAM	SEMESTER	COURSE TITLE	COURSE CODE	UNIT	COURSE OUTCOME
BA/BSc/BCA/BCOM with COMMUNICATION SKILLS as a Subject	I & II	COMMUNICATION-ENGLISH-I	UENTS-101 & 102	LISTENING SKILLS	<ul style="list-style-type: none"> Identify the differences between intensive and extensive listening. Identify and recognize signal words, cues, transitions, objective statements, subjective statements. Employ inductive and deductive reasoning to make inferences, and evaluate information critically. Summarize a lecture by organising notes, predict the content and related questions. Acquaint students with avoidable barriers to effective listening.
				SPEAKING SKILLS	<ul style="list-style-type: none"> Improve students' speaking ability in English in terms of both fluency and comprehensibility. Perceive and generate syllable stress, word stress; employ the rules and patterns of intonation. Participate in discussions with an aim to educate the students about oral communication skills such as fluency, idea sequencing, accuracy, vocabulary and pronunciation. Demonstrate the ability to ask and answer questions, and ask for clarifications.
				READING SKILLS	<ul style="list-style-type: none"> Improve their ability to read, comprehend and retain word/s in everyday life through the study of basic reading skills: skimming, scanning, thorough reading etc, and comprehension skills: main idea, major and minor details, organisational pattern. Employ write-to-learn strategies—outlining, paraphrasing, mapping, summarising, synthesising—to improve comprehension.
				WRITING SKILLS	<ul style="list-style-type: none"> Critically analyse the complex texts to enhance vocabulary, write coherent sentences, write meaningful paragraphs, write engaging essays free of grammatical errors. Learn and practice various writing formats to understand and communicate ideas and thoughts to specific audience. Strengthen students' ability to write well-researched and well-reasoned academic papers using the writing process approaches.

ENGLISH (SKILL ENHANCEMENT COURSE)

PROGRAM	SEMESTER	COURSE TITLE	COURSE CODE	UNIT	COURSE OUTCOME
BA/BSc WITH SKILL ENHANCEMENT COURSE (SEC) AS A SUBJECT	III	ENGLISH LANGUAGE TEACHING (ELT)	UENTS-304	HISTORY OF ENGLISH LANGUAGE TEACHING IN INDIA	<ol style="list-style-type: none"> To help students to have a comprehensive knowledge of the history of ELT in India. To understand the importance and relevance of English Language Teaching in the age of globalization.
				ENGLISH TEACHING METHODS	<ol style="list-style-type: none"> To familiarize students with an historical account of the place of English in India. To acquaint students about the position of English in the post – independence period.
				APPROACHES TO ENGLISH LANGUAGE TEACHING	<ol style="list-style-type: none"> To make students familiar of methodologies in teaching English for specific purposes and language teaching approaches application in instruction process. Able to interpret/understand instructions and polite forms of expression and respond meaningfully both orally and in writing.
				ENGLISH IN EVERYDAY COMMUNICATION	<ol style="list-style-type: none"> To help students to acquire practical knowledge/command of English language. To develop communicative competence in English language.

ENVIRONMENTAL SCIENCE

MISSION

- To equip the learners with knowledge and understanding of the physical, chemical and biological processes of the environment.
- To expose the learners with theoretical principles involved in air, water and soil pollution and monitoring systems.
- To emphasize the principles and practices involved in sustainable natural resources management and environmental management.
- To impart knowledge and understanding in impact assessment, environmental audit and laws.

PROGRAM EDUCATION OBJECTIVES (PEOs):

- Investigate the complexities of the natural environment and our relationship with it.
- Explore the problems we face in understanding our natural environment and in living sustainability.
- Develop scientific, interpretive and creative thinking skills.
- Learn to apply quantitative analysis and field research techniques.
- Use computer-based geographical information systems to study environmental change.

PROGRAM SPECIFIC OUTCOMES (PSOs):

1. B.Sc. Environmental Science student are able to acquire knowledge, competent professionals with a strong foundation of Environmental Science and application to be suitable for vital positions in the academia, industry and government and non-government institutions as skilled manpower.
2. The learners will be able to become effective scientific communicators/collaborators in multidisciplinary teams providing technical leadership to engage with the challenging environmental problems of local, national and global nature.
3. They can opt for higher studies in plant and animal sciences as the environmental science is multidisciplinary in nature.

POs for UG programs (Environmental Science)

Program Outcomes (POs)	<p>Critical Thinking- Students will demonstrate an understand major concepts of Environment in association with multidisciplinary subjects such as physics, chemistry and mathematics etc. Understood the basic concepts, fundamental principles, and the scientific theories related to various scientific phenomena and their relevance in the day to day life.</p> <p>Effective Communication- Development of various communication skills such as reading, listening, speaking, etc., which we will help in expressing ideas and views clearly and effectively.</p> <p>Social Interaction- Development of scientific outlook not only with respect to science subjects but also in all aspects related to life.</p> <p>Effective Citizenship- Imbibe moral and social values in personal and social life leading to highly cultured and civilized personality.</p> <p>Ethics- Follow the ethical principles and responsibilities to serve the society.</p> <p>Environment and Sustainability- Understand the issues of environmental contexts and sustainable development.</p> <p>Self-directed and Lifelong learning- Students will be capable of self-paced and self- directed learning aimed at personal development and for improving knowledge/skill development.</p>
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DEPARTMENT OF GEOGRAPHY

Learning Outcomes for Courses of Bachelor Degree Program under CBCS in Geography

Semester	Course No	Title	Credits	Nature of Course	Learning Outcome
1 st	UGOTC-101	Physical Geography-I	4	Theory Core	<ol style="list-style-type: none"> 5. To understand the formation of Landforms like Fluvial, Glacial, Aeolian, Karst, etc. 6. To understand the process of formation of earth and other planets. 7. To understand the endogenic and Exogenic processes that changes the earth surface. 8. To understand the process effects and management of Earthquakes, Volcanoes, Landslide, Avalanches etc.
1 st	UGOPC-102	Cartography-I	2	Practical Core	<ol style="list-style-type: none"> 4. To get the basic understanding of map making, its need and importance. 5. To understand the methods of representation of various relief features on map like V-shaped valleys, U-shaped valleys, conical hills, plateaus and different types of slopes.
2 nd	UGOTC-201	Regional Geography of Jammu, Kashmir and Ladakh	4	Theory Core	<ol style="list-style-type: none"> 6. To get familiar with Geography of Jammu, Kashmir and Ladakh in relation to its Physical, Socio-economic and cultural setting. 7. To know about the climate, Agriculture and Horticulture of Jammu, Kashmir and Ladakh.
2 nd	UGOPC-202	Cartography-II	2	Practical Core	<ol style="list-style-type: none"> 3. To understand the Cartographic symbols, diagrams and their representation on maps with different techniques. 4. To get understanding of the representation of data with help Climograph, Hythergraph, Age-Sex pyramid and Flow diagrams.
3 rd	UGOTC-301	Physical Geography-II	4	Theory Core	<ol style="list-style-type: none"> 3. To get better understanding of atmospheric conditions and, temperature, insolation and rainfall changes with time and space. 4. To understand the chemical, physical, geological and biological processes which act on the ocean's surface and to recognize the submarine forms, the seawater composition and properties.
3 rd	UGOPC-302	Map Projections-I	2	Practical Core	<ol style="list-style-type: none"> 4. To get basic understanding of Map Projection, its classification and importance. 5. To get the idea of construction, properties, merits and uses of different types of map projection like Cylindrical, Mercator, Conical, and Bonne's Projection.
3 rd	UGOPS-303	Cartography	4	Skill	<ol style="list-style-type: none"> 3. To understand the process of map making. 4. To get knowledge about cartographic symbols, scale and lines on the maps 5. To know the types of maps and there uses in different fields.

4 th	UGOTC-401	Geography of India	4	Theory Core	<ol style="list-style-type: none"> 4. To get familiar with Geography of India in relation to its Physical, Socio-economic and cultural setting. 5. To know about the climate, Agriculture and Soils of India. 6. To know about the population (Density, Sex ratio, migration, birth rate and death rate) of India. 7. To know about the industries in India there problems and prospects.
4 th	UGOPC-402	Map Projections II	2	Practical Core	<ol style="list-style-type: none"> 4. To know the construction of Zenithal Equal Area, Equidistant, and Sinusoidal Map Projection. 5. To get the basic understanding of Plain Table Survey and of its methods like Radiation and Intersection methods.
4 th	UGOPS-403	Planning for Regional Development	4	Skill	<ol style="list-style-type: none"> 3. Understand the concept and characteristics of regional planning. 4. Understand the history of regional planning and management 5. Knowledge of concept of planning and basics of planning for backward areas.
5 th	UGOTC-501	Human Geography	4	Theory Core	<ol style="list-style-type: none"> 4. To understand the nature, scope, approaches and paradigm shifts in human geography. 5. To understand population dynamics, migration, urbanization and settlement patterns. 6. To get idea of Regional Planning and contemporary environmental issues for sustainable development
5 th	UGOPC-502	Statistical Techniques	2	Practical Core	<ol style="list-style-type: none"> 3. To get basic understanding of Statistical and Quantitative Techniques in Geography. 4. To get familiar with measures of central tendency, dispersion and deviation.
5 th	UGOPS-503	Geography of Tourism	4	Skill	<ol style="list-style-type: none"> 4. Understanding of Tourism its nature and scope. 5. Types of tourism and there parameters. 6. Understanding of impact of tourism on economy, environment and society with special reference to Jammu and Kashmir
5 th	UGOPS-504	Physical Geography	4	Generic	<ol style="list-style-type: none"> 1. To understand the process of formation of earth and other planets. 2. To understand the process effects and management of Earthquakes, Volcanoes, Landslide, Avalanches etc.
6 th	UGOTC-601	Geography of Asia	4	Theory Core	<ol style="list-style-type: none"> 5. To get familiar with Geography of Asia in relation to its Physical, Socio-economic and cultural setting. 6. To get idea about the regional organizations like ASEAN, SAARC, SAFTA and OPEC 7. Understanding the industries, population, transport and their problems and prospects of Asia.
6 th	UGOPC-602	Advance Quantitative Techniques & Survey	2	Practical Core	<ol style="list-style-type: none"> 3. To understand the methods of correlation by Karl Pearson and Spearman. 4. To understand the methods of Prismatic Compass Survey – Open and Close Traverse
6 th	UGOPS-603	Disaster Management	4	Skill	<ol style="list-style-type: none"> 3. Understanding of disasters their types and nature. 4. Understanding of hazards, risk and consequences of disasters. 5. History of disasters in India and Jammu and Kashmir. 6. Understanding of response and mitigation to disasters. 7. Understanding of Do's and Don'ts during disasters.
6 th	UGOPS-605	Human Geography	4	Generic	<ol style="list-style-type: none"> 1. To understand the demographic features of state, country etc. 2. To know about patten and types of settlements and their related issues. 3. To understand various types of human activities 4. Nature and various types of resources and their efficient management. 5. Various types of means of transport.

DEPARTMENT OF HINDI

Courses Offered For Different Semesters, For Under Graduate level :

- General Hindi as a compulsory subject in BA.
- HINDI Literature as a Core subject from 1st to 6th semester.
- HINDI Communication skills for the First two Semesters.

Aims & Objectives / Programme Specific Outcomes of Economics:

- To develop the basic language skills of listening, speaking, reading and writing among the students.
- To make students understand the different grammatical structures of HINDI language.
- To inculcate in students imaginative and creative use of HINDI (National Language).
- To expose students to different world literatures and develop their understanding and appreciation of these literatures.

HISTORY

Programme: BA

Subject: History

Program Specific Outcomes

The course of History is having immense scope and significance individually and collectively. It has grown over the years as a course which students choose for academic progression like attaining graduation, post-graduation and doctorate degrees. The course even encompasses political, social, economic and cultural needs of a nation in particular and world in general. It helps in generating nationalist spirit thereby, strengthening the roots of a nation. The course helps in understanding social and economic dynamics of a nation. It fosters among the learners the respect for the cultural heritage of a nation and therefore plays a vital role in national integration. The course makes learners to understand their self. The learners by drawing inferences from the past not only understand present better but also turn out to be good citizens.

The course has ample market ability it has become over the years preferred choice for majority of the civil service aspirants. The course has become major attraction even for majority of non-civil service aspirants because in most competitive exams, most questions are asked from the subject. The University of Kashmir in the recent past rising to the demand for the subject started an evening shift, besides running its usual shift, the first of its kind in the entire university campus. The proportion of the learners of the course at undergraduate level itself reflects the demand of the course.

Course Outcomes

Semester 1st

- To enable learners to have understanding of their pre-historic and historic past.
- To understand the different phases through which human history travelled.
- To acquaint the learners about the state formation in India and developments over period of time.
- To acquaint the learners about the political, social and economic and cultural; changes in ancient India.
- To enable learners to have understanding of the ancient regional history of Kashmir.

Semester 2nd

- To enable learners to have understanding of medieval India and Medieval al Kashmir.
- To acquaint learners about the political, social, cultural and economic history of Medieval India and Kashmir,
- To develop among the learners a critical and analytical ability of revealing at past.
- To acquaint them about the rich cultural heritage of the past.

Semester 3rd

- To enable learners to know how India was colonized by Britain.
- To acquaint them about the rise of nationalism and the course of struggle for freedom.
- To enable learners to know and remember that Indian nation was formed due to a long endeavors and sacrifices of many.
- To inculcate among learners patriotic spirit.
- To enable learners to know the transition of state of Jammu and Kashmir to democracy.
- To enable learners to know how modern state of Jammu and Kashmir came into existence.

Semester 4th

- The course is thematic encompassing social and economic history of India from ancient to modern period.
- To enable learners to understand the phases through which Indian society and economy has evolved.
- To enable learners to understand how social and economic structures determine the political structure as well
- To acquaint them about the transitions from pre modern economy to modern capitalist economy.

Semester 5th

- To acquaint learners about the major progressive movements in world history.
- To enable learners to understand the nature , cause and consequences of major world revolutions.
- To enable learners to draw information from the major historical events so as to inculcate moral and ethical values among them
- To acquaint learners about how many of the events of the past are even influencing our present

Semester 6th

- To enable learners to know the problems that the independent India grappled with.
- To enable learners to understand how India emerged as a democratic-republic country.
- To acquaint learners about the growth and development in Indian economy.

ISLAMIC STUDIES

Department of Islamic Studies

Subject Outcome

Islamic Studies as a Social Science subject strives to achieve the following objectives:

- To provide students a comprehensive and accurate perspective about Islam and Muslims
- to provide students a sound knowledge of Islam (as a religion, civilization, culture, and ideology) and Islamic literature
- To acquaint students with the social, political, intellectual, scientific, and cultural dimensions of Islam in a bid to revive its relevance in present times
- To prepare students religiously, spiritually, and morally
- To inculcate a spirit of universal brotherhood, religious tolerance, and amiable relations with major world religions, among students
- To acquaint the students with the discourses related to Ethics, Human Right, Rationalism and Philosophy, Sufism and Spirituality
- To instill the spirit of tolerance and patience among its students in order to promote communal harmony and mutual understanding in a pluralistic society.

Department of Islamic Studies
List of the Course Taught during 2021 Academic Session

S. No.	Course Title	Semester
1	Introduction to Islamic Civilization	1st Sem.
2	Islamic Religious Sciences	2nd Sem.
3	Muslim Philosophy and Tasawwuf	3rd Sem.
4	Islam in the Modern World	4th Sem.
5	Islamic Civilization under the Abbasids and Muslim Spain	5th Sem.
6	Islamic Social Sciences	6th Sem
7	Ethics in Islam	3rd Sem. (Skill)
8	Human Rights In Islam	6TH Sem. (Generic)
9	Muslim Education Under Abbasids	5th Sem. (Generic)
10	Islam and Women	6th Sem. (Skill)

Department of Islamic Studies
Course Outcomes

Program	Semester	Course Name	Course Code	Unit	Course Outcomes
B. A. with <i>Islamic Studies</i> as a subject	I	Introduction To Islamic Civilization	UISTE-101	Jahiliyah Arabia	<ol style="list-style-type: none"> To Understand the socio-religious and politico-economic conditions of Pre-Prophetic period of Arabia To know the overall scenario of 7th century Arabian Peninsula
				Islam in Focus	<ol style="list-style-type: none"> To learn the basics of Islam as a Faith/ Religion To understand the revelation, compilation, structure, and major teachings of the Qur'an—the basis of Islam
				The Prophet (PBUH) and His Times	<ol style="list-style-type: none"> To learn about different phases of Prophet's Blessed Life To learn about the major events of his life (PBUH) and their impact on, and relevance in, the present times To understand the different methodologies and strategies adopted by the Prophet (PBUH) for creating a welfare society
				The Pious Caliphate and Banu Ummayya (632-750 CE)	<ol style="list-style-type: none"> To understand how the 'Islamic Civilization', established by the Prophet (PBUH), was carried on successfully by later generations of Muslims To study the intellectual, scientific, administrative, cultural and artistic developments during these periods.

Program	Semester	Course Name	Course Code	Unit	Course Outcomes
B. A. with <i>Islamic Studies</i> as a subject	II	Islamic Religious Sciences	UISTE-201	'Ulūm al-Qur'an	<ol style="list-style-type: none"> To Understand the different subjects of Qur'anic sciences To comprehend science of interpretation and explanation of the Qur'an; its origin and development; and some important exegetes and their exegesis
				Ḥadīth	<ol style="list-style-type: none"> To understand the science of Ḥadīth (Saying and Doings of the Prophet (PBUH)), and its place and importance; To know about the different stages of Ḥadīth compilation and classification of Ḥadīth, and to learn about the salient features of some authentic works on Ḥadīth
				Fiqh	<ol style="list-style-type: none"> To learn about the meaning and importance as well as sources of Jurisprudence To know about the basic concepts related to Jurisprudence, like <i>Ijma</i>, <i>Ijtihad</i>, etc.
				Important Schools of Fiqh: An Introduction	<ol style="list-style-type: none"> To know the emergence and development of different schools of thought, and their impact on different Muslim societies, past and present

Program	Semester	Course Name	Course Code	Unit	Course Outcomes
B. A. with <i>Islamic Studies</i> as a subject	III	Muslim Philosophy and Tasawwuf	UISTE-301	Ilm al-Kalam	<ol style="list-style-type: none"> To Understand the concept of Rationality in Islam To know about the genesis of different rational schools of thought in Islam, and their basic beliefs/ teachings
				Muslim Philosophy	<ol style="list-style-type: none"> To learn about the contribution of various prominent Muslim philosophers of Medieval era and their impact on later Philosophical thought.
				Tasawwuf: Origin and Development	<ol style="list-style-type: none"> To learn about genesis of Sufism and different phases of its development To learn about the life, legacy, and teachings of various prominent Sufis of classical era
				Sufis of Later Period and Sufi Silsilas	<ol style="list-style-type: none"> To learn about the life, legacy, and teachings of various prominent Sufis of medieval and modern eras, both in Arab world and South Asia To understand the emergence of some major/ influential Sufi orders and their principles.

Program	Semester	Course Name	Course Code	Unit	Course Outcomes
B. A. with <i>Islamic Studies</i> as a subject	IV	Islam in the Modern World (West & South Asia)	UISTC-401	Arabia & Turkey	<ol style="list-style-type: none"> To study Islam vis-à-vis Modernity/ Westernization To aware students with the intellectual awakening of the Muslim world by discussing Thought & Reform Movements (of Arab World) from 18th Century onwards: Wahabiya; Sanusiyyah; Ikhwan al-Muslimun To learn about the spread of Colonialism in Muslim world and the Muslim Response to it, in Turkey, Iran, etc.
				Iran	<ol style="list-style-type: none"> To aware students with the intellectual awakening of the Iranians by discussing the developments that took place in Iran from 16th century to 20th century—including cultural, intellectual, and political
				India	<ol style="list-style-type: none"> To acquaint students with developments during 18th to 20th century Sub-Continent To acquaint students with different educational institutions that emerged as a response to modernity: Darul 'Ulum Deoband; Nadwat-ul 'Ulama; Aligarh Muslim University; and Jamia Milia Islamia
				Modern Reformist Thinkers and their Role	<ol style="list-style-type: none"> To acquaint students with life, works, thought, legacy/ contribution & impact of prominent thinkers: Jamal al-Din Afghani; Mawlana Ilyas; Abul Kalam Azad; Allama Iqbal; Mawlana Mawdudi. To highlight the reformist legacy of Muslim thinkers of colonial and post-colonial era of Sub-Continent

Program	Semester	Course Name	Course Code	Unit	Course Outcomes
B. A. with <i>Islamiyat</i> as a subject	V	Islamic Civilization under the <i>Umayyad & Abbasid</i> Spain	UISTC-30 UISTE-603	Polity in Islam Rise of Abbasids	<ol style="list-style-type: none"> To study political conditions of the Umayyad To study concept of Islamic political thought, To learn the development of Abbasids and their Establishment of the caliphate with its nature and structure and military administration. the contribution of Imam Abu Ali and the role of Caliph al-Mansur.
				Economy in Islam	<ol style="list-style-type: none"> To Study The Principles Of Economics In Islamic Perspective about the social conditions To study the concept of Property rights in Education and development to know the nature of production with
				Social Life	<ol style="list-style-type: none"> To gain insight into the comprehensive life of Islam and the development of the period and the advancement in science and technology
				Economics and History	<ol style="list-style-type: none"> To acquaint students with the circumstances that led to the principles of Muslim rule in Spain and the contribution of Dr Ausaf Ali and the role of Caliph al-Mansur.
				Islam in Spain	<ol style="list-style-type: none"> To study the role of Islam in the administration of Muslim Spain with special focus on some prominent Caliphs of the period and
				Sociology and Psychology	<ol style="list-style-type: none"> To study how Islam deals with the concepts of sociology and psychology To study the Islamic society in Islamic perspective
				Cultural Developments in Muslim Spain	<ol style="list-style-type: none"> To acquaint students with the cultural developments during the Muslim rule in Spain To study the main features of Hispano-Arab society To highlight the contribution of Muslims in the fields of Art, Architecture, history, geography, philosophy, science and technology

Program	Semester	Course Name	Course Code	Unit	Course Outcomes
B. A. with <i>Islamic Studies</i> as a subject	III (Skill Course)	Ethics in Islam	UISTE-201	Ethics: Meaning and Importance	<ol style="list-style-type: none"> To acquaint students with Ethico-Moral aspects of Religion To understand meaning and significance of Ethics with reference to Qur'anic Text
				Islamic Ethical Philosophy	<ol style="list-style-type: none"> To acquaint students with Religion-Ethics relationship To acquaint them with the Ethico-Moral concepts, values, teachings, models, and guidelines
				Doctrines and Implications of Islamic Ethics	<ol style="list-style-type: none"> To aware students with Ethical doctrines and domains, like moderation, and to learn about ethical significance of Pillars of Islam To highlight the ethical significance and practical efficacy of social duties
				Domains of Islamic Ethics	<ol style="list-style-type: none"> To understand, and to highlight the implications of Ethics-in-practice (in the socio-politico-economic domains of life)

Program	Semester	Course Name	Course Code	Unit	Course Outcomes
B. A. with <i>Islamic Studies</i> as a subject	IV (Skill Course)	Human Rights in Islam	UISTE-401	Human Rights: Islamic Concept	<ol style="list-style-type: none"> To Acquaint Students with genesis and Islamic approach to Human Rights To highlight the significance of Constitution of Madina as a <i>modus operandi</i> of Human Rights-in-Application
				Human Rights: Western Concept	<ol style="list-style-type: none"> To acquaint students with genesis and development of the concept of Human Rights in the West To learn about the HR-in-application in West, with special reference to Universal Declaration of HR (1948)
				Human Rights in Islam—I	<ol style="list-style-type: none"> To acquaint students with the Islamic approach to different basic Rights; Right to: Life, Religion, Property, Protection of Honour To highlight the significance of Basic Rights and the stress Islam/ Islamic Sources lay on them
				Human Rights in Islam—II	<ol style="list-style-type: none"> To acquaint students with the Islamic approach to different Fundamental Rights; Right to: Expression, Privacy, Equality before Law; To highlight the Islamic approach to Rights given to Non-Muslims

Program	Semester	Course Name	Course Code	Unit	Course Outcomes
B. A. with <i>Islamic Studies</i> as a subject	V (Skill Course)	Introduction to Islamic Finance and Banking	UISTE-602	Basics of Islamic and Conventional Finance	<ol style="list-style-type: none"> To Acquaint Students with techniques of economic development with an introduction to the principles and structure of Islamic and Conventional banking and finance institutions To understand the concept of wealth in Islamic perspective To study the principles of materialistic approaches to economy with special reference to socialist and capitalist economies.
				Business Ethics in Islam	<ol style="list-style-type: none"> To acquaint students with the concept of Business Ethics in Islam including ethics of Human resource, production and marketing. To study the concepts of Riba, Gharar, Maysir and the reasons why Islam recommends to avoid such practices
				Banking In Islam	<ol style="list-style-type: none"> To Understand the concept of conventional banking visa-e-vise Islamic Banking To study the principles of Interest Free Banking and modes of Islamic finance
				Development of Islamic Banking	<ol style="list-style-type: none"> To acquaint students with the development of Islamic banking in the World To study the contribution and working of Islamic banks with special reference to Islamic Development Bank, Saudi Arabia, Banki Islami, Malaysia, and Islamic Invest Bank Pakistan

Program	Semester	Course Name	Course Code	Unit	Course Outcomes
B. A. with <i>Islamic Studies</i> as a subject	VI (Skill Course)	Islam and Women	UISTC-503	Women in other Religions and Cultures	<ol style="list-style-type: none"> To Acquaint Students with role of women in the society and how she is treated in different societies of the world. To study status of women in world religions especially in Hinduism and Christianity To study the women in modern western civilization
				Women in Islam	<ol style="list-style-type: none"> To acquaint students with the status of woman in Islam and her role in the society. To study the nature and role of a woman in Islamic religious text visa-e-vise in the Muslims societies from classical to present.
				Economic Issues	<ol style="list-style-type: none"> To study the economic issues faced by women and Islamic treatment to solve these issues To study how Islam gives a woman a right to own property, enjoy and spent on her will To study the nature and concept of Dower in Islam and its role to empower women economically
				Socio-Political Issues and Feminism	<ol style="list-style-type: none"> To study the concept of feminism and its objectives To study socio-political issues of women such as Polygyny and their political leadership. To highlight the role of Maryam Jameela and Zeenat Kausar as a response to Modern feminist movements.

Department of Mathematics

Govt.Degree (PG) College Bhaderwah

Programme Name : BA/BSc/BCA Mathematics

Programme Outcomes , Programme Specific Outcomes

and Course Outcomes

Programme outcomes (PO'S) : Programme outcomes describe what students are expected to know or be able to know by the time of Under graduation.

On completion of this programme student will be able to :

PO1: Basic Mathematical Knowledge for Higher Education and Research

The whole programme is designed in a way and various branches of Mathematics are so selected aiming at mathematical reasoning , sophistication in thing and acquaintance with number of subjects including application oriented ones to suit the present needs of various in allied branches as well as provision of opportunities to pursue research in higher mathematics.

PO2: Pure Analysis

The student shall get an insight in the behavior of curves defined on a closed and bounded interval and some important properties of continuous, monotonic , and differentiable functions.

PO3: Modern Algebra

The students shall appreciate the necessity of various of various algebraic structures with binary operations such as Group , Ring , Field that lead to new ideas in Algebra for their future research in advanced topics of Algebra.

PO4: Analytical and Logical thinking

The student will be able to develop logical reasoning techniques and techniques for analysing the situations.

PO5: Practical Application in Various Science branches and other subjects

The student shall be able to apply the knowledge acquired in Mathematics in Science , technology as well as research and its extensions.

Programme Specific Outcomes (PSO'S) :

PSO1: To develop abstract mathematical thinking and approach in students

PSO2: Understanding of the fundamental axioms in Mathematics and capability of developing ideas based on them.

PSO3: Enabling students to develop a positive attitude towards Mathematics as an interesting and valuable subject of study.

PSO4: Students should be able to apply their skills and knowledge i.e. translate information presented verbally into mathematical form.

PSO5: Student is up-to-date with new mathematical standards and formulations both globally and locally.

List of Courses Semester wise :

S.No.	Course Title (Code)	Nature of course	Semester
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01	Differential Calculus (UMTTC101)	Core course	Sem I
02	Differential Equations(UMTTC201)	Core course	Sem II
03	Real Analysis (UMTTC301)	Core course	Sem III
04	Algebra (UMTTC401)	Core course	Sem IV
05	Matrices(UMTTE501)	DSE	Sem V(BCA)
06	Numerical Methods(UMTTE601)	DSE	Sem VI(BCA)

*DSE: Discipline Specific Elective

Course Outcomes :

Course Title : Differential Calculus

Course Code : UMTTC101

Course learning outcomes : Upon successful completion of UMTTC 101 –Differential calculus , a student will be able to:

- CO1: Determine the continuity and differentiability of a function at a point and on a set.
- CO2: Use differentiability to determine rates of change of quantities and to determine the slope of the tangent to a curve at a given point.
- CO3: Successively differentiate functions.
- CO4: Determine limit and continuity of function of several variables.
- CO5: Determine partial derivatives of functions.
- CO6: Determine maxima and minima of functions
- CO7: Analyse the concavity and convexity of the curves.
- CO8: Find Asymptotes, Envelopes , singular points , double points and curvature of given curves.
- CO9: Trace curves using idea of asymptotes, monotonocity,maxima and minima etc.
- CO10: Analyse Graphing techniques in polar coordinates and General theorems.

Course Title : Differential Equations

Course Code : UMTTC201

Course learning outcomes :

Upon successful completion of UMTTC 201 –Differential Equations , a student will be able to:

- CO1: Solve problems in ordinary differential equations .
- CO2: Demonstrate their ability to write coherent mathematical proofs .
- CO3: Analyse basic theory of linear differential equations ,wronskian and its properties.
- CO4: Solve Linear Homogeneous differential equations with constant coefficients.
- CO5: Solve Equations of first order and higher degrees.
- CO6: Formulate Partial differential equations.
- CO7: Solve linear and non-linear partial differential equations.
- CO8: Solve homogeneous and non homogeneous linear partial differential equations of second and third order with constant coefficients .

Course Title : Real Analysis

Course Code : UMTTC301

Course learning outcomes :

Upon successful completion of UMTTC 301 –Real Analysis , a student will be able to:

- CO1: Compare infinite sets using the concepts of countability.
- CO2: Describe the real line as a complete ordered field.
- CO3: Produce rigorous proofs of results that arise in real analysis.
- CO4: Determine the basic topological properties of subsets of the real numbers.
- CO5: Recognize the difference between pointwise and uniform convergence of a sequence of functions`
- CO6: Determine the uniform continuity of a function on a given interval.
- CO7: Study the behavior of sequences using concepts of convergence,divergence, boundedness etc.
- CO8: Determine the convergence and divergence of infinite series.
- CO9: Illustrate the convergence properties of power series.

Course Title : Algebra

Course Code : UMTTC401

Course learning outcomes :

Upon successful completion of UMTTC 401 – Abstract , a student will be able to:

- CO1: Assess properties implied by the definitions of groups and rings.
- CO2: Analyze and demonstrate examples of subgroups, normal subgroups and quotient groups.
- CO3: Use the concepts of isomorphism and homomorphismfor groups and rings.
- CO4: Use various canonical types of groups (including cyclic groups and groups of permutations).
- CO5: Study Dihedral groups and symmetric groups.
- CO6: Produce rigorous proofs of propositions arising in the context of abstract algebra.

Course Title : Matrices

Course Code : UMTTE501

Course learning outcomes :

Upon successful completion of UMTTE 501 – Matrices , a student will be able to:

- CO1: Perform the matrix operations of addition, multiplication and transposition and express a system of simultaneous linear equations in matrix form.
- CO2: Determine the rank of a matrix and echelon form of a matrix.
- CO3: Solve homogeneous and non homogeneous linear equations using matrix method.
- CO4: Find Eigen values and eigen vectors of the matrix.
- CO5: Reduce the matrix to a normal form.

Course Title : Numerical Methods

Course Code : UMTTE601

Course learning outcomes :

Upon successful completion of UMTE 601 – Numerical Methods , a student will be able to:

- CO1: Derive numerical methods for approximating the solution of problems .
- CO2: Analyze the error incumbent in any such numerical approximation.
- CO3: Compare the viability of different approaches to the numerical solution of problems arising in roots of solution of non linear equations, interpolation and approximation, numerical differentiation and integration, solution of linear systems`

Department of Physics

Subject Outcome

Physics is one of the most fundamental scientific disciplines, with its main goal being to understand how all the phenomenon in the universe behave. The objectives of teaching subject Physics to the students are as under:

- To provide students with a broad understanding of the physical principles various phenomenon.
- To inculcate the concepts of spirituality in the minds of students. This is because all the phenomenon in physics are related to nature and the curiosity of understanding the nature leads to spirituality.
- To help them develop critical thinking and qualitative reasoning skills.
- To empower them to think creatively and critically about scientific problems and experiments.
- To provide training to students, planning careers in Physics and in the physical sciences broadly defined.
- To motivate and inspire the students to pursue research in Physics, join various organisations like BARC, ISRO, DRDO, NASA etc and to join various allied industrial sectors.

Department of Physics

List of the Course Taught during 2020-21 Academic Session

S.No	Semester	Course Title	Course code	credits
1	Ist	Mechanics, Oscillation and Relativity	UPHTC-101	4
2	Ist	Practical	UPHPC-102	2
3	2nd	Vector Calculus, Electrostatics and Electromagnetic Waves	UPHTC-201	4
4	2nd	Practical	UPHPC-202	2
5	3rd	Electronics, Thermodynamics and Statistical Mechanics	UPHTC-301	4
6	3rd	Practical	UPHPC-302	2
7	3rd	Physics workshop skill	UPHSE-303	4
8	4th	Waves and Optics	UPHTC-401	4
9	4th	Practical	UPHPC-402	2
10	4th	Renewable energy and energy Harvesting	UPHSE-403	4
11	5th	Modern Physics	UPYTE-501	4
12	5th	Practical	UPYPE-502	2
13	5 th	Basic Instrumentation skills	UPYTS-503	4
14	6th	Solid State Physics, Quantum Optics and Electronics	UPYTE-601	4
15	6th	Practical	UPYPE-602	2
16	6th	Weather Forecasting	UPYTS-603	4

Department of Physics

Course Learning Outcomes

S.No	Course title	Unit	Learning Outcomes
1	Mechanics, Oscillation and Relativity	Mechanics I	<ul style="list-style-type: none"> • Understand the different co-ordinate systems. • Understand the motion of objects in different frame of references. • Understand the dynamics of rotating objects, effect of centrifugal force and Coriolis force on such bodies.
		Mechanics II	<ul style="list-style-type: none"> • Understand and define the laws involved in mechanics. • Understand the idea of conservation of angular momentum and central forces. • Understand the application of central force to the stability of circular orbits, Kepler's law of planetary motion.
		Oscillation I	<ul style="list-style-type: none"> • Understand the energy of simple harmonic oscillator by

			<p>taking the examples of compound pendulum, Torsional Pendulum, etc and Ability to solve the different differential equations.</p> <ul style="list-style-type: none"> Understand the nature of damping force, damped simple harmonic oscillator, damping in physical systems with examples.
		Oscillation II	<ul style="list-style-type: none"> Understand the forced oscillator and its various behaviours such as transient and steady state behaviour. Understand the behaviour of velocity versus driving force frequency. Understand quality factor, sharpness of resonance and power dissipation.
		Theory of Relativity	<ul style="list-style-type: none"> Develop understanding of special theory of relativity and its applications to understand length contraction, time dilation, relativistic addition of velocities, conservation of momentum and variation of mass. To learn about the relativistic momentum, relativistic energy and mass energy equivalence relation.
2	Practical		<ul style="list-style-type: none"> A working knowledge of fundamental physics and basic mechanics principles. The ability to use modern physics techniques and tools, including mathematical techniques, graphs and laboratory instrumentation.
3	Vector Calculus, Electrostatics and electromagnetic waves	Vector Calculus	<ul style="list-style-type: none"> To understand the vector algebra and its operation with del operator like gradient, divergence and curl of vector and their physical significances. To understand the Gauss's divergence theorem, Stokes Theorem and their applications.
		Electrostatics	<ul style="list-style-type: none"> To learn about the basic concepts of electrostatics like Gauss's law in integral and differential form, Electric field, Electric potential. To understand electric quadrupole, electric field and electric potential due to electric quadrupole. To learn about dielectrics, its polarisation, atomic polarizability electric susceptibility and energy in dielectric medium.
		Electric current and Magnetostatics	<ul style="list-style-type: none"> To understand the current and current density, Ohm's law in microscopic form. To learn about the Ampere's circuit law, its modified form, Scalar and vector potentials and derivation of Biot-Savart's law from vector potential. To understand the basics of magnetostatics such as magnetic dipole, magnetisation vector, magnetic susceptibility and permeability.
		Time varying Field	<ul style="list-style-type: none"> Understand the concept of static and time varying fields. Gain knowledge of Electromagnetic induction and its applications. To learn about the Maxwell's equations and their interpretations, Poynting theorem and its differential form.
		Electromagnetic waves	<ul style="list-style-type: none"> Gain knowledge of electromagnetic waves and their properties. To gain knowledge of propagation of em waves in dielectric medium, reflection and transmission at normal and oblique incidence. To learn about the propagation of em waves in conductors, modified wave equation, skin depth and characteristics impedance.
4	Practical		<ul style="list-style-type: none"> Students would gain practical knowledge about electricity and magnetism and measurements

			<p>such as: Resistance, Voltage, Current etc.</p> <ul style="list-style-type: none"> • Ability to find the impedance of LCR ckt both in series and in parallel.
5	Electronics, Thermodynamics and Statistical Mechanics	Electronics I	<ul style="list-style-type: none"> • To understand the basics of electronics such as types of semiconductors, formation of pn junction and its applications as half wave and full wave rectifier. • To understand the breakdown of junction, Zener diode and its application as voltage regulator. • To learn about the Construction and working of LED, SOLAR cell, Schottky diode, photodiode and tunnel diode.
		Electronics II	<ul style="list-style-type: none"> • Understand the different configurations of BJT, Transistor Biasing with various amplification parameters. • To learn about the fabrications of monolithic ICs, Operational amplifier and its applications. • To gain knowledge of Operational amplifier and its applications.
		Thermodynamics I	<ul style="list-style-type: none"> • Understand the laws of thermodynamics, Carnot's theorem, Entropy, its additive nature and entropy change in reversible and irreversible processes. • To learn about the law of increase of entropy with examples, entropy and disorder, heat death of universe. • To gain the knowledge of adiabatic expansion, Joule-Thomson expansion and principle of regenerative cooling.
		Thermodynamics II	<ul style="list-style-type: none"> • To understand the extensive and intensive thermodynamic variables, Maxwell's general relationships. • To understand the Thermodynamic potentials and equilibrium of thermodynamic systems.
		Statistical Mechanics	<ul style="list-style-type: none"> • Understand the basic statistical methods and concepts like probability, permutations and combinations. • Understand the relation between microscopic and macroscopic description through statistical mechanics, know how to distribute different particles in different compartments. • To gain the knowledge of three types of statistics like Maxwell's Boltzmann, Bose-Einstein and Fermi-Dirac statistics and their distribution laws.
6	Practical		<ul style="list-style-type: none"> • Students should practical knowledge of various diodes like pn junction, Zener diode. • Practical realization of various Gates. • Finding of ripple factor of half wave and full wave rectifier.
7	Physics workshop skill	Measuring Instruments	<ul style="list-style-type: none"> • Makes students familiar with basic instruments like Vernier calliper, screw gauge, Sextant and their applications.
		Mechanical skill	<ul style="list-style-type: none"> • Make the students aware about the basic mechanical tools. • Students will be able to know the various methods of welding, machine processing, cutting and drilling. • Getting the knowledge of various materials used for manufacturing.
		Electrical and Electronic skill	<ul style="list-style-type: none"> • Students will be able to make use of a multimeter for various measurements. • Understanding the operation of oscilloscope. • Train the students for making regulated power supply, a switch using transistor and relay and soldering of various discrete electronic components.
		Introduction to prime movers	<ul style="list-style-type: none"> • Theoretical knowledge of gear system, lever mechanism, braking system and pulleys.

			<ul style="list-style-type: none"> Understanding the fixing of gears with motor axel, lifting of heavy weights using lever. Understanding the working principle of power generation.
8	Waves and Optics	Fourier Series	<ul style="list-style-type: none"> Understand the mathematical functions, their conditions. Understand the Fourier series their properties and methods of finding its solutions. Understand the applications of Fourier Series to Square wave, rectangular wave, triangular wave, Half wave and Full wave rectifiers.
		Waves	<ul style="list-style-type: none"> Understand the Wave equation and its solution. Understand the concept of Phase velocity and Group velocity, velocity of longitudinal wave in fluid and transverse wave in string. Understand the Superposition principle, eigen functions and eigen frequencies.
		Interference	<ul style="list-style-type: none"> Understand the Condition of interference, its theory of fringes and Young's double slit experiment. Gain the knowledge of Fresnel's biprism and its application to determination of wavelength of sodium light. Knowledge of Newtons rings and their applications to find the refractive index and wavelength of monochromatic light. Understand the Michelson interferometer and its applications to determine wavelength of monochromatic light, thickness of thin transparent plate, resolution of spectral lines and determination of refractive index of glass.
		Diffraction	<ul style="list-style-type: none"> Understanding the difference between Fresnel's and Fraunhofer diffraction. Getting the knowledge of zone plate and its action. Understanding diffraction at single, double slit and diffraction grating. Calculation of dispersive power and resolving power.
		Polarization	<ul style="list-style-type: none"> Understanding the concept of polarisation by reflection theory of double refraction. students will be able to find specific rotation using Laurent half shade polarimeter. Students will gain the knowledge of preparation and detection of polarised light.
9	Practical		<ul style="list-style-type: none"> Students will be able to find wavelength of light using Newton rings, Michelson interferometer and diffraction grating. Find the refractive index using prisms. Find the values of Cauchy constants of material of a prism.
10	Renewable energy and energy Harvesting	Fossil fuels and Alternate source of energy	<ul style="list-style-type: none"> Students will know about the various sources of energy like wind energy, tidal energy, wave energy, ocean thermal energy, biomass, biochemical energy, biogas, geothermal energy and hydroelectricity as alternate sources of energy.
		Solar energy and wind energy harvesting	<ul style="list-style-type: none"> Students will understand and realise the importance of solar and wind energy. Getting the knowledge of various devices which can run on solar energy. Generation of wind energy and solar energy
		Ocean energy, Geothermal energy and Hydro energy	<ul style="list-style-type: none"> Students will be aware of ocean energy generation, geothermal energy generation and hydro energy generation. Find out the advantages and disadvantages these sources of energy.
		Piezoelectric energy and Electromagnetic energy harvesting	<ul style="list-style-type: none"> Students will learn the physics of piezoelectric and electromagnetic energy. Students will be able to address the environmental issues and

			move towards the renewable sources of energy.
11	Modern Physics	Quantum Mechanics-I	<ul style="list-style-type: none"> Understand the basic principle in the development of modern Physics. Understand the quantum theory of radiation, Compton effect, division and Germer experiment. Understand the Uncertainty Principle and its applications. Understand Wave function and its physical significances.
		Quantum Mechanics-II	<ul style="list-style-type: none"> Able to derive the Schrodinger Equation, its solution for one dimensional problems such as: Particle in a box, Finite potential well and Harmonic Oscillator. Ability for the solution of Schrodinger equation in three dimensional problems like: Schrodinger equation for a spherically symmetric potential in spherical polar co-ordinates, its separation into angular, radial equations using variable separate methods. Understand the interpretation of Quantum numbers.
		Atomic Physics	<ul style="list-style-type: none"> Understand many electron atoms and interaction of spins i.e., LS and JJ coupling. Understand the effect of external fields to spectra like Lande's factor and anomalous Zeeman effect.
		Nuclear Physics-I	<ul style="list-style-type: none"> To understand the idea of basics of nucleus, their energy nuclear forces, their properties. To understand the different models of nucleus. To understand the decay processes of nucleus.
		Nuclear Physics II	<ul style="list-style-type: none"> Understand the basics of elementary particles, their classification, their quantum numbers. Understand the particles detectors like ionization Chamber, Proportional chamber and GM counter etc. Understand the quark as fundamental particle of matter, its properties and fundamental forces in nature.
12	Practical		<ul style="list-style-type: none"> Understand the dispersive power of prism. Understand the applications of diodes like npn transistor, OP-AMP and logic gates. Able to find the e/m by helical method.
13	Basic Instrumentation Skills	Basics of measurements and Electronic voltmeter	<ul style="list-style-type: none"> Students will learn the principles of measurements of ac/dc voltages and currents and resistances. Students will also know about the devices and their working principles used for making these measurements.
		Cathode ray Oscilloscope	<ul style="list-style-type: none"> Get the complete knowledge of a CRO- from theory to working and practical use.
		1.Signal generators and Analysis Instruments 2. Impedance Bridges and Q-meters	<ul style="list-style-type: none"> Understand the working principle, construction and theory of signal generators, impedance bridges and Q-meter.
		Digital Instruments and digital multimeters	<ul style="list-style-type: none"> Students will be able to distinguish between digital and analog instruments. Students will be able to use digital instruments. Find the advantage of digital instruments over analog instruments.
14	Solid State Physics, Quantum Optics and Electronics	Crystallography	<ul style="list-style-type: none"> Understand the Structure of crystal, unit cell their types, Crystal lattice and its classification in two and three dimensions. Understand crystal planes, miller indices, interplanar spacing between crystal planes. Understand the diffraction of X-rays by crystal, its necessary condition i.e., Bragg's Law, various experimental methods of X-ray diffraction like Laue,

			Rotating Crystal and Powder method.
		Lattice Vibrations, Superconductivity and Crystal defects	<ul style="list-style-type: none"> • Understand the lattice vibrations, different modes of vibrations, phonons, Specific Heat and its different models like Einstein Model and Debye's model of specific heat in solids. • Understand the concept of superconductivity, its experimental observations, Meissner effect, type I and Type-II superconductors and qualitative idea of BCS theory. • Understand the crystal defects like Schottky and Frankel defects and finding their equilibrium number.
		Magnetic Properties of Magnetic Materials	<ul style="list-style-type: none"> • Understand the magnetic materials their properties and their classification. • Understand the Classical Langevin theory of Dia- and Paramagnetic Domains, Quantum Mechanical treatment of Para magnetism, Curie's Law. • Understand the Weiss theory of Ferromagnetism and ferromagnetic domain, B_H Curve, Hysteresis and energy loss.
		Quantum optics	<ul style="list-style-type: none"> • Understand the Optical fibre, its types, its function and applications. • Understand the interaction of light with matter, Principles of laser action. • Understand the construction, principle, and working of He-Ne laser and Ruby laser and their uses.
		Electronics	<ul style="list-style-type: none"> • Understand the working of amplifier. • Understand the BJT's, their equivalent ckts and hybrid parameters. • Understand the Frequency responses of different amplifiers like RC couple and transformer coupled amplifier, • Understand the classification of transistors oscillators like Barkhausen criteria, Hartley, Colpitt and Phase shift oscillator.
15	Practical		<ul style="list-style-type: none"> • Calculate the frequency response of series and parallel LCR ckts. • Find the band width practically the RC coupled amplifier. • Ability to find the energy gap of semiconductors using four probe method. • Verifying the operation of logic gates.
16	Weather Forecasting	Introduction to atmosphere	<ul style="list-style-type: none"> • Understand the elementary idea of atmosphere. • Understand the variation of temperature and pressure with height. • Understand the cyclones and anticyclones and its characteristics.
		Measuring the weather	<ul style="list-style-type: none"> • Understand the wind, its direction and speed. • Understand the causes of humidity, clouds and rainfall. • Understand the radiation laws.
		Weather system and climate change	<ul style="list-style-type: none"> • Understand the global wind system and its classification. • Understand the causes of climate change and environment issues related to climate.
		Basics of weather forecasting	<ul style="list-style-type: none"> • Understand the analysis and historical background of weather forecasting, its need. • Understand the methods of weather forecasting. • Understand the conditions required for weather forecasting.

Department of Political Science

Subject Outcome

The subject Political Science aims to inculcate knowledge of the state, its origin, nature, structure and functions. Knowledge about the State is of great significance to modern man. The success of democracy depends upon the political consciousness of its people. In the modern age individual cannot lead an isolated life. Each country has to maintain relations with the other countries of the world. The study of political science makes people conscious about their rights and duties. For becoming, a good citizen of the nation and securing the unity and integrity of the nation, one has to go through this subject. The legislative, executive and judiciary of different countries are studied in the subject of political science. What is happening all around the world is politics also included in this subject. Political Science is the supreme science and the master of all science.

University of Jammu Syllabi for different courses in Political Science

Semester	Course No	Title	Credits	Name of course
I	UPSTC 101	Introduction to Political Science	6	Core
II	UPSTC 201	Indian Government and Politics	6	Core
III	UPSTC 301	Western Political Thought	6	Core
	UPSTC 302	Legislative Support	4	Skill Enhancement Course (SEC)
IV	UPSTC 401	Comparative Politics	6	Core
	UPSTC 402	State Citizenship and Rights in India	4	Skill Enhancement Course (SEC)
V	UPSTS 501	International Politics	6	Core
	UPSTE 502	Introduction to Indian Political System	6	Generic Elective Course (GE)
	UPSTS 503	Functioning of Administrative Structure in India	4	Skill Enhancement Course (SEC)
VI	UPSTS 601	Government and Politics in Jammu and Kashmir	6	Core
	UPSTS 602	Contemporary issues and concern	6	Generic Elective Course (GE)
	UPSTS 603	Politics and Journalism	4	Skill Enhancement Course (SEC)

Semester	Title and Learning Outcomes
I	<p>Introduction to Political Science This course aims to impart knowledge about the fundamental of Political Science. It enables the learners to understand about the subject matter of discipline by approaching it through various traditional and modern approaches. It empowers them to learn the evolution of discipline through various phases and stages.</p>
II	<p>Indian Government and Politics This course is designed to educate about the theoretical and operational aspect of Indian Polity that affect the life and carrier of the learner. It enables the learners to grasp that how the politics is being shaped by the varous structures and process in India.</p>
III	<p>Western Political Thought It introduces to students with the classic work of political philosophers. It also explores the relationship between the state and its subjects/citizens. This course empowers the learners to trace origin of state and its evolving dynamics through Ancient, Medieval and Modern Period.</p>
	<p>Legislative Support Skill Course This course aims to develop skills amongst the learner to make them employable. It intends to improve operational skill to students by familiarizing them with functioning of legislature.</p>
IV	<p>Comparative Politics To understand the political phenomenon, this course has been introduced in the Political Science. It teaches the students to compare and contrast the political structure and process in the politics of different nations to grasp them in their entirety.</p>
	<p>State, Citizenship and Rights in India For understanding about relations between state and citizens in India, this skill course has been introduced in the political science. It educates about the rights of citizens from state and obligations of the citizens toward it. It also safeguards for the women, children and especially abled children.</p>
V	<p>International Politics This course imparts theoretical knowledge about the subject matter and tools to understand the International Politics. It intends to elucidate the behavior of State actors at the global level.</p>
	<p>Introduction to Indian Political System The course introduces to the students with the theory and practice of Indian Political System. It analysis the Political Structure and processes that have been shaping the Indian Polity.</p>
	<p>Functioning of Administrative Structure in India This course intends to educate the students about the functioning of administrative structures that constitute the steel frame of Indian State.</p>
VI	<p>Government and Politics in Jammu and Kashmir This course aims to educate the learners about their immediate political surrounding which is constituted by the government and politics in Jammu and Kashmir.</p>
	<p>Contemporary Issues and Concerns The Course is designed to enhance skill of the learners regarding the symbiotic relationship between politics and journalism operates at the operational level. It intends to impart knowledge and skill about the role of media in the formation of public opinion as well as serving as an instrument of propaganda. It aims to teach them about the increasing role of social media in the politics of democratic nations.</p>

Department Of Persian

Course Outcomes:

Semester 1st

- CO1. Introduction to Persian language.
- CO2. Teaching of Persian grammar.
- CO3. Study of Persian prose.
- CO4. Lectures on moral education.

Semester 2nd

- CO1. Introduction to classical Persian poetry.
- CO2. Study of Persian Ghazal.
- CO3. Detailed history of life and literary works of Sheikh Saadi Sheerazi, Moulana Jami and Sheikh Yaqoob Sarfi.
- CO4. Detailed study of Persian literature of samanid period.

Semester 3rd

CO1. Higher concepts of Persian language.

CO2. Evaluation of “Hidayt Ul Tarjamah” by SL Goomer.

CO3. Persian translation into Urdu or English from the book “kitab-e-darsi farsi” by Dr
Shmsuddin Ahmad.

CO4. To attempt the exercises given at the end of each lesson.

Semester 4th

CO1. Introduction to poetry by Rudaki and Khayyam.

CO2. Introduction to life and contribution of Moulana Rumi and Ghani Kashmiri.

Definition of the poetic genres with suitable Persian examples.

CO3. Critical study of the literary works of Moulana Rumi, Rudaki, Khayyam and Ghani
Kashmir.

CO4. Study of literary history of Gaznavi period.

Semester 5th

CO1. Study and translation of 7th, 8th, 9th and 10th chapter from the book “Dourae Aamoozishi
Zaban-e-farsi” by Mehdi Zargamiyan.

CO2. Extension of Persian language to science and world politics.

CO3. Lectures on nature and its phenomena.

CO4. To attempt the exercises given at the end of each lesson.

Semester 6th

CO1. Introduction to poetry by Firdousi and Unsuri.

CO2. Modern Persian poetry.

CO3. Classical Persian poetry.

CO4. Study of history of saljok period with special reference to eminent poets
and prose writers.

Program Outcomes:

PO1. Understanding the nature and basics of Persian language.

PO2. Creative writing and Effective communication.

PO3. Correct pronunciation and use of appropriate vocabulary.

PO4. Vast information about the religions.

PO5. Development of moral values.

PO6. Socio-cultural information and their interlinking.

PO7. Extension of the subject to politics, science and technology.

PO8. The course is built in such a way that helps a learner to develop a poetic sense.

PO9. The program is shaped to produce translators of Persian to other languages and
vice-versa.

MIL

Ist semester

Credit-I

PO1. Persian Alphabets; Long and short Vowels.

PO2. Basic Persian Grammar.

Credit-II

PO1. Infinitives and Meaning.

PO2. Aorist

PO2. Pronouns

PO3. Second Person, Third Person

Credit-III

PO1. Past tense and its kinds

PO2. Present tense

PO3. Future tense

Credit-IV

PO1. Frequently used day to day vocabulary.

PO2. Number in Persian (1-100)

2nd Semester

Credit-I

PO1. Definition and use of Adjectives in Persian

PO2. Day to Day Proverbs

Credit-II

PO1. Sentences in persian language

PO2. Frequently used Urdu and Kashmiri words of persian origin.

Credit-III

PO1. Ten persian sentences on your college.

PO2. Ten persian sentences on your teacher.

PO3. Ten persian sentences on your friend.

Credit-IV

PO1. Days of week.

PO2. Months of Iranian year.

PO3. Months of English year.

Subject: Sociology

Programme Specific outcomes

- This programme endeavours to sustain its tradition of excellence and played a prominent role in leading students towards academic excellence and intellectual grandeur.
- It accomplishes to instil research and academic ethics in our learners to supply best possible human resource to various academic and administrative orbits.
- It ventures to ensure proficiency of learners in basic knowledge and analytical methods employed in the subject.
- The subject is conspicuous in addressing the challenges emerging from dynamic nature of society.

This programme prepares learners for various governmental and non-governmental organizations in addition to health care system, corporate sector and extension education.

Course Specific outcomes

- The course ***Introduction to Sociology*** aims to understand the basic concepts in sociology, nature of subject, its emergence and relationship with different social sciences.
- The course ***Sociological Thought*** ventures to make students understand the classical sociological thought and different sociological perspectives.
- The course ***Social Institutions*** is meant to make students understand the basic social institutions like family, marriage, kinship and religion and their transformation with the changing nature of society.
- The course ***Indian Society: Structure and Change*** is designed to understand the composition of Indian society with special focus on rural India. Some important parameters of Indian society are emphasized like caste and class and learners are made aware about the various processes of social change in India.
- The paper ***Sociological Thought and Theory*** is designed to achieve understanding about founding fathers of sociology, formalistic and synthetic schools of thought, interactionism and evolutionary theory.