NAVARASAM ARTS AND SCIENCE COLLEGE FOR WOMEN

ARACHALUR, ERODE-638101

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INTERNAL QUALITY ASSURANCE CELL

PROGRAM OUTCOME, PROGRAMME SPECIFIC OUTCOME AND COURSE OUTCOME

Course :B.A Tamil

Program Outcomes (POs)

PO1	வாழ்க்கை நெறிமுறையை அறிந்து கொள்ளுதல்
PO2	மொழி ஆளுமைப் பெறுதல்
PO3	சமூக சிந்தனையைப் பெறுதல்
PO4	இலக்கியப் படைப்பாக்கத் திறனை வளர்த்தல்
PO5	நாட்டுப் புற மக்களின் பண்பாட்டை அறிதல்
PO6	சுற்றுச்சூழல் பாதுகாப்பின் அவசியத்தை அறிந்து கொள்ளுதல்
PO7	இணையத்தளங்களில் தமிழ் மொழி இடம் பெறும் நிலையினைத் அறிதல்
PO8	அகழ்வாராய்ச்சி குறித்த சிந்தனைகளை வளர்த்தல்
PO9	காப்பியங்களின் வழி சமூக அமைப்பினை அறிதல்
PO10	அரசு போட்டித் தேர்வுகளில் கலந்து கொள்ளும் திறன் பெறுதல்

Program Specific Outcomes (PSOs)

PSO1	இலக்கிய இலக்கண வகைமைகளை அறிதல்
PSO2	மொழி ஆளுமைத் திறன் பெறுதல்
PSO3	மொழிபெயர்ப்பு கலையில் மேம்பாடு உடையவர்களாக திகழ்தல்
PSO4	கல்வெட்டுகளை வாசிப்பதற்கான திறன் பெறுதல்
PSO5	கலைகளின் நுட்பங்களை உணர்ந்து கொள்ளுதல்
PSO6	கணினி நுட்பங்களை அறிதல்
PSO7	நாடகத்தின் மெய்ப்பாடுகளை அறிந்து கொள்ளுதல்
PSO8	இலக்கிய ஒப்பீட்டுத் திறனைப் பெறுதல்
PSO9	திறனாய்வு முறையினை அறிதல்
PSO10	தமிழரின் பண்பாட்டுக் கூறுகளைத் தெரிந்துக் கொள்ளுதல்

S.No	Sem. No	Course	Outcome
1.	I	தாள் - 1 தற்கால இலக்கியம்	மொழி ஆளுமைத் திறன் பெறுதல் சமூக சிந்தனையைப் பெறுதல் வாழ்வியல் தொடர்பான அறச் சிந்தனைகளை அறிந்து கொள்ளுதல் கவிதை உருவாக்கும் திறன் பெறுதல் கற்றலுக்குரிய புதிய தொழில் நுட்பங்களை அறிந்து கொள்ளுதல்

2.	**I**	தாள் - 2 உரைநடை இலக்கியம்	வாழ்க்கை சிக்கல்களை எதிர்கொள்ளும் திறனைப் பெறுதல் சிறந்த படைப்பாளியாக உருவாகுதல் அடித்தள மக்களின் வாழ்க்கை அனுபவத்தைப் புரிந்து கொள்ளுதல் சமூக மாற்றங்களை உணர்ந்து கொள்ளுதல் அரசுப் போட்டித் தேர்வில் கலந்து கொள்ளும் தகுதியைப் பெறுதல்
3.	**I**	Allied – I: தமிழ் இலக்கிய வரலாறு – 1	தமிழ் மொழியின் தோற்றம் குறித்து அறிதல் சங்க கால மக்களின் வாழ்க்கை நிலையோடு இன்றைய வாழ்க்கையைப் பொருத்திப் பார்த்தல் தொல்காப்பியம் உணர்த்தும் வாழ்வியல் நெறிகளை அறிதல் காப்பியங்கள் வழி அறச்சிந்தனைகளை உணர்தல் அரசுப் போட்டித்தேர்வு குறித்த விழிப்புணர்வுப் பெறுதல்
4.	**II**	தாள் - 3 நன்னூல் - எழுத்ததிகாரம்	தமிழ் மொழியைப் பிழையில்லாமல் பேசவும் எழுதவும் அறிதல் தமிழ் எழுத்துக்களின் பிறப்பினை அறிந்து கொள்ளுதல் தமிழ் இலக்கண மரபினை உணர்ந்து கொள்ளுதல் சொல், பொருள் வேறுபாட்டினை உணர்தல் போட்டித்தேர்வுகளில் கலந்து கொள்ளும் திறனைப் பெறுதல்
5.	**II**	கணிப்பொறியும் இணையமும்	தகவல் தொடர்புச் சாதனங்களைப் பற்றிய பரந்து பட்ட அறிவைப் பெறுதல் கணிப்பொறி குறித்த முழுமையான அறிவு பெறுதல் வேலைவாய்ப்பைப் பெறும் திறன் அடைதல் மொழி ஆளுமை பெறல் தகவல் தொடர்பின் நுட்பத்தினை அறிதல்
6.	**II**	தாள் - 2 தமிழ் இலக்கிய வரலாறு-	தமிழ் மொழியின் தோற்றம் குறித்து அறிதல் சங்க கால மக்களின் வாழ்க்கை நிலையோடு இன்றைய வாழ்க்கையைப் பொருத்திப் பார்த்தல் தொல்காப்பியம் உணர்த்தும் வாழ்வியல் நெறிகளை அறிதல் காப்பியங்கள் வழி அறநெறி முறையைத் தெரிந்து கொள்ளுதல் அரசுப் போட்டித்தேர்வு குறித்த விழிப்புணர்வைப் பெறுதல்
7.	**III**	இலக்கணம் - 2 தாள் - நன்னூல் - சொல்லகிகாரம்	தமிழ் மொழியைப் பிழையில்லாமல் பேசவும் எழுதவும் அறிதல் சொல் ஆளுமையை வளர்த்துக் கொள்ளல் சொல் பொருள் வேறுபாட்டினை உணர்தல் தமிழ் மொழியின் சொல் திறம் அறிந்து கொள்ளுதல் போட்டித் தேர்வுகளில் கலந்து கொள்ளும் திறனைப் பெறுதல்
8.	**III**	இலக்கியம் - 3 தாள் - 6 பக்தி இலக்கியங்களும் சிற்றிலக்கியங்களு	சமயங்களின் வழி வாழ்வியல் நெறிமுறைகளை உணர்தல் வைணவ சமயத்தின் வழிபாட்டு முறையைத் தெரிந்து கொள்ளுதல் இஸ்லாமிய சமயக் கருத்துக்கள் வழி வாழ்வியல் சார்ந்த கருத்துகளை அறிதல் நாடகப் பாங்கினை பள்ளு, குறவஞ்சி இலக்கியங்கள் வழி உணர்தல் சமய வழிப்பாட்டு முறைகளை அறிந்து கொள்ளுதல்

9.	**III**	தாள்-1-தமிழக வரலாறும் பண்பாடும்	தமிழகத்தின் இயற்கை அமைப்பு குறித்து அறிதல் பண்டைத் தமிழர்களின் அயல்நாட்டு வாணிபத் தொடர்பை அறிந்து கொள்ளுதல் அகழ்வாராய்ச்சி குறித்த சிந்தனையைப் பெறுதல் அரசியல் நிலையையும் சமூக நிலையையும் உணர்தல் அரசு வேலைவாய்ப்புக்கான திறனைப் பெறுதல்
10.	**III**	தாள் - 1 தமிழ் பயிற்றும் முறை – நோக்கம்	தாய்மொழியில் தெளிவாகப் பேசவும் எழுதவும் அறிதல் படைப்பாற்றல் திறன் பெறுதல் எழுத்தாற்றல் திறனை வளர்த்துக்கொள்ளுதல் மொழி அறிவு, மொழிப்பற்று ஏற்படுதல் அரசுப் போட்டித் தேர்வில் கலந்து கொள்ளும் திறனைப்
11.	**IV**	இலக்கணம் - 3 தாள் - 7 யாப்பருங்கலக்காரிகை (ஒழிபியல் நீங்கலாக) தண்டியலங்காரம்	மரபுக்கவிதை எழுதுதல் பா, பாவினங்கள் பற்றித் தெரிந்து கொள்ளல் அணி இலக்கணத்தின் தொன்மையை அறிதல் அணி இலக்கணம் செய்யுளின் இடம்பெறும் தன்மையை உணர்தல் காப்பிய இலக்கணம் பற்றி அறிதல்
12.	**IV**	தாள் - 8 நாட்டுப்புறவியல்	நாட்டுப்புறப்பாடல்களின் வடிவங்களைப் புரிந்து கொள்ளுதல் கதை, கதைப்பாடல்களின் வாயிலாக பண்டைத்தமிழர்களின் வாழ்க்கை முறையை அறிதல் நாட்டுப்புற மக்களின் பண்பாடு மற்றும் பழக்கவழக்கங்களைத் தெரிந்து கொள்ளுதல் நம்பிக்கைகள் மூலமாக நாட்டுப்புற மக்களின் மனஉணர்வுகளை அறிந்து கொள்ளுதல் நாட்டுப்புற மக்களின் சமூக சூழலை உணர்தல்
13.	**IV**	தாள் - 2 தமிழக வரலாறும் பண்பாடும்-**II**	தமிழகத்தின் அரசியல், சமூக நிலை உணர்தல் பண்டைய வாணிபத் தொடர்பை அறிதல் அகழ்வாராய்ச்சி குறித்த அறிவைப் பெறுதல் ஐரோப்பியரின் வருகையால் உண்டான மாற்றம் குறித்து அறிதல் அரசுப் போட்டித் தேர்வு குறித்த விழிப்புணர்வைப் பெறுதல்
14.	**IV**	திறன்படிப்பு – 2 மொழிப்பயிற்சிகள்	தாய்மொழியில் தெளிவாக பேசவும் எழுதவும் ஆற்றல் பெறுதல் படைப்பாற்றல் திறன் மற்றும் மொழி ஆளுமை வளர்தல் எழுத்தாற்றல் திறனை அடைதல் மொழிப் பற்றும் மொழி அறிவும் ஏற்படுதல் அரசுப் போட்டித் தேர்வுகளில் கலந்து கொள்ளும் திறன் பெறுதல்

15.	**V**	இலக்கணம் - 4 தாள் - 9 புறப்பொருள் வெண்பாமாலை, நம்பியகப் பொருள்	மன்னர்களின் ஆட்சி சிறப்பை மற்றும் வெற்றிச் சிறப்பை அறிதல் போர் விதிமுறைகளைத் தெரிந்து கொள்ளுதல் இல்லற வாழ்வின் சிறப்பை அறிந்து கொள்ளுதல் களவு வாழ்க்கை நெறியினை அறிதல் அரசுப் போட்டித் தேர்வுகளில் பங்கேற்கச் செய்தல்
16.	**V**	தாள் - 10 காப்பியங்கள்	காப்பியங்களின் வழி கற்பு நெறியை உணர்தல் அறச் செயல்கள், அரசியல் அறம் பற்றி அறிந்து கொள்ளுதல் நிர்வாகத் திறன் பெறுதல் நட்பின் பெருமை, உறவுகளின் மேன்மை பற்றி அறிதல் இலக்கிய நயங்கள் நுட்பங்கள் குறித்து அறிதல்
17.	**V**	தாள் - 11 இலக்கியத் திறனாய்வு	புதிய இலக்கியங்களைப் படைக்கப் படைப்பாளிகள் தூண்டப்படுகின்றனர் இலக்கியப் பிழைகள், இலக்கணப் பிழைகள் நீக்கி எழுதுதல் சமூக வரலாற்றை அறிதல் கலையின் சிறப்பும் அதனைக் கற்போரின் வழி சமூக வளர்ச்சிக்கு உதவுதல் தனிமனித ஆளுமைத் திறன் பெறுதல்
18.	**V**	தாள் - 12 பொது மொழியியல்	ஒலிப்பு முறைகளை முறையாகக் கற்று உச்சரிப்பு திறன் பெறுதல் சிறந்த சொல் அமைப்பு, மொழி அமைப்போடு எழுதுதல் வினைச்சொற்களின் பயன்பாட்டு முறையை அறிதல் வாக்கியமைப்பை உருவாக்குதல் பேச்சு மொழி, பிற மொழி கலப்பு, தாய்மொழியின் சிறப்பை இவற்றை அறிந்து கொள்ளுதல்
19.	**V**	**விருப்பப்பாடம் - I** அ. மக்கள் ஊடகத் தொடர்பியல்	ஊடக தொடர்பியலின் கோட்பாடுகள் வகைகள் வரையறைகளைத் தெரிந்து கொள்ளுதல் அறிவியல் தொழிற்நுட்ப வளர்ச்சியால் சமுதாயம் அடைந்த மாற்றதை அறிதல் காட்சி ஊடகங்கள் வழி சிக்கல்கள், தீர்வுகள் வளர்ச்சிக்கான வழிமுறைகளைப் புரிந்து கொள்ளுதல் சமுதாய மாற்றத்தில் இதழ்களின் நோக்கம், வளர்ச்சி பற்றி அறிதல் வேலை வாய்ப்பு பெறுதல்
20.	**V**	ஆ. நாடகவியல்	நாடக உத்திகளை அறிந்து கொள்ளுதல் சிறந்த நாடக ஆசிரியராகுதல் சிறந்த நாடக இயக்குநராகி சமூக மாற்றங்களை ஏற்படுத்துதல் நாடக கலைஞராக உருமாறுதல் மொழிப்பெயர்ப்புத் திறனை வளர்த்து வேலைவாய்ப்பு பெறுதல்

21.	**V**	இ. இதழியல்	இதழ்கள் தொடங்குவதற்கு வழிமுறைகளை அறிந்து கொள்ளுதல் பத்திரிக்கைச் சட்டங்கள் குறித்து தெரிந்து கொள்ளுதல் அரசியல், நீதி, அறிவியல், பொருளாதாரம், சொற்பொழிவுகள் குறித்து அறிதல் புகைப்பட, புலனாய்வு செய்திகள் உணர்தல் இதழியல் தொழிலுக்களுக்கான வாய்ப்புகள் பத்திரிக்கை சுதந்திரம் குறித்து அறிந்து கொள்ளுதல்
22.	**V**	தாள் - 3 இலக்கணம்	இலக்கண உரையாசிரியர்களின் வரலாற்றை அறிந்து கொள்ளுதல் அகப்பொருள் புறப்பொருள் வாயிலாக அக்காலச் சமூக நிலையை அறிதல் இலக்கியத்தில் அணியின் முக்கியத்துவம் குறித்து உணர்தல் பா, பாவினங்கள் மூலமாக படைப்பாற்றல் திறனை மேம்படுத்துதல் புதிய கலைச்சொல்லாக்கத்தை உருவாக்குதல்
23.	**VI**	தாள் - 13 சங்க இலக்கியம் அகம்	பழந்தமிழர்களின் வாழ்வியல் முறைகளை அறிதல் புலவர்களின் தனித்தன்மையைத் தெரிந்து கொள்ளுதல் சங்க கால இயற்கைச் சூழலை அறிந்து கொள்ளுதல் பண்டைய கால நட்பின் ஆழத்தை உணர்தல் தொன்மையான பண்பாட்டை அறிதல்
24.	**VI**	தாள் - 14 சங்க இலக்கியம் புறம்	மறத்திலும் அறம் போற்றும் பண்பை உணர்தல் பண்டைத் தமிழரின் போர் மரபு, போர் திறம் அறிதல் மன்னர்களின் போர் கருவிகள் குறித்து தெரிந்து கொள்ளுதல் தன்மான உணர்வு, வஞ்சின மொழியை உணர்தல் தமிழர்களின் பண்பாட்டு உணர்வைப் பெறுதல்

Course :B.A English

Program Outcomes (POs)

PO1 Prove their knowledge and skills in Language and Literature.
PO2 Prove his proficiency in Listening Speaking Reading Writing.
PO3 Analyse a literary text of any genre like poetry, drama, prose, shortstory and fiction.
PO4 Apply the knowledge of literary theories in analyzing the literary text.
PO5 Write simple poems, short stories and essays.
PO6 Work as a leader and work in a team effectively in the fields related toLanguage and Literature.
PO7 Understand the need for lifelong learning and hone the required skills related tothe industry.
PO8 Analyse the impact of literature on society and work for the betterment ofthe society.

Program Specific Outcomes (PSOs)

PSO1 To demonstrate their competency in the domain area
PSO2 To analysis the literary texts, with a critical insight
PSO3 To impart the critical evaluation on the literary texts
PSO4 To present the learned ideas
PSO5 To assess their communicative competency
PSO6 To understand the role of a literature student in shaping the course of the society
PSO7 To analyse the impact of literature on the society
PSO8 To comprehend the ethical quality of a literary text
PSO9 To acquire the ability in understanding the lifelong learning
PSO10 To produce effective projects

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I PROSE I**	**Comprehend prose passages** **Enhance reading skill** **Analyze the structure and style of Prose pieces** **Create simple paragraph**
2.	**I**	**Core IIFICTIONI**	**Understand the plot, setting and structure** **Identify the techniques used in Fictional writing** **Analyse various themes in the fiction** **Evaluate the role of major and minor characters**
3.	**I**	**Allied–I SOCIAL HISTORY OF ENGLAND**	**Understand the impact of society on Literature** **Interlink the history of England with British English Literature** **Analyse the socio-cultural aspects of the society on Literature** **Evaluate the literary work by considering its historical aspects**
4.	**II**	**Core IIIBasic Knowledge of Poetry**	**Gain knowledge of poetry of different ages** **Understand the literary terms and devices** **Analyse a poem** **Learn new dimensions in connecting emotions and languages and create simple** **Poems**
5.	**II**	**Core IVBasic knowledge of Drama**	**Understand and enjoy reading plays**

			Identify the elements of Drama **Analyse the plays thematically** **Evaluate the characters of the plays**
6.	**II**	**Allied–IIHISTORY OF ENGLISH LITERATURE**	**Gain knowledge of the History of Literature and great authors of English** **Interconnect the history, biography of the author and the works** **Analyse the growth of literary genres of specific periods** **Evaluate the role of literary movements and their impact on theliterary work**
7.	**III**	**Core- VBasic knowledge on English prose**	**Gain knowledge on Prose writing** **Identify the literary devices used in writing prose** **Analyse the variety of prose pieces** **Create a simple and short prose passage**
8.	**III**	**CORE VIFICTION II**	**Understand the socio-cultural aspect of the society with the help of fiction** **Identify the literary elements in fiction** **Analyse the plot, character and the techniques in the fiction** **Evaluate the work of fiction contemporary Novelists**
9.	**III**	**ALLIED IIIBasic knowledge on forms of writing in Literature**	**Understand different literary forms and their characteristics** **Differenciate various literary devices** **Identify literary devices in a work, compare the genres and their features** **Attempt a simple creative writing**
10.	**IV**	**Core –VIIPOETRY-II**	**Gain intense knowledge of poetry** **Understand the literary importance of each poetry** **Critically analyse poetry** **Create simple poem by using literary devices**
11.	**IV**	**Core VIIIDRAMA II**	**To carry in depth knowledge of play** **Analyse the literary devices used in plays** **Critically evaluate the plays** **Able to enact the play**
12.	**IV**	**Core VIIILITERARY CRITICISM**	**Carry Knowledge of leading Critics and their method of criticism** **Understand the different schools of criticism and their theories** **Interconnect the society, literature and literary criticism to analyse a text** **Evaluate a literary text by applying the ideas of the critics**
13.	**V**	**Core IXSHAKESPEARE –I**	**Comprehend the plays of Shakespeare** **Appreciate the nuances of Shakespeare‟s niversality and its impact onReaders** **Analyse the different types of plays and the devices used** **Evaluate the themes of different kinds of plays**
14.	**V**	**Core-XINDIAN WRITING IN ENGLISH**	**Familiar with the prominent writers of Indian Writing in English**

			Compare the Indian Writing in English with British Literature **Critically analyse the works of Indian Writing in English** **Evaluate the social issues represented in the literary text**
15.	**V**	**Core-XIAMERICAN LITERATURE**	**Understand the diverse group of American authors and their style of writing** **Analyse the key ideas, representation of cultural events of historical periods** **Compare American Literature with Indian Writing in English** **Create a simple creative writing based on prescribed literary pieces**
16.	**V**	**Core-XII COMMONWEALTH LITERATURE**	**Comprehend the works of prominent authors in commonwealth Literature** **Compare the style of commonwealth writing** **Present critical analyse of prescribed literary works** **Evaluate the commonwealth literature with the help ofknowledgegained onDifferentcultures**
17.	**VI**	**Core-XIII** **SHAKESPEARE –II**	**Intensive knowledge on Shakespearean plays** **Analyse the universal characterization of Shakespeare** **Evaluate the versatile writings of Shakespeare** **Enact a scene from Shakespearean play**
18.	**VI**	**Core-XIV** **INTENSIVE STUDY OF** **AN** **AUTHORRABINDRANATHTTAGORE**	**Carry in-depth knowledge on Tagore‟s writing and his literary style** **Analyse the social issues discussed in the works of Tagore** **Evaluate Indianism in Tagore‟s writing** **Compare the works of Tagore with other Indian writers**
19.	**VI**	**Core-XVINDIAN LITERATURE IN ENGLISH** **TRANSLATION**	**Understand the translated works and its nuances** **Analyse the works with the help of literary theory, translate simple works of** **their mother tongue into English Language** **Knowledge on the ethics and impact of translations in Literature** **Compare regional literature with English Literature**
20.	**III**	**JOB ORIENTED COURSE Paper I** **LANGUAGE SKILL- 1**	**Master framing sentence on differentpattern** **Apply grammar in Speaking and writing** **Prepare grammatically correct passages** **Present short features**
21.	**IV**	**JOB ORIENTED COURSE– Paper II** **LANGUAGE SKILL- 2**	**Transform sentences into different kinds and learn synthesis & transformationof sentences** **Apply grammar in LSRW** **Analyse the usage of words, comprehend the writings and composition** **Adapt professional Writing**
22.	**V**	**VALUE ADDED COURSE – Paper I**	**Learn phonetics symbols with sounds**

		Study of English Phonetics 1	**Use right accent and rhythm in speaking** **Analyze the syllable and accent** **Classify the speak sound**
23.	**VI**	**VALUE ADDED COURSE- II** **Study of English phonetics- II**	**The concept of general Indian English** **Apply intonation accent rhythm in Speaking** **Master phonetics symbols and sounds** **Transcript into Phonetic language**

Course :B.Sc Mathematics

Program Outcomes (POs)

PO1 Students are empowered with analytical and logical skills-to formulate results and construct mathematical argument.
PO2 Ability to organize, analyze and interpret data accurately in both academic and non -academic context.
PO3 Demonstrate effective communication of mathematical ideas and creative
thinking skills to facilitate solving real world problems as a team and
independently.
PO4 Appreciate and identify the connections between Mathematics and other
disciplines.
PO5 Competency to obtain employment in education, public and private sectors..
PO6 Identify the area of interest for extended learning from the understanding gained from the domain and allied areas of Mathematics.
PO7 Develop mathematical aptitude and make critical observations.
PO8 Garner innovative ideas to face global challenges.
PO9 Instill a sense of responsibility in tackling professional and social issues ethically.
PO10 Trigger their passion for research in unexplored areas of Mathematics.

Program Specific Outcomes (PSOs)

PSO1 Maintain a core of mathematical and technical knowledge that is adaptable to changing technologies and provides a solid foundation for extended learning.
PSO2 Identify the applications of Mathematics in other disciplines and society.
PSO3 Develop anin-depth knowledge inMathematics appreciating the

connections between theory and its applications.
PSO4 Demonstrate their mathematical modeling ability, problem solving skills, creative talent and power of communication necessary for various kinds of employment.
PSO5 Develop mathematical aptitude and the ability to think abstractly.
PSO6 Learn independently and improve one's performance.
PSO7 Students are equipped to appear competitive examinations.

S.No	Sem. No	Course	Outcome
1.	I	Core Paper – I CLASSICAL ALGEBRA	Know the concept of Binomial, Exponential, Logarithmic series and theirapplication to summation of series. Acquire a clear knowledge regarding methods to find an approximate roots of the equations. Apply the appropriate tests to find the convergence or divergence of an infiniteseries. ApplyDescartes's rule of signs to find the number of positive and negativeroots if any in a polynomial equation. Analyze the relation between roots and coefficients of the polynomialequations.
2.	I	Core Paper – II CALCULUS	Identify areas in Mathematics and other fields where Calculus is useful. Understand the concepts of Evolutes and Envelopes, methods to findcurvature and evolutes. Apply the concept of change of variables in double and triple integrals. Apply double, triple integral to find the area and volume respectively. Apply the Beta and gamma function to solve the multiple integrals.
3.	II	Core Paper – III ANALYTICAL GEOMETRY	Gain knowledge about the regular geometrical figures and theirproperties Describe the geometric concepts. Find equation to tangent, normal at a point on a conic. Analyze condition of tangency and find the tangent plane to the central conicoid. Analyze conics to explain natural phenomenon.
4.	II	Core Paper – IV TRIGONOMETRY, VECTOR CALCULUS AND FOURIER SERIES	Know the expansion of trigonometric functions and hyperbolic functions. Acquire the basic knowledge of vector differentiation and vector integration. Determine and apply the important quantities associated with vector fields such as the divergence, curl and scalar potential. Understand and find Fourier series of a given

			periodic function. **Examine line integral, surface integral, volume integral and inter-relations among them.**
5.	**III**	**Core Paper – V** **DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORMS**	**Acquire knowledge to solve Differential and Partial Differential Equations** **Solve higher order linear differential equations** **Expose differential equation as a powerful tool in solving problems in Physicaland Social sciences.** **Demonstrate competency to solve linear PDE by Lagrange's method** **Analyze the concepts of Laplace transforms and inverse Laplace transforms tosolve ODE with constant coefficients**
6.	**III**	**Core Paper – VI** **STATICS**	**Remember the various laws** **Understand the concepts of forces and moments** **Understand the concepts of equilibrium** **Apply the concepts of forces and moments** **Analyze the basics of coplanar forces, equilibrium of forces acting on a rigid bodyand solve the problems**
7.	**III**	**Skill Based Subject** **Operations Research – Paper I**	**Understand the basic concepts and application of operations research in variousFields** **Know principles of construction of mathematical models of conflicting situations.** **Analyze the relationship between a linear program and its dual.** **Apply techniques constructively to make effective decisions in business and solveproblems in industry.** **Build and solve transportation problems.**
8.	**IV**	**Core Paper-VII** **DYNAMICS**	**Remember the basic kinematics and dynamic concepts.** **Describe the differential equation of Central Orbits** **Apply the concepts of projectiles to solve problems relating to the motion of aprojectile.** **To understand &apply the concepts of composition of simple harmonic motion intwo directions.** **Understand impulsive forces and analyze loss of K.E due to direct and obliqueimpact.**
9.	**IV**	**Core Paper-VIII** **PROGRAMMING IN C**	**Remember the importance of C language and datatypes.** **Understand the basic structure, operators and statements of C language.** **Understand decision control statements, loop control statements.** **Apply the concepts of data types, operators, expressions, control statements,arrays, character arrays and strings to write the C code for a given algorithm.** **Read, understand and trace the execution of programs written in C language.**
10.	**IV**	**SKILL BASED SUBJECT** **OPERATIONS RESEARCH –**	**Identify the importance of stocks, the reasons for holding stock in an organization,determine the**

		PAPER II	**optimal order quantity for models.** **Explain the various costs related to inventory system.** **Apply game theory concepts to articulate real-world situations by identifying,analyzing and practicing strategic decisions.** **Apply and extend queueing models to analyze real world systems.** **Build and solve assignment model.**
11.	**V**	**Core Paper – IX** **REAL ANALYSIS - I**	**Remember the basic topological properties of subsets of the real numbers.** **Understand the fundamental properties of the real numbers and analyze the realnumber system.** **Learn the concept of limits, sequence, continuity, convergent sequence in metricspaces appreciating the abstract ideas and their applicability.** **Have the proficiency in the formulation and construction of proofs of basic results in real analysis.** **Demonstrate skills in communicating Mathematics and learn basic techniques andexamples in analysis to be well prepared for extended learning**
12.	**V**	**Core Paper – X** **COMPLEX ANALYSIS – I**	**Learn techniques of complex analysis effectively to establish mathematicalresults.** **Recognize the simple and multiple connected domains.** **Investigate a function for its analyticity and find it series development.** **Examine the relationship between conformal mapping and analytic functions** **Compute contour integrals directly and by the fundamental theorem.**
13.	**V**	**Core Paper – XI** **MODERN ALGEBRA – I**	**Recall the properties and extend group structure to finite permutation groups.** **Explain the concepts of homomorphism, isomorphism and automorphism.** **Demonstrate abstract thinking capacity and ability to prove theorems.** **Compare features of different algebraic structures.** **Examine the properties of algebraic structures and their role in applied contexts.**
14.	**V**	**CORE PAPER XII** **DISCRETE MATHEMATICS**	**Assimilate various graph theoretic concepts and familiarize with their applications.** **Know and understand about partially ordered sets, Boolean algebra, lattices andtheir types.** **Apply Karnaugh map for simplifying the Boolean expression.** **Demonstrate the skill to construct simple mathematical proofs and to validate.** **To achieve greater accuracy, clarity of thought and language.**
15.	**V**	**Skill Based Subject** **OPERATIONS RESEARCH –**	**Know the concept of simulation and simulate a queueing system.**

		PAPER III	**Understand the overall approach of dynamic programming.** **Solve nonlinear programming problems using Lagrange multiplier and using Kuhn-Tucker conditions.** **Apply concepts in optimal scheduling.** **To formulate a model for solving the intractable problems.**
16.	**VI**	**Core Paper – XIII** **REAL ANALYSIS – II**	**Demonstrate the understanding of continuity, uniform continuity ,compactness,connectedness.** **Understand partitions and their refinement.** **Determine the Riemann integrability and the Riemann-Stieltjes integrability of abounded function..** **Examine the derivatives of function.** **Acquire skills in writing and analyze the proofs that arise in the context of realanalysis.**
17.	**VI**	**Core Paper – XIV** **COMPLEX ANALYSIS – II**	**To recognize and apply the Liouville's theorem, the mean-value property of afunction and the maximum modulus principle.** **Demonstrate understanding and appreciation of deeper aspects of complexanalysis.** **Apply residue theorem to compute integrals.** **Ability to think critically by proving mathematical conjectures and establishingtheorems from complex analysis.** **Classify the nature of singularity, poles and residues.**
18.	**VI**	**Core Paper – XV** **MODERN ALGEBRA - II**	**Communicate and understand mathematicalide as and results with the correct useof mathematical definitions, terminology and symbols.** **Explain the concepts of base and dimension of Vector space.** **To apply the Gram-Schmidt process to construct an orthonormal set of vectors in aninner product space.** **Demonstrate competence with the basic ideas of Matrix theory ,Vector spaces,Dual spaces, Linear transformation.** **Have an insight to analyze a real life problem and solve it.**
19.	**VI**	**Skill Based Subject** **OPERATIONS RESEARCH - PAPER –IV**	**Know the principles and applications of information theory.** **To understand sequencing, replacement problems.** **Demonstrate skills to achieve their objective using sequencing models.** **Apply decision making under different business environments.** **Determine a solution to a rectangular game using simplex method.**
20.	**V**	**ELECTIVE I – A** **ASTRONOMY – I**	**Define properties of physical systems that comprise the known universe.** **Understand the Solar system, Celestial sphere, Dip-Twilight & Keplar's laws.**

			Apply their physics and mathematical skills to problems in the areas of planetaryscience. **Demonstrate the skill to infer valid scientific conclusions and communicate thoseconclusions in a clear and articulate manner.** **Analyze the astronomical concepts.**
21.	**V**	**ELECTIVE II – A** **ASTRONOMY II**	**Understand the concepts of precession and nutation.** **Describe the eclipse of the moon.** **Find equation of time.** **Demonstrate the ability to analyze the concepts.** **Describe the properties of stellar system.**
22.	**V**	**ELECTIVE III – A** **GRAPH THEORY**	**Identify the properties of different types of graph and their application.** **Demonstrate knowledge of basic concepts in graph theory.** **Understand cut graphs ,cycle spaces.** **Apply principles and concepts of graph theory in practical situations.** **Analyze the concepts of Planar graphs.**
23.	**VI**	**ELECTIVE III – B** **AUTOMATA THEORY AND FORMALLANGUAGES**	**Acquire a fundamental understanding of the core concepts in automata theory andformal languages.** **Design grammars and automata for different language classes.** **Describe the types of grammar and derivation tree.** **To apply context-free languages, push-down automata.** **Design automata, regular expressions and context-free grammars accepting orgenerating a certain language.**
24,	**VI**	**ELECTIVE III – C** **PROGRAMMING IN C++**	**Know about class structure, member functions & data members, inheritance typesand example problems .** **Understand how C++ improves C with object-oriented features.** **Develop programming skills.** **To make use of objects and classes for developing programs.** **Build C++ classes.**
25.	**VI**	**ELECTIVE III – D** **NUMBER THEORY**	**Understand the concepts of divisibility and primes.** **Solve congruence.** **Describe the fundamental theorem of Arithmetic.** **Understand the concepts and apply the theorems in areas of Mathematics.** **Compute powers of integers modulo prime numbers.**
26.	**VI**	**ELECTIVE III – E** **INTRODUCTION TO INDUSTRY 4.0**	**Know the reason for adopting Industry 4.0 and Artificial Intelligence.** **Understand the need for digital transformation.** **Apply the industry 4.0 tools.** **Analyze the applications of Big Data.** **Examine the applications and security of IoT Applications.**

Course :B.Sc – Bio Chemistry

Program Outcomes (POs)

PO1 Broad based knowledge in biochemistry
PO2 Transforming meaningful applications for better healthcare and economic development
PO3 Constant updation of knowledge
PO4 Empowering skills
PO5 Sole responsibility of contributing the public to lead better life through extension activities
PO6 Development of critical thinking and problem-solving skills
PO7 The provision of an inspiring, exciting and collaborative scientific environment
PO8 To inculcate the values of professionalism and dedication
PO9 Develop intelligent strategies and biochemical approaches in problem solving methods
PO10 To compete globally with confidence in all the sectors of life science

Program Specific Outcomes (PSOs)

PSO1 Ability to understand the technical aspects of existing technologies that help in addressing the biological and medical challenges faced by humankind.
PSO2 Ability to contribute effectively in the development of the ethical practices, societal contributions, and leading to responsible and competent professionals
PSO3 Acquiring the ability of leadership skills to manage projects in multidisciplinary environments

S.No	Sem.	Course	Outcome

	No		
1.	**I**	**Core Paper I – Biomolecules**	**A thorough knowledge about the structure, chemistry and function of carbohydrates. In depth knowledge about the significance of the complex lipids. An understanding about the importance of proteins and peptides. A knowledge about the salient features of nucleic acids. A knowledge about the importance of vitamins and minerals.**
2.	**I**	**Core Paper II - Cell Biology**	**The overview of cells and cell cycle. The structure and transport of molecules across biological membranes. The various cell organelles with their functions and actions. The relationship between cellular and genetic organization and biologicalfunctions. The application of cell biology in cancer research..**
3.	**II**	**Core Paper III - Biomedical Instrumentations**	**The concepts and the preparation of expressing various strength of the solutions. The principle and the applications of chromatographic techniques. The principle and the applications of Electrophoretic techniques. The principle and the applications of spectroscopic techniques. The application of radioisotopes in biological field.**
4.	**II**	**Core Biochemistry Practical – I**	**Facilitate students to identify the sugars. Facilitate students to identify the aminoacids. Characterize lipids. Analyze biomolecules by separation techniques**
5.	**III**	**Core Paper IV - Enzyme and EnzymeTechnology**	**The structure of the enzyme and its classification. Understanding the kinetics of the enzyme. The mechanism of action of enzymes and co-enzymes. The production, Purification and characterization of immobilized enzymes. Applications of enzymes**
6.	**III**	**Core Paper V – Microbiology**	**Basics in microscopy, culture methods and staining techniques. Morphology of bacteria, algae and fungi. Morphology of virus. Microbial diseases, their etiology and prevention. Pathogenesis of microbes in water, soil and food**
7.	**III**	**Skill based Subject I – Bioinformatics and Medical coding**	**The concepts and applications of biological databases The principle and applications of various search tools. The concepts of drug designing The concepts of terminologies in medical coding The guidelines of medical transcriptionist**
8.	**IV**	**Core Paper VI – Intermediary**	**Concepts of thermodynamics and the mechanism of**

		Metabolism	**energy transfer in ETC.** **Fate of the dietary carbohydrates.** **Fate of the dietary lipids.** **Fate of the dietary proteins.** **Interrelation among the carbohydrates, fat and protein metabolism.**
9.	**IV**	**Core Biochemistry Practical - II**	**Expertise in estimation of various biomolecules.** **Expertise in enzymic analysis.** **Acquire knowledge about the separation techniques**
10.	**IV**	**Skill based Subject 2 - Basics of Information Technology**	**Understood the fundamentals of information technology and importance ofdatabase system.** **Understood the basics of internet and concepts of networking.** **Understood the fundamental functioning of Cyber security.** **Understood the fundamental functioning of AI.** **Understood the fundamental functioning of IoT.**
11.	**V**	**Core Paper VII – Human Physiology**	**Visual cycle and Skeletal system.** **Blood and Digestive system.** **Respiratory and Excretory System.** **Nervous system and Endocrine system.** **Human Reproductive system.**
12.	**V**	**Core Paper VIII – Clinical Biochemistry**	**Carbohydrate metabolism.** **Lipid metabolism.** **Disorders of Amino acid metabolism.** **Gastric, pancreatic and intestinal functions.** **Liver function tests and Kidney function tests.**
13.	**V**	**Core Paper IX – Molecular Biology**	**Replication and DNA repair mechanism.** **Transcription Process.** **Genetic code and Translation Process.** **Recombination Mechanisms and Gene Regulations.** **Gene Mutations.**
14.	**V**	**Core Paper X – Genetic Engineering and Bioprocess Technology**	**Concepts of gene cloning.** **Recombinants – Identification and collection.** **Sequencing techniques.** **Applications and limitations of genetic engineering.** **Fermentation- Process, Recovery and application**
15.	**V**	**Skill based Subject 3 – Basics of Patent andBioethics**	**Provide information for role of Patent and protection of innovations.** **Adequate knowledge on patents and its laws for their future innovative idea.** **Knowledge about the Patent, IPR and bioethics and related issues.** **Knowledge on Bioethics complications within research and understanddifferent policies in ethics.** **Understand the importance of Biosafety guidelines and practices.**
16.	**V**	**Elective IA - IMMUNOLOGY AND IMMUNO TECHNIQUES**	**Understand the basics and concepts of immune system and its functions.** **Understand the basic concepts of immunology and immune reactions.** **Knowledge on immune system and Immuno**

			techniques. **Knowledge on immunological disease and immunotherapy.** **Understand to knowledge on transplantation and immunization techniques.**
17.	**V**	**Elective I B – Introduction to Biomaterials**	**First Generation Biomaterials.** **Second Generation Biomaterials and their Properties** **Second Generation Biomaterials and their Applications.** **DNA nanotechnology.** **Advanced Techniques for Single molecule Detection.**
18.	**V**	**Elective I C -NUTRITIONAL BIOCHEMISTRY**	**Explore scientific basis of nutrients and knowledge of nutritional biochemistry.** **Capable of describing chemical composition of nutritional worth of food.** **Understood the Effects of methods Nutrient analysis and energy content.** **Understood the scientific active constituents micro and macro nutrients.** **Understood the components of foods based on knowledge of nutrients in dietand health.**
19.	**VI**	**Core Paper XI – Plant Biochemistry and Plant Therapeutics**	**Mechanism of photosynthesis.** **Cycles of elements.** **Mode of action of phytoregulators.** **Biochemical changes during seed germination and senescence.** **Biological function of secondary metabolites.**
20.	**VI**	**Core Paper XII – Medicinal Chemistry**	**Understood the development of the traditional and modern methods used for drugdiscovery; of how molecules interact.** **Learnt the fact that the pharmaceutical industry is by far the largest employer ofMedicine.** **Learnt and developed skills in the use of reaction mechanisms.** **How knowledge of reaction mechanisms can aid in understanding the mode ofaction of a drug.** **The learnt method by which it can be synthesized, and developed.**
21.	**VI**	**Biochemistry Practical – III**	**Biomolecules in Urine.** **Biomolecules in Serum.Enzyme activities in Serum.**
22.	**VI**	**BIOCHEMISTRY PRACTICAL – IV**	**Develop skills on handling Microbial techniques.** **Impart knowledge Skills on enzyme assay techniques.** **Practice on basics Immunological assay.** **Develop skills on Plant compounds and basic knowledge on PTC.** **Knowledge practice on Hematology techniques.**
23.	**VI**	**Elective – II A- Plant and AnimalBiotechnology**	**Understood the components of culture media and various tissue culture techniques.** **Learnt about the technique of genetic engineering in plants and animals.** **Learnt about the synthesis and applications of**

			recombinant proteins from cellcultures.
24.	**VI**	**Elective II B -Nanomaterials andNanomedicine**	**Learn about the background on Nanomaterials and Nanomedicine.** **Understand the synthesis of nanomaterials and their application and the impact ofnanomaterials on environment.** **Apply their learned knowledge to develop Nanomaterials**
25.	**VI**	**Elective II C -Health and Hygiene**	**Understood the components of health concepts.** **Learnt about the nutrition, environment, maternal and child health.** **Learnt about the mental health and healthcare programmes**
26.	**VI**	**Elective III A - CLINICAL LABORATORY TECHNOLOGY**	**Students shall understand on the various clinical tests.** **Understand the significance of various test and interpretation in diseasedconditions.** **Apply the fundamentals to diagnositic tests.** **To analyze and interpret the values for both normal and disease conditions.** **Understand the basic tests can be done in home (Self Anlaysis)**
27.	**VI**	**Elective III B- Nano Biotechnology**	**Enable the students to gain knowledge on nanobiometrics, nanocomposites,nanoanalytics.** **Understand the basis on processing of nanoparticles and their functions.** **Apply the fundamental knowledge on naturally occurring nanoparticles and itsapplication various organs.** **Analyse the types of nanoparticles and its beneficial application in technology.** **Understand about semiconductors**
28.	**VI**	**Elective III C - Sports Biochemistry**	**To enable the students understand the functioning of human physiology during sports and exercise.** **Understand the Physiological changes that occurs during sports, types of organic materials and its significance** **To apply the fundamentals of various food components in role of sports.** **To analyse about the Nutritional requirements for sports** **Formulate new nutrition for sports persons**
29.	**VI**	**Skill Based Subject 4 - Practical –Bioinformatics**	**Acquire skill on working tools of docking.** **Gain knowledge on various insilico techniques.** **Get accustomed to structure prediction tools.** **Visualize different types of biomolecules.**
30.	**I**	**Allied Biochemistry I**	**A thorough knowledge about the structure, chemistry and function of carbohydrates.** **In depth knowledge about the significance of the complex lipids.** **An understanding about the importance of amino acids and proteins.**

			A knowledge about the importance of enzymes.
31.	**II**	**Allied Biochemistry II**	**Understood the Concepts of thermodynamics and the mechanism of oxidationreduction reactions.** **Gained knowledge about carbohydrates, protein and lipid metabolism.** **Understood the Interrelation among the arbohydrates, fat and protein metabolism.** **Gained knowledge about the role of hormones and vitamins.** **Gained knowledge about various disorders related to each metabolism.**

Course :B.Sc Physics

Program Outcomes (POs)

PO1 understand the basic concepts and significance of various physical phenomena.
PO2 transform ideas into action i.e. lab to land.
PO3 acquire a wide range of problem solving skills, both analytical and
computational and to apply them.
PO4 develop an independent and self-disciplined specialized learning in tune with the changing socio-technological scenario.
PO5 get motivated to pursue higher education and research activities in Physics to find professional level employment.
PO6 identify, analyse and formulate novel ideas to yield, substantial results in the fields of research utilizing the principles of Physics.
PO7 develop creative thinking and innovative tools.
PO8 communicate effectively in order to acquire employability/ self – employment.
PO9 acquire a broad interdisciplinary knowledge.
PO10 update themselves in the current developments and discoveries related to Physics.

Program Specific Outcomes (PSOs)

PSO1 realize the role of Physics in day to day life.
PSO2 communicate explicitly and exchange ideas with regard to the impacts of various components of Physics on environment and society.
PSO3 expertise in various domains of Physics.
PSO4 design and develop the skills towards the futuristic needs of the industry/ society utilizing both theoretical and practical knowledge acquired in basic Physics.
PSO5 identify and access the diverse applications of Physics using mathematical concepts enriching towards career opportunities.

S.No	Sem.	Course	Outcome

	No		
1.	**I**	**Core I MECHANICS, PROPERTIES OFMATTER AND SOUND**	**Understand and define the laws involved in mechanics.** **Gain deeper understanding of mechanics and its fundamental concepts.** **Understand the concept of properties of matter and to recognize their applications invarious real problems.** **Analyze the universal behavior of wave motion. K4** **Learning the basic concepts of elasticity, surface tension, Gravitation, viscosity, andsound and evaluating their values for various materials.** **Explore the production and application of ultrasonic wave.**
2.	**II**	**Core II HEAT AND THERMODYNAMICS**	**Realise various principles and laws of heat.** **Derive expressions and find experimental verifications for the laws studied.** **Analyse the applications of heat and thermodynamics in various areas and solvethe real life problems.**
3.	**II**	**CORE PRACTICAL I**	**Analyze the concepts of Viscosity, Surface Tension and Young's Modulus ofdifferent substances** **Explore the knowledge of Spectrometer and other Optical instruments.** **Realize principles and applications of Potentiometer, Sonometer, Magnetometerand PN junction diode.**
4.	**III**	**Core III OPTICS**	**Remember the behavior of light on passing through lens, prism, thin film andgrating.** **Understand the phenomena of light like Interference, diffraction, polarization andpopulation inversion** **Analyze and apply the concepts of dispersive power, refractive index, resolvingpower, double refraction, specific rotation and optical pumping for different Materials**
5.	**III**	**Skill I INSTRUMENTATION - I**	**Use the concepts of measurement.** **Understand a typical instrument design.** **Apply statistical error analysis for measurement.** **Choose a transducer/sensor for typical measurement of temperature, pressure andflow.** **Evaluate the performance and reliability of measurement devices available inmarket.** **Design a basic measurement device.**
6.	**IV**	**Core IV ATOMIC PHYSICS AND SPECTROSCOPY**	**Analyse various types of spectrographs to study about the positive rays.** **Explain magneto optical properties of materials.** **Find applications of photo electrical cells and X Rays.**
7.	**IV**	**CORE PRACTICAL II**	**Apply the concepts of Specific heat capacity and Young's Modulus of differentsubstances** **Acquire the knowledge of Physical optics using Spectrometer.** **Evaluate principles and applications of Potentiometer, Magnetometer and BG.**

8.	**IV**	**Skill II INSTRUMENTATION II**	**Use thermal and nuclear radiation detectors. Understand the high temperature process in transient and industrial conditions. Use adequate equipment to determine the state of pollution in the environment. Design and use simple instrumentation for measurement of mechanical properties. Understand the living conditions in industrial areas . Apply modelling concepts for the prediction and determination of randomvibrations**
9.	**V**	**Core V MATHEMATICAL PHYSICS**	**Derive Lagrange's and Hamilton's equations. Apply Lagrange's and Hamilton's equations to physical problems. Analyze gamma and beta functions and their applications. Solve problems on Matrices and apply them to relevant problems. Apply Stoke's and Gauss theorems to suitable physical problems**
10.	**V**	**Core VI ELECTRONICS**	**Differentiate between different types of amplifiers and their applications. Design different types of oscillators. Apply switching ideas to various devices. Analysing the power electronic devices and their uses Design operational amplifier circuits and to analyse their properties**
11.	**V**	**Core VII SOLID STATE PHYSICS**	**Choose the right material for a given application based on Fermi level concept. Analyze the magnetic materials for utilization in varied fields. Design new components or devices using dielectrics and superconductors.**
12.	**V**	**Core VIII ELECTRICITY AND MAGNETISM**	**Define and derive the laws of electricity and magnetism. Update the knowledge of properties and magnetism Expertise the skills to manufacture devices**
13.	**V**	**Skill III INSTRUMENTATION III**	**Understand the principles of biomedical instruments. Enable the students to understand the working of basic electromagnetic andelectronic instruments. Appropriately chose electronic components. Carry out minimal testing and maintenance of lab equipment. Troubleshoot simple electronic circuits using multi meters and oscilloscopes. Interpret results of Biomedical measurement.**
14.	**VI**	**Core IX QUANTUM MECHANICS AND RELATIVITY**	**Acquire the knowledge of wave nature of matter and its experimental verification. Understand Heisenberg uncertainity principle and apply it to verify problems inatomic and nuclear Physics. Identify the reason behind various physical problems using relativity and to solvethem.**

15.	**VI**	**Core X NUCLEAR PHYSICS**	**Understand the General properties of Nucleus.** **Analyze the construction and working of radiation detectors.** **Device instruments utilizing the behavior of nuclear particles.**
16.	**VI**	**CORE PRACTICAL III ELECTRONICS**	**Design different types of Power supplies, Amplifiers and Oscillators.** **To analyze the characteristics of various Electronic devices like BJT, UJT, LDR,and Solar cell.** **Acquire the knowledge of the characteristics of an operational amplifier.**
17.	**VI**	**CORE PRACTICAL IV DIGITAL AND MICROPROCESSOR**	**Analyze the different types of digital circuits and their applications.** **Realize the applications of registers in computers.** **Update the knowledge of Microprocessor programming.**
18.	**VI**	**CORE PRACTICAL V C AND C++ PROGRAMMING**	**Write and execute programmes in C and C++.** **Analyze the programming concepts for Physics problems.** **Evaluate the solutions for different Mathematical problems.**
19.	**VI**	**Skill IV INSTRUMENTATION PRACTICALS**	**Service and rectify the defects in laboratory instruments.** **Service and rectify the defects in simple house hold devices.** **Device new instruments applying the knowledge of instrumentation.**
20.	**V**	**ELECTIVE – I A PRINCIPLES OF PROGRAMMING CONCEPTS AND C PROGRAMMING**	**Design features of programming languages, and justify their own design decisions.** **Critically evaluate what paradigm and language are best suited for a new problem.** **Use C programming to solve Physics problems.**
21.	**V**	**ELECTIVE – IB ENERGY PHYSICS**	**Understand the heating effect of current and application of it.** **Select the correct material for making waveguide based on basic optical laws.** **Understand Maxwell's law of equipartition of energy.** **Analyze the distribution of energy in the thermal spectrum.** **Calculate effective utilization of solar radiation, power in the wind and tidal energy.**
22.	**V**	**ELECTIVE – IC AGRICULTURAL PHYSICS**	**Understand the role of physics in daily life.** **Introduce technological applications into agriculture.** **Explore the physical properties of soil and water.**
23.	**VI**	**ELECTIVE –I I A DIGITAL AND MICROPROCESSOR**	**Draw and construct the logic circuit for any Boolean equation.** **Apply the Karnaugh Map to simplify Boolean equation and draw a simplified circuit** **Understand the function of data processing and arithmetic circuits.** **Understand the Mnemonics and Opcodes in the**

			Microprocessor. **Develop programming skills using the basic concepts.**
24.	**VI**	**ELECTIVE –I I B** **OPTICAL FIBRES AND FIBRE OPTIC COMMUNICATION SYSTEMS**	**Understand the fibre classification.** **Test the cables during installation of cable based on cable selection criteria.** **Analyze the attenuation and dispersion in an optical fibre.** **Calculate the efficiency, modulation bandwidth and spectral emission of lightsources.** **Use the knowledge to make varied link and networking.**
25.	**VI**	**ELECTIVE –I IC** **BIO PHYSICS**	**Understand interactions between various systems of cells.** **Provide life-saving treatment methods like radiation therapy.** **Find powerful vaccines against infectious diseases.**
26.	**VI**	**ELECTIVE –III A** **Object Oriented Programming with C++**	**Understand the concept of data abstraction and encapsulation.** **Learn how to design C++ classes for code reuse.** **Learn how to use exception handling in C++ programs.**
27.	**VI**	**ELECTIVE –IIIB** **GEOPHYSICS**	**Study the genesis and the propagation of seismic waves in geological materials.** **Apply different techniques to solve complex problems and evaluate large areas ofsubsurface rapidly.** **Do modeling and calculations using computers.**
28.	**VI**	**ELECTIVE –IIIC** **INDUSTRY AUTOMATION & ITSAPPLICATIONS (INDUSTRY 4.0)**	**Understand the basics of windows and internet of things.** **Be aware of ethical Hacking.** **Practice Google apps and recognize their applications in day-to-day life**

Course : B.Sc Chemistry

Program Outcomes (POs)

PO1 Understand the chemistry and apply their knowledge in day-to-day life
PO2 Explore the knowledge of analytical techniques to the industries for various analysis.
PO3 Develop skills to carry out experiments in various fields of chemistry
PO4 Identify, formulate and solve the technological problems of the industry
PO5 Apply their theoretical knowledge to make the common people to understand the chemistry behind every chemical changes.
PO6 Confidence with skills and techniques necessary to succeed in the competitive examinations
PO7 Have the knowledge of science principles to practical situations in their respective professional career.

Program Specific Outcomes (PSOs)

PSO1 Apply chemistry knowledge to solve the problems in various areas.
PSO2 Acquire a skill for safe handling of chemicals, apparatus and instruments
PSO3 Identify and analyze problems and gain skills to interpret chemical information.
PSO4 Gain practical knowledge and analytical skills in designing and carrying out chemical experiments.
PSO5 Have enough chemistry knowledge to go for higher studies and become
Entrepreneur.

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I GENERAL CHEMISTRY - I**	**Understand the properties of period and groups in periodic table.** **Able to name the hydrocarbons and Identify the products of elimination andaddition reactions.** **Discuss the various polar effects in alkanes and alkenes. Describe thepreparation of cycloalkanes** **Explain the theory of black body radiation.** **Understand the first and second law of thermodynamics**
2.	**II**	**Core II GENERAL CHEMISTRY - II**	**Understand the principles of volumetric analysis and estimate an unknownion.** **Outline the structure and properties of boron and silicate compounds.** **Explain the aromatic electrophilic substitution and aliphatic nucleophilicsubstitution reactions with mechanism.** **Understand the relation between thermodynamic properties** **Understand the packing and structure of crystals.**
3.	**II**	**CORE III - CHEMISTRY PRACTICAL I**	**Do preliminary tests and identify interfering and non-interferingradicals and confirm their presence.** **Remove interfering anions, carry out a systematic analysis and identifythe cations in a given sample.**
4.	**III**	**Core IV INORGANIC CHEMISTRY - I**	**Explain various chemical and electrochemical principles involved in the extraction of metals.** **Make use of the occurrence and extraction of important metals and theircompounds.** **Understand and explain the various theories of coordination compoundsand stability of metal complexes.** **Define the terms EAN rule classify the organometallic compounds,structure and properties of organometallic compounds.** **Describe the structure & functioning of biomolecules and role of metals inbiology.**
5.	**III**	**Core V PHYSICAL**	**Understand the concepts of thermodynamics, Second**

		CHEMISTRY - I	**law, and Entropy change.** **Understand the Spontaneity and its conditions, Gibb's free energy andknowledge of third law.** **Understand the concepts of Phase rule and its applications to varioussystems.** **Know the different laws of solutions and evaluate the Colligative properties.** **Understand the C-Program and evaluate the various parameters.**
6.	**III**	**Skill I CHEMISTRY OF NATURAL AND SYNTHETIC FIBERS**	**To understand the classification, properties and uses of natural fibers.** **Able to know about the chemical structure of cellulose fiber. Wetspinning process.** **Discuss about synthetic and acrylic fiber. Detail about fiber formingpolymer and schio process.** **Explain the naming reaction of nylon fiber.** **Explanation of structure anduses of Kevlar fiber.** **Discuss about polyester fiber. Synthesis of DMT, ethylene glycol andPET.**
7.	**IV**	**Core VI ORGANIC CHEMISTRY - I**	**Know the knowledge of Preparation and Properties of CarbonylCompounds.** **Understand the mechanism of certain name reactions.** **Understand the concepts of active Methylene compounds and Geometricalisomerism of certain organic compounds.** **Know the classification of Phenols, Preparation of phenolic compoundswith chemical properties.** **Know the concepts of amines, types, separation and their basic nature.**
8.	**IV**	**CORE VII - CHEMISTRY PRACTICAL II**	**Estimate the amount of ion present in the given solution throughvolumetric analysis both by direct and indirect method.** **Find the groups/elements and characters present in the given organicsubstance through qualitative analysis and prepare a suitablederivative.**
9.	**IV**	**Skill II TECHNOLOGY OF DYEING OF NATURAL FIBERS**	**Understand the basic aspects of yarns, it's classification and systematicapproach to the applied aspects of twisting of yarns.** **Equip with the knowledge of spinning and it's application of fibers afterblending with synthetic polymers.** **Work with various practical aspects of spin finish of textile fibers.** **Understand the knowledge of dying synthetic fibers and boost theirconfidence to cater the needs of textile industry and market.** **Explain, discuss and understand the eco-friendly aspects of dying with aspecial reference to dyes.**
10.	**V**	**Core VIII INORGANIC CHEMISTRY – II**	**Rationalise the conductivity of metals, semiconductors along with itsapplications.** **Understand the types of nuclear reactions and its**

			importance in generationof electricity. **Acquire enormous knowledge on uses of isotopes and radioactivesubstances.** **Understand the terms - ligand, chelate, coordination number and varioustypes of isomerism possible in coordination compounds.** **Outline the importance of solvents and solubility in chemical reactions.**
11.	**V**	**Core IX SPECTROSCOPY**	**Gain the knowledge of different electromagnetic radiations, basic concepts,instrumentation and applications of UV-Visible spectra.** **Know different types of vibrational frequencies, comparison between IRand Raman spectroscopy as well as their applications.** **Study the basic principles, instrumentation and applications of NMRspectroscopy pertaining to some simple organic compounds.** **Acquire the knowledge on the basic concepts, instrumentation andapplications associated with ESR.** **CO5 Understand the different concepts of mass spectrometry along with thedetermination of molecular formula.**
12.	**V**	**Core X ELECTRO CHEMISTRY**	**Describe the principle of solubility product and relate the pH of a solutioncontaining a mixture of the two components to the acid dissociation constant,** **Understand the difference between metallic conductance & electrolyticconductance.** **Recognize the different types of electrochemical cells and calculate the cellpotential from standard cell potential.** **Distinguish between cells and use the Nernst equation for calculating EMFof a cell.** **Understand the working principles of fuel cells, storage cells and batterydesign.**
13.	**V**	**Core XI ANALYTICAL CHEMISTRY**	**Understand the principles of various analytical techniques and theirapplications** **Evaluate different types of errors and correct them.** **Perform various tests for set of analytical** **Understand the theory of quantitative analysis.** **Determine an analyte quantitatively using gravimetric methods.**
14.	**V**	**Skill III WATER & EFFLUENT TREATMENT ANDPOLLUTION CONTROL**	**To understand urbanization and biodiversity along with environmentalpollution.** **Acquires the knowledge about water pollution and water softeningmethods.** **Importance about water analyzing methods along with determination ofBOD, COD and toxicity.** **Detail explanation of primary, secondary and tertiary water treatmentmethods.** **Discuss about effect of noise pollution along with**

			brief study on modernmethods for pollution analysis.
15.	**VI**	**Core XII ORGANIC CHEMISTRY - II**	**Gain the knowledge on different types of optically active moleculesand their naming methods.** **Understand the mechanisms of inter and intramolecular rearrangementreactions with examples.** **Acquire the knowledge on the preparation, properties and uses ofheterocyclic compounds, amino acids and proteins.** **Know the classification, structural elucidation and synthesis ofterpenoids and vitamins.** **Understand the different types and structural elucidation of alkaloidsand harmones.**
16.	**VI**	**Core XIII PHYSICAL CHEMISTRY II**	**Understand the electrical properties of molecules and its application.** **Understand magnetic properties of molecules and its application forsolving problem for structure determination.** **Know about the order and molecularity of reaction and alsodetermination of order of reactions.** **Understand and learn the theoretical and experimental aspects of kineticsof reactions.** **Gain detailed knowledge on photochemical and thermal reactions.**
17.	**VI**	**Core XIV - CHEMISTRY PRACTICAL III**	**Understand the concept of gravimetric analysis.** **Find a suitable precipitation method and perform effective precipitation todetermine the amount of the cation.** **Calculate the conductance of the solution at various stages of neutralization.** **Determine the rate and dissociate constant for a reaction.** **Perform graphical analysis to arrive experimental results based on thephysical chemistry experiments.**
18.	**VI**	**Core XV PRACTICAL FOR ELECTIVESUBJECTS**	**Use the physical constants in the analysis of a substance.** **Prepare inorganic complexes.** **Perform organic transformation involving substitution and oxidationreactions.** **Use effectively the Complexometric method to estimate hardness ofwater.** **Colorimetric methods in the estimation of various salts and ions.**
19.	**VI**	**Skill IV TEXTILE CHEMISTRY PRACTICAL**	**Analyze the quality of water for industrial use as well as varioussubstances of industrial use.** **Learn the various methods of dye preparation and dyeing.**
20.	**V**	**Elective – I (A) POLYMER CHEMISTRY**	**Classify Polymers based on their origin, mechanism of formation, citingexample. Understand the methods of preparation process and apply thecorrect method of preparation for a particular polymer.** **Analyze the reaction mechanisms of polymerization.**

			Understand the relation between the bond forces and structural properties ofpolymers. **Understand the principles behind the molecular determination methods andapplying them to calculate the different molecular weights of polymers.** **Explain the basic preparation methods and have a good knowledge on theIndustrial Applications of Polymers.**
21.	**V**	**Elective I (B)** **Agro Industrial Chemistry**	**Have knowledge on the sources of water for agriculture and analysis ofwater and basics on waste water treatment.** **Acquires the knowledge about soil, soil fertility and various parametersinvolved in evaluation of soil.** **Describe the importance of nutrients, fertilizers and pesticides for plantgrowth** **Understand the sources and production of sugar and uses of molasses. K1-K6** **5 Outline the chemistry of oils, fats and waxes and their role in everyday life**
22.	**V**	**Elective I (C)** **Pharmaceutical Chemistry**	**Have knowledge on terminologies used in pharmaceuticals and theirclinical chemistry.** **Understand the chemistry and uses of alkaloids, analgesics, antibiotics andsulfonamides.** **Understand how molecules play important role as medicine.** **Have knowledge on bioinorganic chemistry and their role in variousdiseases.** **Outline the importance of drugs with special emphasize on cardiovascularrelated diseases.**
23.	**VI**	**Elective II (A)** **Leather Chemistry**	**Understand the structure and composition of hides and skins and principleinvolved in pre-tanning.** **Have knowledge on various types of tanning and their physic-chemicalproperties.** **Interpret the chemistry behind the chrome tanning process.** **Analyze the process involved in curing of hides and skin and theirpreservation.** **Have clear idea on sources of tannery effluents and their treatment.**
24.	**VI**	**Elective II (B)** **CHEMISTRY OF PLANT BASED PRODUCTS**	**Understand the structure, physical and chemical properties and manufactureof starch and their applications.** **Identify the sources, structure, properties and reactions of cellulose.** **Describe the structure, Properties, manufacture and uses of proteins.** **Give the structure of derivatives of cellulose K1-K3** **Outline the chemistry behind paper industry with special emphasis oncellulose.**
25.	**VI**	**Elective II (C)** **DYE CHEMISTRY**	**Understand the principles of colour and its relation withcompound's structure.**

			Analyze and classify dyes based on their chemical structure andapplications. **Describe the synthesis of di and triphenyl methane dyes and theirapplications.** **Understand chemistry of nitrogen containing dyes and theirapplications.** **Outline the importance of pigments in various fields.**
26.	**VI**	**Elective III (A)** **ANALYTICAL CHEMISTRY II-LABTECHNIQUES**	**Describe the principles of various chromatography** **Understand the theory behind UV, IR and NMR spectrophotometry andtheir applications.** **Describe the instrumentation of polarimetry.** **Know the various electrochemical methods of analysis and theirapplications.** **Outline the synthesis and purification steps of some of organic andinorganic compounds.**
27.	**VI**	**Elective III (B)** **ENVIRONMENTAL CHEMISTRY**	**Understand the concepts ,environmental segments and composition of theatmosphere.** **Know about the environment cycles and their significance.** **Discuss the water pollution,sewage and Industrial waste water treatment.** **Describe the reactions in air pollution ,particulates and analysis ofpollutants** **Explain the thermal,noise and radioactive pollution and their effects andmethods of control.**
28.	**VI**	**Elective III (C)** **TEXTILE CHEMISTRY**	**Understand the structure, production, properties and uses of natural fibers.** **Understand the structure, production, properties and uses of synthetic fibers.** **Describe the various dyeing methods and natural dyes used for cotton fiber.** **Outline different methods available for dyeing wools and silks.**
29.	**I**	**Allied Chemistry - I**	**Understand the properties metals and their conductivity, the principle behindthe synthesis and applications of boron compounds.** **Understand about silicones fuels gases and their industrial applications.** **The theory behind colours and dyes, their preparation and dyeing.** **Understand the bonding and structure of various hydrocarbons and electroniceffects. Apperciate the optical properties of compounds and how itdeterminesthe compounds nature itself.** **Explain the chemistry behind toiletries and cleaning agents.** **Understand the kinetics benind chemical reactions and the nature of solutions.**
30	**II**	**Allied Chemistry - II**	**Appreciate the role of metals in biological system and their therapeutic effects.** **Understand about the importance of paints and the need for explosives as wellas the bad face of war.**

			Understand the importance of polymers and rubbers in our day to day life. **Appreciate the need for fertilizers and insecticides in the Agricultural sector.** **Understand the importance of electrochemistry and energy storage devices.**
31.	**II**	**Allied Chemistry Practical**	**Estimate the amount of ion present in the given solution throughvolumetric analysis** **Find the groups/elements and characters present in the given organicsubstance through qualitative analysis.e**

Course :B.C.A

Program Outcomes (POs)

PO1Disciplinary knowledge: Capable to apply the knowledge of mathematics,algorithmic principles and computing fundamentals in the modeling and designof computer based systems of varying complexity.
PO2Scientific reasoning/ Problem analysis: Ability to critically analyze, categorizes,formulate and solve the problems that emerges in the field of computer science.
PO3Problem solving: Able to provide software solutions for complex scientific andbusiness related problems or processes that meet the specified needs withappropriate consideration for the public health and safety and the cultural, societaland environmental considerations.
PO4Environment and sustainability: Understand the impact of software solutionsin environmental and societal context and strive for sustainable development.
PO5Modern tool usage: Use contemporary techniques, skills and tools necessary forintegrated solutions.
PO6Ethics: Function effectively with social, cultural and ethicalresponsibility as an individual or as a team member with positiveattitude.
PO7Cooperation / Team Work: Function effectively as member or leader onmultidisciplinary teams to accomplish a common objective.
PO8Communication Skills: An ability to communicate effectively with diversetypes of audience and also able to prepare and present technical documents todifferent groups.
PO9Self-directed and Life-long Learning: Graduates will recognize the need forself-motivation to engage in lifelong learning to be in par with changingtechnology.
PO10 Enhance the research culture and uphold the scientific integrity and objectivity

Program Specific Outcomes (PSOs)

PSO 1 Develop proficiency in problem solving and logical thinking skill.
PSO 2 To impart the knowledge of programming languages, web designing,networking and Software development cycle.
PSO 3 Enrich the communicative ability to present orally throughout all the stagesof Software development process.
PSO 4 Learn latest development and technologies in IT and Communicationssystem.
PSO 5 Implementation of professional engineering solutions for the betterment ofsociety keeping the environmental context in mind, be aware of professionalethics and be able to communicate effectively.

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I Computing Fundamentals and C**	**Learn about the Computer fundamentals and the Problem solving.**

		Programming	**Understand the basic concepts of C programming. Describe the reason why different decision making and loop constructs are available for iteration in C Demonstrate the concept of User defined functions , Recursions , Scope andLifetime of Variables, Structures and Unions. Develop C programs using pointers Arrays and file management.**
2.	**I**	**Core II Digital Fundamentals and Computer Architecture**	**Learn the basic structure of number system methods like binary, octal andhexadecimal and understand the arithmetic and logical operations are performed bycomputers. Define the functions to simplify the Booleanequations using logic gates. Understand various data transfer techniques in digital computer and control unit operations. Compare the functions of the memory organization. Analyze architectures and computational designs concepts related to architectureorganization and addressing modes.**
3.	**I**	**Core Lab: 1 Programming Lab – C**	**Remember and Understand the logic for a given problem and to generate Primenumbers & Fibonacci Series (Program-1,2,3). Apply the concepts to print the Magic square, Sorting the data, Strings, Recursivefunctions and Pointers (Program-4, 5, 6, 8, 10). Remember the logic used in counting the vowels in a sentence (Program-7) Apply and Analyze the concepts of Structures and File management**
4.	**II**	**Core III C++ PROGRAMMING**	**Define the different programming paradigm such as procedure oriented and objectoriented programming methodology and conceptualizeelements of OO methodology. Illustrate and model real world objects and map it into programming objects for alegacy system. Identify the concepts of inheritance and its types and develop applications usingoverloading features. Discover the usage of pointers with classes Explain the usage of Files, templates and understand the importance of exceptionHandling.**
5.	**II**	**Core Lab II PROGRAMMING LAB - C++**	**Define the different programming paradigm such as procedure oriented and objectoriented programming methodology and conceptualize elements of OOmethodology. Illustrate and model real world objects and map it into programming objects for alegacy system. Identify the concepts of inheritance and its types and develop applications usingoverloading features. Discover the usage of pointers with classes. Explain the usage of Files, templates and understand the importance of exceptionHandling.**

6.	**II**	**Core Lab III** **Internet Basics**	**Understand the fundamentals of Internet and the Web concepts.** **Explain the usage of internet concepts and analyze its components.** **Identify and apply the online information resources.** **Inspect and utilize the appropriate Google Apps for education effectively.**
7.	**III**	**Core IV** **Data Structures**	**Understand the basic concepts of data structures and algorithms.** **Construct and analyze of stack and queue operations with illustrations.** **Enhance the knowledge of Linked List and dynamic storage management.** **Demonstrate the concept of trees and its applications.** **Design and implement various sorting and searching algorithmsfor applications and understand the concept of file organizations.**
8.	**III**	**Core V** **Java Programming**	**The competence and the development of small to medium sized applicationprograms that demonstrate professionally acceptable coding.** **Demonstrate the concept of object oriented programming through Java.** **Apply the concept of Inheritance, Modularity, Concurrency, Exceptions handlingand data persistence to develop java program.** **Develop java programs for applets and graphics programming.** **Understand the fundamental concepts of AWT controls, layouts andevents.**
9.	**III**	**Core Lab: 4** **Programming Lab – JAVA**	**Understand the basic concepts of Java Programming with emphasis on ethics andprinciples of professional coding.** **Demonstrate the creation of objects, classes and methods and theconcepts of constructor, methods overloading, Arrays, branchingand looping.** **Create data files and Design a page using AWT controls and Mouse Events in Javaprogramming** **Implement the concepts of code reusability and debugging.** **Develop applications using Strings, Interfaces and Packages and applets.** **Construct Java programs using Multithreaded Programming andException Handling.**
10.	**III**	**Skill I** **Web Programming**	**Understand the basic concepts of Internet, WWW, browsers and Email and protocols.** **Understand and apply the HTML, HTML elements and formatting styles.** **Knowledge on creating tables, forms and DHTML.** **Understand the structure of XML document, DTD and Schema.** **Knowledge on working with SML, Style sheets and XSL.**

11.	**IV**	**Core VI** **System Software and Operating Systems**	**Know the program generation and program execution activities in detail.** **Understand the concepts of Macro Expansions and Gain the knowledge of Editingprocesses.** **Remember the basic concepts of operating system.** **Understand the concepts like interrupts, deadlock, and memorymanagement and file management.** **Analyze the need for scheduling algorithms and implement different algorithmsused for represent-tation, scheduling, and allocation in DOS and UNIX..**
12.	**IV**	**Core VII** **Linux and Shell Programming**	**Describe the architecture and features of Linux Operating System and distinguish itfrom other Operating System.** **Develop Linux utilities to perform File processing, Directory handling, UserManagement and display system configuration.** **Develop shell scripts using pipes, redirection, filters and Pipes.** **Apply and change the ownership and file permissions using advance Unix commands.** **Build Regular expression to perform pattern matching using utilities andimplement shell scripts for real time applications.**
13.	**IV**	**Core Lab: 5** **Programming Lab – LINUX and SHELL PROGRAMMING**	**Develop Linux utilities to perform File processing, Directory handling and UserManagement.** **Understand and develop shell scripts using pipes, redirection, filters, Pipes anddisplay system configuration.** **Develop simple shell scripts applicable to file access permission networkadministration.** **Apply and change the ownership and file permissions using advance Unix commands.** **Create shell scripts for real time applications.**
14.	**IV**	**Skill II** **Lab – Web Programming**	**Understand the problems and create applications in basics of web programming.** **Understand and develop Web pages with formatting styles.** **Apply the features in HTML to present the details given.** **Analyze the problem, apply the concept for developing applications.**
15.	**V**	**Core VIII** **RDBMS & Oracle**	**Understand the basic concepts of Relational Data Model, Entity-Relationship Model and process of Normalization** **Understand and construct database using Structured Query Language (SQL) in Oracle9i environment.** **Learn basics of PL/SQL and develop programs using Cursors,Exceptions, Procedures and Functions.** **Understand and use built-in functions and enhance the knowledge of handling multiple tables** **Attain a good practical skill of managing and retrieving of data usingData Manipulation Language**

			(DML).
16.	**V**	**Core IX** **Visual Basic**	**Demonstrate fundamental skills in utilizing the tools of a visual environment suchas command, menus and toolbars.** **Implement SDI and MDI applications using forms, dialogs and other types of GUI components.** **Understand the connectivity between VB with MS-ACCESS database.** **Implement the methods and techniques to develop projects.** **Attain a good practical skill of managing ODBC and Data Access Objects.**
17.	**V**	**Core Lab : 6** **Programming Lab –** **VB & Oracle**	**Understand the concepts of Visual Basic.** **Learn the advantages of Controls in VB.** **Design and develop the event- driven applications using Visual Basic framework.** **Apply the knowledge of database methods.** **Learn basics of PL/SQL and develop programs using Cursors, Exceptions,** **Procedures and Functions.**
18.	**V**	**Elective I** **Introduction to Compiler Design**	**Understand the use of translators and complier, structure of a compiler.** **Understand and apply the context free grammars and parsing techniques.** **Understand and remember the syntax directed translations, intermediate codes.** **Understand the run time storage schems, error detection and recovery.** **Understand and apply knowledge on code optimization and code generator.**
19.	**V**	**Elective : I** **PHP & Scripting Languages**	**Understand the basics of .VB script and Java script** **Understand the I/O handling, data validation, Activex control and validation.** **Understand and remember the java script objects, form validations, cookies andplugins.** **Understand the sever side scripting language basics.** **Knowledge on PHP objects, cookies, connecting remote files, and databaseconnections.**
20.	**V**	**Elective : I** **PYTHON Programming**	**Remembering the concept of operators, data types, looping statements in Python programming.** **Understanding the concepts of Input / Output operations in file.** **Applying the concept of functions and exception handling.** **Analyzing the structures of list, tuples and maintaining dictionaries.** **Demonstrate significant experience with python program development environment.**
21.	**V**	**Skill III** **CASE Tools Concepts and Applications**	**Understand the basic concepts of software engineering.** **Apply the software engineering models in developing**

			software applications. **Implement the object oriented design in various projects.** **Knowledge on how to do a software project with in-depth analysis.** **To inculcate knowledge on Software engineering concepts in turn gives aroadmap to design a new software project.**
21	**VI**	**Core X** **Graphics & Multimedia**	**Explain applications, principles, commonly used and techniques of computergraphics and algorithms for Line-Drawing, Circle- Generating and Ellipse-Generating.** **Students will get the concepts of 2D and 3D, Viewing, Curves and surfaces,HiddenLine/surface elimination techniques.** **Studies concepts of Multimedia Systems, Text, Audio and Video tools.** **Compressing audio and video using MPEG-1 and MPEG-2.** **Creates Animation with special effects using algorithms.**
22	**VI**	**Core XI** **Project Work Lab**	**Formulate a real world problem and develop its requirements, develop a designsolution for a set of requirements.** **Test and validate the conformance of the developed prototype against the originalrequirements of the problem.** **Work as a responsible member and possibly a leader of a team in developingsoftware solutions.** **Express technical ideas, strategies and methodologies in written form. Self-learnnew tools, algorithms and techniques that contribute to the software solution of the project.** **Generate alternative solutions, compare them and select the optimum one.**
23.	**VI**	**Core Lab : 7** **Programming Lab – Graphics & Multimedia**	**Understand the basic concepts of computer graphics.** **Design scan conversion problems using C and C++ programming.** **Apply clipping and filling techniques for modifying an object.** **Understand the concepts of different type of geometric transformation ofobjects in 2D.** **Understand and develop the practical implementa-tion of modeling, rendering,viewing of objects in 2D.**
24.	**VI**	**Elective: II** **Computer Networks**	**Remember the organization of computer networks, factors influencing computernetwork development and the reasons for having variety of different types of networks.** **Understand Internet structure and can see how standard problems are solved andthe use of cryptography and network security.** **Apply knowledge of different techniques of error**

			detection and correction to detectand solve error bit during data transmission. **Analyze the requirements for a given organizational structure and select the mostappropriate networking architecture and technologies.** **Knowledge about different computer networks, reference models and the functionsof each layer in the models.**
25.	**VI**	**Elective: II** **Dot Net Programming**	**Understand the basics of .NET framework and the object oriented programming.** **Understand the procedures, File I/O, Error handling and Message queues.** **Understand and remember the components in VB.NET IDE, ADO.NET and alsothe window forms.** **Understand the HTML server controls, Web controls, Validation controls andstate management and tracing.** **Knowledge on SOAP, building web services and deploying and publishing webservices, Finding and consuming web services.**
26.	**VI**	**Elective: II** **Distributed Computing**	**Understand the concepts and techniques in distributed computing and client server computing.** **Understand the pros and cons of distributed processing, databases, challenges.** **Understand the design considerations in distributed computing.** **Understand and analyse the client server network model, file server, printer server and email server.** **Understand and obtaining the Knowledge on distributed databases, R* project techniques.**
27.	**VI**	**Elective: III** **Internet of Things (IoT)**	**To understand the fundamentals of Internet of Things.** **To know the basics of communication protocols and the designing principles of Web connectivity.** **To gain the knowledge of Internet connectivity principles.** **Designing and develop smart city in IoT.** **Analyzing and evaluate the data received through sensors in IOT.**
28.	**VI**	**Elective: III** **Web Services**	**Understand about the distributed computing, web services, technologies and applications, XML document (WSDL) and the concepts of XML, protocol (SOAP), locating the remote web services.** **Understand the concepts of UDDI and its specifications, Understand the concepts of system interface and its workflow, the common attacks.** **Examining the concepts of architecture of system to meet the user requirements and analyse the concepts of mobile and wireless services, Design and develop the real-world enterprise applications using web services.**

			Analysing the steps necessary to build and deploy the web services. **Applying the applications created based on the web services on different web servers.**
29.	**VI**	**Elective: III** **Software Testing**	**Explain the basic concepts and the processes that lead to software testing.** **Design test cases from the given requirements using Black box testing techniques.** **Identify the test cases from Source code by means of white box testing techniques.** **Know about user acceptance testing and generate test cases for it.** **Examine the test adequacy criteria to complete the testing process.**
30.	**VI**	**Skill IV** **Lab – CASE TOOLS LAB**	**Prepare the CASE tools for the given specification.** **Understand and develop the UML diagram for real time applications.** **Design the real time test cases.** **Analyze the development of CASE tools.** **Design the CASE tools and generate VB code.**

Course : B.Sc Computer Science

Program Outcomes (POs)

PO1 Disciplinary knowledge: Capable to apply the knowledge of mathematics, algorithmic principles and computing fundamentals in the modeling and design of computer based systems of varying complexity.
PO2 Scientific reasoning/ Problem analysis: Ability to critically analyze, categorizes, formulate and solve the problems that emerges in the field of computer science.
PO3 Problem solving: Able to provide software solutions for complex scientific and business related problems or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural, societal and environmental considerations.
PO4 Environment and sustainability: Understand the impact of software solutions in environmental and societal context and strive for sustainable development.
PO5 Modern tool usage: Use contemporary techniques, skills and tools necessary for integrated solutions.
PO6 Ethics: Function effectively with social, cultural and ethical responsibility as an individual or as a team member with positive attitude.
PO7 Cooperation / Team Work: Function effectively as member or leader on multidisciplinary teams to accomplish a common objective.
PO8 Communication Skills: An ability to communicate effectively with diverse types of audience and also able to prepare and present technical documents to different groups.
PO9 Self-directed and Life-long Learning: Graduates will recognize the need for self-motivation to engage in lifelong learning to be in par with changing technology.
PO10 Enhance the research culture and uphold the scientific integrity and objectivity

Program Specific Outcomes (PSOs)

PSO1 Impart the fundamental principles and methods of Computer Science to a wide range of applications.
PSO2 Develop and deploy applications of varying complexity using the acquired knowledge in various programming languages, data structures and algorithms, database and networking skills.
PSO3 To investigate and analyze complex problems by the application of suitable mathematical and research

tools, to design Information Technology products and solutions
PSO4 To identify and utilize the state-of-the-art tools and techniques in the design and development of software products and solutions.
PSO5 Ability to identify, interpret, analyze and design solutions using appropriate algorithms of varying complexities in the field of information and communication technology.

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I Computing Fundamentals and C Programming**	**Learn about the Computer fundamentals and the Problem solving.** **Understand the basic concepts of C programming.** **Describe the reason why different decision making and loop constructs are available for iteration in C** **Demonstrate the concept of User defined functions , Recursions , Scope andLifetime of Variables, Structures and Unions.** **Develop C programs using pointers Arrays and file management.**
2.	**I**	**Core II Digital Fundamentals and Computer Architecture**	**Learn the basic structure of number system methods like binary, octal andhexadecimal and understand the arithmetic and logical operations are performed bycomputers.** **Define the functions to simplify the Boolean equations using logic gates.** **Understand various data transfer techniques in digital computer and control unit operations.** **Compare the functions of the memory organization.** **Analyze architectures and computational designs concepts related to architectureorganization and addressing modes.**
3.	**I**	**Core Lab: 1 Programming Lab – C**	**Remember and Understand the logic for a given problem and to generate Primenumbers & Fibonacci Series (Program-1,2,3).** **Apply the concepts to print the Magic square, Sorting the data, Strings, Recursivefunctions and Pointers (Program-4, 5, 6, 8, 10).** **Remember the logic used in counting the vowels in a sentence (Program-7)** **Apply and Analyze the concepts of Structures and File management**
4.	**II**	**Core III C++ PROGRAMMING**	**Define the different programming paradigm such as procedure oriented and objectoriented programming methodology and conceptualizeelements of OO methodology.** **Illustrate and model real world objects and map it into programming objects for alegacy system.** **Identify the concepts of inheritance and its types and develop applications usingoverloading features.** **Discover the usage of pointers with classes** **Explain the usage of Files, templates and understand the importance of exceptionHandling.**

5.	**II**	**Core Lab II** **PROGRAMMING LAB - C++**	**Define the different programming paradigm such as procedure oriented and objectoriented programming methodology and conceptualize elements of OOmethodology.** **Illustrate and model real world objects and map it into programming objects for alegacy system.** **Identify the concepts of inheritance and its types and develop applications usingoverloading features.** **Discover the usage of pointers with classes.** **Explain the usage of Files, templates and understand the importance of exceptionHandling.**
6.	**II**	**Core Lab III** **Internet Basics**	**Understand the fundamentals of Internet and the Web concepts.** **Explain the usage of internet concepts and analyze its components.** **Identify and apply the online information resources.** **Inspect and utilize the appropriate Google Apps for education effectively.**
7.	**III**	**Core IV** **Data Structures**	**Understand the basic concepts of data structures and algorithms.** **Construct and analyze of stack and queue operations with illustrations.** **Enhance the knowledge of Linked List and dynamic storage management.** **Demonstrate the concept of trees and its applications.** **Design and implement various sorting and searching algorithmsfor applications and understand the concept of file organizations.**
8.	**III**	**Core V** **Java Programming**	**The competence and the development of small to medium sized applicationprograms that demonstrate professionally acceptable coding.** **Demonstrate the concept of object oriented programming through Java.** **Apply the concept of Inheritance, Modularity, Concurrency, Exceptions handlingand data persistence to develop java program.** **Develop java programs for applets and graphics programming.** **Understand the fundamental concepts of AWT controls, layouts andevents.**
9.	**III**	**Core Lab: 4** **Programming Lab – JAVA**	**Understand the basic concepts of Java Programming with emphasis on ethics andprinciples of professional coding.** **Demonstrate the creation of objects, classes and methods and theconcepts of constructor, methods overloading, Arrays, branchingand looping.** **Create data files and Design a page using AWT controls and Mouse Events in Javaprogramming** **Implement the concepts of code reusability and debugging.** **Develop applications using Strings, Interfaces and Packages and applets.**

			Construct Java programs using Multithreaded Programming andException Handling.
10.	**III**	**Skill I** **Software Engineering and Software ProjectManagement**	**Understand the basic concepts of software engineering.** **Apply the software engineering models in developing software applications.** **Implement the object oriented design in various projects.** **Knowledge on how to do a software project with in-depth analysis.** **To inculcate knowledge on Software engineering concepts in turn gives aroadmap to design a new software project.**
11.	**IV**	**Core VI** **System Software and Operating Systems**	**Know the program generation and program execution activities in detail.** **Understand the concepts of Macro Expansions and Gain the knowledge of Editingprocesses.** **Remember the basic concepts of operating system.** **Understand the concepts like interrupts, deadlock, and memorymanagement and file management.** **Analyze the need for scheduling algorithms and implement different algorithmsused for represent-tation, scheduling, and allocation in DOS and UNIX..**
12.	**IV**	**Core VII** **Linux and Shell Programming**	**Describe the architecture and features of Linux Operating System and distinguish itfrom other Operating System.** **Develop Linux utilities to perform File processing, Directory handling, UserManagement and display system configuration.** **Develop shell scripts using pipes, redirection, filters and Pipes.** **Apply and change the ownership and file permissions using advance Unix commands.** **Build Regular expression to perform pattern matching using utilities andimplement shell scripts for real time applications.**
13.	**IV**	**Core Lab: 5** **Programming Lab – LINUX and SHELL PROGRAMMING**	**Develop Linux utilities to perform File processing, Directory handling and UserManagement.** **Understand and develop shell scripts using pipes, redirection, filters, Pipes anddisplay system configuration.** **Develop simple shell scripts applicable to file access permission networkadministration.** **Apply and change the ownership and file permissions using advance Unix commands.** **Create shell scripts for real time applications.**
14.	**IV**	**Skill II** **Lab – Software Project Management**	**Prepare a Project Plan with requirement analysis and specification.** **Understand and develop cost estimation model for real time applications** **Implement the concepts of checkpoints in design phase.**

			Analyze the Development phase of the database and text area of theapplications. **Create SDLC for real time applications.**
15.	**V**	**Core VIII** **RDBMS & Oracle**	**Understand the basic concepts of Relational Data Model, Entity-Relationship Model and process of Normalization** **Understand and construct database using Structured Query Language (SQL) in Oracle9i environment.** **Learn basics of PL/SQL and develop programs using Cursors,Exceptions, Procedures and Functions.** **Understand and use built-in functions and enhance the knowledge of handling multiple tables** **Attain a good practical skill of managing and retrieving of data usingData Manipulation Language (DML).**
16.	**V**	**Core IX** **Visual Basic**	**Demonstrate fundamental skills in utilizing the tools of a visual environment suchas command, menus and toolbars.** **Implement SDI and MDI applications using forms, dialogs and other types of GUI components.** **Understand the connectivity between VB with MS-ACCESS database.** **Implement the methods and techniques to develop projects.** **Attain a good practical skill of managing ODBC and Data Access Objects.**
17.	**V**	**Core Lab : 6** **Programming Lab –** **VB & Oracle**	**Understand the concepts of Visual Basic.** **Learn the advantages of Controls in VB.** **Design and develop the event- driven applications using Visual Basic framework.** **Apply the knowledge of database methods.** **Learn basics of PL/SQL and develop programs using Cursors, Exceptions,** **Procedures and Functions.**
18.	**V**	**Elective I** **PYTHON Programming**	**Remembering the concept of operators, data types, looping statements in Python programming.** **Understanding the concepts of Input / Output operations in file..** **Applying the concept of functions and exception handling.** **Analyzing the structures of list, tuples and maintaining dictionaries.** **Demonstrate significant experience with python program development environment.**
19.	**V**	**Elective : I** **Computer Networks**	**Remember the organization of computer networks, factors influencing computernetwork development and the reasons for having variety of different types ofnetworks.** **Understand Internet structure and can see how standard problems are solved andthe use of cryptography and network security.**

			Apply knowledge of different techniques of error detection and correction to detectand solve error bit during data transmission. **Analyze the requirements for a given organizational structure and select the mostappropriate networking architecture and technologies.** **Knowledge about different computer networks, reference models and the functionsof each layer in the models.**
20.	**V**	**Elective : I** **Organizational Behaviour**	**Demonstrate the applicability of the concept of organizational behavior tounderstand the behavior of people in the organization.** **Develop Managerial skills for Individual Behaviors.** **Analyze the complexities associated with management of the group behavior in the organization. Analyze how to manage the Stress during a job.** **Develop an Organizational Behaviour model for any type of Organization.** **Analyze the Common biases and eradication in Decision Making Process.**
21.	**V**	**Skill III** **Software Testing**	**Explain the basic concepts and the processes that lead to software testing.** **Design test cases from the given requirements using Black box testing techniques.** **Identify the test cases from Source code by means of white box testing techniques.** **Know about user acceptance testing and generate test cases for it.** **Examine the test adequacy criteria to complete the testing process.**
21	**VI**	**Core X** **Graphics & Multimedia**	**Explain applications, principles, commonly used and techniques of computergraphics and algorithms for Line-Drawing, Circle- Generating and Ellipse-Generating.** **Students will get the concepts of 2D and 3D, Viewing, Curves and surfaces,HiddenLine/surface elimination techniques.** **Studies concepts of Multimedia Systems, Text, Audio and Video tools.** **Compressing audio and video using MPEG-1 and MPEG-2.** **Creates Animation with special effects using algorithms.**
22	**VI**	**Core XI** **Project Work Lab**	**Formulate a real world problem and develop its requirements, develop a designsolution for a set of requirements.** **Test and validate the conformance of the developed prototype against the originalrequirements of the problem.** **Work as a responsible member and possibly a leader of a team in developingsoftware solutions.**

			Express technical ideas, strategies and methodologies in written form. Self-learnnew tools, algorithms and techniques that contribute to the software solution of the project. **Generate alternative solutions, compare them and select the optimum one.**
23.	**VI**	**Core Lab : 7** **Programming Lab – Graphics & Multimedia**	**Understand the basic concepts of computer graphics.** **Design scan conversion problems using C and C++ programming.** **Apply clipping and filling techniques for modifying an object.** **Understand the concepts of different type of geometric transformation ofobjects in 2D.** **Understand and develop the practical implementation of modeling, rendering,viewing of objects in 2D.**
24.	**VI**	**Elective: II** **Network Security and Cryptography**	**Remember the basic concept of Cryptography and various types of attacks.** **Understand about various types of protocols for Internet Security.** **Implement various algorithms for Cryptography.** **Review Firewall and IP security.** **To be familiar with network security threats and countermeasure.**
25.	**VI**	**Elective: II** **Artificial Intelligence and Expert Systems**	**Understand the nature of AI problems and task domains of AI.** **Apply the appropriate search procedures to solve the problems by using best algorithms.** **Analyze and select the suitable knowledge representation method.** **Manipulate the acquired knowledge and infer new knowledge.** **Demonstrate the development of AI systems by encoding the knowledge.**
26.	**VI**	**Elective: II** **Web Technology**	**Understand and analyse the TCP/IP basics.** **Understand Domain server name, FTP, TFTP, basics of WWW, web browser architecture.** **Knowledge of Microsoft and java technologies, dynamic web pages, DHTML, ASP and JSP.** **Understanding active web pages, Java Applet, Java bean, CORBA, RMI and EDI architecture.** **Knowledge on XML, XML parser, WAP.**
27.	**VI**	**Elective: III** **Data Mining**	**Identify data mining tools and techniques in building intelligent machines understand.** **Analyze various data mining algorithms in applying in real time applications.** **Demonstrate the data mining algorithms to combinatorial optimization problems.** **Illustrate the mining techniques like association, classification and clustering on transactional databases.** **Perform exploratory analysis of the data to be used for mining.**

28.	**VI**	**Elective: III** **Open Source Software**	**Understand the significance of open source practices and guidelines.** **Manipulate open source databases based on user requirements.** **Implement web programming with PHP.** **Integrate open source web frameworks in an application.** **Write desktop and web applications with Python.**
29.	**VI**	**Elective: III** **Internet of Things (IoT)**	**To understand the fundamentals of Internet of Things.** **To know the basics of communication protocols and the designing principles of Web connectivity.** **To gain the knowledge of Internet connectivity principles.** **Designing and develop smart city in IoT.** **Analyzing and evaluate the data received through sensors in IOT.**
30.	**VI**	**Skill IV** **Programming Lab – Software Testing**	**Understand the importance of software quality/software testing and applysoftware testing techniques for information systems development.** **Generate test cases from software requirements using various test processes forcontinuous quality improvement.** **Understand flow graphs and apply path testing.** **Apply software testing techniques in commercial environments and assess theadequacy of test suites using control flow, data flow and program mutation.** **Identify the inputs and deliverables of the testing process and work together as ateam in preparing a report.**

Course : B.Sc Information Technology

Program Outcomes (POs)

PO1 Disciplinary knowledge: Capable to apply the knowledge of mathematics, algorithmic principles and computing fundamentals in the modeling and design of computer based systems of varying complexity.
PO2 Scientific reasoning/ Problem analysis: Ability to critically analyze, categorizes, formulate and solve the problems that emerges in the field of computer science.
PO3 Problem solving: Able to provide software solutions for complex scientific and business related problems or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural, societal and environmental considerations.
PO4 Environment and sustainability: Understand the impact of software solutions in environmental and societal context and strive for sustainable development.
PO5 Modern tool usage: Use contemporary techniques, skills and tools necessary for integrated solutions.
PO6 Ethics: Function effectively with social, cultural and ethical responsibility as an individual or as a team member with positive attitude.
PO7 Cooperation / Team Work: Function effectively as member or leader on
multidisciplinary teams to accomplish a common objective.

PO8 Communication Skills: An ability to communicate effectively with diverse types of audience and also able to prepare and present technical documents to different groups.
PO9 Self-directed and Life-long Learning: Graduates will recognize the need for self-motivation to engage in lifelong learning to be in par with changing technology.
PO10 Enhance the research culture and uphold the scientific integrity and objectivity

Program Specific Outcomes (PSOs)

PSO1 Develop an ability to communicate effectively with a range of audiences. Develop written and oral presentations of information technology solutions appropriate for a wide range of audiences.
PSO2 Develop and analyze quality computer applications by applying knowledge of software engineering, algorithms, programming, databases and networking.
PSO3 The graduates of the Program will be prepared to achieve their career goals in the software industry or pursue higher studies and enhance their professional knowledge.
PSO4 To identify and utilize the state-of-the-art tools and techniques in the design and development of software products and solutions.
PSO5 Practical experience in shipping real world software, using recent industry standard tools and collaboration techniques will equip to secure and succeed in IT industry

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I Computing Fundamentals and C Programming**	**Learn about the Computer fundamentals and the Problem solving.** **Understand the basic concepts of C programming.** **Describe the reason why different decision making and loop constructs are available for iteration in C** **Demonstrate the concept of User defined functions , Recursions , Scope andLifetime of Variables, Structures and Unions.** **Develop C programs using pointers Arrays and file management.**
2.	**I**	**Core II Digital Fundamentals and Computer Architecture**	**Learn the basic structure of number system methods like binary, octal andhexadecimal and understand the arithmetic and logical operations are performed bycomputers.** **Define the functions to simplify the Boolean equations using logic gates.** **Understand various data transfer techniques in digital computer and control unit operations.** **Compare the functions of the memory organization.** **Analyze architectures and computational designs concepts related to architectureorganization and addressing modes.**
3.	**I**	**Core Lab: 1 Programming Lab – C**	**Remember and Understand the logic for a given problem and to generate Primenumbers & Fibonacci Series (Program-1,2,3).** **Apply the concepts to print the Magic square, Sorting the data, Strings, Recursivefunctions and**

			Pointers (Program-4, 5, 6, 8, 10). **Remember the logic used in counting the vowels in a sentence (Program-7)** **Apply and Analyze the concepts of Structures and File management**
4.	**II**	**Core III** **C++ PROGRAMMING**	**Define the different programming paradigm such as procedure oriented and objectoriented programming methodology and conceptualizeelements of OO methodology.** **Illustrate and model real world objects and map it into programming objects for alegacy system.** **Identify the concepts of inheritance and its types and develop applications usingoverloading features.** **Discover the usage of pointers with classes** **Explain the usage of Files, templates and understand the importance of exceptionHandling.**
5.	**II**	**Core Lab II** **PROGRAMMING LAB - C++**	**Define the different programming paradigm such as procedure oriented and objectoriented programming methodology and conceptualize elements of OOmethodology.** **Illustrate and model real world objects and map it into programming objects for alegacy system.** **Identify the concepts of inheritance and its types and develop applications usingoverloading features.** **Discover the usage of pointers with classes.** **Explain the usage of Files, templates and understand the importance of exceptionHandling.**
6.	**II**	**Core Lab III** **Internet Basics**	**Understand the fundamentals of Internet and the Web concepts.** **Explain the usage of internet concepts and analyze its components.** **Identify and apply the online information resources.** **Inspect and utilize the appropriate Google Apps for education effectively.**
7.	**III**	**Core IV** **Data Structures**	**Understand the basic concepts of data structures and algorithms.** **Construct and analyze of stack and queue operations with illustrations.** **Enhance the knowledge of Linked List and dynamic storage management.** **Demonstrate the concept of trees and its applications.** **Design and implement various sorting and searching algorithmsfor applications and understand the concept of file organizations.**
8.	**III**	**Core V** **Java Programming**	**The competence and the development of small to medium sized applicationprograms that demonstrate professionally acceptable coding.** **Demonstrate the concept of object oriented programming through Java.** **Apply the concept of Inheritance, Modularity, Concurrency, Exceptions handlingand data persistence to develop java program.**

			Develop java programs for applets and graphics programming. **Understand the fundamental concepts of AWT controls, layouts andevents.**
9.	**III**	**Core Lab: 4** **Programming Lab – JAVA**	**Understand the basic concepts of Java Programming with emphasis on ethics andprinciples of professional coding.** **Demonstrate the creation of objects, classes and methods and theconcepts of constructor, methods overloading, Arrays, branchingand looping.** **Create data files and Design a page using AWT controls and Mouse Events in Javaprogramming** **Implement the concepts of code reusability and debugging.** **Develop applications using Strings, Interfaces and Packages and applets.** **Construct Java programs using Multithreaded Programming andException Handling.**
10.	**III**	**Skill I** **Introduction to Web design and Applications**	**Understand the fundamentals of Electronic mail, web page installation and set up.** **Understand the basics of internet, internet ongestion, culture and WWW.** **Understand the world wide web, searching in WWW, telnet and FTP.** **Knowledge on basics of HTML, HTML tags, tables, frames, CSS and next generation HTML.** **Knowledge on news groups, mailing list, chat rooms and MUDs**
11.	**IV**	**Core VI** **System Software and Operating Systems**	**Know the program generation and program execution activities in detail.** **Understand the concepts of Macro Expansions and Gain the knowledge of Editingprocesses.** **Remember the basic concepts of operating system.** **Understand the concepts like interrupts, deadlock, and memorymanagement and file management.** **Analyze the need for scheduling algorithms and implement different algorithmsused for represent-tation, scheduling, and allocation in DOS and UNIX..**
12.	**IV**	**Core VII** **Linux and Shell Programming**	**Describe the architecture and features of Linux Operating System and distinguish itfrom other Operating System.** **Develop Linux utilities to perform File processing, Directory handling, UserManagement and display system configuration.** **Develop shell scripts using pipes, redirection, filters and Pipes.** **Apply and change the ownership and file permissions using advance Unix commands.** **Build Regular expression to perform pattern matching using utilities andimplement shell scripts for real time applications.**
13.	**IV**	**Core Lab: 5**	**Develop Linux utilities to perform File processing,**

		Programming Lab – LINUX and SHELL PROGRAMMING	**Directory handling and UserManagement.** **Understand and develop shell scripts using pipes, redirection, filters, Pipes anddisplay system configuration.** **Develop simple shell scripts applicable to file access permission networkadministration.** **Apply and change the ownership and file permissions using advance Unix commands.** **Create shell scripts for real time applications.**
14.	**IV**	**Skill II** **Lab – HTML, XML, JAVASCRIPT**	**Understand the basics of java script, HTML and XML, programming statements and design web pages.** **Understand and apply the XML programming constructs, DTD and develop applications.** **Understand the world wide web, searching in WWW, telnet and FTP.** **Knowledge on basics of HTML, HTML tags, tables, frames, CSS and next generation HTML.**
15.	**V**	**Core VIII** **RDBMS & Oracle**	**Understand the basic concepts of Relational Data Model, Entity-Relationship Model and process of Normalization** **Understand and construct database using Structured Query Language (SQL) in Oracle9i environment.** **Learn basics of PL/SQL and develop programs using Cursors,Exceptions, Procedures and Functions.** **Understand and use built-in functions and enhance the knowledge of handling multiple tables** **Attain a good practical skill of managing and retrieving of data usingData Manipulation Language (DML).**
16.	**V**	**Core IX** **Visual Basic**	**Demonstrate fundamental skills in utilizing the tools of a visual environment suchas command, menus and toolbars.** **Implement SDI and MDI applications using forms, dialogs and other types of GUI components.** **Understand the connectivity between VB with MS-ACCESS database.** **Implement the methods and techniques to develop projects.** **Attain a good practical skill of managing ODBC and Data Access Objects.**
17.	**V**	**Core Lab : 6** **Programming Lab – VB & Oracle**	**Understand the concepts of Visual Basic.** **Learn the advantages of Controls in VB.** **Design and develop the event- driven applications using Visual Basic framework.** **Apply the knowledge of database methods.** **Learn basics of PL/SQL and develop programs using Cursors, Exceptions,** **Procedures and Functions.**
18.	**V**	**Elective I** **SOFT COMPUTING**	**Understand the fundaments of neural networks, architecture, types of neural networks and its**

			applications. **Knowledge in associative memory and adaptive resonance theory.** **Understand the fuzzy set theory and fuzzy systems, and applications of fuzzy systems.** **Knowledge in genetic algorithms, genetic modeling, convergence of genetic algorithms.** **Knowledge in the integration of neural networks, fuzzy logic and genetic algorithms to develop hybrid models.**
19.	**V**	**Elective : I** **ANIMATION TECHNIQUES**	**Understand the basics of animation, need of animations, types of animation, techniques of animation and special effects.** **Understand and apply animations in flash, working with time time-line and frame** **based animations, tween-based animations and layers.** **Knowledge on working with time-line, frame-based and tween-based animation.** **Understanding the motion caption, software to capture the motion.** **Apply the animation concepts and concept development to develop or create 3D animated movies.**
20.	**V**	**Elective : I** **BUSINESS INTELLIGENCE**	**Understand the basics of business intelligence, business decisions, data warehouses and its architecture, KDD process.** **Understand the applications of data mining in business, data mining techniques for CRM, text mining and web mining.** **Knowledge in business intelligence, application in various domains and best practices.** **Understand the knowledge management, its architecture, approaches and tools.** **Knowledge in Web analytics and business intelligence, eCRM and case studies in web analytics.**
21.	**V**	**Skill III** **Dot Net Programming**	**Understand the basics of .NET framework and the object oriented programming.** **Understand the procedures, File I/O, Error handling and Message queues.** **Understand and remember the components in VB.NET IDE, ADO.NET and also the window forms.** **Understand the HTML server controls, Web controls, Validation controls and state management and tracing.** **Knowledge on SOAP, building web services and deploying and publishing web services, Finding and consuming web services.**
21	**VI**	**Core X** **Graphics & Multimedia**	**Explain applications, principles, commonly used and techniques of computergraphics and algorithms for Line-Drawing, Circle- Generating and Ellipse-Generating.**

			Students will get the concepts of 2D and 3D, Viewing, Curves and surfaces,HiddenLine/surface elimination techniques. **Studies concepts of Multimedia Systems, Text, Audio and Video tools.** **Compressing audio and video using MPEG-1 and MPEG-2.** **Creates Animation with special effects using algorithms.**
22	**VI**	**Core XI** **Project Work Lab**	**Formulate a real world problem and develop its requirements, develop a designsolution for a set of requirements.** **Test and validate the conformance of the developed prototype against the originalrequirements of the problem.** **Work as a responsible member and possibly a leader of a team in developingsoftware solutions.** **Express technical ideas, strategies and methodologies in written form. Self-learnnew tools, algorithms and techniques that contribute to the software solution of the project.** **Generate alternative solutions, compare them and select the optimum one.**
23.	**VI**	**Core Lab : 7** **Programming Lab – Graphics & Multimedia**	**Understand the basic concepts of computer graphics.** **Design scan conversion problems using C and C++ programming.** **Apply clipping and filling techniques for modifying an object.** **Understand the concepts of different type of geometric transformation ofobjects in 2D.** **Understand and develop the practical implementa-tion of modeling, rendering,viewing of objects in 2D.**
24.	**VI**	**Elective: II** **NETWORK SECURITY & ADMINISTRATION**	**Understand the basics of attacks on computers and computer security and cryptography encryption and decryption.** **Understand cryptography algorithm types and modes: asymmetric and symmetric key algorithms.** **Understand the concept of digital certificate and public key infrastructure and internet security protocols.** **Understand the user authentication and keberos, cryptography in java, .NET and operating system.** **Knowledge in firewalls in network security, VPN and case studies in cryptography and security.**
25.	**VI**	**Elective: II** **Mobile Computing**	**Understand the history of mobile computing, applications, standards and mobile computing architecture.** **Understand the mobile computing techniques related to telephone, access procedures, IVR applications and Voice XML.** **Understand and analyse the emerging technologies Bluetooth, RFID, WiMAX, etc.also GSM.**

			Knowledge on GPRS, GPRS network architecture, Data services, applications for GPRS and limitations. Knowledge on CDMA and 3G, CDMA Vs GSM, applications of 3G wireless LAN, Architecture, Adhoc and sensor networks and security features.
26.	**VI**	**Elective: II PYTHON Programming**	**Remembering the concept of operators, data types, looping statements in Python programming. Understanding the concepts of Input / Output operations in file. Applying the concept of functions and exception handling. Analyzing the structures of list, tuples and maintaining dictionaries. Demonstrate significant experience with python program development environment.**
27.	**VI**	**Elective: III Internet of Things (IoT)**	**To understand the fundamentals of Internet of Things. To know the basics of communication protocols and the designing principles of Web connectivity. To gain the knowledge of Internet connectivity principles. Designing and develop smart city in IoT. Analyzing and evaluate the data received through sensors in IOT.**
28.	**VI**	**Elective: III COMPONENT TECHNOLOGY**	**Understand the basics of information system, overview of CORBA. Understand the language mapping, OLE integration, CCRBA services, information, task, system management and infrastructure services. Knowledge on facilities and domains, OMG process and relationship with other technologies. Understand the CORBA migration process, software architecture and application design using software architect II. Knowledge on problem and objective standard based profile, business objects and process and interface migration.**
29.	**VI**	**Elective: III E Commerce**	**Understanding the basics of E-Commerce and its strategies. Knowledge in basics of business strategy, E-Commerce implementation, the credit transaction trade cycle. Understand the E-markets, EDI standards, communication and implementations. Understand the internet, HTML, server side scripting and client side scripting languages, online payments in E-Commerce applications. Knowledge in the internet bookshops, electronic newspapers, virtual auctions gambling on the Net and e-diversity.**
30.	**VI**	**Skill IV Lab – DOT NET LAB**	**Understand the basics of VB.NET and develop windows applications.**

			Understand the concept of tree view control and illustrate it the using VB.NET. **Understand and apply exception handling in VB.NET.** **Understand menu resource and create application using menus.** **Develop database applications in VB.NET**

Course : B.Com

Program Outcomes (POs)

PO1 Build the wide range of knowledge in the areas of accounting concepts and
techniques to meet the current and future requirement of the industry.
PO2 Develop the strong knowledge in the areas such as finance, taxation and laws relating to commerce helps to relate the conceptual and analytical skills in the field of auditing, finance etc.
PO3 Inculcate the students to nurture their skills in personal, interpersonal, intellectual and others skills to develop their professional career and growth.
PO4 Disseminate students to develop decision making and problem solving skills to undertake their own venture as a feasible career option.
PO5 Orient and motive the students to develop the needed knowledge in business and academics to develop their employability

Program Specific Outcomes (PSOs)

PSO1 To provide strong base on the course relevant to the area of commerce which helps to choose their career
PSO2 To enhance knowledge and skills among students which built confident to
identify their career opportunities in multiple dimensions.
PSO3 Nurture the students in intellectual, personal, interpersonal and social skills with a focus on relevant professional career particularly, to maximize professional growth.
PSO4 Empower the students with necessary competencies and decision making skills to foster the innovative thinking to become an entrepreneur
PSO5 Strengthen the students to become expert in the field of communication with ethical consciousness.

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I Principles of Accountancy**	**Recalling Accounting Concepts and Conventions and use Accounting rules to record business transactions in the form of Journal, Ledger, subsidiary books and preparation of Trial Balance.** **Understanding the steps involved in locating errors and prepare them to understand the to preparation of final accounts for sole traders.** **Outline the concepts of Bills of exchange, Average due date and Account Current.** **Examine the concepts of consignment and joint venture.**

			Analyze the bank reconciliation statement, Receipts and payments, Income and expenditure and Balance sheet and accounting for professionals to enhance the knowledge.
2.	**I**	**Core II Business organization and office management**	**Understanding the concepts of business and its forms of organizations involved in sole trader, partnership firms, companies and co-operative societies and public enterprise.** **Analyzing the business factors which are involved in sources of finance.** **Explaining the functioning of stock exchanges SEBI, DEMAT of shares.** **Remembering office functions, layout and accommodation.** **Outlining office equipments and EDP.**
3.	**II**	**Core III Financial Accounting**	**Describing the concepts based on depreciation and its methods in books of accounts.** **Outline about the nature of Investment and Royal excluding Sublease.** **Identifying the essential characteristics of single entry system.** **Familiarize the procedure relating to hire purchase and installment in books of accounts.**
4.	**II**	**Core IV Principles of Marketing**	**Defining the various concepts and terms related to marketing** **Explaining about various marketing functions** **Understanding terms of consumer behaviour and examined about different** **concepts related to consumers.** **Identifying the marketing mix and its elements** **Understanding different provisions related to trends in emerging markets.**
5.	**III**	**Core V Higher financial accounting**	**Understanding the basic concepts of partner and procedures related to calculation of ratios.** **Acquiring the principle at the time of retirement in the books of partner** **Analyzing dissolution and insolvency of firms and individuals.** **Evaluate the insolvency or loss of individuals or firms.** **Examine the concepts based on voyage, Human resource and inflation accounting.**
6.	**III**	**Core VI Commercial law**	**Assessing the various elements related business law and contract.** **Interpreting different type of contract and its features.** **Explain about the agency system related to creation and termination of agency.** **Compare between rights and duties of indemnity , guarantee.** **Examine the distinct between sale and agreement to sell and its features**

7.	**III**	**Core VII Principles of management**	**Explaining the concepts based on management and its features.** **Summarizing the principles and importance of planning.** **Interpreting various concepts based on organization and its element.** **Examining the determinants of behaviour and motivation theories.** **Understanding the need and techniques of communication in management.**
8.	**IV**	**Core VIII Corporate Accounting-1**	**Explaining about the basic provisions towards issue of shares in market.** **Understanding the concepts of debenture and its accounting.** **Analyze the companies final accounts and Managerial Remuneration.** **Estimating methods of goodwill and shares.** **Examine various procedures related to liquidation of companies.**
9.	**IV**	**Core IX Computer Applications in Business**	**Recall the various concepts relating to computer and its various parts.** **Understand the meaning of software's, operating system etc.** **Understanding the meaning and utility of database management system.** **Evaluate the various aspects of management information system.** **Generating more ideas regarding the use of internet for business purpose.** **Recall various terms of computer and its part.** **Understand the meaning of software, operating system, programming language and its features.** **Comparing Data Vs Information and its management system.** **Understanding about various concepts of management information system.** **Explain about networking and elements based on internet.**
10.	**IV**	**Core X Company law and secretarial practice**	**Define the fundamentals of corporate law.** **Identify the role, responsibilities, appointment and liabilities of corporate directors.** **Analyzing various winding up procedures, regulations and formalities under law.** **Examine the role of corporate secretaryship and specific conditions.** **Outline corporate level meetings with regard to duties of company secretary, drafting correspondence, Notice, Agenda and Minutes.**
11.	**IV**	**Core XI Executive business communication**	**Outline the importance of effective business communication.** **Understand the intricacies of responding to business**

			related queries. **Categorizing effective correspondence with banks, insurance and agencies.** **Examine effective response to company secretarial correspondence.** **Analyze new innovative and effective ideas for business communication.**
12.	**IV**	**Core XII Banking theory**	**Illustrate the classification of commercial banks, functions and credit creation.** **Outline the recent trade in banking.** **Analyze the functions of central banks and its credit controlling measures.** **Examine the concepts of Indian Money Market.** **Explain the role of SBI Commercial banks and Development banks.**
13.	**V**	**Core XIII Corporate Accounting- II**	**Recall various concepts and methods of preparing accounts under mergers and acquisitions.** **Understand various methods of preparing holding company accounts.** **Understand various methods of preparing and assessing final accounts of banking companies.** **Analyze the final accounts of insurance companies.** **Analyze the accounting statements of electricity companies.**
14.	**V**	**Core XIV Banking Law and Practices**	**Remembering the various terms and concepts used in banking industry.** **Understanding the various process and activities of accounts in banks.** **Outline various features of cheques for easy and simple banking.** **Examine the various loans and advance related process in banks.** **Classifying various kind of documents involved in banking services.**
15.	**V**	**Core XV Cost Accounting**	**Recall various concepts of costing and costing methods.** **Analyze the various elements of costing.** **Explain the labour wage payment system.** **Outline the cost under process costing system.** **Examine about operational costing, contract costing and Reconciliation of Cost and Financial Statements.**
16.	**V**	**Core XVI Income tax law and practices**	**Outline the various terminologies related to income tax.** **Understand the method of calculating and levying tax.** **Apply the various tax laws and available provisions in tax computations.** **Evaluate the set off and carry forward of losses while calculating personal income.** **Analyze self-assessment of income and tax computation.**

17.	**VI**	**Core XVII Management accounting**	**Outline the various concepts relating to management accounting.** **Analyze financial statements using ratio analysis.** **Evaluate the working capital management of companies.** **Comparing various alternatives using marginal costing and decision making.** **Analyze new budget and budgetary control for organizations.**
18.	**VI**	**Core XVIII Principles of Auditing**	**Define the important concept and rules relating to auditing.** **Outline the techniques and applicability of internal audit.** **Analyze the valuation of assets and liabilities in business.** **Analyze the accounts and auditing the joint stock companies.** **Examine about investigation and auditing of computerized accounts.**
19.	**VI**	**Core XIX Indirect taxes**	**Recall various concepts relating to Indirect tax regime in India.** **Analyze the concept and applicability of GST in businesses.** **Compare the GST regime with other indirect tax laws prior to it.** **Illustrate GST system in own business and other prototypes.** **Examine the custom law and related duties and taxes.**
20.	**V**	**Elective I Business finance**	**Outline various concepts relating to finance.** **List the various techniques of financial planning.** **Analyze various sources and forms of finance.** **Examine the various dimensions of capital market and their components.** **List the capitalization concept and related theories for decision making.**
21.	**V**	**Elective II Brand management**	**Recall the basic concepts of branding and related terms.** **Compare brand image building and brand positioning strategies.** **Analyze the impact of brand, brand loyalty and brand audit.** **Explain the brand rejuvenation and brand monitoring process.** **Apply various strategies for brand building and monitoring.**
22.	**V**	**Elective III Fundamentals of Insurance**	**Recall the different concepts of insurance and its working.** **Explain the concept of agent and its working system.** **Evaluate the functions of agents and various forms of underwriting.** **Analyze the various actuarial aspects relating to insurance companies.**

			List the basic principles of insurance and various types of it.
23.	**VI**	**Elective IV Entrepreneurial development**	**Recall the importance and role of entrepreneurship as an economic activity.** **Explain the various process of setting up a startup.** **Outline the various institutional services to entrepreneur.** **Analyze the various financial institution available to support entrepreneurs.** **List the various subsidies and incentives available for entrepreneurs.**
24.	**VI**	**Elective V Supply chain management**	**Recall the importance of supply chain management in the modern times.** **Outline the various strategies in supply chain management.** **Examine the concept of retailer supplier partnership.** **Analyze the process of procurement, outsourcing and e-procurement.** **List the ideas about smart pricing strategies and measuring customer values.**
25.	**VI**	**Elective VI Principles of web designing**	**Outline the basic working in HTML and graphics.** **Explain the working of XML.** **Apply the basic and advanced process of java scripting.** **Analyze the CGI and server side scripting.** **Explain the various web database tools in web designing.**
26.	**VI**	**Elective VII Financial markets**	**Define the basic concepts of financial market.** **Analyze the working and components of corporate securities market.** **Explain the functioning of stock exchanges in India.** **Explain the role of banks and intermediaries in financial market.** **Apply various trends and new modes in financing.**
27.	**VI**	**Elective VIII Insurance legislative framework**	**Illustrate the various aspects of insurance act.** **Outline the various provisions of LIC act.** **Explain the various provisions relating to insurance regulatory and development authority act.** **Analyze the various provisions of consumer protection act.** **Explain the role of ombudsman scheme.**

Course :B.Com Computer Application

Program Outcomes (POs)

PO1 Develop the accounting, finance, banking, Insurance, marketing as well as the computer application knowledge to the students.
PO2 Create awareness of the students about Business law, Tax Law and legislations related to business and computer applications
PO3 Get the training to learn how to develop successful computer programs to solve the business problems for increasing the productivity of the e-business.

PO4 Obtain the practical application exposure on ms-office and oracle software.
PO5 Apply object oriented or non-object oriented techniques to solve business computing problems which make students a good programmer.

Program Specific Outcomes (PSOs)

PSO1 Know and apply the various business management and computer applications concepts to solve the real-world problems.
PSO2 Acquire the knowledge on object-based computer applications in various business fields.
PSO3 Solve the business applications related issues of using oracle and object oriented programming languages
PSO4 Analyze the real e-business problems by using the different applications of procedure-oriented language programs
PSO5 Enrich the practical knowledge on applications of accounting and programming languages in business ventures.

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I PRINCIPLES OF ACCOUNTANCY**	**Recall the fundamental concepts of accounting and book keeping.** **Solve the errors in book keeping and identify the effect of BRS in an enterprise.** **Aware of Bills of exchange and its transaction including Accommodation bills.** **To gain knowledge about the preparation of final Accounts.** **Understand the Account current statement and procedure for calculation of Average due date methods.**
2.	**I**	**Core II Introduction to Information Technology**	**Understand the basic concepts about hardware and software components and data retrieval from various areas of business.** **Recall and remember the different types of computers available in business industries.** **Aware of different programming and machine level languages and steps to develop computer programmes.** **To gain knowledge about e-commerce, internet and extranet understand the uses of world wide web applications.** **Create the applications of computer information system in various business fields.**
3.	**I**	**Allied I MATHEMATICS**	**Understand the basic concepts of arithmetic and**

		FOR BUSINESS	**geometric series and different effective rates of interest for sinking fund, annuity and present value.** **Know the basic concepts of addition and multiplication analysis and input and output analysis.** **Aware of variables, constants and functions and evaluate the first and second order derivatives.** **To gain knowledge on integral calculus and determining definite and indefinite functions.** **Analyze the linear programming problem by using graphical solution and simple method.**
4.	**I**	**Core IV COMPUTER APPLICATIONS: MS OFFICE -PRACTICAL-I**	**Understand the basic concepts computer applications using MS-Office applications for the business transactions.** **Create customers list using mail merge for sending letters to the respondents at a time.** **Aware and apply various statistical tools available in Ms-excel for the business enterprise transactions.** **To gain knowledge making effective presentation for the business meeting using power point presentation.** **Understand and evaluate the database using MS-Word and excel.**
5.	**V**	**Elective IA INCOME TAX LAW & PRACTICE**	**Recall the fundamental concepts of income tax.** **Analyze the income sources on salaries and house property.** **Aware on income from other sources.** **To gain knowledge about capital gains.** **Understand on assessment of individuals and tax liability.**
6.	**V**	**Elective IB ENTREPRENEURIAL DEVELOPMENT**	**Conceptualize the Entrepreneurship.** **Make the students to aware the start up process.** **Know the institutional service to entrepreneur.** **Gain the knowledge on institutional finance to the entrepreneur.** **Know about the incentives and subsidies.**
7.	**V**	**Elective IC MICRO FINANCE**	**Enable the students to conceptualize the microfinance terms.** **Make the students to know about the development of the microfinance.** **Understand the credit delivery of the micro finance amount.** **Make the students to understand the pricing of the micro finance products.** **Understand about the commercial micro finance.**
8.	**II**	**Core III ADVANCED ACCOUNTING**	**Understand the different methods of depreciation.** **Solve the problems of branch accounts, hire purchase and installment system.** **Know the single entry system and statement of affairs method using conversion method.** **To gain knowledge on Partnership Accounts, Division of Profits, Fixed and Fluctuating Capital,**

			Admission and Retirement of partners. **Understand Dissolution of Partnership and Insolvency of Partners.**
9.	**II**	**Core IV COMPUTER APPLICATIONS: MS OFFICE -PRACTICAL-I**	**Understand the basic concepts computer applications using MS-Access for maintaining the database.** **Create different databases using access application for developing the business transactions.** **Apply the accounting principles and rules in tally software packages for updating the accounting transactions.** **To gain knowledge on creating e-mail in tally package.** **Gain the knowledge on visiting a business enterprise website and collect the data.**
10.	**II**	**Allied II STATISTICS FOR BUSINESS**	**Understand the basic concepts of arithmetic and geometric mean and different types of data collection.** **Know measures of dispersion.** **Gain the knowledge on correlation and regression analysis.** **Understand the different types of moving averages.** **Know and analyze interpolation and probability.**
11.	**VI**	**Elective IIA BUSINESS FINANCE**	**Introduce the concepts of business finance.** **Understand about the financial plans.** **Know about the capitalization of the financial sources.** **Understand about the capital structure.** **Know about the different sources of finance.**
12.	**VI**	**Elective IIB BRAND MANAGEMENT**	**Recall various terms and concepts relating to branding.** **Understand on brand vision and image building.** **Evaluate the dimensions of branding impact.** **Differentiate specific components of branding and co-branding.** **Explain the emerging trends in designing branding.**
13.	**VI**	**Elective IIC SUPPLY CHAIN MANAGEMENT**	**Recall various terms and concepts relating to supply chain.** **Understand various forms of supply and demand in supply chain.** **Evaluate the applications to e-business.** **Differentiate specific network design in certain and uncertain situations.** **Explain the emerging trends in supply chain and the regulatory mechanisms.**
14.	**III**	**Core V PRINCIPLES OF MARKETING**	**Understand the different types of marketing and career opportunities in marketing.** **Know about the marketing function for achieving marketing goals.** **Aware of consumer behaviour and market segmentation and customer relations marketing.** **Analyze the marketing mix, product mix and know about the green marketing.**

			Gain the knowledge on different bureau of Indian standards and consumer protection rights.
15.	**III**	**Core VI DATABASE MANAGEMENT SYSTEM**	**Understand the basic concepts of data system, operational data and storage structures of the data.** **Understand the relation approach and its key relation algebra.** **Aware about embedded SQL.** **To gain knowledge on hierarchical approach for knowing the detailed description of the data.** **Aware about embedded SQL.**
16.	**III**	**Core VII COST ACCOUNTING**	**Understand the different concepts and classification of costs and create cost sheet for the firms.** **Gain the knowledge on different types of material controls.** **Know the system of labour wage payment, labour turnover and classification of overhead.** **Gain the knowledge on different types of process costing.** **Understand Operating Costing, Contract costing, and Reconciliation of Cost and Financial accounts.**
17.	**III**	**Allied III MANAGERIAL ECONOMICS**	**Familiarize the students with the basic concept of managerial economics.** **Make student understand the demand and supply analysis in business applications.** **Apply marginal analysis to the firm under different market conditions.** **Analyze the causes and consequences of different market conditions.** **Familiarize the students with the basic concept of managerial economics.**
18.	**III**	**Core VIII Computer Applications: Oracle - Practical-II**	**Understand the basic concepts computer applications using Oracle for maintaining the database.** **Create different databases using access application for developing the business transactions.** **Gain the knowledge on creating database using oracle.** **Gain knowledge on application of oracle statements to extract the particular data base.** **Gain the knowledge on developing employees and salary databases using oracle.**
19.	**VI**	**Elective IIIA INDIRECT TAXES**	**Recall the fundamental concepts of indirect taxes.** **Know about the GST concepts.** **Know about the filing of returns.** **Gain knowledge about levy and collection of tax.** **Understand about customs law.**
20.	**VI**	**Elective IIIB FINANCIAL MARKETS**	**Recall the fundamental concepts of financial markets.** **Know about the markets for corporate securities.** **Know about secondary markets.** **Gain knowledge about banks as financial intermediaries.** **Understand about new methods of financing.**

21.	**IV**	**Core IX MANAGEMENT ACCOUNTING**	**Recall the objectives and scope of management and know the relationship between other managerial accounting.** **Analyze the performance of the company using different ratios.** **Understand the working capital requirements of the company using the format.** **To gain knowledge about marginal costing and BEP analysis.** **Understand about budgeting and budgetary control.**
22.	**IV**	**Core X OBJECT ORIENTED PROGRAMME WITH C++**	**Compare the different types of languages and find the importance of object-oriented programming language.** **Know and understand the C++ statements and motivate the students to make use of the statements.** **Identify the class structure and develop the program.** **Develop the program by applying the concept of OOPs.** **Apply the data file operation technique and evaluate the program in a practical manner.**
23.	**IV**	**Core XI EXECUTIVE BUSINESS COMMUNICATION**	**Understand the effectiveness of business communication.** **To gain the knowledge on creating various forms of letters.** **Understand the concept on banking and insurance correspondence.** **To gain knowledge on report writing.** **To create a resume.**
24.	**IV**	**Core XII COMPUTER APPLICATIONS : ORACLE & C++ PRACTICAL-II**	**Create programs by applying class and member functions concept.** **Develop the programs using member function definition.** **Apply the concepts of oracle to solve the problems of business enterprises.** **Develop the students to use the reusability concepts.** **Acquire the knowledge on the application of c++ and to solve the problems.**
25.	**IV**	**Core XIII BANKING THEORY**	**Discuss the Basic concepts, functions and Classification of Banking System.** **Describe the Recent Trends in Banking.** **Explain about the Organization structure of Banks and Credit control measures.** **Enumerate the Indian Money Market.** **Get an insight knowledge on StateBank of India and Commercial Banks..**
26.	**IV**	**Allied IV PRINCIPLES OF MANAGEMENT**	**Conceptualize the nature and scope of Management process.** **Understand the Planning and decision-making process.** **Enlighten about the organization and organization structure.** **Enumerate Theories of motivation and incentives.**

			Make the students to understand the Co-ordination and control process.
27.	**IV**	**Skill II COMPANY LAW**	**Discuss the characteristics of Company and its Formation.** **Understand about Memorandum and Articles of Association.** **Get a detailed knowledge on Prospectus and Kinds of shares and Debentures.** **Acquire the knowledge on powers and duties of Director and Secretary.** **Understand about kinds of meetings.**
28.	**V**	**Core XIV PRINCIPLES OF AUDITING**	**Understand about the fundamental concepts Auditing.** **Get a detailed knowledge on internal control in auditing.** **Acquire a detailed knowledge on verification of assets and liabilities.** **Gain knowledge about Joint stock companies.** **Understand about investigation.**
29.	**V**	**Core XV CORPORATE ACCOUNTING**	**Understand about the issue of shares of the companies.** **Get a detailed knowledge on redemption of preference shares.** **Acquire a detailed knowledge on preparation of final accounts.** **Apply the conceptual knowledge on valuation of goodwill and shares.** **Understand about liquidation of companies.**
30.	**V**	**Core XVI E-COMMERCE TECHNOLOGY**	**Understand the basic concept of E- Commerce and its applications.** **To gain the knowledge on EDI.** **Understand security and the web.** **To gain knowledge on consumer aspects in E-Commerce.** **To know and apply various digital payment methods.**
31.	**V**	**Core XVII SOFTWARE DEVELOPMENT WITH VISUAL BASIC**	**Understand the concept on client and server.** **To gain the knowledge on IDE.** **Understand the concept on user defined data types.** **To gain knowledge on working with controls in VB.** **Understand on data controls.**
32.	**V**	**Core XVIII COMPUTER APPLICATIONS : VISUAL BASIC - PRACTICAL-III**	**Understand the basic concepts computer applications using Oracle for maintaining the database.** **Create different databases using access application for developing the business transactions.** **Gain the knowledge on creating database using oracle.** **Gain knowledge on application of oracle statements to extract the particular data base.** **Gain the knowledge on developing employees and salary databases using oracle.**
33.	**V**	**Skill III BANKING AND**	**Understand the Concepts, functions of banking and**

		INSURANCE LAW	**relationship between Banker and Customer. Gain knowledge on Negotiable Instruments Act and its kinds. To gain knowledge on functions and principles of Insurance. Gain knowledge on Insurance System and Acts pertaining to it. Understand the IRDA functioning.**
34.	**VI**	**Core XIX MANAGEMENT INFORMATION SYSTEM**	**Acquire knowledge on basic knowledge on MIS. Know the different types of concepts. Understand about Information Systems in Business. Acquire the knowledge on DBMS. Conceptualize the Functional Management Information System.**
35.	**VI**	**Core XX INTERNET AND WEB DESIGNING**	**Learn the functions and uses of internet. Give the knowledge on how to search the web. Learn to know the uses and applications of HTML. Make the students to know how to create link the web. Get a knowledge on how to download and upload the videos.**
36.	**VI**	**Core XXI COMPUTER APPLICATIONS : VISUAL BASIC& WEBDESIGNING PRACTICAL-III**	**Create different databases using vb application for developing the business transactions. Gain the knowledge on creating programs using vb. Gain knowledge on application of vb in business enterprises. To gain knowledge on working with web page. To apply the frames in web page.**
37.	**VI**	**Skill IV CYBER LAW**	**Discuss the concepts of Cyber law and Cyber Space. Describe Cyber Security technical aspects. Explain the Evidence Aspects. Understand the Electronic Data Interchange Scenario in India. To gain knowledge on Information Technology Act.**

Course : B.Com Professional Accounting

Program Outcomes (POs)

PO1 Ability to apply ethical principles and responsible practices during their profession
PO2 Ability to engage in independent and lifelong learning for continued professional development.
PO3 Become qualified professionals in the field of accounting and auditing.
PO4 Demonstrate professional ethics in legal aspects of business
PO5Ability to apply ethical principles and responsible practices during their profession

Program Specific Outcomes (PSOs)

PSO1 complete the intermediate level in professional programmes like CA, ICWA and ACS
PSO2 Provide several opportunities to engage with the accounting professionals
PSO3 Implement creativity and problem solving skills in various real life time problems.

PSO4 Acquire several opportunities to engage with the accounting professionals and learn from their experiences.
PSO5 Learn relevant managerial accounting skills with emphasis on application of both quantitative and qualitative knowledge to their future careers.

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I PRINCIPLES OF ACCOUNTANCY**	**Recall Accounting Concepts and Conventions and use Accounting rules to record business transactions in Journal, Ledger and prepare Trial Balance. Understand the preparation Subsidiary Journals including Three Column Cash book and prepare a Bank Reconciliation Statement. Apply the accounting practices for Bill of exchange and Account current. Analyse the accounting treatment in preparation of consignment and joint venture accounts. Understand the concepts in preparation of bank reconciliation statement and accounting for professionals.**
2.	**I**	**Core II Introduction to Information Technology**	**Understand the hardware and software Information Systems. Recall the different types of computer system and networking. Gain knowledge about components of computers. Describe the operating systems and mobile computers. Understand the System analysis and design, management information system-decision support systems-expert system.**
3.	**I**		
4.	**I& II**	**Core IV Computer Applications Practical-I (MS Office)**	**Recall various techniques of working in MS-WORD. Prepare appropriate personal bio data. Analyze financial data using EXCEL tools. Understanding various tools used in MS-EXCEL. Creating presentations for seminars and lectures using animations. ---------- Understand the basics of working in MS-ACCESS using various tools. Prepare personal bio data using MS ACCESS tools. Analyze business transactions using computerized packages. Analyze inventory management using various techniques. Apply internet for business purposes and communications.**
5.	**II**	**Core III Mercantile Law**	**Remember provisions relating to the Indian contract act 1872. Understand the essential elements of a valid contract.**

			Analyse the conditions for performance of the contract and breach of contract. **Apply various provisions regarding the formation of contract of sale.** **Understand the general nature of partnership, registration and dissolution of firm.**
6.	**III**	**Core V Industrial Law**	**Understand the provisions about the development and the judicial setup of Labour Laws.** **Apply cultural competency while exercising their legal skills.** **Analyze an advanced understanding of the underlying legal principles,.** **Understand the rules and provisions which regulate trade union work relationships.** **Understand the industrial safety and welfare measure of workers.**
7.	**III**	**Core VI Strategic Management**	**Know about overview of business environment, business policy and strategic management.** **Learn about strategic analyses and plan strategies relating to organizations.** **Apply various techniques to formulate functional strategies.** **Understand the process of evaluating the strategy and knowledge about criteria for evaluation.** **Apply the principles guiding business process for reaching strategic edge.**
8.	**III**	**Core VII Cost Accounting**	**Recall various concepts of costing and costing methods.** **Understand the various levels of material control.** **Apply innovative methods of costing techniques.** **Evaluate the cost under process costing.** **Analyze the different costs of operations and control it.**
9.	**III**	**Core VIII Computer Applications Practical-II (Oracle)**	**Understand the basics of working in oracle.** **Prepare personal bio data using oracle.** **Analyze business transactions using oracle.** **Analyze inventory management using oracle.** **Create the table PAYROLL with oracle.**
10.	**IV**	**Core IX Advanced Accounting**	**Recall the accounting treatment relating to different methods of depreciation.** **Understand the preparation of the Branch accounts, hire purchase and installment system.** **Apply the accounting procedure for preparing the single entry system.** **Develop the conceptual skills to prepare and present the Partnership accounts.** **Analyze the procedure for Dissolution of Partnership and Insolvency of Partners by applying the Garner Vs. Murray rule.**
11.	**IV**	**Core X MANAGEMENT ACCOUNTING**	**Familiarize with the basic concepts of Management accounting.** **Analyze the financial statements using ratio analysis.** **Determine the working capital of the business.**

			Justify decision making using marginal costing. **Formulate budget and exercising budgetary control.**
12.	**IV**	**Core XI Executive Business Communication**	**To Recall the basics of business communication.** **To demonstrate his/her ability to write error free while making an optimum use of correct Business Vocabulary & Grammar.** **To distinguish among various levels of organizational communication and communication barriers while developing an understanding of Communication as a process in an organization.** **To draft effective business correspondence with brevity and clarity.** **To stimulate their Critical thinking by designing and developing clean and lucid writing skills.**
13.	**IV**	**Core XII Computer Applications Practical-II(C++)**	**Recall various techniques of working using C++.** **Prepare appropriate data with the help of coding.** **Apply C++ coding for calculating accounting terms.**
14.	**V**	**Core XIII Advanced Accounting-II**	**Recall the basic concepts of preparing partnership accounts.** **Understand the accounting treatment for admission and death of a partner.** **Apply the procedure for dissolution of firm and amalgamation.** **Analyse the situation of conversion of firm into a company.** **Understand the knowledge about accounting standards.**
15.	**V**	**Core XIV Auditing and Assurance- I**	**Enumerate the basic principles of auditing.** **Remember the procedure for audit engagement and Documentation.** **Understand the audit procedure for obtaining the audit evidence and internal control.** **Apply the techniques of test checking and review analytical procedures.** **Analyze the analytical review procedures for audit payments.**
16.	**V**	**Core XV Principles of Auditing**	**Enumerate the basic principles of auditing.** **Understand the procedural aspects relating to internal control and vouching.** **Apply the practical knowledge for verification and valuation of assets and liabilities.** **Apply the provisions relating to audit of Joint stock companies.** **Apply the procedural aspects for investigation of companies.**
17.	**V**	**Core XVI Direct Tax-I**	**Recall the various terminologies related to income tax.** **Understand the method of calculating and levying tax for income from salaries and house property.** **Apply the various tax laws and available provisions for computation of income from business or profession and other sources.**

			Apply tax provisions applicable to calculate tax for income from capital gains. **Analyse the self-assessment of income and computation of tax liability.**
18.	**V**	**Core XVII Direct Tax-II**	**Enumerate the tax provisions relating to assessment of HUF and firms.** **Understand the legal provisions for assessing AOP and Companies.** **Apply the tax procedures for assessing the cooperative society.** **Apply the procedure for appeals, Provisions, Penalties and Prosecution.** **Understand the provisions applicable to assess wealth tax.**
19.	**VI**	**Core XVIII Corporate Accounting**	**Identify the accounting procedures followed by companies for issue of shares and debentures.** **Understand the accounting treatment relating to redemption of preference shares and debentures.** **Describe the preparation of final accounts of company.** **Apply the provisions relating to calculation of value of shares and goodwill.** **Apply the legal accounting treatment for preparing liquidation account.**
20.	**VI**	**Core XIX Auditing and Assurance-II**	**Study the basic knowledge and general considerations related to audit of receipts, purchases, sales, impersonal ledgers and assets and liabilities.** **Interpret and vouch of various documents and company audit procedures.** **Apply the auditing procedures for the audit of accounting transactions.** **Apply the provisions for audit of companies and preparing required reports.** **Extrapolate the procedural aspects of auditing in various undertakings and preparation of audit reports.**
21.	**VI**	**Core XX Indirect Taxes**	**Recall various concepts relating to Indirect tax regime in India.** **Analyze the concept and applicability of GST in businesses.** **Compare the GST regime with other indirect tax laws prior to it.** **Describe the applicability of GST system in own business and other prototypes.** **Examine the custom law and related duties and taxes.**
22.	**V**	**Elective IA Financial Management**	**Remember the functions of finance and goals of business.** **Identify the appropriate source of finance suitable to the business.** **Apply the concepts to enable financial planning and framing of optimum capital structure.** **Analyse the working capital requirements and**

			factors determining the requirements. **Understand the management of earnings available in the business.**
23.	**V**	**Elective IB Entrepreneurial Development**	**Recall the importance and role of entrepreneurship as an economic activity.** **Describe the various forms of setting up a startup and project management.** **Understand the various institutional services to entrepreneur.** **Analyze the various financial support available to the entrepreneurs.** **Understand the various subsidies and incentives available for entrepreneurs.**
24.	**V**	**Elective IC Micro Finance**	**Recognize the present scenario of rural financial system in India.** **Categorize various income generating activities in microfinance.** **Apply the credit rating methodology for rating credit worthiness.** **Analyze the various strategies for pricing of microfinance products.** **Understand the transforming measures of NGO's.**
25.	**VI**	**Elective IIA Business finance**	**Recall various concepts relating to finance.** **Understand the various techniques of financial planning.** **Analyze various sources and forms of finance.** **Analyse various dimensions of capital structure and their components.** **Analyse the various sources of finance available to meet the financial requirements.**
26.	**VI**	**Elective IIB Brand Management**	**Recall the basic concepts of branding and related terms.** **Compare brand image building and brand positioning strategies.** **Analyze the impact of brand on customer behavior.** **Evaluate the brand rejuvenation and brand monitoring process.** **Apply various strategies for brand building and monitoring.**
27.	**VI**	**Elective IIC Supply Chain Management**	**Recall the importance of supply chain management in the modern times.** **Understand the various strategies in supply chain management.** **Critiquing the concept of retailer supplier partnership.** **Analyze the process of procurement, outsourcing and e-procurement.** **Apply innovative ideas about smart pricing strategies and measuring customer values.**
28.	**VI**	**Elective IIIA Investment Management**	**Recalling various alternatives of investment.** **Comparing the features of various investment markets.** **Analyzing investments using fundamental analysis.**

			Applying technical analysis for evaluating investments. **Evaluate the optimum portfolio for investment.**
29.	**VI**	**Elective IIIB Financial Markets**	**Recall the basic concepts of financial market.** **Analyze the working and components of corporate securities market.** **Understand the functioning of stock exchanges in India.** **Understand the role of banks and intermediaries in financial market.** **Describe various trends and new methods of financing.**

Course :B.B.A

Program Outcomes (POs)

PO1 Develop the knowledge, skill and attitude to creatively and systematically apply the principles and practices of management, accountancy, finance, business law, statistics, HR, operations and IT to management problems and work effectively in modern day business and non-business organizations.
PO2 Develop fundamental in-depth knowledge and understanding of the principles, concepts, values, substantive rules and development of the core areas of business such as finance, accounting, marketing, HR, operations along with the tools such as Tally, MS Excel, MS Office, etc.
PO3 Demonstrate the critical thinking mindset and the ability to identify and formulate research problems, research literature, design tools, analyse and interpret data, and synthesize the information to provide valid conclusions and contextual approaches across a variety of subject matter.
PO4 Exhibit self-confidence and awareness of general issues prevailing in the society and communicate effectively with the accounting, commerce, management, business, professional fraternity and with society at large through digital and non- digital mediums and using a variety of modes such as effective reports & documentation, effective presentations, and give and receive clear instructions.
PO5 Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings by demonstrating life skills, coping skills and human values.
PO6 Analyse the sampling techniques of collecting primary and secondary data and tools and techniques of data.
PO7 Understand the methods of collecting primary and secondary data. construction of scaling techniques and Determine the steps involved in design of questionnaire. Analyse and preparation of project report for the Functional areas of research.
PO8 Determine the functional areas of management such as Production, purchasing, marketing, sales, advertising, finance, human resource system, Industry 4.0 Understand the SERQUAL of the various service industries.
PO9 Analyse the various aspect of business research in the area of marketing, human resource and Finance.
PO10 Analyse the various financial and accounting concept including Balance sheet , trial balance, etc.,

Program Specific Outcomes (PSOs)

PSO 1 : Understand of the corporate world
PSO 2 : Analyse the theoretical knowledge with the practical aspects of Organizational setting and techniques or management.
PSO 3 : Determine conceptual and analytical abilities required for effective decision making.
PSO 4 : Understand the dynamic and complex working environment of Business.
PSO 5 : Understand the problems faced by the business sector in the Current scenario.

PSO 6 : Analyse the ups and downs of the stock market.
PSO 7 : Understand the rapid changes of financial services include banking and insurance sectors.
PSO 8 : Understand the micro and macro marketing environment.
PSO 9 : Understand the international trade procedure and documentation.
PSO 10 : Understand the Forms of business organization.
PSO 11 : Understand the business correspondence and communication.
PSO 12 : Determine the organizational behaviour and its conflict.

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I PRINCIPLES OF MANAGEMENT**	**Examine and explain the management evolution and how it will affect future managers. Estimate the conceptual framework of planning and decision-making in day to day life. Explain the various managerial functions to achieve the goals and objectives of the organization. Analyze the theories of motivation, leadership and communication in a variety of circumstances and management practices in organizations. Identify and explain the importance of the management process and identify some of the key skills required for the contemporary management practice.**
2.	**I**	**Core II BASICS OF BUSINESS & BUSINESS ENVIRONMENT**	**Develop an understanding on the gamut of business activities. Explain the intricacies in starting a business and knowing the suited business form. Design a business model in order to analyze its sustainability. Comprehend the environmental factors that are conducive /detrimental to the respective businesses. Have a simple and basic comprehension of the international scenario with regard to borderless business world.**
3.	**I**	**Allied I MATHEMATICS AND STATISTICS FOR MANAGEMENT**	**Solve systems of linear equations by use of the matrix. Be able to find the nature (maximum and minimum) of a turning point. Outline the meaning of marginal revenue and marginal cost and their relevance for firm's profitability. Understand and compute the sampling distributions, sampling distributions of means and variances (S2) and the t- and F-distributions. Summarize a regression analysis, and compute and interpret the coefficient of correlation.**
4.	**II**	**Core III ORGANISATIONAL**	**Analyze the individual and group behavior; and**

		BEHAVIOUR	**understand the implications of organizational behaviour on the process of management.** **Identify various theories of motivation from the past and to evaluate motivational strategies used in a variety of organizational settings.** **Enhance productivity of the organization by ensuring required job satisfaction and employee attitude.** **Understand the supervisory effects on performance and to train supervisors by understanding different supervision styles.** **Evaluate the appropriateness of various leadership styles and counseling methods.**
5.	**II**	**Core IV ECONOMICS FOR EXECUTIVES**	**Apply the objectives of business firms, demand analysis and elasticity of demand in daily life and in their career.** **Identify the effective applications of factors of production and BEP Analysis.** **Understand the determination of the Price, Market structure and competition.** **Analyze various theories of wages, Interest and profit in Business field.** **Evaluate the performance of the Government sector in India.**
6.	**II**	**Allied II QUANTITATIVE TECHNIQUES FOR MANAGEMENT**	**Define and formulate linear programming problems and evaluate their applications.** **To understand concepts and terminology of Linear Programming from formulation of mathematical models to their optimization using Simplex Method.** **To comprehend the concept of a Transportation Model and develop the initial solution and optimality checking of the solution.** **To apply the strategies of game theory and to make better decisions while solving business problems.** **Use critical path analysis and programming evaluation and review techniques for timely project scheduling and completion.**
7.	**III**	**Core V FINANCIAL ACCOUNTING**	**Recall the accounting concepts and understand the rules of double entry system, journalizing and posting to ledger in the business transactions.** **Interpret the trial balance; identify the errors and to reconcile the bank statement by cash book.** **Summaries the manufacturing, trading, profit & loss account and balance sheet with the support of financial and accounting transactions.** **Illustrate the accounts for non-trading institutions through income & expenditure, receipts & payments along with the methods of depreciation.** **Classify the sections of accounting statements from incomplete data.**
8.	**III**	**Core VI PRODUCTION AND MATERIALS**	**Enumerate the production processes and production planning and control.**

		MANAGEMENT	**Describe the importance of materials management function in an organization, and how it can help in integrating various plans and reduce the material related costs. Describe the material management, domestic and import purchase procedures and vendor rating and development. Outline management issues in receiving, stores, traffic and transportation, warehousing and physical distribution. Discuss about the quality control, Total Quality Management, Bench marking and ISO.**
9.	**III**	**Core VII MARKETING MANAGEMENT**	**Recognize the significance of marketing and its role in economic development. Recognize how market strategy works, market segmentation and product mix have impact on buying behaviour. To apply marketing concepts, pricing for the development of marketing function. Analyze and perform the functions of marketing in organisation. Demonstrate the critical thinking skills and analyze e-marketing in the Indian context.**
10.	**III**	**Allied III BUSINESS LAW**	**Develop an understanding on business law in the global context. Knowing the relevant legal terms in business. Construct the relationship of ethics and law in business. Applying basic principles of law to business and business transactions. Implementing current law, rules, and regulations related to settling business disputes.**
11.	**III**	**Core VII PC software (MS OFFICE) – PRACTICAL**	**Use Microsoft Office programs to create personal, academic and business documents following current professional and/or industry standards. Create scientific and technical documents incorporating equations, images, tables, and bibliographies. Develop technical and scientific presentations which use charts and visual aids to share data. Build spreadsheets to perform calculations, display data, conduct analysis, and explore. Design and construct databases to store, extract, and analyze scientific and real-world data.**
12.	**IV**	**Core IX HUMAN RESOURCE MANAGEMENT**	**Analyze the process of Job analysis and its importance as a foundation of human resource management practice. Understand the Human resource planning. Apply the policies and practice of the primary areas of human resource management, including staffing, training and compensation.**

			Understand the importance of career planning and succession planning. **Apply the policies and practice of the primary areas of human resource management, including staffing, training and compensation.**
13.	**IV**	**Core X FINANCIAL MANAGEMENT**	**Use business finance terms and concepts while communicating.** **Explain the financial concepts used in making financial management decision.** **Use effective methods to promote respect and relationship for financial deals.** **Utilize information to maximize and manage finance.** **Demonstrate a basic understanding of Budgeting.**
14.	**IV**	**Core XI FINANCIAL ACCOUNTING PACKAGE TALLY ERP 9 – PRACTICAL**	**Understand basic Accounting concepts and principles.** **Be able to generate Accounting and Inventory Masters, Vouchers and Basic Reports in Tally.** **Understand Advanced Accounting and Inventory in Tally. ERP 9.** **Have an understanding of Advanced Accounting and Inventory in Tally.ERP 9.** **Understand basic concepts and practical application of VAT, CST, TDS and Service Tax.**
15.	**IV**	**Core XII MANAGEMENT INFORMATION SYSTEM**	**Apply modern tools, techniques and technology in a functional and productive manner in Professional Activities.** **Analyze, Design, Construct, Implement and Maintain, Usable, Reliable and Cost-Effective Information Systems (IS) that support Operational, Managerial and Strategic activities of Organizations.** **Study and evaluate existing manual and automated business processes and identify opportunities for re-engineering and/or automation.** **Coordinate confidently and competently with the user community in IS requirements analysis/design activities, provide guidance and technical support to end user computing activities.** **Analyze the impact of computing on individuals, organizations and society, including ethical, religious, legal, security and global policy issues.**
16.	**IV**	**Allied IV TAXATION LAW AND PRACTICE**	**Elucidate an understanding of theoretical and technical knowledge of taxation law principles as they apply through legislation, for both individuals and business entities.** **Analyze, generate and transmit solutions to complex problems in relation to taxation matters.** **To efficiently compute tax for Business and Profession and knowledge on tax authorities.** **To efficiently handle indirect taxes and GST.** **To be a potential person on the procedural compliance of tax.**
17.	**V**	**Core XIII COST AND**	**Understanding the concept of cost accounting,**

		MANAGEMENT ACCOUNTING	**Recognize the merits and demerits of cost and management accounting along with the elements of cost concepts.** **Describe the cost sheets for the purpose of stores control through economic order quantity, pricing and material issues.** **Measure the financial statements through comparative and common size by using various financial ratios.** **Simplify the fund flow and cash flow statements by calculating funds and cash from operations.** **Produce various budgets and apply standard costing for material variances; marginal costing for cost volume profit.**
18.	**V**	**Core XIV RESEARCH METHODOLOGY FOR MANAGEMENT**	**Understand fundamental concepts of research, types and research process.** **Summarize the sampling design and scaling techniques.** **Construct a method for data collection and able to edit, code ,classify and tabulate the collected data.** **Analyze the collected data to prove or disprove the hypothesis.** **Interpret the data and prepare a research report.**
19.	**V**	**Core XV ADVERTISING AND SALES PROMOTION**	**Identify advertising mediums, both traditional, new and experimental.** **To Understand the function of Advertising Agencies.** **To Understand the principles of advertising layout and campaign.** **To Apply various sales promotion strategies and techniques.** **Will be able to manage Sales force.**
20.	**V**	**Core XVI BUSINESS CORRESPONDENCE**	**Learn and apply effective written communication techniques.** **Review and refine communications skills.** **Developing and delivering effective presentations.** **Determine and use proper psychological approach in writing situations.** **Skills that maximize team effectiveness in the world of work.**
21.	**VI**	**Core XVII ENTREPRENEURSHIP AND PROJECT MANAGEMENT**	**Define who is an Entrepreneur and what his or her characteristic features are, what skills made them successful and what qualities are required to become an Entrepreneur.** **Foster the students in the areas of entrepreneurial growth and equip with different entrepreneurial development programmes.** **Project management is a powerful discipline in the core areas of project life cycle and to know about the roles and responsibilities of a project manager.** **Discriminate the benefits of delivering the project identification and selecting the successful project with the various guidelines issued by the authorities.** **Classify the various sources of business finance and**

			identify the different institutions that supporting entrepreneurs.
22.	**VI**	**Core XVIII INVESTMENT MANAGEMENT**	**Understand the fundamental concepts of investment.** **Design an investment model in order to analyze its sustainability.** **Utilize the management tools and techniques to take appropriate investment decisions.** **Develop skills in trading.** **Evaluating investment theories.**
23.	**VI**	**Core XIX SERVICES MARKETING**	**Examine the nature of services, and distinguish between products and services.** **Identify the major elements needed to improve the marketing of services.** **Develop an understanding of the roles of relationship marketing and customer service in adding value to the customer's perception of a service.** **Appraise the nature and development of a services marketing strategy.** **Recognise how services marketing principles can be used as a conceptual framework to help managers identify and solve marketing problems.**
24.	**V**	**Elective- I (A) INTELLECTUAL PROPERTY RIGHTS**	**The students once they complete their academic projects, shall get an adequate knowledge on patent and copyright for their innovative research works.** **During their research career, information in patent documents provide useful insight on novelty of their idea from state-of-the art search. This provide further way for developing their idea or innovations.** **Pave the way for the students to catch up Intellectual Property(IP) as an career option R&D IP Counsel, Government Jobs – Patent Examiner, Private Jobs, Patent agent and Trademark agent, and Entrepreneur.** **Develop knowledge on trademarks and registration aspects.** **Have a simple and basic comprehension of the Indian scenario with regard to IPR act.**
27.	**V**	**Elective- I (B) MODERN OFFICE MANAGEMENT**	**Outline the different categories of chart against tabulated data in an electronic spreadsheet package.** **Become efficient Computer Operators and Front Office Representatives.** **Apply the need of the industrial houses and organizations in term of commercial correspondence, book keeping, preparation of reports and records by operating and handling both typewriter and computer.** **Practice modern office procedures in business administration and solve problems to make the service or products more competitive.** **Design a desk top publishing page which contains text, chart and graphics.**

28.	**V**	**Elective- I (C) COMPANY LAW AND SECRETARIAL PRACTICE FOR BBA**	**To know the concept of Company, Memorandum of Association and Article of Association, Shares and Debentures.** **To know the qualification of Directors, Powers and Duties.** **To know the Position of a Secretary of the Company.** **Understand the Kinds of Meeting and Drafting Correspondence.** **Understand the Meeting and Winding Up Procedures.**
29.	**V**	**Elective- I (D) CUSTOMER RELATIONSHIP MANAGEMENT**	**Understand the Basics of Relationship Marketing.** **Understand CRM.** **Understand Sales Force Automation.** **Understand Value chain.** **Understand Marketing Database.**
30.	**V**	**Elective- I (E) INTRODUCTION TO INDUSTRY 4.0**	**Understand the drivers and enablers of Industry 4.0.** **Appreciate the smartness in Smart Factories, Smart cities, smart products and smart services.** **Able to outline the various systems used in a manufacturing plant and their role in an Industry 4.0 world.** **Appreciate the power of Cloud Computing in a networked economy.** **Understand the opportunities, challenges brought about by Industry 4.0 and how organisations and individuals should prepare to reap the benefits.**
31.	**VI**	**Elective- II (A) BANKING LAW AND PRACTICE**	**Demonstrate knowledge among the students with theoretical structures about banking.** **Train and equip the students with the skills of modern banking.** **Identify the students will be taken for trainings to banks and insurance companies.** **Develop and inculcate the traits of professionalism amongst the students.** **Professional attire, professional communication skills and professional discipline will be inculcated.**
32.	**VI**	**Elective- II (B) INDUSTRIAL RELATIONS AND LABOUR LAW**	**Develop an understanding on industrial relation determinates of IR and IR scenario in India.** **Develop skill in negotiation with unions and conflict resolution.** **Handle grievances.** **Develop skill in collective bargaining.** **Know the application of Industrial dispute Act 1947and The Employee's State Insurance Act, 1948.**
33.	**VI**	**Elective- II (C) INSURANCE PRINCIPLES AND PRACTICE**	**Examine the risk and relevance involved in insurance industry and to suggest the importance of insurance.** **Explain the importance of life insurance, terms and conditions of insurance, contract and products.** **Insight the knowledge of general insurance practice, laws, terms and conditions, claim and procedure of insurance.** **Differentiate the fire and marine insurance, general**

			insurance, loss and recover. **To study the terms and conditions of insurance.** **To Evaluate other business insurances and practices of Health insurance in Indian climate.**
34.	**VI**	**Elective- II (D) CONSUMER BEHAVIOUR**	**Identify the major influences in consumer behaviour.** **Distinguish between different consumer behaviour influences and their relationships.** **Establish the relevance of consumer behaviour theories and concepts to marketing decisions.** **Implement appropriate combinations of theories and concepts.** **Recognise social and ethical implications of Marketing actions on consumer behavior.**
35.	**VI**	**Elective II (E) BIG DATA ANALYTICS**	**Identify and distinguish big data analytics applications.** **Describe big data analytics tools.** **Explain big data analytics techniques.** **Present cases involving big data analytics in solving practical problems.** **Conduct big data analytics using system tools and Suggest appropriate solutions to big data analytics problems.**
36.	**VI**	**Elective III (A) E-COMMERCE**	**To Understand e-commerce models -its benefits and limitations.** **To use of market research tools in analyzing customer buying behavior.** **To analyse the web advertising modes.** **To understand the application of B2B e-commerce model.** **To critically evaluate public policy on privacy and security.**
37.	**VI**	**Elective III (C) FINANCIAL SERVICES**	**Identify and distinguish big data analytics applications.** **Describe big data analytics tools.** **Explain big data analytics techniques.** **Present cases involving big data analytics in solving practical problems.** **Conduct big data analytics using system tools and Suggest appropriate solutions to big data analytics problems.**
38.	**VI**	**Elective III (D) GLOBAL BUSINESS MANAGEMENT**	**Understand the fundamental concepts pattern of international trade.** **Developing knowledge on Indian institutional assistance for export promotion.** **Knowing export procedures and incentives.** **Develop skill in obtaining export finance.** **Evaluating international agencies.**
39.	**VI**	**Elective III (E) ARTIFICIAL INTELLIGENCE**	**Define the concept and pros &cons of franchisee option.** **Identify legal formalities & process of franchisee.** **Develop relationship between Franchisor &franchisee; Resolve the conflict between franchisor**

			& franchisee. **Develop Franchisee marketing plan.** **Analyze the way to enter into International Market entry strategies.**
40.	**III**	**Skill I COMMUNICATION SKILLS – I**	**Remember the core contents of any communication.** **Understand the nuances of communication.** **Able to understand and speak well in any situation.** **Demonstrate a good command in responding to any queries.** **Achieve the desired result of a good communication.**
41.	**IV**	**Skill II COMMUNICATION SKILLS II**	**Remember the core contents of any communication.** **Understand the importance of good written communication.** **Able to draft and write any type of documents.** **Demonstrate a good command in responding to any queries.** **Achieve the desired result of a good communication.**
42.	**V**	**Skill III CAMPUS TO CORPORATE**	**Remember the industry expectations.** **Understand the importance of etiquette in organizational culture.** **Able to develop a confidence level and facing interviews.** **Demonstrate a good command in responding to any queries.** **Achieve the desired result thro proper evaluation of competencies and be creative.**
43.	**VI**	**Skill IV SOFT SKILLS FOR BUSINESS**	**Remember the various organizational entry level skill requirements.** **Understand the need for different skill requirement at different occasions.** **Able to appropriately respond to the situation during recruitment and selection.** **Demonstrate a good command in work environment.** **Achieve the desired result of a good employability.**

Course :M.A. Tamil

Program Outcomes (POs)

Program Specific Outcomes (PSOs)

S.No	Sem. No	Course	Outcome
1.	**I**	**,f;fhy ,yf;fpak**	
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Course :M.A English

Program Outcomes (POs)

PO1 Maximize their knowledge level of the English Literature.
PO2 Develop social responsibility as literature reflects life.
PO3 Acquire sound knowledge of classical writers and texts.
PO4 Apply the theories taught to a given text.
PO5 Identify research prospects and areas.
PO6 Demonstrate good communicative skills
PO7 Build creative skills through the reading of different literatures
PO8 Discover the teaching skills in them through the seminars given during the program
PO9 Organize and manage events
PO10 Create a better outlook of life accepting challenges from the learning experience

Program Specific Outcomes (PSOs)

PSO1 Understand the various genres of English Literature
PSO2 Acquire a sound knowledge of the periods of English Literature and writers during the period
PSO3 Identify the features of each period in the given text
PSO4 Learn the important movements and theories practiced in the different periods
PSO5 Develop good communication skills
PSO6 Select new areas of research
PSO7 Show interest in the literatures of the world
PSO8 Demonstrate translation skills by translating simple texts
PSO9 Recall concepts and texts to clear competitive examinations
PSO10 Make use of the experience of the morals and values learnt from literature in transforming society

S.No	Sem. No	Course	Outcome
1.	I	Core I BRITISH LITERATURE – I FROM CHAUCER TO MILTON	Understand the language and literature of the period. Analyse the social life and its reflection in the literary texts of the age. Remember the prominent works of the classical writers. Apply the features of the different literary forms to the prescribed texts. Evaluate the technical aspects in the given texts.
2.	I	Core II AMERICAN LITERATURE	Understand the American outlook as seen in the prescribed texts. Analyse works of literature, its forms and features in the American context. Remember the writers and the period to which they belonged. Apply critical theories to contemporary American texts. Evaluate the works of writers from a researcher‘s perspective .
3.	I	Core III SHAKESPEARE	Understand the language and techniques in the plays of Shakespeare. Create a better society from the morals and lessons learnt through the texts. Identify characters and lines from the texts prescribed. Apply literary theories to any given Shakespearean text. Compare the literature of the Elizabethan era with that of another.
4.	I	Core IV GRAMMAR FOR COMMUNICATION	Understand the need and right usage of grammar. Remember the basic rules in grammar for effective communication. Construct good passages without errors. Apply their theoretical knowledge in practice. Discover opportunities that suit their skills.
5.	I	Core V THE ENGLISH LANGUAGE – I	Understand the importance of pronunciation. Apply the rules to articulate sounds. Distinguish sounds and use them appropriately. Evaluate the learning of sounds through simple methods. Create opportunities with the accomplished competency.
6.	I	Core VI BRITISH LITERATURE II	List the writers and the works of the period. Interpret any work with a clear understanding of the features of the age. Identify new areas of study and apply the theories learnt. Simplify the prescribed texts for better understanding. Justify the understanding of the writers through projects and assignments.
7.	II	Core VII INDIAN WRITING	Understand the writers and works of different

		IN ENGLISH	**periods from the Indian point of view.** **Identify the context and get a clear picture of Indian life portrayed in the works.** **Analyse any given work from a critical perspective.** **Assess the quality of literature produced from the subcontinent.** **Develop a research mind to explore new areas for research.**
8.	**II**	**Core VIII ENGLISH LITERATURE FOR COMPETETIVE EXAMINATIONS**	**Remember the literary terms forms and theories.** **Understand he different periods of English literature.** **Apply the learnt theories to any text.** **Analyse any given text thematically and technically.** **Interpret any literary piece of work.**
9.	**II**	**Core IX NEW LITERATURES IN ENGLISH**	**Choose texts from different parts of the world and understand the background of that literature.** **Translate some of the texts into regional languages.** **Apply the theories of comparative literature to study the literature of two different countries.** **Analyse the texts from different perspectives.** **Develop an interest in world literature.**
10.	**II**	**Core X THE ENGLISH LANGUAGE II**	**Outline the history of the English language.** **Summarize the growth of the English language.** **Identify in the changes in the structure of the language down the years.** **Make use of the knowledge gained to improve their communication skills.** **Select unexplored areas of the English language for research.**
11.	**III**	**Core XI BRITISH LITERATURE III (FROM THE VICTORIAN AGE TO THE MODERN AGE)**	**Remember the writers and works of the periods.** **Understand the shift in thought and techniques from the Victorian to the modern period.** **Apply the theories of the age to the prescribed texts.** **Analyse any literary work keeping in mind the age and its features.** **Identify areas for research.**
12.	**III**	**Core XII ENGLISH LITERATURE FOR COMPETETIVE EXAMINATIONS II**	**Remember the literary terms forms and theories.** **Understand he different periods of English literature.** **Apply the learnt theories to any text.** **Analyse any given text thematically and technically.** **Interpret any literary piece of work**
13.	**III**	**Core XIII METHODS OF TEACHING ENGLISH**	**Remember the various methods and its significance in effective teaching.** **Understand the importance of following the different methods.** **Apply the learnt methods into practice.** **Analyse ways to improvise the methods for better understanding.** **Create innovative methods for a complete understanding.**
14.	**III**	**Core XIV LITERARY**	**Remember the theories and theorists of the different**

		CRITICISM AND THEORY	**periods.** **Understand the theories and the changes in outlook down the years.** **Apply the relevant theories to any literary text.** **Analyse a piece of literature from a critical perspective.** **Evaluate a work of art from the theoretical point of view.**
15.	**III**	**Core XV RESEARCH METHODOLOGY**	**Remember the fundamentals of writing research papers.** **Understand what thesis writing is.** **Apply literary theories to research.** **Analyse texts from different perspectives.** **Improve the quality of research through the knowledge gained.**
16.	**IV**	**Core XVI INTRODUCTION TO WOMEN'S STUDIES**	**Relate the writings of women from other parts of the world to ours.** **Interpret the works of prominent women writers.** **Experiment with different writings for research.** **Survey the literature of different countries on the style and themes.** **Choose different areas for research from the knowledge gained.**
17.	**IV**	**Core XVII MASS COMMUNICATION AND JOURNALISM**	**To understand the basic concepts in mass communication.** **Basic of journalism.** **Theories associated to mass communication and journalism.** **Apply in practicing journalism.**

Course :M.Sc Mathematics

Program Outcomes (POs)

PO1 Demonstrate in-depth knowledge of Mathematics, both in theory and application.
PO2 Attain the ability to identify, formulate and solve challenging problems in Mathematics.
PO3 Know the various specialised areas of advanced mathematics and its applications.
PO4 Analyze complex problems in Mathematics and propose solutions using research-based knowledge.
PO5 Obtain the accurate solutions for the community oriented problems via various mathematical models.
PO6 Work individually or as a team member or leader in uniform and multidisciplinary settings.
PO7 Crack lectureship and fellowship exams affirmed by UGC like CSIR-NET

and SET.
PO8 Apply the Mathematical concepts, in all the fields of learning including higher research, and recognize the need and prepare for lifelong learning.
PO9 Know the use of computers both as an aid and as a tool to study problems in Mathematics.
PO10 Inculcate the knowledge of formulation and apply the mathematical concepts which are suitable for real life applications.

Program Specific Outcomes (PSOs)

PSO1 Communicate concepts of Mathematics and its applications.
PSO2 Acquire analytical and logical thinking through various mathematical tools and techniques.
PSO3 Investigate real life problems and learn to solve them through formulating mathematical models.
PSO4 Attain in-depth knowledge to pursue higher studies and ability to conduct research. Work as mathematical professional.
PSO5 Achieve targets of successfully clearing various examinations/interviews for placements in teaching, banks, industries and various other organizations/services.

S.No	Sem. No	Course	Outcome
1.	I	Core I ABSTRACT ALGEBRA	Understand Sylows theorem and its applications. Formulate some special types of rings and their properties. Acquire knowledge on extension fields and roots of polynomials. Analyze the elements of Galois theory and Galois Groups over the rationals. Understand the basic concepts of solvability by radicals and finite fields.
2.	I	Core II REAL ANALYSIS	Apply the Riemann Stieltjes integral and bring its properties and rectifiable curves. Remembering of sequences and series along with its properties. Analyze the concept of linear transformation and find the extreme values of implicit functions. Understand the fundamental concept of Lebesgue measure. Evaluate the complex integration and the benefits of Lebesgue Integral.
3.	I	Core III ORDINARY DIFFERENTIAL EQUATIONS	Recall the types of linear homogeneous equations of second order equations with constant coefficients and apply the method to solve. Analyze non-homogeneous ODE using the method of undermined coefficients and annihilator method to solve the same. Understand and Apply the theorems on Initial value

			problem to ordinary differential equations. **Comprehend the Euler equations, the Bessel's equation and Regular, Singular points at infinity and to evaluate.** **Identify the research problem where differential equation can be used to model the problem.**
4.	**I**	**Core IV Numerical Methods**	**Solve problems in numerical differentiation and integration.** **Solve system of equations using various methods.** **Apply various methods to find numerical solution of first and second order ordinary differential equations.** **Explain the various methods for solving Boundary Value Problems and Characteristic Value Problems.** **Understand the Explicit method and the Crank Nicolson method for solving partial differential equations.**
5.	**II**	**Core V LINEAR ALGEBRA**	**Understand the basic concepts of Linear transformations, characteristic roots and matrices of linear transformation and its applications.** **Explain about the algebra of polynomials, polynomial ideals and prime factorization of a polynomial.** **Understand the basic concepts of determinants and its additional properties.** **Recognize the concepts of Invariant subspaces and diagonalization process.** **Analyze canonical Form, Jordan Form and Rational canonical Form.**
6.	**II**	**Core VI COMPLEX ANALYSIS**	**Remembering the concept of Analytic function and as a mapping on the plane and understand Mobius Transformation.** **Understand Cauchy's Integral Formula on open sets on the plane and know about poles , residues and singularities.** **Apply the Cauchy's integral formula in residue theorems and in evaluation of definite integrals.** **Analyze and represent the sum function of a power series as an Analytic Function.** **Study and Understand periodic function, Weierstrass function and its applications.**
7.	**II**	**Core VII PARTIAL DIFFERENTIAL EQUATIONS**	**Understand and remember the physical situations with real world problems to construct mathematical models using partial differential equations and study the methods to solve.** **Analyze the type of partial differential equations and different methods to solve.** **Evaluate Laplace equation and analyze its applications.** **Apply variable separable method to solve Laplace and Diffusion equation.**

			Finding the appropriate method to solve the partial differential equations.
8.	**II**	**Core VIII MECHANICS**	**Understand the basic concepts of the mechanical system, generalized coordinates, work, energy and momentum.** **Solve and analyze the Lagrange's equations and integrals of motion with examples.** **Understand the Hamilton's Principle and other variational principles and gain ability to analyze those principles to the problems arising in practical situations.** **Understand and develop the Hamilton's Principal function and Hamilton Jacobi equation.** **Get familiar with canonical transformations, conditions of canonicity of a transformation in terms of Lagrange and Poisson brackets.**
9.	**III**	**Core IX TOPOLOGY**	**Acquire knowledge about various types of topological spaces and their properties.** **Discuss connected spaces, the components of a space.** **Apply the properties and derive the proofs of theorems.** **Construct a variety of examples and counter examples in topology.** **Understand the properties of the compact spaces and analyse the different types of compactness.**
10.	**III**	**Core X FLUID DYNAMICS**	**Recall the basic concepts of velocity, density and curvilinear co-ordinates.** **Understand the concepts and equations of fluid dynamics.** **Analyze and understand the concepts of the force experienced by a two-dimensional fixed body in a steady irrotational flow.** **Analyze the approximate solutions of the Navier – Stokes equation.** **Analyze and apply the appropriate method to solve integral equation of boundary layer, Blasius equation and its series solution.**
11.	**III**	**Core XI MATHEMATICAL STATISTICS**	**Remembering the understanding the basic concepts such as statistics, probability and random variables.** **Applying the concepts and methods to find the moments of the distributions. Study multivariate distributions and the independence of random variables.** **Further evaluating the marginal distributions from bivariate distributions.** **Analyze and study the properties of some discrete as well as continuous distributions.** **Understand the convergence of distributions and central limit theorem.**
12.	**III**	**Core XII GRAPH THEORY**	**Understand the basic concepts of Graphs and Trees.** **Analyze vertex and edge connectivity concepts.**

			Acquire knowledge in Matching and Colourings. **Apply Chromatic Number.** **Determining the planar, non-planar, and directed graphs.**
13.	**IV**	**Core XIII FUNCTIONAL ANALYSIS**	**Familiarize with the concepts of normed linear spaces and operators on normed linear space.** **Demonstrate an understanding of the concepts of Hilbert spaces and Banach spaces, and their role in mathematics.** **Apply the theorems.** **Obtain Orthogonal complements, Orthonormal sets and conjugate space.** **Understand the concepts of linear operators, self adjoint, unitary operators, isometric isomorphism on Hilbert spaces ,Determinants ,the spectrum of an operator, Banach algebra.**
14.	**IV**	**Core XIV MATHEMATICAL METHODS**	**Understand and Apply various transforms and Integral equations to solve problems in all respects.** **Recognize and solve the special cases of Volterra Integral equations by the method of resolvent kernel, method of successive approximations and by using transforms.** **Understand the relations between the Hankel,Fourier transform and their applications in evaluating the equations.** **Understand the formulation of variational problems, the variation of functional and its properties.** **Demonstrate and apply the methods in all aplication problems in day-today life.**
15.	**IV**	**Core XV OPTIMIZATION TECHNIQUES**	**Explain various techniques to solve real life problems expressed in terms of LPP.** **Solving LPP through Dynamic Programming.** **Apply the fundamental concept of Inventory control.** **Understanding the queuing theory.** **Solving NLPP using Kuhn–Tucker Method.**
16.	**IV**	**Core XVI COMPUTER PROGRAMMING (C++ THEORY)**	**Understand and apply the C++ structure, tokens, expressions, control structures.** **Ability to declare various prototyping, friend and virtual functions.** **Create Classes, objects, arrays of objects, constructors, and Destructors.** **Analyze over loading operators and inheritance.** **Deliberate files, pointers and templates. Create, design and develop quality programs in C++.**
17.	**II**	**Elective 1: NUMBER THEORY**	**Find quotients and remainders and greatest common divisors applying Euclidean Algorithm.** **Understand the definitions of congruence, residue classes and least residues.** **Analyze the concept of Prime Power Moduli and Quadratic Residues.** **Determine multiplicative inverses, modulo n and use to solve linear congruence.**

			Acquire knowledge on Linear Diaphantine equation.
18.	**II**	**ELECTIVE 2: DIFFERENTIAL GEOMETRY**	**Define and understand basic definitions of the theory of curves.** **Interpret the notions of surface of revolution and direction coefficients.** **Analyze the elements of Analytic representation.** **Acquire knowledge on first fundamental form and second fundamental form.** **Explain Meusnier's theorem and Euler's Theorem on elementay theory of surface.**
19.	**II**	**ELECTIVE 3: NEURAL NETWORKS**	**Understand and analyze different neutron network models.** **Understand the basic ideas behind most common learning algorithms for multilayer perceptions, radial-basis function networks.** **Describe Hebb rule and analyze back propagation algorithm with examples.** **Study convergence and generalization and implement common learning algorithm,** **Study directional derivatives and necessary conditions for optimality and to evaluate quadratic functions.**
20.	**III**	**ELECTIVE 4: MAGNETOHYDRODYNAMICS**	**Understand the basic concepts of Electromagnetism, Fundamental Laws and fluid motion in magnetic field.** **Solve and analyze the Naiver-Stokes equations and velocity Magneto fluid dynamic equations with examples.** **Understand the MHD approximation and gain ability to analyze Magnetic Reynolds number.** **Gain knowledge about the Magneto hydrostatics and Alfven waves in incompressible MHD.** **Understand and develop the Hartmann Flow in the presence of magnetic field.**
21.	**III**	**ELECTIVE 5: FUZZY LOGIC AND FUZZY SETS**	**Gain knowledge about the basic types of fuzzy sets and the difference between crisp sets and fuzzy sets and the concept of operations on fuzzy sets.** **Analyze and apply the knowledge of fuzzy relations.** **Develop the basic concepts of fuzzy measures.** **Explore the concept of uncertainity.** **Understand the types of uncertainity measures and principles.**
22,	**III**	**ELECTIVE 6: CONTROL THEORY**	**Explain observability and estimate the observability of constant coefficient system, linear, nonlinear system, and discuss reconstruction kernel.** **Apply controllability criteria to constant coefficient system, linear, nonlinear system, and explain steering function** **Analyze the stability of linear system, linear time varying system, perturbed linear system and nonlinear system.** **Evaluate stabilizabilization via linear feedback**

			control, Bass method. **Analyze controllable subspace, and stabilization with restricted feedback.**
23.	**IV**	**ELECTIVE 7: CRYPTOGRAPHY**	**Understand the basic concepts and objective of cryptography and recall the concept of modular arithmetic.** **Understand mathematical foundations required for various cryptographic algorithms.** **Apply the concept and properties of modular arithmetic in various algorithms tofind the solution.** **Describe and Analyze existing authentication protocols for two party communications.** **Evaluate security mechanisms in the theory of networks and apply the appropriate algorithms.**
24,	**IV**	**ELECTIVE 8: MATLAB**	**Understand the basic concepts of starting windows and solve the MATLAB applications.** **Create arrays and solve them in MATLAB.** **Solve problems using M files and apply the same for advanced data objects in MATLAB.** **Understand the importance of MATLAB in differential equations and assess it forplotting graphs using layouts.** **Diagnose various applications of MATLAB in curve fitting, statistics and integration.**
25.	**IV**	**ELECTIVE 9: LaTex**	**Understand basic concepts of Text formatting and LaTex file.** **Demonstrating command names and arguments, Special characters.** **Apply the commands to create document layout and displayed output K3,.** **Create Table, Printing Text, Foot notes and marginal notes.** **Apply LaTex commands to mathematical formulae.**
26.	**IV**	**Elective 10 - ELEMENTS OF STOCHASTIC PROCESSES**	**Acquire adequate knowledge about Continuous Time Markov Chain and Queueing Systems.** **Gain understanding on the Renewal Process, Cumulative Process and Semi-Markov Process.** **Apply different methods and solve Birth and Death queues.** **Examine the computations of M/G/1 and G/M/1 Queues and Network of Queues.** **Conclude the idea of Brownian Motion and First Passage Times.**

Course : M.Sc Bio Chemistry

Program Outcomes (POs)

PO1 To demonstrate a core knowledge base in the theory and practice of ethical and modern Biochemistry
PO2 To understand that communication comprises attention, listening, responding, and collecting information through different formats
PO3 To develop innovative strategies for the challenges faced by healthcare industries and the biochemical

approaches to solve them
PO4 To learn and accomplish tasks with proficient skills in group, to lead the academic integrity and intellect independence
PO5 To master the applications of current tools for the best health care and development of Bio markets
PO6 To have the application of contemporary research methods, skills and techniques to conduct independent research works in all possible fields of Biosciences
PO7 To recognize and appreciate the ideas of others, promote interdependence with different fields, dissolve disagreements, harness cognitive ability , and resolve the conclusions in group settings
PO8 To have the ability of understanding the issues of environmental contexts and sustainable developments
PO9 To promote the self responsibility towards the society with social concern, sincerity, involved professionalism, dedication and volunteering in civic participation.
PO10 To motivate the ability of engaging in independence and lifelong learning to update the current scenario.

Program Specific Outcomes (PSOs)

PSO1 To acquire the in depth theoretical and practical knowledge of Biochemistry and the ability to apply the acquired knowledge to provide cost efficient solutions in Biochemistry
PSO2 To integrate and apply the techniques of Analytical biochemistry, Clinical Biochemisatry, Micro and Molecular biology and Basics of bioinformatics
PSO3 To learn the technical aspects of existing technologies that help in addressing the biological and medical challenges faced by humankind
PSO4 To compare and contrast all the interdisciplinary areas like molecular genetics,microbiology, biotechnology, genetic engineering immunochemistry, enzymology, bioinformatics etc
PSO5 To practice an individual to work independently or in groups to carry out research investigations in an efficient manner
PSO6 To understand the Biochemical basis of human diseases, protein structure and conformation, regulatory metabolic pathways, drug development, diagnostic and therapeutic mechanisms.

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I BIOMOLECULAR CHEMISTRY**	**Knowledge on the conformational properties of biological proteins.** **An in depth understanding on the basic principles, mechanisms and significances of bio polysaccharides.** **Information about all lipids and their biological significance.** **Clear idea on the types, structure and biological functions of nucleic acids.** **Clear understanding on the characterization and nucleic acid recognition by proteins and their related techniques.**
2.	**I**	**Core II ANALYTICAL BIOCHEMISTRY AND BIOINFORMATICS**	**Detailed information on the principles and applications of spectroscopic techniques and centrifugation methods.** **Keen knowledge on separation of bioactive components by chromatographic and electrophoretic techniques.** **Overview on characterization of biomolecules by**

			diffraction and radio chemical methods. **Thorough knowledge on various applications and scopes of Bioinformatics.** **In depth understanding of the concepts of biological databases and their applications.**
3.	**I**	**Core III ENZYMES AND ENZYME TECHNOLOGY**	**Knowledge on the basic concept and recent advances in Enzyme studies.** **In depth understanding of current issues in enzyme catalysis, antioxidants etc.** **Comprehensive understanding on enzyme kinetics and inhibition.** **Knowledge on applications of enzymes in various industries .** **Clear idea on techniques of immobilization and biosensors.**
4.	**I**	**Core IV CELLULAR BIOCHEMISTRY**	**Disseminate knowledge about the chemistry and functions of cell membrane.** **Understand about the transport in cell membrane.** **Knowledge on the power house of the cells.** **Gain knowledge on cell to cell signalling and interactions.** **Brain storming about the programmed cell death and cancer cell properties.**
5.	**I**	**Core V PLANT BIOCHEMISTRY AND BIOTECHNOLOGY**	**Understand about the photosystem of plants and chemical synthesis of photophosphorylation.** **Analysis cognizant of different types of plants based on their carbon absorption.** **Gain basic knowledge about nitrogen and sulphur metabolism.** **Overview of Structural organization of plant genome.** **Clear idea about the plant organelle development.**
6.	**II**	**Core VI MICROBIAL BIOCHEMISTRY**	**Understand the basic principles of metabolic processes within the cell.** **Theoretical knowledge about the fermentation techniques and the synthesis of intermediary components.** **Knowledge on bio process technology.** **Insight on microbial production of fermented products.** **Knowledge on the in vitro cultivation of cells.**
7.	**II**	**Core VII IMMUNOLOGY**	**Gain thorough knowledge on the immune cells.** **Understand about Ag and Abs interactions and their expression.** **Pathway of immunological reactions using complement system was understood.** **Develop knowledge on the cytotoxic assay and vaccine production.** **Attain knowledge on investigation of life threatening diseases.**
8.	**II**	**Core VIII ADVANCED CLINICAL BIOCHEMISTRY**	**Understand the physiological and clinical importance of Hb and its disorders.**

			Gain detailed knowledge on the biological sample collection and its interpretation. **Understand the importance of enzymes in diagnosis of diseases.** **Acquire clinical knowledge on physiological organs and its related disorders.** **Obtain in depth idea on oncologic aspects and anti oxidants.**
9.	**II**	**Core IX MOLECULAR BIOLOGY**	**Obtain knowledge on structural organization of eukaryotic chromosomes.** **Understand the molecular mechanism of replication and recombination.** **Gain knowledge about the eukaryotic and prokaryotic transcription process.** **Obtain knowledge regarding RNA processing and regulation.** **Undersand about the transcriptional processing units.**
10.	**II**	**CORE BIOCHEMISTRY PRACTICALS – I**	**Obtained knowledge on structural organization of eukaryotic chromosomes.** **Understood the molecular mechanism of replication of recombination.** **Knowledge about the eukaryotic and prokaryotic transcription process.** **Obtained knowledge regarding RNA processing and regulation.** **Understood about the transcriptional processing of its involving sub cellular organelles.**
11.	**III**	**Core X BIOSTATISTICS AND RESEARCH METHODOLOGY**	**To provide knowledge on conducting survey and data interpretation and to develop skill in identification of research problem, thesis writing and publication in journal.** **To have basic knowledge on measures of central tendency and variation.** **To gain sufficient knowledge on theoretical and normal distribution.** **To grasp knowledge on tests of significance.** **To have better understanding on analysis of variance.**
12.	**III**	**Core XI METABOLISM AND METABOLIC REGULATION**	**To understand carbohydrate metabolism and its regulation with energetic.** **To have an overview on lipid metabolism and its regulation.** **To analyse amino acid metabolism and its regulation.** **To get detailed overview on porphyrin metabolism and its regulation with its enzymes.** **To have knowledge on plant metabolism and its regulation.**
13.	**III**	**Core XII GENETIC ENGINEERING**	**To have basic understanding of Mendelian genetics.** **To equip on the techniques of gene manipulation.** **Clear understanding of cloning vector, development and their application.** **Knowledge of cloning strategies and expression**

			vectors. **Adequate knowledge on gene transfer methods and selectable markers and their applications.**
14.	**III**	**Core XIII** **ENDOCRINOLOGY**	**To gain basic knowledge of hormones and their receptors.** **To provide information on pituitary, thyroid, parathyroid hormone.** **To provide information on melanocyte hormones and pineal gland.** **To gain knowledge on pancreatic hormones and their pathophysiology K3,.** **To gain information on reproductive hormones and their pathophysiology.**
15.	**III**	**Core XIV** **PHARMACEUTICAL CHEMISTRY AND NEUROCHEMISTRY**	**To have deeper understanding on various routes of drug administration, its distribution , and excretion.** **To enable students to learn about principles of basic pharmacokinetics.** **To gain knowledge on drug delivery system.** **To have understanding on genetically engineered products.** **To gain knowledge on neurotransmitters and neuro degenerative disorders.**
16.	**IV**	**CORE BIOCHEMISTRY PRACTICALS – II**	**Carryout the isolation of biochemicals from different samples.** **Perform the enzyme assays.** **Correlate the clinical interpretations for diagnosis.** **Perform the staining and microbiological tests.** **Expertise and be equipped with all the biochemical test.**
17.	**I**	**ELECTIVE-A** **PLANT TISSUE CULTURE**	**Remember the genome organization of plants.** **Application of Artificial seed production.** **Analysis of cryopreservation and germplasm.** **Analysis of basic concepts of plant transformation.** **Evaluation and production of secondary metabolites.**
18.	**II**	**ELECTIVE-A** **ANIMAL TISSUE CULTURE**	**Have a complete understanding of different types of preparation of cultures.** **Analyse and apply the apt type of cell cutures for experiments.** **Characterization of the cultured cells.** **Application of stem culturing methods.** **Production of transgenic animals.**
19.	**III**	**ELECTIVE PAPER-A** **METHODS IN MOLECULAR BIOLOGY**	**Know about the structural organization of eukaryotic chromosomes.** **Understand the nucleic acids with their properties.** **Know about the functions and techniques of chromosomes.** **Understand about phages and vectors.** **Practice the cloning strategies.**
20.	**IV**	**ELECTIVE-A PRACTICALS** **CELL CULTURE AND MOLECULAR TECHNIQUES**	**Understand the techniques of plant tissue culture.** **Apply the techniques of plant tissue culture.** **Understand the techniques of animal tissue culture.** **Apply the techniques of plant tissue culture.**

			Expertise in molecular techniques.
21.	**I**	**ELECTIVE GROUP- B COMPUTATIONAL MOLECULAR BIOLOGY**	**Gain knowledge about all genome databases. Understand the overview of the sequence alignment. Gain knowledge about the evolutionary bioinformatics. Gain knowledge about the functional transcriptional regulatory signals. Gain knowledge about the profile pattern.**
22.	**II**	**ELECTIVE GROUP- B GENOMICS**	**Gain basic uses of structures of genomes. Gain thorough knowledge of mapping and sequencing of genome. Gain knowledge about the gene evolution and human genome project. Gain knowledge about the DNA sequencing and modeling. Understand concepts of comparative genomics of prokaryotes and eukaryotes.**
23.	**III**	**ELECTIVE GROUP- B PROTEOMICS**	**Know about electrophoresis, chromatography techniques. Clearly understand analysis of proteins. Gain thorough knowledge on structural proteonomics. Gained knowledge on developing new drugs. Get clear idea got on computational protein – protein interactions.**
24.	**IV**	**ELECTIVE - COMPUTATIONAL BIOLOGY PRACTICALS**	**Gain basic uses of molecular databases. Gain thorough knowledge on Bioinformatic tools. Gain knowledge about the retrieval, integration and interpretation.**
25.	**I**	**ELECTIVE GROUP- C FUNDAMENTALS OF NANOSCIENCE**	**To understand the history of nano techniques at their atomic level. Gain knowledge about the interactions of nanoparticles. Have knowledge about nanostructures and their properties. Get Idea about various forms of carbon. Have In depth knowledge on high vacuum technology.**
26.	**II**	**ELECTIVE GROUP- C NANOMATERIALS SYNTHESIS**	**Gain knowledge about fundamentals of sol gel processing techniques of nanoparticles. Understand the in-depth detail of synthesis of Nanocomposites. Know about synthesis by Film deposition techniques. Know and apply various methods for the synthesis of Nanomaterials. To know and apply advanced methods used in the synthesis of Nanostructures.**
27.	**III**	**ELECTIVE GROUP- C CHARACTERIZATION OF NANOMATERIALS**	**Gain knowledge about fundamentals of XRD and NMR techniques. In-depth detail of AFM and EDX techniques. Have knowledge about characterization of Nanoparticels by SEM and TEM.**

			To know and apply the synthetic techniques of Quantum dots. **To know the advanced applications of Nanomaterials.**
28.	**IV**	**ELECTIVE – NANOTECHNOLOGY PRACTICALS**	**Understand the different synthesis methods of nanoparticles.** **Apply the synthesis with different samples.** **Characterize the structural components of a sample.** **Elucidate different activities of the organisms.** **Apply the knowledge in synthesizing naomaterials.**

Course :M.Sc Physics

Program Outcomes (POs)

PO1 Understand the concepts of advanced physics and capable to apply them in real time problems to find appropriate solutions.
PO2 Develop model and analyse to derive solution using the background of theoretical physics.
PO3 Augment the application feasibility of Physics theoretical formulations in combination with relative concepts belongs to other discipline.
PO4 Apply learned experimental skill to develop newer materials with unique characteristics employing variety of synthesis techniques.
PO5 Develop software tools by applying the learned concepts in combination belongs to Mathematical physics, Quantum mechanics and computational physics.
PO6 Perceive novel and contemporary research philosophies globally facilitate to work at par with international standards.
PO7 Meet any challenge globally for employment in academic, research and industry by exposing the learned skill in diverse zone under Physics discipline.

Program Specific Outcomes (PSOs)

PSO1 Be a potential graduate with the stuff of vibrant subject knowledge in every subdivision of Physics especially in Classical Mechanics, Quantum Mechanics,
Mathematical Physics, Nuclear Physics, Electronics and Materials Science with application tendency.
PSO2 Be a science person to extend the application of Physics discipline to different sectors of common or needy people.
PSO3 Have the competence to get clear any comprehensive examination offers superior opportunity in official, academic and research sectors.
PSO4 Have the skill to manage computational tools to explore scientific activity even at subatomic particle level using theoretical concepts without empirical approach.
PSO5 Be a skillful to perceive rare or exceptional scientific phenomena using the concepts of physical science and to find solution to any challengeable task.
PSO6 Be an efficient to employ research work by applying the subject knowledge acquired from diverse objectives of Physics.
PSO7 Have the ability to meet any employment challenge demands intense subject proficiency.

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I CLASSICAL**	**Familarise basic mathematical tools like variational**

		MECHANICS	**calculus to mechanical systems and able To compute Lagrangian and Hamiltonian equation of motion. Understand central force problem and also system in non-inertial reference frame. Analyse mechanics problems through canonical transformation technique and Hamilton Jacobi technique. Learn rigid body dynamics and normal mode analysis. Study basic concept of special theory of relativity and non-linear dynamics.**
2.	**I**	**Core II MATHEMATICAL PHYSICS I**	**Understand vector calculus and also able to write operators in different coordinate system. Apply linear vector space concepts in quantum mechanics. Understand convergence of infinite series, error analysis and curve fitting. Evaluate real integrals appearing in science and engineering problems. Solve differential equations and understand self adjoint operators used in quantum mechanics.**
3.	**I**	**Core III INTEGRATED ELECTRONICS**	**Analyze various semiconductor devices and their applications. Study the characteristics of Op-amp and it's applications. Update the knowledge of signal processing. Develop the fundamental concepts and techniques used in data storage elements. Design different types of registers and counters.**
4.	**I**	**Core IV ADVANCED COMPUTATIONAL PHYSICS**	**Understand and apply numerical methods to find out solution of algebraic equation using different methods under different conditions, and numerical solution of system of algebraic equation. Apply various interpolation methods and finite difference concepts. Work out numerical differentiation and integration whenever and wherever routine are not applicable. Identify modern programming methods and describe the extent and limitations of computational methods in physics. Process, analyze and plot data from a variety of physical phenomena and interpret their meaning**
5.	**II**	**Core V QUANTUM MECHANICS I**	**Familiarize Dirac notation. Apply Schrodinger equations to exactly solvable simple problems. Learn quantum mechanical angular momentum algebera and spin. Compute corrections in energy and wavefunctions using approximation technique. Calculate transition probability and also selection**

			rules for transition.
6.	**II**	**Core VI MATHEMATICAL PHYSICS II**	**Apply Fourier series and Fourier transform techniques to physics and engineering problems.** **Apply Laplace transform techniques to physics and engineering problems.** **Understand special functions used in quantum mechanics and electrodynamics course.** **Solve differential equations using Green's function technique.** **Familiarize basic group theory concepts used in spectroscopy and nuclear physics.**
7.	**II**	**Core VII ATOMIC AND MOLECULAR SPECTROSCOPY**	**Familarise basics on characterization of electromagnetic radiation and quantization of energy.** **Understanding different spectral lines arising from atoms and interaction of spectral lines with the external source.** **Able to design spectroscopic experiments, able to accurately record and analyze the results of such experiments.** **Learn different spectroscopic techniques to analyse molecular structure.** **Analyse linear, vibrational and rotational motion of the molecules and can evaluate corresponding energy transitions.**
8.	**II**	**Core PRACTICAL I - GENERAL PHYSICS**	**Understand the basics of experimental physics and compare the results with theoretical calculations.** **Gain knowledge of new conception in practical oriented problems and visualize the experiments through MATLAB programming.** **Equip the students in basic communication skills in the course of performing the laboratory experiments in groups and by interpreting the results**
9.	**II**	**Core PRACTICAL II - ELECTRONICS**	**Acquire knowledge on semiconductor devices and op amps characteristics.** **Apply circuit systems to construct electronic devices.** **Evaluate functioning of circuits.**
10.	**III**	**Core VIII QUANTUM MECHANICS II**	**Understand the mathematical foundation of quantum mechanics.** **Apply Schrodinger equations to exactly solvable simple problems using approximation methods.** **Learn relativistic effects in quantum mechanics and quantum field theory.** **Compute corrections in energy and wavefunctions using approximation technique.**
11.	**III**	**Core IX CLASSICAL ELECTRODYNAMICS**	**Familarize mathematical concepts and boundary conditions used in classical electrodynamics.** **Analyze transmission of electromagnetic waves through wave guide.** **Apply maxwell's equations to material medium and analyse its electrical and magnetic properties.** **Derive formulas to experimentally measurable**

			quantities (like electric and magnetic susceptibility). Evaluate electric, magetic fields, electric potential and vector potentials for point charge and radiation emitted by moving charges.
12.	**III**	**Core X STATISTICAL MECHANICS**	**Familarise basic mathematical tools like probability, statistics and approximation technique. Understand ensemble, connection between microstate and macrostates. Understand other branches in physics better. Calculate partition function and compute thermodynamics relations. Apply to multi disciplinary areas.**
13.	**III**	**Core XI CONDENSED MATTER PHYSICS**	**To know the continuance in condensed matter physics in some central areas. Provide the basic knowledge and also give an overview of current problems within the field of condensed matter/materials science mainly on functional materials. Learn about phenomenon of magnetism. Predict magnetic properties of atoms and molecules based on their electronic configurations.**
14.	**IV**	**Core XII NUCLEAR& PARTICLE PHYSICS**	**Will have a versatile and solid background in fundamental physics and its application. Have the capability of doing back-of the envelope calculations in a diversity of situations. Can apply the theory of nuclear physics for newer applications. Can promote the exchange of ideas and research within the nuclear/atomic science community. Gain skills to pursue physics as a teaching and research career.**
15.	**IV**	**Core XIII COMMUNICATION ELECTRONICS**	**Become effective communicators and critical consumers of messages preparing them for life. Integrate the strengths of the liberal arts tradition with the theoretical foundation to enter in the research. Gain knowledge in microwave analysis and design techniques. Apply knowledge of mathematics, science and engineering fundamentals to the solution of complex engineering problems in electronic circuits and communication system. Familiar with design consideration of fiber optics system.**
16.	**IV**	**Core XIV LASER PHYSICS AND NONLINEAR OPTICS**	**Familiar with the properties of different types of laser and its operation. Understand the process of optical amplification and gain saturation. Apply the theoretical concepts of laser optics for industrial purposes. Differentiate the efficiency of continuous and pulsed**

			laser mechanism. **Explore the significance of non linear optical phenomena and its applications.**
17.	**IV**	**Core PRACTICAL III - ADVANCED PRACTICALS**	**Explore the concepts involved in optics.** **Gain knowledge of new conception in practical oriented problems and visualize the experiments through MATLAB programming.** **Acquire strong laboratory skills.** **Enhance the day to day requirements in industries, research fields.**
18.	**IV**	**Core PRACTICAL IV – SPECIAL ELECTRONICS**	**Acquire knowledge on op amps characteristics and Microprocessor.** **Apply circuit systems to construct electronic devices.** **produce electronic professionals to work as Electronic circuit Designer.** **Enhance the day to day requirements in industries, research fields.**
19.	**I**	**Elective IA ROBOTICS, ARTIFICIAL INTELLIGENCE AND INFORMATION THEORY**	**Understand basics of robotics and robotic sensors.** **Learn fundamentals of artificial intelligence.** **Develop an idea to write programme using python, basics of cyber security and hacking.** **Learn and impliment interfacing between experiments and Ardunio IDE.** **Familiarize basics of classical and quantum computers.**
20.	**I**	**Elective IB ELEMENTS OF NANOSCIENCE AND NANOTECHNOLOGY**	**Understand the fundamentals properties and different types of nanomaterials.** **Learn quantum dots, wells and wires.** **Study the morphological and size of the nanoparticles using various analytical techniques.** **Tune the size and shape of the nanomaterials for diverse applications.** **Synthesize nanomaterials using various physical, chemical and biological approaches.**
21.	**I**	**Elective IC INTRODUCTORY ASTRONOMY,ASTROPHYSICS & COSMOLOGY**	**Apply physical principles in a broad range to astronomical situations.** **Be able to formulate scientific problems in mathematical terms and apply analytical and numerical methods towards its solution.** **Develop skills to design observing projects with research telescopes and projects drawing upon data in the literature and in archives.** **Establish competence in focused areas of astrophysical theory and experiment.** **Build up skills in cosmological models to analyze physical properties of universe.**
22.	**II**	**Elective IIA PLASMA PHYSICS**	**Calculate fundamental properties of a plasma given appropriate information.** **Apply basic electromagnetism to derive the kinetic theory of plasmas.** **Will able to distinguish single particle approach and fluid approach.**

			Apply concepts and analyze plasma diagnostics techniques. **Interpret geomagnetic field measurements in terms of currents flowing in Earth's ionosphere and magnetosphere.**
23.	**II**	**Elective IIB CRYSTAL GROWTH METHODS AND CHARACTERIZATION**	**Understand the process of crystal nucleation and growth.** **Know about various crystal growing techniques.** **Understand the methodologies of solution and gel growth techniques,.** **Understand the concepts behind the melt and vapour growth techniques.** **Know about different characterization techniques.**
24.	**II**	**Elective IIC ATMOSPHERIC PHYSICS**	**Know the composition and structure of atmosphere.** **Understand and apply radar meteorology.** **Able to interpret clouds and precipitation.** **Describe the meteorological systems, global energy balance and to calibrate air pollution.** **Create a scope to identify new areas of research in the field of atmospheric science.**
25.	**III**	**Elective IIIA EXPERIMENTAL TECHNIQUES & DATA ANALYSIS**	**Develop an appropriate experimental research design for an engineering case study.** **Taking into account practical limitations.** **Apply knowledge of statistical analysis to assess a hypothesis by selecting appropriate statistical tests and interpreting the test results accurately.** **Propose an appropriate statistical model for a given dataset and interpret the goodness of fit.**
26.	**III**	**Elective IIIB THIN FILM PHYSICS**	**Gain knowledge on the mechanism, process for the synthesis and evolution of thin films.** **Understand principles, advantages and drawbacks of different thin film deposition methods.** **Familiarize basics of defects and dislocations, and learn how it can be identified and removed.** **Learn characterization techniques to analyze sample.** **apply the knowledge of thin film in research level applications.**
27.	**III**	**Elective IIIC MICROPROCESSOR AND MICROCONTROLLER**	**Learn instruction set of microprocessor.** **Perform experiments using Intel 8051 microcontrollers and interfacing experiments such as seven segment display, stepper motor control, traffic light control.** **Identify architecture of microprocessor and microcontroller and use microcontrollers in instrumentation applications.** **Know the various peripheral devices of Intel 8051 and interfacing them.** **Create interface between laboratory experiments and microcontroller, and write instruction code.**
28.	**III**	**Elective IIID PHYSICS OF NON-CONVENTIONAL ENERGY RESOURCES**	**Understand various renewable energy technologies.** **Understand characteristics of solar radiation and solar energy devices.**

			Learn and apply geothermal energy and fuel cells. **Get awareness of non conventional sources of energy technologies.** **Acquirer the knowledge of storage technologies from the autonomous renewable** **Energy sources and various possible mechanisms about renewable energy projects.**

Course : M.Sc Chemistry.

Program Outcomes (POs)

PO1 To equip students to meet current industrial need
PO2 To equip students with advanced knowledge and insight in general and green chemistry
PO3 To enhance professional skills in chemistry by providing hands on training to operate the sophisticated instruments.
PO4 Acquire the knowledge on the role of chemistry in industries and to become entrepreneur
PO5 To equip students with different types of problem solving related to academic and industrial domain
PO6 Demonstrate, solve and understanding of major concepts in all disciplines of chemistry.
PO7 Develop analytical skills and problem solving skills requiring application of chemical principles.
PO8 The students can understand the role of chemistry in day to day life.
PO9 Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.
PO10 Acquires the ability to synthesis, separate and characterize compounds using laboratory and instrumentation techniques.

Program Specific Outcomes (PSOs)

PSO1 To build the firm foundation in the fundamentals and correlate the application with the current developments in chemistry.
PSO2 To emphasize on integrating various disciplines of Science and encourage for interdisciplinary approach.
PSO3 To make current awareness on social, economic, and environmental problems facing globally.
PSO4 To motivate the students to prepare for competitive examinations, job carriers and get trained for industrial entrepreneurship.
PSO5 To acquire problem solving capacity, interpretation of results with the use of sophisticated instruments and devises new preparation techniques.
PSO6 To get sufficient expertise in the operational knowledge and laboratory skills in all major fields of chemistry.

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I Organic Chemistry –I**	**Acquired the knowledge to distinguish about benzenoid and non-benzenoid aromatic compounds and their ions.** **To understand the basics of aromatic and aliphatic**

			electrophilic substitution reactions. aromatic and aliphatic electrophilic substitution. **Understood and got-in depth knowledge about reaction mechanisms.** **Motivated and enabled the students to comprehend the possible chemical routes by which new pharmaceutically important compounds can be synthesized.** **Recognized the difference between electrophilic and nucleophilic substitution reactions on aromatic and aliphatic compounds, and to know about various aspects of elimination and free radical reactions.**
2.	**I**	**Core II Inorganic Chemistry –I**	**To understand the difference between rings, chains, cages, clusters and their types.** **To create a new borazines, phosphonitrilic compounds and sulphur-nitrogen ring compounds.** **To distinguish between stochiometry and non-stochiometry defects in solids.** **To acquire the knowledge in electrical, magnetic and thermoelectric properties of solids.** **To analyse the concepts involved in nuclear chemistry, various types of nuclear reactionsand applications of radioactive isotopes.**
3.	**I**	**Core III Physical chemistry – I**	**To evaluate the symmetry elements present in the new molecules.** **To understand the elementary ideas of group theory, point group,.** **To evaluate the applications and relationship between Group theory and vibrational spectroscopy.** **To acquire the basic knowledge about nanoscience, nanofabrication, preparation and experimental techniques of nano materials and their characterisation.** **To implement the applications of computers in chemistry.**
4.	**II**	**Core IV Organic Chemistry –II**	**To understand molecular rearrangements that play vital role in the synthesis of new organic molecules.** **To acquire and comprehend knowledge in photochemistry and pericyclic reactions.** **To interpret the mechanism of addition, oxidation and reduction reactions.** **To understand and analyse the concepts, types and nomenclature instereoisomerism.**
5.	**II**	**Core V PHYSICAL CHEMISTRY – II**	**Understand the concepts of classical and quantum mechanics, to picture out the failure of classical mechanics.** **To comprehend the approximate methods in quantum mechanics.** **To acquire the knowledge about quantum chemistry, heat capacity of solids,**

			Schrodinger equation and various operators. **To understand the applications of Schrodinger equation to one D box, rigid rotor,** **harmonic oscillator, H-atom and various theories in quantum chemistry.** **To implement nanoscalecharacterisation and applications of nanomaterials.**
6.	**II**	**Core VI PHYSICAL METHODS IN CHEMISTRY – I**	**To understand the principle, theory and applications of different chromatography techniques.** **To analyse the concepts and methods used in solid state and chemical crystallography.** **To interpret the principles and applications of ORD, CD, AES and UPS.** **To recognize the principles involved in TGA, DTA, DSC, refractometry, turbidinetry and Nephelometry.** **To acquire deep knowledge about Mossbauer spectroscopy and ESR spectroscopy and utilize to create a new molecule of interest.**
7.	**III**	**Core VII ORGANIC CHEMISTRY - III**	**To remember the basic reaction involved in the synthesis of various natural products.** **To understand the reactions and reagents that play vital role in the synthesis of new organic molecules.** **To acquire comprehend knowledge in Terpenoids, Steroids, and Alkaloids.** **To the evaluate the applications of novel reagents in the synthesis of natural molecules.**
8.	**III**	**Core VIII PHYSICAL CHEMISTRY — III**	**To understand the ideas of Thermodynamics.** **To acquire basic knowledge about Quantum Statistics.** **To analyze the quantum mechanics propblem.** **To implement the evaluation of Thermodynamic properties E, H, S, A, G, Cv and Cp .**
9.	**III**	**Core IX PHYSICAL METHODS IN CHEMISTRY -II**	**To understand the principle, theory, and applications of different spectral techniques.** **To interpret the principle and applications of ^{1}H NMR , ^{13}C NMR and Mass Spectroscopy.** **To acquire deep knowledge about characterization of organic molecules using IR, UV.** **To acquire deep understanding about ^{1}HNMR , ^{13}C NMR and Mass Spectroscopy.** **To acquire deep knowledge about Correlation NMR Spectroscopy.**
10.	**IV**	**Core X INORGANIC CHEMISTRY – II**	**To understand some principles and theories in coordination chemistry.** **To learn about organometallic and bio inorganic chemistry.** **To analyze the concepts, types, and nomenclature of coordination chemistry.** **To evaluate the application of coordination compound in various fields.** **To analyze the concepts, types, and nomenclature of coordination chemistry.**

11.	**IV**	**Core XI PHYSICAL CHEMISTRY – IV**	**To analyze the different theories of reaction rates. To understand the kinetic aspects of chemical reactions and the role of catalysts. To acquire the knowledge about theories of double layer. To learn polarography, coulometric and amperometric methods of estimations.**
12.	**IV**	**Core XII POLYMER TECHNOLOGY**	**To understand the manufacturing methods of polymers. To understand the various degradation method for polymers. To learn the techniques of adding additives and converting virgin polymer into plastic. To understand Fabrication process, methods of making plastics, fibres and elastomers. To create a new technology for polymer synthesis.**
13.	**II**	**Practical I Organic Chemistry – I**	**To understand the separation techniques and systematic analysis of organic mixtures. To distinguish between aromatic-aliphatic, saturated-unsaturated compounds and to find out elements present and functional groups. To develop skill for the preparation of organic compounds involving the following reactions: hydrolysis, acetylation, bromination, nitration, benzoylation and oxidation. To execute the idea about recrystallisation.**
14.	**II**	**Practical II Inorganic Chemistry – I**	**To analysis of mixtures of cations each consisting of two familiar metal cations and two less familiar metal cations. To understand the principles behind analysis of mixtures of cations. To apply the knowledge for the preparation of metal complexes. To evaluate the estimation of metal ions using colorimetry.**
15.	**IV**	**Practical III Physical Chemistry – I**	**To understand the simple eutectic system, molecular weight determination by Rastmethod, partition coefficient. Recognized the principle of acid base titration, redox titration and precipitation titration using potentiometry. To evaluate the thermodynamic quantities from e. m. f. data. To analyze the refractive index mixture.**
16.	**IV**	**Practical IV Organic Chemistry – II**	**To evaluate the amount of phenol, methyl ketone, glucose, nitro, amino, and methoxy groups present in organic compounds. To analyze the oil by using various methods. To develop skill for the preparation of organic compounds from literatures. To apply the separation skills to extract various compounds from the natural source.**

17.	**III**	**Practical V Inorganic Chemistry – II**	**To analyze the industrial samples such as brass, bronze, stainless steel, cement and glass.** **To understand the mechanism behind the reparation of metal complexes.** **To evaluate the amount of metal ions using volumetric and gravimetric estimations.**
18.	**IV**	**Practical VI Physical Chemistry – II**	**To understand the principle of acid base titration, redox titration, and precipitation titration using conductometry.** **To analyze the rate of polymerization of monomer solutions by viscosity.** **To evaluate the rate of reaction between persulphate and iodide ions.** **To apply a kinetics to different reactions.**
19.	**I & IV**	**Elective IA & ID DYE CHEMISTRY**	**Learnt the chemistry of dyes.** **Studied the organic intermediate in the dye chemistry.** **Gained the knowledge to interpret the various types of dyes, synthesis, reactions and applications.** **Expertise in the pigments, cosmetics and colouring agents.**
20.	**III**	**Elective IIIC Kinetics of polymerization**	**To understand the kinetics of step polymerization and radical chain polymerization and ionic chain polymerisation.** **To apply knowledge for polymerization mechanism in industrial need.** **To apply the Zigler –Natta catalyst in polymerization reaction.** **To acquire the knowledge about chain copolymerisation and its kinetics in detail.** **To understand the different types of copolymer.**
21.	**IV**	**Elective I Industrial Chemistry**	**To understand the chemistry of fuel petroleum and nuclear fuels.** **To acquire brief knowledge about rubber, glass, cement, ceramics, paints, pigments, fertilizers and explosion.** **To understand the chemistry of rupper, glass, cement, ceramics, paints and pigments.** **To create the new paints, ceramics and pigments based the knowledge acquired.**
22.	**II**	**Elective II Water Pollution and Industrial Effluents Treatment**	**To understand characteristics of water indetail.** **To apply the knowledge on water pollution.** **To analyse the complete physico chemical features of water.** **To evaluate the industrial effluents and their treatment in brief.**
23.	**I**	**Elective IC GREEN CHEMISTRY**	**To understand and implement the principles and tools of greenchemistry.** **To apply the knowledge about microwave assisted organic synthesis and its advantages.** **To understand the terms ionic liquid & PTC and their applications in green chemistry.**

			To evaluate the use of supported catalysis, biocatalysts, alternative synthesis, reagents and reaction conditions used in green chemistry.
24.	**III**	**Elective IIIB Fundamentals of medicinal chemistry**	**Understood the terminologies used in drug chemistry, common types of communicable diseases, drug mechanism and action.** **Acquired detailed knowledge in drug design and structure activityrelationship.** **To analyze various types of therapeutic agents.** **To create new drugs for various applications.**
25.	**IV**	**Elective IVB APPLIED ELECTROCHEMISTRY**	**To understand the principle and importance of corrosion.** **Recognized the principles, importance and classification of corrosion and corrosion monitoring methods.** **Gained the knowledge about corrosion inhibition in detail.** **Understood the theory, basic instrumentation and applications of various electroanalytical techniques used in corrosion.**
26.	**II**	**Elective IIC ADVANCED POLYMERIC MATERIALS**	**Acquire the knowledge about dendrimers, hyper-branched polymers and polymer nano composites.** **Recognise the importance of synthetic biomedical polymers for drug delivery and conducting polymers.** **Understand the synthetic route, structure, properties and uses of engineering plastics.**
27.	**IV**	**Elective IVC PHARMACEUTICAL CHEMISTRY**	**To understand the important terminologies used in pharmaceutical chemistry, naming ofdrugs and mechanism of drug action.** **To acquire the knowledge about medicinal plants and medicinally important compounds.** **To recognise the importance of Antibiotics, sulpha drugs, Analgesics,.** **To analyze the Antipyretics, Antihypertensive, hypotensive and antineoplastic drugs.**
28.	**III**	**Elective IIIA Organic Synthetic Methodology, Oxidation and Reduction**	**To remember the IUPAC nomenclature in naming of acyclic and monocyclic compounds.** **To evaluate the various synthetic methodologies used for synthetic chemistry.** **To review the different types of reagents used in oxidation and reduction.** **To implement the applications of UV, IR, NMR and Mass spectral techniques.**
29.	**I**	**Elecctive ID Introduction to Industry 4.0**	**To understand the concept of Industry 4.0.** **To apply the concept of Artificial Intelligence.** **To analyze the Big Data and IoT.** **To evaluate the Applications and Tools of Industry 4.0.** **To create the awareness regarding the job 2030.**

30.	**II**	**Elective IID ARTIFICIAL INTELLIGENCE**	**Gained the knowledge on Artificial Intelligence & machine learnings.** **Student will apply AI tools for solving research issues** **Student will understand the basics of robotic process automation.** **Student can acquired the knowledge on automated solutions for research problems.**
31.	**III**	**Elective IIID Data Analytics using R**	**Student get the knowledge about data analytics.** **Student can apply the concept of data analytics.** **Student can analyze new tools used in robotics .**

Course :M.Sc Computer Science

Program Outcomes (POs)

PO1 Develop creativity and problem solving skills with the knowledge of computing and mathematics.
PO2 Ability to develop and carry out experiments, interpret and infer data.
PO3 Design algorithms and develop software to aid solutions to industry and governments.
PO4 Review the latest technology and tool handling mechanism.
PO5 Analyze the outcome to solve global environment related issues.
PO6 Apply the knowledge in lifelong learning journey to equip themselves.
PO7 Identify the perspective of business practices, risks and limitations.
PO8 Work with professional and ethical values.
PO9 Formulate the responsibilities of human rights and entrepreneurial spirit.
PO10 Understand the methods to communicate effectively and work collectively.

Program Specific Outcomes (PSOs)

PSO1 Able to analyze, design and develop problem solving skills in the discipline of computer science.
PSO2 Acquire evaluation of potential benefits of alternative solution in designing software and/or hardware systems in broad range of open source programming languages to withstand technological changes.
PSO3 Able to pursue careers in IT industry/ consultancy/ research and development, teaching and allied areas related to computer science.
PSO4 Adapt to the continuous technological change in computational science and update themselves to meet the industry requirements and standards.
PSO5 Apply the practices and strategies of computer science for software project development to deliver a quality software product and contribute to research in the chosen field and perform effectively.

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I ANALYSIS & DESIGN OF ALGORITHMS**	**Get knowledge about algorithms and determines their time complexity.** **Demonstrate specific search and sort algorithms using divide and conquer technique.** **Gain good understanding of Greedy method and its algorithm.** **Able to describe about graphs using dynamic programming technique.**

			Demonstrate the concept of backtracking & branch and bound technique. **Explore the traversal and searching technique and apply it for trees and graphs.**
2.	**I**	**Core II OBJECT ORIENTED ANALYSIS AND DESIGN & C++**	**Understand the concept of Object-Oriented development and modeling techniques.** **Gain knowledge about the various steps performed during object design.** **Abstract object-based views for generic software systems.** **Link OOAD with C++ language.** **Apply the basic concept of OOPs and familiarize to write C++ program.**
3.	**I**	**Core III PYTHON PROGRAMMING**	**Understand the basic concepts of Python Programming.** **Understand File operations, Classes and Objects.** **Acquire Object Oriented Skills in Python.** **Develop web applications using Python.** **Develop Client Server Networking applications.**
4.	**I**	**Core IV ADVANCED SOFTWARE ENGINEERING**	**Understand about Software Engineering process.** **Understand about Software project management skills, design and quality management.** **Analyze on Software Requirements and Specification.** **Analyze on Software Testing, Maintenance and Software Re-Engineering.** **Design and conduct various types and levels of software quality for a software project.**
5.	**I**	**Core PRACTICAL I : ALGORITHM AND OOPS LAB**	**Understand the concepts of object oriented with respect to C++.** **Able to understand and implement OOPS concepts.** **Implementation of data structures like Stack, Queue, Tree , List using C++.** **Application of the data structures for Sorting, Searching using different techniques.**
6.	**I**	**Core PRACTICAL II : PYTHON PROGRAMMING LAB**	**Able to write programs in Python using OOPS concepts.** **To understand the concepts of File operations and Modules in Python.** **Implementation of lists, dictionaries, sets and tuples as programs.** **To develop web applications using Python.**
7.	**II**	**Core V DATA MINING AND WAREHOUSING**	**Understand the basic data mining techniques and algorithms.** **Understand the Association rules, Clustering techniques and Data warehousing contents.** **Compare and evaluate different data mining techniques like classification, prediction, Clustering and association rule mining.** **Design data warehouse with dimensional modeling and apply OLAP operations.**

			Identify appropriate data mining algorithms to solve real world problems.
8.	**II**	**Core VI ADVANCED OPERATING SYSTEMS**	**Understand the design issues associated with operating systems.** **Master various process management concepts including scheduling, deadlocks and distributed file systems.** **Prepare Real Time Task Scheduling.** **Analyze Operating Systems for Handheld Systems.** **Analyze Operating Systems like LINUX and iOS.**
9.	**II**	**Core VII ADVANCED JAVA PROGRAMMING**	**Understand the advanced concepts of Java Programming .** **Understand JDBC and RMI concepts.** **Apply and analyze Java in Database.** **Handle different event in java using the delegation event model, event listener and class.** **Design interactive applications using Java Servlet, JSP and JDBC.**
10.	**II**	**Core VIII ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**	**Demonstrate AI problems and techniques.** **Understand machine learning concepts.** **Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning.** **Analyze the impact of machine learning on applications.** **Analyze and design a real world problem for implementation and understand the dynamic behavior of a system.**
11.	**II**	**Core PRACTICAL III : DATA MINING USING R**	**Able to write programs using R for Association rules, Clustering techniques.** **To implement data mining techniques like classification, prediction.** **Able to use different visualizations techniques using R.** **To apply different data mining algorithms to solve real world applications.**
12.	**III**	**Core PRACTICAL IV : ADVANCED JAVA LAB**	**Understand to the implement concepts of Java using HTML forms, JSP & JAR.** **Must be capable of implementing JDBC and RMI concepts.** **Able to write Applets with Event handling mechanism.** **To Create interactive web based applications using servlets and jsp.**
13.	**III**	**Core IX DIGITAL IMAGE PROCESSING**	**Understand the fundamentals of Digital Image Processing.** **Understand the mathematical foundations for digital image representation, image acquisition, image transformation, and image enhancement.** **Apply, Design and Implement and get solutions for digital image processing problems.**

			Apply the concepts of filtering and segmentation for digital image retrieval. **Explore the concepts of Multi-resolution process and recognize the objects in an efficient manner.**
14.	**III**	**Core X CLOUD COMPUTING**	**Understand the concepts of Cloud and its services.** **Collaborate Cloud for Event & Project Management.** **Analyze on cloud in – Word Processing, Spread Sheets, Mail, Calendar,Database.** **Analyze cloud in social networks.** **Explore cloud storage and sharing .**
15.	**III**	**Core XI NETWORK SECURITY AND CRYPTOGRAPHY**	**Understand the process of the cryptographic algorithms.** **Compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication.** **Apply and analyze appropriate security techniques to solve network security problem.** **Explore suitable cryptographic algorithms.** **Analyze different digital signature algorithms to achieve authentication and design secure applications**
16.	**III**	**Core XII DATA SCIENCE & ANALYTICS**	**Understand the concept of data science and its techniques.** **Review data analytics.** **Apply and determine appropriate Data Mining techniques using R to real time Applications.** **Analyze on clustering algorithms.** **Analyze on regression methods in AI.**
17.	**III**	**Core PRACTICAL V : DIGITAL IMAGE PROCESSING Using MATLAB**	**To write programs in MATLAB for image processing using the techniques.** **To able to implement Image Enhancements & Restoration techniques.** **Capable of using Compression techniques in an Image.** **Must be able to manipulate the image and Segment it**
18.	**III**	**Core PRACTICAL VI : CLOUD COMPUTING LAB**	**Understand the concepts of object oriented with respect to C++.** **Able to understand and implement OOPS concepts.** **Implementation of data structures like Stack, Queue, Tree , List using C++.** **Application of the data structures for Sorting, Searching using different techniques.**
19.	**III**	**Core PRACTICAL VII : WEB APPLICATION DEVELOPMENT AND HOSTING**	**Understand & implement the basic HTML tags to create static web pages.** **Capable of using hyperlinks, frames , images, tables, ...in a web page.** **Able to write dynamic web applications using HTML forms.** **Must be able to write dynamic web applications in PHP & HTML tags using XAMPP.**
20.	**II**	**Elective IA MULTIMEDIA AND ITS APPLICATIONS**	**Understand the basic concepts of Multimedia.** **Demonstrate Multimedia authoring tools.**

			Analyze the concepts of Sound, Images, Video & Animation. **Apply and Analyze the role of Multimedia in Internet and real time applications.** **Analyze multimedia applications using HDTV.**
21.	**II**	**Elective IB EMBEDDED SYSTEMS**	**Understand the concept of 8051 microcontroller.** **Understand the Instruction Set and Programming.** **Analyze the concepts of RTOS.** **Analyze and design various real time embedded systems using RTOS.** **Debug the malfunctioning system using various debugging techniques.**
22.	**II**	**Elective IC INTERNET OF THINGS**	**Understand about IoT, its Architecture and its Applications.** **Understand basic electronics used in IoT & its role.** **Develop applications with C using Arduino IDE.** **Analyze about sensors and actuators.** **Design IoT in real time applications using today's internet & wireless technologies.**
23.	**II**	**Elective ID CRITICAL THINKING, DESIGN THINKING AND PROBLEM SOLVING**	**Understand the concepts of Critical thinking and its related technology.** **Focus on the explicit development of critical thinking and problem solving skills.** **Apply design thinking in problems.** **Make a decision and take actions based on analysis.** **Analyze the concepts of Thinking patterns, Problem solving & Reasoning in real time Applications.**
24.	**III**	**Elective IIA MOBILE COMPUTING**	**Understand the need and requirements of mobile communication.** **Focus on mobile computing applications and techniques.** **Demonstrate satellite communication in mobile computing.** **Analyze about wireless local loop architecture.** **Analyze various mobile communication technologies.**
25.	**III**	**Elective IIB BLOCK CHAIN TECHNOLOGY**	**Demonstrate blockchain technology and crypto currency.** **Understand the mining mechanism in blockchain.** **Apply and identify security measures, and various types of services that allow** **people to trade and transact with bitcoins.** **Apply and analyze Blockchain in health care industry.** **Analyze security, privacy, and efficiency of a given Blockchain system.**
26.	**III**	**Elective IIC WEB SERVICES**	**Understand web services and its related technologies.** **Understand XML concepts.** **Analyze on SOAP and UDDI model.** **Demonstrate the road map for the standards and future of web services.** **Analyze QoS enabled applications in web services.**
27.	**III**	**Elective IID ROBOTIC**	**Demonstrate the benefits and ethics of RPA.**

		PROCESS AUTOMATION FOR BUSINESS	**Understand the Automation cycle and its techniques. Draw inferences and information processing of RPA. Implement & Apply RPA in Business Scenarios. Analyze on Robots & leveraging automation.**

Course :M.Sc Information Technology

Program Outcomes (POs)

PO1 Develop creativity and problem solvingskills with the knowledge of computing and mathematics.
PO2 Ability to develop and carry out experiments, interpret and infer data.
PO3 Design algorithms and develop software to aid solutions to industry and governments.
PO4 Review the latest technology and tool handling mechanism.
PO5 Analyze the outcome to solve global environment related issues.
PO6 Apply the knowledge in lifelong learning journey to equip themselves.
PO7 Identify the perspective of business practices, risks and limitations.
PO8 Work with professional and ethical values.
PO9 Formulate the responsibilities of human rights and entrepreneurial spirit.
PO10 Understand the methods to communicate effectively and work collectively.

Program Specific Outcomes (PSOs)

PSO1 Able to work out effective and efficient real time solutions using acquired knowledge in computer science domain including theory, programming, algorithms, databases and web development.
PSO2 Motivate students to pursue lifelong learning and to do research as computing experts and scientists to meet the requirement of corporate world and Industry standard to provide solutions to industry, society and business.
PSO3 Acquire professional skills in software design process and practical competence in broad range of open source programming languages to withstand technological change and provide solutions to new ideas and innovations.
PSO4 Acquire the knowledge of advanced programming skills and distributed environmental need for sustainable development.
PSO5 Able to pursue careers in IT industry/ consultancy/ research and development, teaching and allied areas related to Information Technology.

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I OBJECT ORIENTED ANALYSIS AND DESIGN**	**Remember the basic knowledge on design technique. Understand the object oriented system development and case models. Analyze on class diagrams used for UML. Apply and analyze different testing techniques for various applications. Analyze Design and Implement projects using OO Concepts.**
2.	**I**	**Core II ADVANCED OPERATING SYSTEMS**	**Understand the design issues associated with operating systems. Master various process management concepts**

			including scheduling, deadlocks and distributed file systems. **Prepare Real Time Task Scheduling.** **Analyze Operating Systems for Handheld Systems.** **Analyze Operating Systems like LINUX and iOS.**
3.	**I**	**Core III ADVANCED JAVA PROGRAMMING**	**Understand the advanced concepts of Java Programming.** **Understand JDBC and RMI concepts.** **Apply and analyze Java in Database.** **Handle different event in java using the delegation event model, event listener and class.** **Design interactive applications using Java Servlet, JSP and JDBC.**
4.	**I**	**Core IV PYTHON PROGRAMMING**	**Understand the basic concepts of Python Programming.** **Understand File operations, Classes and Objects.** **Acquire Object Oriented Skills in Python.** **Develop web applications using Python.** **Develop Client Server Networking applications**
5.	**I**	**Core PRACTICAL I : ADVANCED JAVA LAB**	**Understand to the implement concepts of Java using HTML forms, JSP & JAR.** **Must be capable of implementing JDBC and RMI concepts.** **Able to write Applets with Event handling mechanism.** **To Create interactive web based applications using servlets and jsp.**
6.	**I**	**Core PRACTICAL II: PYTHON PROGRMMING LAB**	**Able to write programs in Python using OOPS concepts.** **To understand the concepts of File operations and Modules in Python.** **Implementation of lists, dictionaries, sets and tuples as programs.** **To develop web applications using Python.**
7.	**II**	**Core V DATA MINING AND WAREHOUSING**	**Understand the basic data mining techniques and algorithms.** **Understand the Association rules, Clustering techniques and Data warehousing** **Contents.** **Compare and evaluate different data mining techniques like classification, prediction, Clustering and association rule mining.** **Design data warehouse with dimensional modeling and apply OLAP operations.** **Identify appropriate data mining algorithms to solve real world problems.**
8.	**II**	**Core VI NETWORK SECURITY AND CRYPTOGRAPHY**	**Understand the process of the cryptographic algorithms.** **Compare and apply different encryption and decryption techniques to solve problems related to**

			confidentiality and authentication. **Apply and analyze appropriate security techniques to solve network security Problem.** **Explore suitable cryptographic algorithms.** **Analyze different digital signature algorithms to achieve authentication and design secure applications**
9.	**II**	**Core VII .NET Programming**	**Understand the concepts of .NET Framework Technology.** **Apply error handling techniques in .NET.** **Demonstrates the c# console applications.** **Design and develop the Web applications using c#.** **Design and develop the distributed data driven applications using .NET framework.**
10.	**II**	**Core VIII SOFTWARE PROJECT MANAGEMENT**	**Understand the basic concepts of Software Project Management.** **Identify the different project contexts and suggest an appropriate management Strategy.** **Demonstrate through application, knowledge of the key project management skills, such as product and work break-down structure, schedule, governance including progress reporting, risk and quality management.** **Analyze a comparison on Product Versus Process Quality Management.** **Perform case studies on cost estimation models like COCOMO.**
11.	**II**	**Core PRACTICAL III : DATA MINING USING R**	**Able to write programs using R for Association rules, Clustering techniques.** **To implement data mining techniques like classification, prediction.** **Able to use different visualizations techniques using R.** **To understand different data mining algorithms to solve real world applications.**
12.	**II**	**Core PRACTICAL IV :.NET PROGRAMMING LAB**	**Understand to create web pages using ASP.NET.** **Capable of developing interactive web applications using ASP.NET.** **Able to write dynamic web applications using C#.** **Must be able develop data base applications using ADO.NET control.**
13.	**III**	**Core X DIGITAL IMAGE PROCESSING**	**Understand the fundamentals of Digital Image Processing.** **Understand the mathematical foundations for digital image representation, image acquisition, image transformation, and image enhancement.** **Apply, Design and Implement and get solutions for digital image processing problems.** **Apply the concepts of filtering and segmentation for digital image retrieval.** **Explore the concepts of Multi-resolution process and recognize the objects in an efficient manner.**

14.	**III**	**Core XI BIG DATA ANALYTICS**	**Understand about the Big Data evaluation.** **Understand about HDFS.** **Installation of R and Hadoop.** **Apply MapReduce concepts to process big data.** **Design big data applications using Hadoop components and R programming.**
15.	**III**	**Core XII CLOUD COMPUTING**	**Understand the basic knowledge on virtualization.** **Understand the concept of cloud computing services and its business value.** **Analyze various web based applications for collaborating everyone in cloud computing.** **Assess various industrial platforms for the developments.** **Analyze on cloud mobility and governance.**
16.	**III**	**Core XIII PHP PROGRAMMING**	**Understand the concepts of open source softwares.** **Understand the functions and browser handling power of PHP.** **Apply object oriented concepts and file handling concepts of PHP.** **Evaluate database and set sessions, cookies and FTP.** **Develop web pages using PHP.**
17.	**III**	**Core PRACTICAL V :DIGITAL IMAGE PROCESSING Using MATLAB**	**To write programs in MATLAB for image processing using the techniques.** **To able to implement Image Enhancements & Restoration techniques.** **Capable of using Compression techniques in an Image.** **Must be able to manipulate the image and Segment it.**
18.	**III**	**Core PRACTICAL VI :PHP PROGRAMMING LAB**	**Understand to write programs in PHP for OOPS concepts.** **Capable of developing interactive web applications using PHP.** **Able to write PHP programs for File handling.** **Must be able develop data base applications using PHP.**
19.	**II**	**Core PRACTICAL VII :WEB APPLICATION DEVELOPMENT AND HOSTING**	**Understand & implement the basic HTML tags to create static web pages.** **Capable of using hyperlinks, frames , images, tables, ...in a web page.** **Able to write dynamic web applications using HTML forms.** **Must be able to write dynamic web applications in PHP & HTML tags using XAMPP.**
20.	**II**	**Elective IA MULTIMEDIA**	**Understand the basic concepts of Multimedia.**

		AND ITS APPLICATIONS	**Demonstrate Multimedia authoring tools.** **Analyze the concepts of Sound, Images, Video & Animation.** **Apply and Analyze the role of Multimedia in Internet and real time applications.** **Analyze multimedia applications using HDTV.**
21.	**II**	**Elective IB MOBILE COMPUTING**	**Understand the need and requirements of mobile communication.** **Focus on mobile computing applications and techniques.** **Demonstrate satellite communication in mobile computing.** **Analyze about wireless local loop architecture.** **Analyze various mobile communication technologies.**
22.	**III**	**Elective IC SOFTWARE TESTING**	**Understand the fundamentals of software testing.** **Gain software testing experience by applying software testing knowledge and methods to practice-oriented software testing projects.** **Analyze path testing concept.** **Analyze state testing concept.** **Execute programs and test data in Client-Server Architecture.**
23.	**III**	**Elective IIA WEB SERVICES**	**Understand web services and its related technologies.** **Understand XML concepts.** **Analyze on SOAP and UDDI model.** **Demonstrate the road map for the standards and future of web services.** **Analyze QoS enabled applications in web services.**
24.	**III**	**Elective IIB SOFT COMPUTING**	**Understand about soft computing techniques and their applications.** **Understand the pattern classification in Neural Networks.** **Analyze various neural network architectures.** **Analyze fuzzy relation and fuzzy logic & its applications.** **Apply and analyze fuzzy logic in real time applications.**
25.	**III**	**Elective IIC EMBEDDED SYSTEMS**	**Understand the concept of 8051 microcontroller.** **Understand the Instruction Set and Programming.** **Analyze the concepts of RTOS.** **Analyze and design various real time embedded systems using RTOS.** **Debug the malfunctioning system using various debugging techniques.**
26.	**III**	**Elective IID INTERNET OF THINGS**	**Understand about IoT, its Architecture and its Applications.** **Understand basic electronics used in IoT& its role.** **Develop applications with C using Arduino IDE.** **Analyze about sensors and actuators.** **DesignIoT in real time applications using today's internet & wireless technologies.**

27.	**III**	**Elective IIE CRITICAL THINKING, DESIGN THINKING AND PROBLEM SOLVING**	**Understand the concepts of Critical thinking and its related technology.** **Focus on the explicit development of critical thinking and problem solving skills.** **Apply design thinking in problems.** **Make a decision and take actions based on analysis.** **Analyze the concepts of Thinking patterns, Problem solving & Reasoning in real time applications.**

Course :M.Com

Program Outcomes (POs)

PO1 To ensure all round development of personality required for an executive
PO2 To build necessary skills concerning commercial theories and applications to business by using business analytics
PO3 To obtain practical knowledge in commercial activities by understanding training in commercial and industrial establishments
PO4 To develop a broad range of business skills and commercial knowledge, development of general and specific capabilities to meet the current and future expectations of business and industry
PO5 To enrich the necessary competencies and creativity to undertake entrepreneurship as a desirable and feasible career option.

Program Specific Outcomes (PSOs)

PSO1 Undertake a research work with specializations
PSO2 Use software tools to carry out a specified financial analysis of a business application
PSO3 Apply the knowledge gained during the course of the program to solve the real time problems
PSO4 Meet the needs of industry 4.0
PSO5 Communicate effectively with professionals.

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I MANAGERIAL ECONOMICS**	**Acquire the knowledge about the nature and scope of Managerial Economics, demand analysis and law of variable proportion.** **Understand the role of Managerial Economist, goal of corporate enterprises, demand determinants, types of market, national income and public finance.** **Have thorough knowledge about various types of costs and revenues and Break Even point analysis.** **Analyze role of managerial economist in demand analysis, cost and production analysis.** **Evaluate the value of enterprises, pricing and output decisions, business cycles and causes and remedies of industrial sickness.**

2.	**I**	**Core II CORPORATE ACCOUNTING**	**Comprehend the accounting provisions in the Companies Act relating to preparation of final accounts of a company.** **Prepare accounts relating to Amalgamation, Absorption and Alteration of share capital.** **Prepare accounts at the time of liquidation of companies.** **Develop the knowledge on various accounting aspects pertaining to valuation of shares, holding company accounts and banking and insurance companies.** **Be familiar with the theoretical framework of Human resource accounting, Government accounting , Responsibility accounting and Environmental Accounting.**
3.	**I**	**Core III INFORMATION TECHNOLOGY IN BUSINESS**	**Analyze the impact of hardware and software in business.** **Discuss the internet security aspects and e-business communication Modes.** **Construct the knowledge in data processing.** **Examine the key features of machine language and input, output Devices.** **Construct the knowledge in e-commerce application and current trends in e-commerce**
4.	**I**	**Core IV MARKETING MANAGEMENT**	**Recollect the marketing concepts, types and modern marketing concept.** **Identify the macro and micro environments of a market and buyer behavior.** **Locate the different types of products, product line, product mix and pricing decisions.** **Evaluate the important of channels of distribution and promotional Mix.** **Acquire the knowledge to market the agricultural produce and about marketing research.**
5.	**II**	**Core V BUSINESS RESEARCH METHODS**	**Apply a range of quantitative and / or qualitative research techniques to business and management problems / issues.** **Organize and conduct research in a more appropriate sampling method manner.** **Develop necessary critical thinking skills in order to evaluate different statistical tools used in research.** **Demonstrate knowledge and understanding of data analysis and interpretation in relation to the research process by testing hypothesis.** **Write a research report and thesis.**
6.	**II**	**Core VI BUSINESS ENVIRONMENT**	**Inspect the internal and external environment pertaining to business.** **Evaluate the industry policy and regulations.** **Analyze the policies and legal provisions of the government.** **Examine the impact of financial environment and labour legislation in india.** **Asses the concepts of ethics in business and the relevant fields.**

7.	**II**	**Core VII APPLIED COST ACCOUNTING**	**Define the classification of cost, methods and techniques.** **Evaluate cost sheet and material and labour control.** **Differentiate cost control and cost reduction tools and techniques.** **Solve labour, overhead and process costing methods.** **Gain hands on experience in reconciliation of cost and financial accounting.**
8.	**II**	**Core VIII HUMAN RESOURCES MANAGEMENT**	**Explain human resources planning, dealing with surplus and deficient man power.** **Describe the meanings of terminology and tools used in managing employees effectively.** **Prepare a selection strategy for a specific job.** **Gain knowledge in develop, analyze and apply advanced training strategies and specifications for the delivery of training programs.** **Compare and contrast the different techniques involved in the performance appraisal process.**
9.	**III**	**Core IX DIRECT TAXES**	**Calculate computation of taxable income under various sources.** **Recollect the concept of tax administration and practices.** **Acquire the knowledge about latest provision of income tax act.** **Gain expert knowledge regarding the legitimate way of Tax Planning and Management.** **Able to pertain procedure for assessment and e-filing.**
10.	**III**	**Core X MANAGEMENT ACCOUNTING**	**Recollect the concept and importance of management accounting.** **Understand the role of managerial accounting in management decision making.** **Get familiarize various methods and technique of managerial accounting.** **Analyze the method and technique of management accounting used for managerial decision making.** **Able to prepare budget and budgetary control.**
11.	**III**	**Core IX FINANCIAL MANAGEMENT**	**Recollect the concept and importance of financial management.** **Have thorough knowledge about various sources of long-term and short-term finance.** **Examine various method and technique for calculating cost of capital.** **Examine different type leverage technique followed by a organization.** **Expert knowledge about various dividend policies.**
12.	**III**	**Core XI INTERNET & E-COMMERCE**	**Acquire the knowledge about various trends in business.** **Explore information technology in every aspect of business.** **Examine the role of e- commerce in the present**

			business scenario. **Discuss about the cyber security and cyber regulation in global business world.** **Discuss future relevance internet business in global business world.**
13.	**IV**	**Core XII INVESTMENT MANAGEMENT**	**Recall various investment avenues and personal finance.** **Understand securities markets, regulation and its instruments.** **Examine fundamental analysis of an organization using financial data information.** **Examine technical analysis of an organization using financial data information.** **Evaluate risk return of securities in different investment proposal.**
14.	**IV**	**Core XIII INTERNATIONAL BUSINESS**	**Recall the concept of international business.** **Understand the level of changes international business in global era.** **Examine the role of global financial markets and instrument.** **Evaluate various functions of WTO, IMF AND IBRD.** **Understand various theories of foreign exchange.**
15.	**IV**	**Core XIV PRINCIPLES AND PRACTICE OF INSURANCE**	**Expert knowledge about general principles and concepts of insurance, insurance practices and procedures.** **Examine various types of insurance and its functions.** **Discuss about legal framework about different insurance policies.** **Awareness about differed health policies and group insurance.** **Examine IRDA regulation act.**
16.	**IV**	**Core XV INDUSTRIAL LAW**	**Understand updated regulatory framework followed by the companies.** **Examine various type of industrial act and its functions.** **Analyze various opportunities available in various legal compliances so as to enable them employable.** **Create knowledge about current practice of industrial law.** **Able to calculate Payment of Gratuity.**
17.	**I**	**Elective IA: SERVICES MARKETING**	**Examine the nature of services, and distinguish between products and services.** **Identify the major elements needed to improve the marketing of services.** **Develop an understanding of the roles of relationship marketing and customer** **service in adding value to the customer's perception of a service.** **Examining the key marketing services and market segmentation.** **Evaluating service quality, measurement, causes and**

			problems, principles guiding improving of quality.
18.	**II**	**Elective IIA: MARKETING OF FINANCIAL SERVICES**	**Understand how marketing theory underpins the marketing of financial services.** **Appreciate how recent thinking in marketing and services marketing applies to financial services.** **Identify key issues for marketers of financial services.** **Interpretation of various reforms and types of insurance services related to life insurance.** **Discussing about the concepts based on real estate industry and their investment pattern in markets, securitization mechanism's merits in India.**
19.	**III**	**Elective IIIA: MARKETING OF HEALTH SERVICES**	**Understand and critically and effectively apply a number of tools available to marketing managers in healthcare sector.** **Appreciate and exercise critical judgment in implementing the marketing strategies in the health care sector.** **Analyse real-life situations and provide solutions to challenges.** **Assessing various online critical judgment in implementing the marketing strategies in the health care sector.** **Adapting various legal systems related to consumer rights & protection, promotion agencies and food nutrition‟s in india.**
20.	**IV**	**Elective IVA: TRAVEL AND HOSPITALITY SERVICES**	**Apply relevant technology for the production and management of travel and hospitality experiences.** **Plan, lead, organize and control resources for effective and efficient travel and hospitality operations.** **Create, apply, and evaluate marketing strategies for travel and hospitality destinations and organizations.** **Discussing about various hospitality services and its classification of hotels by price level.** **Examining the various behavioural profile of users and related to hotel marketing in indian perspective.**
21.	**I**	**Elective IB: FINANCIAL MARKETS AND INSTITUTIONS**	**Describe Indian Financial System and securities exchange board of India.** **Classify Small Savings, Provident Funds, Unit Trust of India and Mutual Funds.** **Explore activities of non-financial banking.** **Assessing about various investment information and credit rating agency.** **Identifying about various financial institutions and related to its working and functions.**
22.	**II**	**Elective IIB: INDIAN STOCK EXCHANGES**	**Describe Indian stock exchanges and securities exchange board of India.** **Classify and regulate the trading transactions with proper rules and regulations.** **Explore activities of the investors of stock Exchange.** **Determining the securities contracts regulation act**

			and important provisions related to SEBI functions workings. **Examining various basic concepts of internet stock trading features.**
23.	**III**	**Elective IIIB: FUTURES AND OPTIONS**	**Evaluating the concepts and market mechanics of different types of financial derivatives.** **Analyze how financial derivatives are valued, based on the no-arbitrage and risk-neutral valuation approaches.** **Evaluate the instruments that can be used to implement risk management strategies.** **Discovering various pay off for buyer of futures and other options like hedging and speculation.** **Identifying the evolution of commodity markets and exchanges in India.**
24.	**IV**	**Elective IVB: FUNDAMENTAL AND TECHNICAL ANALYSIS**	**Examining various concepts related to investment and approaches to security valuation.** **Outline the theoretical contexts of the fundamental and technical analysis.** **Summarize work on the basic tools used by technical analysts.** **Determining the various theory and technical analysis related meaning.** **Evaluate securities by measuring the intrinsic value of stock.**
25.	**I**	**Elective IC: PRINCIPLES OF INTERNATIONAL TRADE**	**Remember the major models of international trade and be able to distinguish between them in terms of their assumptions and economic implications.** **Apply the principle of comparative advantage and its formal expression and interpretation within different theoretical models.** **Simplify form the theory of international trade as well as international trade policy and to demonstrate the relevance of the theory.** **Discussing about various international investments and its limitations, factors affected by investment Indian companies.** **Summarize concepts based on multinational corporation and about the globalizations.**
26.	**II**	**Elective IIC: EXPORT AND IMPORT PROCEDURE**	**Recall the export and import licensing procedure.** **Understand the functions of export and import promotion council.** **Analyse the knowledge about customs procedure.** **Evaluate the trading procedure.** **Apply the export and import procedure for the given project.**
27.	**III**	**Elective IIIC:INSTITUTIONS FACILITATING INTERNATIONAL TRADE**	**Demonstrate the role and significance of foreign trade and its markets with its impact on various sectors in the economy.** **Understand the conditions of financial markets and its impact in facilitating the international trade.** **Identifying the awareness on the changes in the**

			composition as well as direction of foreign trade after international trade and know the causes and effects of deficits in the balance of payments in facilitating institutions. **Examine international monetary fund and concepts its principles.** **Identifying various concepts based on international development association and features.**
28.	**IV**	**Elective IV C:INDIA'S INTERNATIONAL TRADE**	**Identify the basic difference between inter-regional and international trade.** **Apply the legal framework in the real life businesses related to foreign trade regulations in India.** **Evaluate India's international trade performance about its objectives and principles.** **Identifying various concepts related to imports related to law of protection their rights.** **Discovering more about global trades and developing countries and major problems faced by sectors.**

Course :M.Com Computer Applications

Program Outcomes (POs)

PO1 To be conversant with recent development in commerce and trust areas in the field of computer
PO2 To gain computer knowledge and make use of it effectively in the field of commerce
PO3 To design computer software to suit the needs of industry and business
PO4 To acquire skill in doing business in the electronic environment
PO5 To become worthy citizens of the nation by enriching knowledge in the application of computer in commerce

Program Specific Outcomes (PSOs)

PSO1 To gain practical insights in project preparation and analysis of business data
PSO2 Use software tools to carry out a specified financial analysis for a corporate sector
PSO3 Apply the knowledge gained during the course of the program to solve the real time problems
PSO4 To meet the needs of industry 4.0
PSO5 Communicate effectively with ICT professionals

S.No	Sem. No	Course	Outcome
1.	**I**	**Core I MANAGERIAL ECONOMICS**	**Acquire the knowledge about the nature and scope of Managerial Economics, demand analysis and law of variable proportion.** **Understand the role of Managerial Economist, goal of corporate enterprises, demand determinants, types of market, national income and public finance.** **Have thorough knowledge about various types of costs and revenues and Breakeven point analysis.** **Analyze role of managerial economist in demand analysis, cost and production analysis.** **Evaluate the value of enterprises, pricing and output**

			decisions, **business cycles and causes and remedies of industrial sickness**
2.	**I**	**Core II MARKETING MANAGEMENT**	**Recollect the marketing concepts, types and modern marketing concept.** **Identify the macro and micro environments of a market and buyer behavior.** **Locate the different types of products, product line, product mix and pricing decisions.** **Evaluate the important of channels of distribution and promotional mix.** **Acquire the knowledge to market the agricultural produce and about marketing research.**
3.	**I**	**Core III DATABASE MANAGEMENT SYSTEM**	**Describe the fundamental elements of relational database management systems.** **Explain the basic concepts of relational data model, entity-relationship** **model, relational database design, relational algebra and sql.** **Convert the er-model to relational tables, populate relational database and formulate sql queries on data.** **Evaluate the hierarchical approach and program communication block.** **Be familiar with basic database knowledge in Network Approach, DBTG Data manipulation.**
4.	**II**	**Core IV CORPORATE ACCOUNTING**	**Comprehend the accounting provisions in the Companies Act relating to preparation of final accounts of a company.** **Prepare accounts relating to Amalgamation, Absorption and Alteration of share capital.** **Prepare accounts at the time of liquidation of companies.** **Develop the knowledge on various accounting aspects pertaining to valuation of shares, holding company accounts and banking and insurance companies.** **Be familiar with the theoretical framework of Human resource accounting, Government accounting ,Responsibility accounting and Environmental Accounting.**
5.	**II**	**Core V HUMAN RESOURCES MANAGEMENT**	**Explain human resources planning, Dealing with surplus and deficient man power.** **Describe the meanings of terminology and tools used in managing employees effectively.** **Prepare a selection strategy for a specific job.** **Gain knowledge in develop, analyze and apply advanced training strategies and specifications for the delivery of training programs.** **Compare and contrast the different techniques involved in the performance appraisal process, for example, the giving and receiving of feedback.**
6.	**II**	**Core VI BUSINESS**	**Apply a range of quantitative and / or qualitative**

		RESEARCH METHODS	**research techniques to business and management problems / issues.** **Organize and conduct research in a more appropriate sampling method manner.** **Develop necessary critical thinking skills in order to evaluate different statistical tools used in research.** **Demonstrate knowledge and understanding of data analysis and interpretation in relation to the research process by testing hypothesis.** **Write a research report and thesis.**
7.	**II**	**Core VII OBJECT ORIENTED PROGRAMMING WITH C++**	**Outline the essential features and elements of the C++ programming language.** **Understand concepts of inheritance and polymorphism.** **Understand the difference between function overloading and function Overriding.** **Analyze, write, debug and test basic C++ codes using the approaches introduced in the course.** **Incorporate exception handling in object-oriented programs.**
8.	**III**	**Core VIII COST AND MANAGEMENT ACCOUNTING**	**Recall the components of cost.** **Classify and compare the methods of cost.** **Construct different types of budget.** **Apply different cost variances and solve the adverse situations.** **Analyze the financial statements of a company.**
9.	**III**	**Core IX VISUAL BASIC**	**Recall various form of visuals.** **Understand different type of intrinsic controls.** **Expert knowledge about visual variable and procedure.** **Analyze the method of database working.** **Evaluate different type of data report.**
10.	**III**	**Core X FINANCIAL MANAGEMENT**	**Recollect the concept and importance of financial management.** **Have thorough knowledge about various sources of long-term and short-term finance.** **Examine various method and technique for calculating cost of capital.** **Examine different type leverage technique followed by a organization.** **Expert knowledge about various dividend policies.**
11.	**IV**	**Core XI INVESTMENT MANAGEMENT**	**Recall various investment avenues and personal finance.** **Understand securities markets, regulation and its instruments.** **Examine fundamental analysis of an organization using financial data information.** **Examine technical analysis of an organization using financial data information.** **Evaluate risk return of securities in different investment proposal.**
12.	**IV**	**Core XII DIRECT TAXES**	**Calculate computation of taxable income under**

			various sources. **Recollect the concept of tax administration and practices.** **Acquire the knowledge about latest provision of income tax act.** **Gain expert knowledge regarding the legitimate way of tax planning and management.** **Able to pertain procedure for assessment and e-filing.**
13.	**IV**	**Core XIII JAVA PROGRAMMING AND HTML**	**It help to understand the concept of Java and HTML.** **Be able to understand the difference between object oriented programming and procedural oriented language.** **To familiarize the students with language environment and to implement various concepts related to language.** **It help the students to understand basic concept about control statements and treads.** **Understand how to insert heading levels within a web page and insert ordered and unordered lists within a web page.**
14.	**IV**	**Core XIV PRINCIPLES AND PRACTICE OF INSURANCE**	**Expert knowledge about general principles and concepts of insurance, insurance practices and procedures.** **Examine various types of insurance and its functions.** **Discuss about legal framework about different insurance policies.** **Awareness about differed health policies and group insurance.** **Examine IRDA Regulation act.**
15.	**IV**	**Core XV INDUSTRIAL LAW**	**Understand updated regulatory framework followed by the companies.** **Examine various type of industrial act and its functions.** **Analyze various opportunities available in various legal compliances so as to enable them employable.** **Create knowledge about current practice of industrial law.** **Able to calculate payment of gratuity.**
16.	**I**	**Elective IA: SERVICES MARKETING**	**Examine the nature of services, and distinguish between products and services.** **Identify the major elements needed to improve the marketing of services.** **Develop an understanding of the roles of relationship marketing and customer service in adding value to the customer's perception of a service.** **Examining the key marketing services and market segmentation.** **Evaluating service quality, measurement, causes and problems, principles guiding improving of quality**
17.	**II**	**Elective IIA: MARKETING**	**Understand how marketing theory underpins the**

		OF FINANCIAL SERVICES	**marketing of financial services.** **Appreciate how recent thinking in marketing and services marketing applies to financial services.** **Identify key issues for marketers of financial services.** **Interpretation of various reforms and types of insurance services related to life insurance.** **Discussing about the concepts based on real estate industry and their investment pattern in markets, securitization mechanism‟s merits in India.**
18.	**III**	**Elective IIIA: MARKETING OF HEALTH SERVICES**	**Understand and critically and effectively apply a number of tools available to marketing managers in healthcare sector.** **Appreciate and exercise critical judgment in implementing the marketing strategies in the health care sector.** **Analyse real-life situations and provide solutions to challenges.** **Assessing various online critical judgment in implementing the marketing strategies in the health care sector.** **Adapting various legal systems related to consumer rights & protection, promotion agencies and food nutrition's in India.**
19.	**IV**	**Elective IVA: TRAVEL AND HOSPITALITY SERVICES**	**Apply relevant technology for the production and management of travel and hospitality experiences.** **Plan, lead, organize and control resources for effective and efficient travel and hospitality operations.** **Create, apply, and evaluate marketing strategies for travel and hospitality destinations and organizations.** **Discussing about various hospitality services and its classification of hotels by price level.** **Examining the various behavioural profile of users and related to hotel marketing in indian perspective.**
20.	**I**	**Elective IB: FINANCIAL MARKETS AND INSTITUTIONS**	**Describe Indian Financial System and securities exchange board of India.** **Classify Small Savings, Provident Funds, Unit Trust of India and Mutual Funds.** **Explore activities of non-financial banking.** **Assessing about various investment information and credit rating agency.** **Identifying about various financial institutions and related to its working and functions.**
21.	**II**	**Elective IIB: INDIAN STOCK EXCHANGES**	**Describe Indian stock exchanges and securities exchange board of India.** **Classify and regulate the trading transactions with proper rules and regulations.** **Explore activities of the investors of stock exchange.** **Determining the securities contracts regulation act and important provisions related to SEBI functions workings.**

			Examining various basic concepts of internet stock trading features.
22.	**III**	**Elective IIIB: FUTURES AND OPTIONS**	**Evaluating the concepts and market mechanics of different types of financial derivatives.** **Analyze how financial derivatives are valued, based on the no-arbitrage and risk-neutral valuation approaches.** **Evaluate the instruments that can be used to implement risk management strategies.** **Discovering various pay off for buyer of futures and other options like hedging and speculation.** **Identifying the evolution of commodity markets and exchanges in India.**
23.	**IV**	**Elective IVB: FUNDAMENTAL AND TECHNICAL ANALYSIS**	**Examining various concepts related to investment and approaches to security valuation.** **Outline the theoretical contexts of the fundamental and technical Analysis.** **Summarize work on the basic tools used by technical analysts.** **Determining the various theory and technical analysis related meaning.** **Evaluate securities by measuring the intrinsic value of stock.**
24.	**I**	**Elective IC: PRINCIPLES OF INTERNATIONAL TRADE**	**Remember the major models of international trade and be able to distinguish between them in terms of their assumptions and economic implications.** **Apply the principle of comparative advantage and its formal expression and interpretation within different theoretical models.** **Simplify form the theory of international trade as well as international trade policy and to demonstrate the relevance of the theory.** **Discussing about various international investments and its limitations, factors affected by investment Indian companies.** **Summarize concepts based on multinational corporation and about the globalizations.**
25.	**II**	**Elective IIC: EXPORT AND IMPORT PROCEDURE**	**Recall the export and import licensing procedure.** **Understand the functions of export and import promotion council.** **Analyse the knowledge about customs procedure.** **Evaluate the trading procedure.** **Apply the export and import procedure for the given project.**
26.	**III**	**Elective IIIC: INSTITUTIONS FACILITATING INTERNATIONAL TRADE**	**Demonstrate the role and significance of foreign trade and its markets with its impact on various sectors in the economy.** **Understand the conditions of financial markets and its impact in facilitating the international trade.** **Identifying the awareness on the changes in the**

			composition as well as direction of foreign trade after international trade and know the causes and effects of deficits in the balance of payments in facilitating institutions. **Examine international monetary fund and concepts its principles.** **Identifying various concepts based on international development association and features.**
27.	**IV**	**Elective IVC: INDIA'S INTERNATIONAL TRADE**	**Identify the basic difference between inter-regional and international trade.** **Apply the legal framework in the real life businesses related to foreign trade regulations in India.** **Evaluate India's international trade performance about its objectives and principles.** **Identifying various concepts related to imports related to law of protection their rights.** **Discovering more about global trades and developing countries and major problems faced by sectors.**