

COURSE OUTCOME

COURSE OUTCOMES FOR B.A.(Three Years Degree Course)

(1) SUBJECT: ENGLISH

➤ B.A. PART I

PAPER I (POETRY)

- To develop an understanding of poetic forms.
- The students would gain a brief understanding of the socio-political issues of the times in which the poems were written.

PAPER II (DRAMA)

- Through the prescribed plays the students would get a glimpse of the social problems prevalent in the twentieth century England and twenty first century India.

PAPER III (PROSE)

- The lucid prose style of the essays enables the students to comprehend, interrogate, and redefine multi-faceted aspects of culture.

➤ B.A. PART II

PAPER I (POETRY)

- To gain insight into poetic devices employed by the poets who came after nineteenth century.

PAPER II (DRAMA)

- The students would get a deeper understanding of the Elizabethan Age.
- To decipher the relevance of Shakespeare in contemporary times.
- To analyze how Shakespeare universalizes human emotions.

PAPER III (PROSE)

- The lucid prose style of the essays enables the students to comprehend, interrogate and redefine multi-faceted aspects of culture.

➤ B.A. PART III

PAPER I (FICTION)

- The students are introduced to the deeper understanding of the genre of the novels, and the reflection of human emotions in the novels.
- Liberal humanistic studies show the minute sketching of characters in novels.

PAPER II (DRAMA)

- The students get an insight into the differential sensibilities that emanate from the dramas written by playwrights of different countries.
- Introduce them to the concepts of existentialism, absurd drama, and the meaninglessness of human existence.

PAPER III (POERTY AND PRACTICAL CRITICISM)

- Students would get an understanding of the literatures born in the colonies.
- The local flavor infused in the poetic forms by the writers would also be an area of concern for the students.
- The students should also learn to analyze anonymous pieces of poetry using main ideas, poetic devices, metre and rhythm.

(2) SUBJECT: SANSKRIT

Vision statement :साहित्य सङ्गीत कला विहीनःसाक्षात्पशुःपुच्छविषाणहीनः।

1) बी ए प्रथम वर्ष

प्रथम प्रश्न पत्र

- ईकाई 1.2.3 में पाठ्य सामाग्री अभिज्ञानशाकुन्तलम् (नाटक)
- सांस्कृतिक मूल्यों का उन्नयन ।
- समाज को देखने का दृष्टिकोण विकसित होता है।
- ईकाई 4 व 5 में छन्द व अलंकार के माध्यम से काव्य सर्जन की क्षमता का उन्नयन ।

द्वितीय प्रश्नपत्र

- ईकाई 1 व 2 में पाठ्य किरातार्जुनीयमहाकाव्य के अध्ययन से नैतिक मूल्यों का विकास ।
- सामाजिक , राजनीतिक तथ्यों को सम्यक रूप से विश्लेषित करने की बुद्धि का विकास
- राष्ट्रीय भावना का उन्नयन
- ईकाई 3 में पाक्यनीतिधतकम् (मुक्तक काव्य) अध्ययन से भी नैतिक मूल्यों का विकास सम्भव
- ईकाई 4 व 5 में पाठ्य व्याकरण से भाषायी सुदृढ़ता सम्भव है ।

बी.ए. द्वितीय वर्ष

प्रथम प्रश्नपत्र

- ईकाई 1.2 व 3 में पाठ्य गद्य साहित्य कादम्बरी के अध्ययन से प्राचीन सामाजिक व राजनीतिक व्यवस्था का ज्ञान सम्भव है ।
- पर्यावरण के प्रति सचेष्टता उत्पन्न होती है ।
- मेघदूत ईकाई वक्र द्वारा प्राचीन भौगोलिक परिदृश्य का ज्ञान
- वैदिक व लौकिक संस्कृत साहित्य के इतिहास का सम्यक ज्ञान ।

द्वितीय प्रश्नपत्र

- वैदिक सूत्रों के द्वारा प्राचीन देव परम्परा का सम्यक ज्ञान
- अनेकता में एकता का सम्यक ज्ञान
- पर्यावरण संचेतना का विकास ।

बी.ए. तृतीय

प्रथम प्रश्नपत्र

- कठोपनिषद से आध्यात्मिक चिन्तन की बुद्धि का विकास ।
- लघुसिद्धान्तकौमुदी द्वारा व्याकरण का सम्यक ज्ञान ।
- शब्द निर्माण की प्रक्रिया का ज्ञान
- ईकाई 1.2 में पाठ्य साहित्यदर्पण के अध्ययन से काव्यशास्त्रीय ज्ञान प्राप्त होता है।
- संस्कृत काव्य परम्परा का ज्ञान

- ईकाई 3 व 4 में पाठ्य नाट्य काव्य उत्तररामचरितम् के अध्ययन से रामकथा परम्परा का ज्ञान ।

द्वितीय प्रश्नपत्र

- नाट्यशास्त्रीय तत्वों का ज्ञान ।
- प्राचीन सामाजिक , राजनीतिक व धार्मिक पृष्ठभूमि का अवलोकन सम्भव
- निबन्ध लेखन की कला का विकास
- बौद्धिक क्षमता का विकास ।
- भारतीय दर्शन का सामान्य ज्ञान ।
- वैदेशिक दर्शन पर तर्कसंग्रह का ज्ञान
- इकाई 1 व 20 ईकाई 3 व 4 में पाठ्य श्रीमद्भगवद्गीता के अध्ययन से नैतिक मूल्यों का उन्नयन सम्भव निष्काम कर्म की भावना का विकास
- ईकाई 5 में पाठ्य ईशावस्योपनिषद् से आध्यात्मिक व बौद्धिक विकास सम्भव

तृतीय प्रश्नपत्र

- व्याकरण के अध्ययन से भाषायी सुदृढ़ता सम्भव

(3) SUBJECT: URDU

B.A. - I

1 - पेपर - 1 (नज़्म)

- छात्राएँ उर्दू नज़्म पढ़ने के बाद हिंदुस्तानी तहजीब से परिचित होंगी।
- छात्राएँ नज़्मों के माध्यम से वतनपरस्ती के जज्बे को आत्मसात कर सकने में सक्षम होंगी।

2- B.A. - I

पेपर - 2 (नस्र)

- छात्राएँ उर्दू कहानियों के पठनोपरांत उर्दू के प्रसिद्ध कथाकार प्रेमचंद की कथाओं के पठन द्वारा देहाती जीवन और उच्च वर्गों के द्वारा प्रायोजित दलित वर्गीय शोषण एवं समाज की बुनियादी हकीकतों से आगाह हो सकेंगीं।
- गंगा-जमुनी तहजीब को आत्मसात करने में एवं देश में प्रचलित विभिन्न धार्मिक सम्प्रदायों से छात्राओं को रूबरू करवाने में उर्दू कहानियाँ एक सशक्त माध्यम के तौर पर देखी जा सकती हैं।

3- B.A. - II

पेपर - 1 (गजल)

- गजलों के माध्यम से छात्राओं की उच्चारण क्षमता, लेखनशैली, तथा अंदाजे - बयाँ उन्नति मूलकता को प्राप्त होती है।
- मशहूर गजल शायरों की हालात -ए-जिंदगी और उनकी गजलों के माध्यम से सांस्कृतिक परिवेश , आम इंसानी जिंदगी के सूरत -ए-हाल एवं सामाजिक एवं धार्मिक क्षेत्र में हो रहे बदलावों को सुगमतापूर्वक स्पष्ट किया जा सकता है।

B.A. - II

पेपर - 2 (नस्र)

- छात्राएँ लेखकों, अदीबों की उपरोक्त विधाओं यथा उपन्यास, खुतुत (पत्रों) लेखन आदि के बारे में जानकारी हासिल कर सकेंगीं।
- छात्राएँ उर्दू तनक़ीद को पढ़ने के बाद पेशेवर लेखन, संपादन तथा निबंध लेखन की विधाओं से रूबरू हो सकेंगीं।

- छात्राओं के लिए उसूलों और उसकी जिम्मेदारियों तथा उर्दू आलोचनात्मक दृष्टिकोण के माध्यम से कविता और गद्य का विश्लेषण करने हेतु तनक्रीद एक बेहतरीन जरिया है।

5- B.A. - III

पेपर - 1 (नज़्म)

छात्राएँ उपरोक्त विधाओं को समझने के उपरांत तारीफ तथा बुराई के विभिन्न पहलुओं को आत्मसात कर सकती हैं।

कसीदे, मसनवी एवं मर्सिया संदर्भित दौर के सांस्कृतिक, सामाजिक, पहलुओं को आत्मसात करने का एक सशक्त माध्यम हैं।

साहित्य और सामाजिक स्वरों के वैविध्य के समाहन तथा हाशिये को प्रचलित परंपराओं को आत्मसात कर सकने में सुगमता सृजित होगी।

6- B.A. - III

पेपर - 2 (तारीख-ए-अदब उर्दू और तनक्रीद)

- छात्राओं में साहित्यिक आलोचनात्मक समझ के विकास को लक्ष्यांकित करते हुए फ़ारसी भाषा और साहित्य अधिगम की सौंदर्य स्वाद लोलुपता को विकसित करने में महती भूमिका अदा करती है।

पेपर - 3 (फ़ारसी)

- फ़ारसी अधिगमित करने के उपरांत छात्राएँ सुगमता से पर्यटन, फ़ारसी अनूदित रचनाओं, फ़ारसी आश्रित पर्यटक स्थलों, दूतावास रचनाओं, एवं लेखन के क्षेत्र में स्वरूचि के माध्यम से स्वचुनाव करने में आत्मनिर्भर होंगी।
- फ़ारसी भाषा पर सम्पूर्ण अधिकार द्वारा छात्राओं की स्वसमायोजन क्षमता का उन्नयन होगा।

(4) SUBJECT:HINDI

"साहित्य जनसमूह के हृदय का विकास है।"

हिन्दी विषय के अध्ययन के उपरांत छात्राओं को निम्न परिणाम प्राप्त हो सकते हैं -

स्नातक प्रथम वर्ष

1. प्रथम प्रश्नपत्र (आधुनिक हिन्दी कविता)

- मैथिलीशरण गुप्त : आलोचना एवं व्याख्या
- आधुनिक खड़ी बोली कविता
- द्विवेदी युगीन काव्य एवं काव्य प्रवृत्तियाँ
- साकेतनवम्सर्ग द्वितीय भाग की व्याख्या एवं आलोचना
- जयशंकर प्रसाद : आलोचना एवं व्याख्या
- छायावादी काव्य की प्रवृत्तियाँ एवं कामायनी
- कामायनी का महाकाव्य
- कामायनी : चिंतासर्ग व्याख्या एवं आलोचना

सूर्यकांत त्रिपाठी निराला : आलोचना एवं व्याख्या

- निराला विद्रोही चेतना
- निराला काव्य में प्रगतिशील चेतना
- 'बादल राग', 'अधिवास', 'वह तोड़ती पत्थर' कविता : व्याख्या एवं आलोचना

सुमित्रानंदन पंत : व्याख्या और आलोचना

- पंत की काव्य संवेदना
- पंत की सौंदर्य दृष्टि तथा प्रकृति चित्रण
- भारत माता, नौका विहार, ताज कविताओं की व्याख्या एवं आलोचना

रघुवीर सहाय : आलोचना एवं व्याख्या

- रघुवीर सहाय काव्य संवेदना, काव्य भाषा एवं शिल्प
- पढ़िए गीता, अधिनायक, अकाल तथा आत्महत्या के विरुद्ध कविताओं की व्याख्या तथा आलोचना

सच्चिदानंद हीरानंद वात्स्यायन 'अज्ञेय' : व्याख्या एवं आलोचना

- प्रयोगवाद एवं अज्ञेय
- अज्ञेय की काव्य संवेदना
- आज थका हियहारिल मेरा, बावरा अहेरी, शब्द और सत्य, मेरे देश की आँखें : व्याख्या एवं आलोचना

मुक्तिबोध, नागार्जुन सर्वेश्वर दयाल सक्सेना, केदारनाथ अग्रवाल : व्याख्या एवं आलोचना

- मुक्तिबोधप्रगतिवादी चेतना
- मैं उसका ही होता, मैं तुम लोगों से दूर हूँ, कहने दो उन्हें जो यह कहते हैं, भूल गलती व्याख्या एवं आलोचना
- सर्वेश्वर दयाल सक्सेना की कविता में लोक तत्व एवं संवेदना
- सुहागिन के गीत, लोक पर वे चले, भूख और फसल व्याख्या एवं आलोचना
- केदारनाथ अग्रवाल की काव्य संवेदना एवं काव्य शिल्प
- बसंती हवा, वीरांगना, मोर्चे पर और किसान से कविताओं की व्याख्या

स्नातक प्रथम वर्ष

द्वितीय प्रश्नपत्र (गद्य साहित्य : विभिन्न विधाएँ)

निबंध :

- हिन्दी निबंध का विकास
- हिन्दी निबंध के विकास में भारतेन्दु हरिश्चंद्र का योगदान
- भारतेन्दु हरिश्चंद्र "भारत वर्षोन्नति कैसे हो सकती है?"
- बालमुकुंद गुप्त : एक दुर्दशा
- रामचंद्र शुक्ला : क्रोध
- हजारी प्रसाद द्विवेदी : कुटज
- हरिशंकर परसाई : विकलांग श्रद्धा का दौर
- विद्यानिवास मिश्र : घने नीम के तले

संस्मरण

- सच्चिदानंद हीरानंद वात्स्यायन 'अज्ञेय' वसंत का अग्रदूत : समीक्षा

रिपोर्ताज

- फणीश्वरनाथ रेणु : तीसरी कसम के सेट पर

कहानी :

- हिन्दी गद्य का विकास तथा कहानी
- प्रेमचंद युगीन, प्रेमचंद्र पूर्व तथा प्रेमचंदोत्तर हिन्दी कहानी का विकास
- प्रेमचंद : गुल्ली डंडा
- चंद्रधर शर्मा गुलेरी : उसने कहा था

- जयशंकर प्रसाद : पुरस्कार
- यशपाल : महाराज का इलाज
- अमरकांत : दोपहर का भोजन
- भीष्म साहनी : चीफ की दावत
- चित्रामुद्गल : भूख
- शिवमूर्ति : सिरी उपमा जोक

उपन्यास

- प्रेमचंद : निर्मला
- प्रेमचंद के उपन्यास में नारी चेतना की अभिव्यक्ति

नाटक

- हिन्दी नाटक : विकास एवं स्वरूप
- असगरवजाहत : जिन लाहोरी नहीं देख्या सो जन्मा नहीं

एकांकी

- एकांकी का विकास एवं गद्य साहित्य में योगदान
- राजकुमार वर्मा : उत्सर्ग
- उपेंद्रनाथ 'अशक' : तौलिए
- लक्ष्मी नारायण लाल : व्यक्तिगत
- भुवनेश्वर : श्यामा : एक वैवाहिक विडंबना

स्नातक द्वितीय वर्ष

1. प्रथम प्रश्नपत्र (मध्यकालीन काव्य)

विद्यापति : अध्ययन एवं आलोचना

- विद्यापति के कार्य में भक्ति चेतना
- विद्यापति के काव्य में श्रृंगार
- लोकचेतना के तत्व
- निर्धारित पदों की व्याख्या

कबीर : अध्ययन एवं आलोचना

- भक्ति आंदोलन का स्वरूप एवं भक्ति काव्य धारा
- मध्यकालीन सामाजिक, सांस्कृतिक, आर्थिक, राजनीतिक परिदृश्य एवं भक्ति आंदोलन
- निर्गुण काव्य परंपरा एवं कबीर का स्थान
- कबीर की भक्ति सामाजिक चेतना एवं भाषा
- कबीर की वर्तमान प्रासंगिकता
- निर्धारित पद एवं साखी की व्याख्या

सूरदास : अध्ययन एवं आलोचना

- निर्गुण भक्ति परंपरा और सूरदास
- सूर के काव्य में वात्सल्य एवं श्रृंगार
- सूर की काव्य कला एवं भाषा
- निर्धारित पदों की व्याख्या

तुलसीदास : अध्ययन एवं आलोचना

- सगुण राम : काव्य परंपरा एवं तुलसी

- रामचरितमानस : प्रबंध कौशल
- तुलसी का समन्वयवाद
- अयोध्या कांड : अध्ययन एवं आलोचना

मलिक मुहम्मद जायसी : अध्ययन एवं आलोचना

- सूफी प्रेमाख्या परंपरा एवं जायसी
- जायसी के काव्य में प्रेम विरह-वर्णन एवं प्रकृति चित्रण
- पद्मावत : नागमती वियोग खंड व्याख्या एवं आलोचना

मीराबाई : अध्ययन एवं आलोचना

- भक्ति काव्य का स्वर एवं मीरा
- मीरा के काव्य में भक्ति-भावना, प्रेम एवं विरह
- गीतिकाव्य परंपरा एवं मीरा
- मीरा के काव्य नारी विद्रोह चेतना का स्वरूप
- मीरा : पदावली व्याख्या एवं आलोचना

बिहारी : अध्ययन एवं आलोचना

- मुक्तक - काव्य परंपरा और बिहारी
- बिहारी काव्य में रीति तत्व एवं बिहारी के काव्यभाषा
- संकलित पदों की व्याख्या एवं आलोचना

घनानंद : अध्ययन एवं आलोचना

- रीति काव्य परंपरा एवं घनानंद
- घनानंद प्रेम की पीर के कवि
- घनानंद प्रेम संवेदना तथा भाषा का स्वरूप
- संकलित पदों की व्याख्या एवं आलोचना

2 स्नातक द्वितीय वर्ष

द्वितीय प्रश्नपत्र (हिन्दी साहित्य का इतिहास)

- साहित्य इतिहास लेखन की सामग्री पर चर्चा की जाएगी
- इतिहास लेखन की दृष्टि और परंपरा पर चर्चा होगी
- काल विभाजन एवं नामकरण के आधार पर विचार-विमर्श किया जाएगा
- साहित्यिक, सामाजिक, सांस्कृतिक संदर्भ
- सामाजिक अभिव्यक्ति का स्वरूप
- सिद्ध, नाथ, जैन, रासों एवं लोक साहित्य को समझने का प्रयास
- भक्ति काल की पृष्ठभूमि
- भक्तिकाल आंदोलन के उदय के कारण
- सामाजिक, सांस्कृतिक, राजनीतिक आर्थिक परिस्थितियाँ तथा भक्ति आंदोलन
- सगुण भक्ति साहित्य - रामभक्ति काव्य धारा, कृष्ण भक्ति काव्य धारा, निर्गुण काव्य परंपरा तथा भक्ति साहित्य - संत साहित्य, प्रेमाख्यानक काव्य परंपरा
- रूढ़िवादिता तथा मौलिकता
- रीतिकालीन संवेदना, कलादृष्टि तथा सृजनशीलता पर चर्चा होगी।
- रीतिबद्ध साहित्य, रीतिसिद्ध तथा रीतिमुक्त साहित्य
- रीतिकालीन साहित्य साहित्यिक प्रवृत्ति एवं विशेषताएं

- मध्ययुगीनता तथा आधुनिकता का अंतर
- भारतीय पुनर्जागरण का स्वरूप
- खड़ी बोली गद्य का विकास
- भारतेंदुयुगीन साहित्य : गद्य की विभिन्न विधाएं
- द्विवेदी युगीन साहित्य तथा नवजागरण का स्वरूप
- आधुनिक विभिन्न काव्यान्दोलन - छायावाद, प्रगतिवाद, प्रयोगवाद, समकालीन साहित्य
- नाटक, कहानी, उपन्यास, निबंध, आलोचना का विकास

स्नातक तृतीय वर्ष

1. प्रथम प्रश्नपत्र (काव्य भाषा एवं हिन्दी भाषा)

- भाषा की परिभाषा, भेद तथा प्रकार को समझेंगे
- सामान्य भाषा तथा काव्य भाषा का अंतर
- आधुनिक साहित्य चिंतन में काव्य भाषा के स्वरूप - बिंब विधान तथा प्रदीप विधान का अध्ययन किया जाएगा
- भारतीय कार्य भाषा के विकास के विभिन्न चरण - प्राचीन, मध्य एवं आधुनिक भारतीय आर्य भाषा
- पाली, प्राकृत, अपभ्रंश तथा अवहट्ट - उच्चारणगत एवं ध्वनिगत विशेषताओं का अध्ययन किया जाएगा
- पुरानी हिन्दी की अवधारणा और उसकी विशेषताएं,
- हिन्दी एवं उसकी उपभाषाएँ, हिन्दी प्रदेश पूर्वी एवं पश्चिमी हिन्दी में अंतर
- हिन्दी शब्द भंडार के स्रोत
- मानक हिन्दी का संक्षिप्त व्याकरण
- राजभाषा एवं राष्ट्रभाषा हिन्दी
- देवनागरी लिपि का इतिहास एवं विशेषताएं
- निबंध - साहित्यिक, सामाजिक, समसामयिक

2. स्नातक तृतीय वर्ष

द्वितीय प्रश्नपत्र (भारतीय एवं पाश्चात्य काव्य शास्त्र और हिन्दी आलोचना)

- काव्य की परिभाषा एवं स्वरूप का अध्ययन किया जाएगा।
- काव्यशास्त्रीय संप्रदाय तथा सिद्धांत : रस, अलंकार, रीति, ध्वनि, व वक्रोक्ति और औचित्य
- काव्य गुण एवं काव्य दोष का अध्ययन
- अरस्तु का अनुकरण सिद्धांत
- लंजाइनस का उदात्त सिद्धांत
- क्रोचे का अभिव्यंजनावाद
- रिचर्ड्स का मूल्य सिद्धांत तथा सम्प्रेषण सिद्धांत
- नई समीक्षा का सिद्धांत
- हिन्दी आलोचना का आरंभ एवं विकास
- आचार्य रामचन्द्र शुक्ल की आलोचना दृष्टि
- आचार्य हजारी द्विवेदी प्रसाद की आलोचना दृष्टि
- प्रगतिवादी समीक्षा : रामविलास शर्मा, नामवर सिंह
- स्वच्छंदतावादी समीक्षा

- मनोवैज्ञानिक समीक्षा
- दलित विमर्श, स्त्री विमर्श, संस्कृति, प्राच्यवाद
- संरचनावाद, उत्तर संरचनावाद, उत्तर - उपनिवेशवाद, उत्तर आधुनिकतावाद

3. स्नातक तृतीय वर्ष

तृतीयप्रश्नपत्र (प्रायोजक मूलक हिन्दी)

- प्रयोजनमूलक हिन्दी का अभिप्राय एवं उसकी सीमाओं को समझाया जाएगा।
- प्रयोजनमूलक हिन्दी प्रयुक्ति एवं उसके प्रयोगात्मक क्षेत्र पर चर्चा की जाएगी।
- प्रयोजनमूलक हिन्दी की प्रकृति एवं परिभाषा
- कार्यालयी हिन्दी की प्रकृति
- प्रशासनिक कार्यों में प्रयोग की जाने वाली हिन्दी के बारे में जानकारी प्रदान की जाएगी।
- संक्षेपण, टिप्पणी, प्रतिवेदन - लेखन
- हिन्दी की वैज्ञानिक एवं तकनीकी शब्दावलियों से परिचित कराया जाएगा।
- हिन्दी कम्प्यूटरिंग के बारे में जानकारी प्रदान की जाएगी।
- हिन्दी अनुप्रयोग में अनुवाद की भूमिका को बताया जाएगा
- भूमंडलीकरण के दौर में अनुवाद का महत्व
- जनसंचार - माध्यम, अभिप्राय, स्वरूप एवं सीमाओं पर चर्चा की जाएगी।
- जनसंचार - माध्यमों की भाषिक प्रकृति का अध्ययन किया जाएगा।
- समाचार लेखन एवं हिन्दी का विस्तार
- बाजारवाद कला - सिद्धांत तथा व्यवहार
- प्रूफ - पाठन का महत्व तथा अनुवाद : कंप्यूटरीकरण के दौर में।

(5) SUBJECT: MEDIEVAL HISTORY

➤ B.A. PART-I

Paper I – Indian Culture

- Understanding of main feature of Indian culture, civilization and Heritage
- Visualization of the Maurya and Gupta Art and architecture and understanding the socioeconomic.
- Student becomes able to get fair picture of Indo-Islamic culture language literature.
- Understand the role of modern social reformer Gandhi ji and Ambedkar also.

Paper II- Establishment of Turkish power in India (1206-1526)

- Understanding of foundation of Delhi Sultanate and Sultanate Administration.
- The students can recognize of the socio, economic condition of Delhi Sultanate and Lodhis.
- Decline of Lodhis and Bahmani, rise of Mughals.

➤ B.A. PART II

Paper I-History of modern world (1453-1789)

- Describes the Geographical discoveries and the Renaissance movement and Reformation.

- Narrate the Enlightenment despotism in Europe.
- Discuss the reform of Peter the great and Catherine I of Russia.
- Rise of China and Japan.
- Analysis of the Industrial revolution and agriculture revolution and its impact of world politics and economy also.

Paper II--“Establishment of Mughal Power” (1526-1740)

- The student will be able to form an idea on the establishment of Mughal rule in India in 1526 A.D.
- Understanding Role of Akbar in the consolidation of Mughal rule in India.
- The student would have clear idea about the rule of Shahjahan and the golden age of Mughal architecture.
- Understand Aurangzeb’s conflict with Rajputas Maratha and weakening Mughal age.

➤ **B.A PART III**

Paper I-World History (1789-1950)

- Students acquire knowledge about rise of nationalism and liberal Democracy.
- Sufficient knowledge of fascism and world war I and world war II.
- It will help students to know about American efforts who solve the civil war.
- Student get to know about rise of Lenin and Stalin.
- Sufficient knowledge of cold war and its impact of international politics.

Paper II-Social, economical Administrative institution of Medieval India (1206-1740)

- Understand the foundation of Mughal Kingship.
- Rise of Maratha and contribution of Maratha for Indian culture.
- Analyze the Land revenue system of Todarmal Zabti and Zameendari, manasabdari.
- Discussion and description of militarism of medieval India.
- Cultural and Social life of Ura and other elite class.

➤ **B.A. PART-III**

Paper III-National Movement of India (1857-1950)

- Student would gain knowledge idea of land revenue, economic condition of India of and describe Revolt of 1857.
- Students get to know about constitutional development of India.
- The students would get to know the return of forgotten nationalism the bounced back under the Indian National Congress.
- Student would acquaint themselves with the coming up of Gandhi Ji and taking command of freedom struggle in the most peaceful and constructive way till the attainment of independence of India.

**(6) SUBJECT: ANCIENT INDIAN HISTORY,
CULTURE AND ARCHAEOLOGY**

History is record of the achievements of man. Indian History is a mirror of thought, religion,

philosophy, cults and culture of India. The inhabitants of India, as those of elsewhere in the world, have passed through various stages of development in their march towards present-day civilization. Now written records are available about the earliest inhabitants of India. The period for which no written records or some other reliable evidence is available is called the 'Prehistoric Age'. India's history culture is dynamic, spanning back the beginning of human civilization.

PSO: 1 In an endeavor to further the holistic understanding of Ancient Indian Culture in all its parameters, this course provides a sound grounding in understanding the various vistas of our history and culture. Classify nature of pre historic societies identify Paleolithic and Neolithic settlements.

PSO: 2 The conservation of our heritage and also helps in heritage management. It opens the door to opportunities in the streams of Archaeology, Museology, Conservation, Social Science and Humanities.

PSO: 3 To study the Cultural History of India and its facets, understand the various phases in its evolution, review the methods of interpretation of Archaeological data and analysis. To create awareness of museology and conservation and promote remedial conservation for monuments and other artifacts.

PSO: 4 Artifacts via practical experience through field trips, practical, workshops etc. to develop a strong corps of research scholars who are equipped with the requisite skill and knowledge base about recent advances in the field of Archaeology, Cultural History, World Civilization, Religion, Philosophy, Performing Arts, Musicology, Conservation, Pali, etc.

PSO: 5 Classify urbanization in the genetic basin, classification of Buddhism and Jainism.

(7) SUBJECT: EDUCATION

Vision statement of the department: "Teaching is not a job. Teaching is a mission".

➤ B.A. PART-I

Paper I- Principles of Education

1. Students will be able to understand meaning and scope of education.
2. Students will be able to differentiate between in-formal and non-formal education.
3. Students will be able to conceptualize about the various approaches of education.
4. Students will be able to systematize different aims of education in present context.
5. Students will be able to classify about the different agencies of education.
6. Students will be able to differentiate between curriculum and syllabus.
7. Students will be able to comprehend about the defects in existing curriculum.
8. Students will be able to grasp the essence of emotional and national integration and its relevance in present context.

Paper II- Problems of Indian Education

1. Students will be able to explore the historical perspectives of secondary education.
2. Students will be able to compile the problems related to diversification of courses.
3. Students will be able to construct the concept of vocationalization of education.

4. Students will be able to understand the importance of National Literacy Mission.
5. Students will be able comprehend the National Policy of Education.
6. Students will be able to grasp the essence of constitutional provisions of education.
7. Students will be able to conceptualize about the equality of educational opportunities.
8. Students will be able to understand about the control and co-ordination machinery of higher education.
9. Students will be able to rationalize about the maintenance of educational standards and examination reforms of higher education.
10. Students will be able to conceptualize the meaning and historical perspectives of adult education.
11. Students will be able to understand about the historical perspectives and problems related to primary education.
12. Students will be able to comprehend about the need of examination reforms and decentralization of management.

➤ **B.A. PART-II**

Paper I- Educational Philosophy and Sociology

At the end of the course students will be able to:

- Understand the meaning, nature and need of philosophy of education and will be able to define the concept of philosophy from Indian standpoint.
- Define different schools as Idealism, Naturalism, Pragmatism, Realism and Existentialism.
- Describe the similarities and differences among the various issues of philosophy and their education implications.
- Define the term of educational sociology and its need.
- To understand various sociological concepts and their relation with education.
- Explain the importance of education in maintaining the progress of society.

Paper II- Educational Psychology

- Understand the concept of educational psychology and its educational implications.
- Define various theories of intelligence, personality learning, transfer of learning and motivation and their educational implications.
- Understand various factors influencing mental health and how to maintain good mental health.
- To know how to measure personality, intelligence and creativity.
- To understand the group dynamics and will be able to develop leadership qualities in order to increase social interaction.

➤ **B.A. PART III**

- ❖ Students will be able to learn meaning, scope and purpose of measurement and evaluation.
- ❖ Students will be able to learn taxonomy of educational objectives and psychomotor domains.
- ❖ Students will be able to learn procedure for constructing and standardizing and achievement test.
- ❖ Students will be able to tell concept, meaning and definitions of action research, fundamental and applied research.
- ❖ Students will be able to aware educational ideas and main contributions of educators.
- ❖ Students will be able to define and learn about value education, environmental education, population education, educational technology and distance education.

(8) SUBJECT: SOCIOLOGY

➤ B.A. Part-I

Paper I: General Sociology

- Through the development of an understanding of sociological theories and concepts students can demonstrate the role of theory in Sociology.
- Students can demonstrate an understanding of the diverse forms and sources of social stratification, inequality and difference that exist in society.
- Students will develop understanding of the social and cultural processes and structures that inform social interaction. Students can articulate an understanding of how culture and social structure operate.
- Students will develop an understanding of the reciprocal relationship between individuals and society.

Paper II: Indian Society

- Understand the basic knowledge of Indian Society.
- Understand the Hindu and Muslim Social organization.
- Describe the economic and political institutions of Indian Society.
- Understand the functions of Indian Social System.

➤ B.A. Part II

Paper I: Social Change

- Describe the social and cultural changes in Indian society.
- Understand the theory of Social change and co-relate with contemporary Society.
- Analyze the cultural process.
- Understand the social movement in present and post scenario.

Paper II: Social Problems in India

- This paper will develop theoretical understanding to study the individual behavior and social problems.
- Students get acquainted about the various social problems like child labour and abuse, unemployment, corruption, terrorism, casteism and communalism and gender discrimination.
- Students develop conceptual understanding about poverty and unemployment and studied about the two main poverty abolition programs in rural India like MNREGA and IRDP.
- Students acquainted about affirmative action regarding backward caste and minorities.

➤ B.A. Part III

Paper I: Sociological Theories

- To understand the role of theory in sociology such that the student will be able to define theory, describe and illustrate its role in building sociological knowledge.
- Compare and contrast basic theoretical orientations in reference to social phenomena.
- Understand and learn how theories reflect the historical and social contexts of the times and cultures in which they were developed.

Paper II: Research Methods

- Understand the Research and Social Research.
- Understand the basic knowledge of Social Research.
- Development of the comparative understanding of technique of research.

Paper III: Social Anthropology

- Understand the basic knowledge of Anthropology.
- Basic understanding of tribal culture.
- Analyze the Economic and ceremonial exchange among tribes.
- Understand the magic religion and science among tribes.

(9) SUBJECT: PHILOSOPHY

Study of Philosophy as a subject is committed to strengthening its commitment to student's success and broadening the dimension of thought process of the students. That Under Graduation course of Philosophy is designed to enable the students to.... Demonstrate an ability to think independently about a problem related to society and self, and clearly articulate and support their own views.

Students completing B.A. in philosophy will be able to explain how a particular thinker can attempt to address a philosophical problem and the significance of thinkers approach. Student will be capable of critical analysis of philosophical argument concerning a particular topic or problem.

Students completing under graduation with philosophy are expected to achieve learning outcome grouped into following areas.....

- CO1** Ethics: value and evaluation, knowledge of ethical theory. Knowledge of ways in which ethical theory is applied to specific discipline and issues like-business, environment, Science, Medicine, Technology, Feminism and gender issues and issues related to what ought to do and what ought not to do. This paper enhances the concept right, wrong, good and bad, understanding moral principles and their application in everydaylife.
- CO2** Logic: Studies of logic improve the analytical skills and knowledge of the formal techniques of evaluating arguments and deductive system. This paper enhances the ability to critical thinking skills.
- CO3** Indian Philosophy and Western Philosophy: this particular paper upgrades the dimension of thought process of the students on the issues like what is proper knowledge and how one can get this (mainly epistemological studies). On the other hand metaphysics explains about the existence of God, Soul (mind) and World.
- CO4** Social political philosophy: this paper enhances the knowledge of socio-political movements, about the notion of freedom, duty and right, the idea and types of punishment. Basically this paper educates the students about How to apply the ethics norms in the society and its effect on the society. This paper improves the knowledge about anarchy, humanitarian issues, social changes, movement, reformation of the political spectrum etc.
- CO5** Philosophy of Religion: this paper explains about the nature of God, proofs for the existence of God, about the problems of evil, what is the highest aim of human life (how to attain liberation). This paper provides the religious ground for social harmony. Moreover, the philosophy discipline develops in students a sense of the value and a reflective attitude and sensitivity to the subtleties and complexities of philosophical judgments, and a life-long commitment to learning and enquiry.

(10) SUBJECT: MUSIC

- Students will demonstrate the understanding and use of public performance as a means for engaging communities, creating, cultural awareness and providing ethical leadership(PublicAffairs).

- Music student will be able to perform as soloist's ensemble members and chamber musician at appropriate levels for entering graduate music study and studio teaching performance.
- Students will be able to create, analyze, and synthesize music as a means of supporting developing careers in music teaching and / or performance (theory and musicianship)
- Students will be able to recognize, classify and interpret a common body of western literature and individual repertory by written and oral means (Repertoire).
- Students will be able to demonstrate teaching skills for individual studio and group setting for teaching and audience education purposes.

(11) SUBJECT: PAINTING

The graduates are professional Artist and Photographers, land scape, designer illustrators, teacher, gallery director and art therapists. Many art students pursue graduate schools while other pursue business opportunities such as starting art galleries and working in design firms.

PSO 1- Creative Process

Students will be able to use a variety of brain storming techniques to generate novel ideas of Value to solve problems.

PSO 2- Development of skill and Technique

Students will have sufficient mastery of one or more media to complete the technical and formal challenges pertinent to a body of original work.

PSO 3- Communication of ideas and Context

Student will be able to clearly communicate the content and context of this work visually orally and in writing.

PSO 4- Development of Behaviour

Students will develop behaviors such as curiosity initiative, and persistence that will help them engage with the world in productive ways. Students will be to work independently or collaboratively to achieve stated goals.

(12) SUBJECT: ECONOMICS

Program in economics contains a core group of theory courses, a series of quantitative skills courses, and field specialization courses that involve the applications of economic theory and quantitative analysis to major areas of study within the discipline. It is our goal to help our students achieve a certain set of learning outcomes.

Below is a list of our learning outcomes and how we help our students reach them.

CO1 Intellectual Growth

CO2 Develop the ability to explain core economic terms, concepts, and theories.

- Explain the function of market and prices as allocative mechanisms.
- Apply the concept of equilibrium to both microeconomics and macroeconomics.
- Identify key macroeconomics indicators and measures of economics change, growth, and development.
- Define and explain the process of calculating national income, identify its components,

demonstrate circular flow of income, analyse the various income identities with government and international trade, define the concept of green accounting.

- Understand Say's law of market, classical theory of employment and Keynes objection to the classical theory, demonstrate the principle of effective demand and income determination.
- Explain economic growth and development, illustrate Harrod-Domar and Solow's growth model, distinguish between economic growth and technical progress.
- Analyze different phases of trade cycle, demonstrate various trade cycle theories, understand the impact of cyclical fluctuation on the growth of business, and lay policies to control trade cycle.
- Identify and discuss the key concepts underlying comparative advantage.
- Identify and explain major types of market failures.

CO3 Demonstrate the ability to employ the “economic way of thinking.”

- Discuss the application of marginal analysis.
- Explain the use of benefit/cost analysis.
- Explain the contribution of economics to the analysis of non-market social issues.
- Understand how factor market works; illustrate basic tools in welfare economics.
- Understand international and inter regional trade, identify and understand various trade theories, analyze the various types of restrictions of international trade.
- Assess the role of domestic and international institutions and norms in shaping economies.
- Understand the sources of finance both public and private, demonstrate the role of government to correct market failures and possible advantage of public financing.
- Attain the advantages and knowledge of public investments and other government expenditures. Understand the causes of growing public expenditures for various programmes and policies within and outside the country.

CO4 Apply economic theories and concepts to contemporary social issues, as well as formulation and analysis of policy.

- Describe how economic trade-offs and social values impact public/private social policy, and the success or failure of policies to achieve intended outcomes.
- Develop ideas of the basic characteristics of Indian economy, its potential on natural resources.
- Understand the importance, causes and impact of population growth and its distribution, translate and relate them with economic development.
- Understand agriculture as the foundation of economic growth and development, analyse the progress and changing nature of agricultural sector and its contribution to the economy as a whole.
- Grasp the importance of planning undertaken by the government of India, have knowledge on the various objectives, failures and achievements as the foundation of the ongoing planning and economic reforms taken by the government.
- Understand agriculture as the foundation of economic growth and development, analyse the progress and changing nature of agricultural sector and its contribution to the economy as a whole.

CO5 Recognize the role of ethical values in economic decisions.

- Distinguish between normative and positive economics.

- Identify the limits of economic analysis.
- Compare and contrast efficiency and equity.

CO6 Skill Areas

Apply both oral and written communication skills within the discipline.

- Present an economic argument in quantitative terms.
- Demonstrate ability to solve systems of equations.
- Be able to conduct economic analysis using equations and graphs.

(13) SUBJECT: GEOGRAPHY

Vision: To develop knowledge and awareness about the Global World.

भूगोल विषय स्नातक स्तर पर छात्रों को भारत एवं विश्व के भूगोल के समस्त आयामों के अध्ययन द्वारा विविध क्षेत्रों में कैरियर बनाने हेतु प्रेरित करता है।

स्नातक उत्तीर्ण भूगोल विभाग की छात्राएँ निम्न तथ्यों से लाभान्वित होंगी।

CO1 HifrdHixky

भौतिक भूगोल अध्ययन मस्त विश्व को ध्यान में रखते हुए किया जाता है। जिसमें उपागम (Systematic Approach) का प्रयोग होता है जिसमें प्रमुखता स्थलमंडल, वायुमंडल जलमंडल, जीवमंडल से सम्बन्धित दृष्टिकोण विकसित होगा।

CO2 etuekxky

' मानव भूगोल का अध्ययन भी मबद्ध उपागम के दृष्टिकोण से किया जाता है जिससे मानव पर्यावरण सम्बन्ध ,मानव के अधिवास , उद्योग , खनिज , समाज एवं संस्कृति के विविध पक्षों का ज्ञान विकसित होगा। CO₃ Hjr di Hoxby भारत के भूगोल के अध्ययन से समस्त छात्रों को भारत के उच्चावच, जलवायु, जनसंख्या, राजनीति अधिवास, समाज, संस्कृति इत्यादि पक्षों की जानकारी प्राप्त होगी जिससे प्रशासनिक नियोजन द्वारा भारत के सतत् विकास के दृष्टिकोण को प्रोत्साहन मिलेगा।

CO4 fe dk iknf td xky

विश्व के प्रादेशिक भूगोल का अध्ययन प्रादेशिक उपागम द्वारा किया जाता जिसमें समस्त विश्व को विभिन्न उपविभागों में विभाजित करके अध्ययन करने से छात्रों को विश्व के विभिन्न क्षेत्रों की जानकारी प्राप्त होगी।

CO5 Hkxky dk n ku

दर्शन किसी भी विषय की आत्मा होती है जिसके अध्ययन के द्वारा छात्राएँ भूगोल विषय की अवधारणात्मक विचारों को जान पायेंगी जिससे उनका दृष्टिकोण परिपक्व होगा।

CO6tul [; k , vi / kokHkxky

जनसंख्या एवं अधिवास भूगोल के अध्ययन द्वारा छात्राएँ जनसंख्या की जनांकिकीय संरचना एवं क्षेत्रीय संदर्भ का ज्ञान प्राप्त कर पायेंगी जिससे वर्तमान विश्व की जनसंख्या समस्याओं को समझ कर उनके निदान हेतु विचार प्रदान कर पायेंगी जिससे समाज का विकास होगा।

CO7 i ;kxkled dk ;

प्रयोगात्मक कार्य के द्वारा छात्रों को सांख्यिकी की जानकारी प्राप्त होती है जिससे छात्राएँ मात्रात्मक विचारधाराओं द्वारा आखड़ों के विश्लेषण हेतु प्रशिक्षित होंगी। साथ ही मानचित्र के अध्ययन द्वारा विभिन्न निष्कर्षों को निकालने की क्षमता विकसित करेंगी।

(13) SUBJECT:PSYCHOLOGY

Vision statement

“The Vision of Good Psychology is to empower communities with knowledge of mind-body relationships to eliminate unnecessary illnesses and improve quality of life.”

The department of psychology focuses on student’s growth so that they can understand basic concepts of psychology and also use these concept for their betterment.

➤ B.A. PARTI

On completion of this course students will be

able to- Paper I: Basics Psychological

Processes and Behavior

- The science and history of psychology, ethical issues in psychology, biological basis of behavior.
- Understand general psychology basics concepts, learning, memory, perception, thinking, emotion, motivation, intelligence.
- Theoretical part of the above mentioned concepts.

Paper II: Psychological Statistics

- Basic concept of statistics, use of statistics in psychology.
- Graphical presentation of data.
- Learn statistics methods. Interpretation of results.

Paper III: Practical

- Learn experimental approach in psychology, formulation of research problem, derivation of hypothesis.
- Design experiment, interpretation of results report writing.

➤ B.A. PartII

Paper I: Psychopathology

- Meaning and criteria of abnormality, personal adjustment, historical perspective of abnormality.
- Classification system of DSM for abnormal behavior.
- Theoretical perspective.
- Human adjustment and coping including stressors types, conflict, pressures & frustration, factors influencing stress tolerance and coping with stress by using different strategies.
- Types of disorder, clinical picture and brief idea of etiology of disorder.

Paper II: Psychology and Social Processes

- Definition and scope of psychology, history and researches in social psychology.
- Social behavior as aggression, leadership, helping behavior, interpersonal behavior, social perception, social attitude. Theoretical perspective of above concepts.
- Application of social psychology in the area of health, environment etc.

Paper III: Practical

- Basic concepts in psychological assessment, types of test, test administration, issues in assessment.
- Students are expected to prepare a case study by using prescribed tests.
- Students will be required to do experiment on different psychological issues like social facilitation, attitude change cooperation, competition, prosocial behavior, social factors in perception.

13. SUBJECT: POLITICAL SCIENCE

Vision: 'Develop Political behavior and democratic values through Political Science'

The department of Political Science strives to Prepare who would be leaders in their classrooms effective Practitioners in their particular field, and lifelong learners.

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

1. Political theory

- Through the study of Political Science, students, from different Perspectives try to learn practiced Politics through theoretical Polities in their Cognition.
- Know Current Political activities through ideology.
- Develop students for their political Values.
- To use, freedom, equality, Justice, and Rights in our Practical life.
- The gain knowledge of Superiority from other governmental system in the present time of democratic governance system.

2. Theory and Practice of Modern Governments

- To know the constitutional system of different Countries.
- To gain knowledge of government enshrined in Constitutions and to use useful and people-oriented government in Practical life.
- Find out the usefulness of these governance systems at the present time.
- Getting knowledge of theoretical and Practical Politics.
- Students will discharge Constitutional obligations in their practical life through the study of governance.

3. Western Political Philosophy

- Studies of Ideas in Political Science are useful in their Practical life.
- The human brain develops through the thoughts of thinkers.
- Situational views have an important role in Political life.
- Often, the Influence of Ideas on the nature of governance System is that work works for social up gradation.

4. Comparative Government and Politics

- Getting knowledge of their political behavior by comparing different governmental arrangements.
- To gain knowledge of the nature and functions of government.
- Study Political activity and its political behavior from Comparative government.
- To know about the merits and demerits of governments of different countries.
- To study in what situations the governments would like and behave.

5. Indian Political thought:

- To know the importance of the ideology of Indian Political Thought.
- To increase your mental development by studying the views of various Indian thinkers.
- To gain knowledge of its utility in the Current Political Scenario.
- Understanding your practical life, ancient ideas and Current ideology.
- Understanding the merits and demerits of political ideas and experimenting in your real life field.

6. Public administration with Special Reference to India:

- Students will gain knowledge of Indian governance and use it in their field.
- Understanding the utility of Public administration in the present.
- To gain practical knowledge by understanding the administrative of governments.
- Get to know the various organizations and institutions of the government.
- Student will get knowledge about government administration and private administration.

7. Theory and Practice of International Relations:

- Students will increase their mental development by acquiring knowledge of international relations.
- Students will understand the political, economic, culture and geographical relations between different countries.
- To study their longing efforts for peace, war, tension and power among various nations.
- To gain Practical knowledge of diplomatic relations of different nations in the world system.
- Students will gain knowledge about what effect these ties have on human life and how political behavior takes place.

COURSE OUTCOMES FOR B.Sc. (Three Years Degree Course)

(1) SUBJECT: ZOOLOGY

Vision statement: “Promote continuous improvement”

Department of Zoology envisions inculcating the highest values of life, science education and respect for nature among the students through good scientific educational practices to promote their continuous improvement and all-round development.

Department of Zoology offers three year degree course and postgraduate course (Four semesters).

➤ **B.Sc. PART I**

CO 1. Non Chordata I and Physiology

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

- General classification of the non-chordata phyla up to classes. The morphological as well as anatomical features of different phyla of non chordates including Protozoa, Porifera and Coelentrata.
- Physiological process in mammals with special reference to man such as physiology of circulation, digestion, respiration excretion and reproduction, mechanism of muscle contraction, nerve impulse and reflex action, endocrine system, function of various glands and their secretion etc.

CO 2. Non-Chordata II and Biochemistry:

Students will be able to understand and build concepts of

- General classification of the non-chordate phyla up to classes and some special features, organs, life history and significance of phyla Platyhelminthes, Aschelminthes and Annelida.
- Biochemical components of the body, chemical compositions of different biological molecules such as of proteins, carbohydrate and lipids.
- The students will also be able to correlate the pathways and chemicals which are responsible for the energy production in our body.

CO3. Non-Chordata III, Evolution and Taxonomy

- Students will get knowledge about General classification of the non-chordate phyla up to classes with special reference to specific features of Arthropoda, Mollusca, Echinodermata and Hemichordata.
- Students will be able to understand the fundamental principles and concepts of systematic in which the animals are classified according to their characters. International rules of nomenclature and classification and opportunities and difficulties of taxonomy.
- Students will be able to understand Origin of life, various theories and concept related to evolution.

➤ **B.Sc. PART II**

CO.4 Protochordates, Animal Distribution and Ecology

- Students will be able to attain knowledge about Protochordates their general characters, classification up to orders, anatomy, history and post-embryonic development.

- The students will be able to understand Geological and Geographical distribution of animals; importance of animal fossils of different geological strata, zoo-geographical region of the world with their faunal characteristics with special reference to mammals, factors influencing large scale animal distribution etc.
- Students will be able to build and relate the concepts regarding ecology, ecosystem, ecological environmental factors and limiting factors, energy flow and concept of pyramids, population dynamics, biogeochemical cycle, environmental pollution, adaptation of animals in deserts and fresh water, and wild life conservation.

CO 5 Vertebrata

The students will be able to have knowledge about General characters, classification and comparative anatomy of the integumentary, skeletal, circulatory, digestive, respiratory, nervous and urinogenital system of the vertebrates and some of their related special topics.

CO 6. Genetics and Cell Biology

- Students will be well versed with the concepts of genetics viz., Mendal's law of inheritance, linkage, crossing over and chromosome mapping, human chromosome and human chromosomal abnormalities, sex linkage and sex determination dosage compensation and Lyon's hypothesis, inborn errors of metabolism in man, and their application in this field.
- Students will be able to imbibe and apply the concepts of genetic material, its role in hereditary as well as molecular basis of mutations in genetic material and its effect.
- Students will be aware of the structure and function of cells, different cell organelles and will help the students understanding of various techniques.

➤ B.Sc. Part III

CO.7 Molecular Biology and Genetic Engineering

- The students will be able to build concepts about genome organization, chromosome mapping, molecular basis of gene regulation, somatic cell genetics and its applications. Students will be able to understand the concepts and applications of immunology.
- The students will be aware of the concepts, techniques, scope and applications of genetic engineering.

CO 8. Economic Zoology and Environmental Biology

- The students will be aware of economic importance of different groups of animals, their life cycles economic importance of different groups of animals, their life cycles, harmful and beneficial animals and their significance.
- Students will be able to identify various environmental problems such as environmental pollution, deforestation, ecotoxicity their causes, effects on human being and their control.

CO 9. Development Biology and Ethology

- Students will be able to attain knowledge about various concepts and methods involved in development biology viz., different types of reproduction, metamorphosis, regeneration etc in various groups of animals.
- Students will be aware of concepts involved in teratogenesis, growth and ageing, and growth curves and their interpretation.
- The students will be well versed with various concepts of Ethology, behaviors with the help of examples around us.

(2) SUBJECT:BOTANY

Vision Statement:“Botany is the soul of Natural Science”

The department of Botany imparts quality education to equip the students with essential knowledge and technical skill to study plants in holistic manner.

➤ **B.Sc. PART I**

On completion of this course students will be able to-

Paper I: Fungi, Lichen, Bacteria & Viruses

- ❖ Understand general characteristics of fungi including structure, Reproduction and economic importance.
- ❖ Learn classification and Life history of different genera of fungi.
- ❖ Understand occurrence, general structure and reproduction and Economic importance of Lichens.
- ❖ Learn structure, reproduction and economic importance of bacteria.
- ❖ Understand Nature, structure, transmission, multiplication and Economic importance of viruses.

Paper II: Algae & Bryophyta

- ❖ Gain adequate knowledge about occurrence, distribution, structure and life history of various genera of Algae and Bryophytes.
- ❖ Study and impart knowledge about the ecological and economical importance of Algae and Bryophytes.

Paper III: Pteridophyta & Gymnospermophyta

- ❖ Study and impart knowledge about the occurrence, structure and life history of various genera of Pteridophytes and Gymnosperms.
- ❖ Learn the Classification of living & extinct Pteridophytes and Gymnosperms and their distribution in India as well as in world.
- ❖ Study the Distinguishing features of Pteridophytes and Gymnosperms and their economic importance.

➤ **B.Sc. PART II**

Paper I: Morphology, Anatomy, Taxonomy and Life History of Angiosperm

- ❖ Able to understand the general characters of Dicot plant.
- ❖ Different classification of Angiosperm with examples.
- ❖ Studies of different families of Monocots and Dicots.
- ❖ Learn Anatomy and morphology of root, stem and leaves.
- ❖ Understand life history of Angiosperms.

Paper II: Plant Physiology & Plant Ecology

- ❖ Understand the process of Photosynthesis, Respiration and Nitrogen metabolism.
- ❖ Learn about the Photoperiodism.
- ❖ Know about the structure, function and regulation of different plant growth hormones (Auxin, Gibberellins, Cytokinins, ABA and Ethylene).
- ❖ Awareness of environment and environmental factors.
- ❖ To understand the interaction between abiotic and biotic components.
- ❖ Knowledge about the various floristic regions and phytogeography.

- ❖ Awareness of various environmental programs by the government and non governmental bodies.
- ❖ To spread awareness about various types of pollution.

Paper III: Cytology, Genetics, Molecular Biology and Evolution

- ❖ Learn about structural organization and function of intracellular organelles.
- ❖ Gain knowledge on the organization of genes and chromosome.
- ❖ Learn about Mendelian Principles and cell divisions in plants.
- ❖ Know about linkage and crossing over, mutation, extra chromosomal inheritance, chromosomal aberration.
- ❖ Understand the structure and function of nucleic acid and evidences to prove DNA as genetic material.
- ❖ Learn about the process of protein synthesis and genetic code.
- ❖ Understand the evolution in living organism.

➤ **B.Sc. PART III**

Paper I: Biotechnology and Plant Pathology

- ❖ Understand Role of microorganism in daily life.
- ❖ Study Application of microbes in different industries like dairy, food, pharmaceutical and others.
- ❖ To know about basic concept of Genetic Engineering.
- ❖ Understand Basic concept of genetic engineering; tools and technology.
- ❖ Study Application of Genetic Engineering in human welfare such as environment, agriculture, medicine and industries.
- ❖ To understand the history of Plant Pathology and Koch's Postulates.
- ❖ Learn the different symptoms of diseases of Plants and distinguishing character of fungal, Bacterial and Viral symptoms.
- ❖ Understand Role of Toxins, Chemicals etc. on Plant diseases.
- ❖ Learn about the defence mechanism in plant diseases.
- ❖ Understand the Forecasting of Plant diseases.
- ❖ Understand the Dissemination of Plant diseases.

Paper II: Economic Botany, Applied Plant Anatomy, Plant Breeding, Marine Biology and Limnology

- ❖ Enumerate the macroscopic and microscopic characters, chemical constituents, adulterants, therapeutic, pharmaceutical uses of cereals, spices and medicinal plants.
- ❖ To study the structure and dynamics in biogeochemical cycles and organism communities.
- ❖ To study how pollution and other human influences affect the aquatic system from rivers and lakes to coastal and ocean.
- ❖ Understand the structure of Secondary xylem or wood anatomy of Gymnosperms and Angiosperms.
- ❖ Know in detail about plant breeding methods.

Paper III: Palaeobotany, Palynology, Plant Diversification, Morphogenesis and Tissue Culture

- ❖ Understand the palaeontology, different types of rocks, Geological time scale and methods of fossilization of plant fossils.

- ❖ Understand different methods for study of fossil specimens.
- ❖ Understand the morphology and function of pollen grains.
- ❖ Learn about Morphogenesis, Diversification, Totipotency and Plant tissue culture techniques.
- ❖ Understand the advantage of in vitro propagation in various areas.

(3) SUBJECT: CHEMISTRY

➤ B.Sc. PART I

After studying this course the students will be able to:

Paper- I (Inorganic Chemistry):

- Understand the modern periodic table and the periodic properties like atomic and ionic size, ionization energy, electron affinity, electro negativity etc.
- Understand the behavior of the inert gases.
- Be aware of definition of oxidation, reduction, oxidizing agent and reducing agents.
- Have basic knowledge of chemical bonding and coordination chemistry.

Paper- II (Organic Chemistry):

- Understand the basic principles of organic chemistry.
- Understand the basic terms for chemical reactions i.e. substrate and reagents, types of reagents, electrophilic and nucleophilic reaction, homolytic and heterolytic fission and inductive effect etc.
- Understand basics of the alkenes and alkynes chemistry.
- Gain information about stereoisomerism.

Paper- III (Physical Chemistry):

- Understand the basic principles of physical chemistry.
- Know about applications of first law of thermodynamics.
- Have thorough knowledge of electrochemistry and chemical equilibria.
- Know the importance of chemical kinetics.

➤ B.Sc. PART II

Paper- I (Inorganic Chemistry):

- Develop ability to draw the shapes of molecules.
- Know about preparation and properties of p and d block elements.
- Know the principles involved in metallurgical extraction of some metals.
- Have adequate information about preparation, properties and uses of some inorganic compounds.

Paper- II (Organic Chemistry):

- Acquire the ability to characterize compounds using UV and IR spectroscopy.
- Understand the preparation and properties of functional groups.
- Gain knowledge about different named reactions.
- Have ability to complete the given reaction.

Paper-III (Physical Chemistry):

- Have insight into principles of thermodynamics.

- Know principles of electrochemistry.
- Know applications of colloidal state.
- Have knowledge of molar refraction, dipole moment etc.

➤ B.Sc. PART III

Paper-I (Inorganic Chemistry):

- Know the nature and purity of the crystal.
- Have detailed knowledge of theories of covalent and coordinate bond.
- Gain knowledge of metallurgical extraction of some heavy metals.
- Know the basic principles of glass, cement, fertilizer and steel industry.

Paper-II (Organic Chemistry):

- Understand the synthesis and properties of organometallics.
- Know the basic principles of proton magnetic resonance spectroscopy.
- Have proper information about preparation and properties of heterocyclic compounds.
- Know the synthetic application of acetoacetic ester and diethylmalonate.
- Understand the classification, nomenclature and chemistry of carbohydrates, proteins and polymers.

Paper- III (Physical Chemistry):

- Know the basics of nuclear chemistry.
- Understand the principles of chemical kinetics.
- Gain knowledge of thermodynamic derivation of laws of thermodynamics.
- Know the basic principles of photochemistry and E.M.F.
- Have clear concept of atomic structure.

(4) SUBJECT: PHYSICS

After the completion of the course, Students will be able to understand following points.

CO1 Mechanics

1. Get the knowledge about role of physics in sports in their daily life.
2. The velocity and acceleration parameter give the knowledge about how the vehicles move.
3. The information will teach the students about the rolling concept.

CO2 Heat & Thermal Physics

1. Understand the concept of thermodynamics and the laws.
2. Understand the Heat Engine and its uses.
3. Describe the thermodynamic function and the relations.

CO3 Electricity and Magnetism

1. Explain various phenomena like Ferromagnetism, anti ferromagnetism etc.
2. Understand the relation in between Electromagnetic theory.
3. Explain various phenomena in light of Maxwell equations.

CO4 Optics

1. Understand the physics behind various phenomena in wave and optics.
2. Understand various phenomena and the cause or origin of them.

3. Explain the relationship in between various optical phenomenon with the Fourier and matrix.
4. Understand the physics behind various optical phenomenon.
5. Understand various natural phenomenon which is happening in their surroundings.
6. Explain the relationship in between various optical phenomenon.

CO5 Statistical Mechanics

1. After taking this course students are able to determine the probability of any type of events. They are able to interpret different types of events.
2. Students understand the concept of phase space and its volume.
3. They can easily distinguish between different types of particles and statistics and can easily distribute bosons, fermions and classical particles among energy levels.
4. After studying Fermi Dirac statistics, students learn to deal with many electron system in real life.

CO6 Solid State Physics

1. Demonstrate an understanding of the crystal lattice and how the main lattice types are described
2. Formulate the theory of X-ray diffraction in the reciprocal lattice (k-space) formalism and apply this knowledge to generalize the formulation for matter waves
3. Be able to perform structure determination of simple structures
4. Learn Stefan's Boltzmann law is valid only at high temperature.
5. Learn that lattice specific heat of solid vary T^3 at very low temperature.

CO7 Quantum Mechanics

1. Pinpoint the historical aspects of development of quantum mechanics.
2. Understand and explain the differences between classical and quantum mechanics.
3. Understand the idea of wavefunction.
4. Understand the uncertainty relations.
5. Solve Schrodinger equation for simple potentials.

CO8 Nuclear Physics

1. After taking this course, students are able to determine the charge, mass of any nucleus by using various spectrographs.
2. They are able to understand the size of nucleus and all its properties.
3. This course has led the students to understand interaction of various types of radiation with matter which they observe in their daily life. It's easy for them now to relate the theory to practical.
4. Students now know various methods of accelerating various types of particles to perform scattering experiments.
5. Students are able to understand the detecting methods and instruments for different types of charged and neutral particles.

CO9 Atomic Physics

1. Describe theories explaining the structure of atoms and the origin of the observed spectra.
2. List different types of atomic spectra.
3. Explain different Laser used and make a comparison between them.

CO10 Electricity & Electronics

1. Manipulate voltages, currents and resistances in electronic circuits.
2. Demonstrate familiarity with basic electronic components and use them to design simple electronic circuits.
3. See how signals can be represented in the time and frequency domains for Fourier analysis.

4. Basics of electric and electronic circuit theory.
5. Basics of electric power systems.

(5) SUBJECT: MATHEMATICS

Vision: “*Mathematics is the life of science*”

The department of Mathematics makes a great effort to prepare students who would be leader in their classrooms, effective practitioners in their particular field and lifelong learners.

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

CO1 Statics, Dynamics and Hydrodynamics:

- a. Define Resultant component of a force, coplanar forces, like and unlike parallel forces, moment of a force and couple, equation to the line of action of resultant.
- b. Define catenary and obtain the equation to the common catenary, find the tension at any point and discuss the geometrical properties of a catenary, Define virtual work and stable and unstable equilibrium.
- c. Find the law of force if the orbit is given and vice versa.
- d. Define simple Harmonic motion and find its Geometrical representation, Define Constrained motion, kinetics and Kinematics.
- e. Moment of Inertia, Centre of Inertia, compound pendulum axis of rotation, principal axis.
- f. Lagrangian and eulerian approaches, equation of continuity in different coordinate system. Euler equation of motion, steady motion, Bernoulli’s equation impulsive motion.
- g. Motion in two dimension complex potential doublets, image system of a simple source with respect to a plane, a circle and a sphere, image system of doublets with respect to a plane, a circle and a sphere, circle theorem.

CO 2 Linear Algebra:

- a. Define vector space, quotient space, direct sum, linear span and linear independence, basis and inner product.
- b. Discuss the Linear Transformation, Rank and Nullity.
- c. Find the characteristic equation, Eigen values and Eigen vector of a matrix.
- d. Prove Cayley-Hamilton Theorem, Schwartz Inequality, Gram Schmidt Orthogonalisation processes.
- e. Solve the system of simultaneous Linear equation.

CO 3 Ordinary Differential Equation:

- a. Extract the solution of differential equations of the first order and of the first degree by variable separable, Homogeneous and Non Homogeneous methods.
- b. Find a solution of differential equation of the first order and of a degree higher than the first by using methods of solvable for p , x and y .

- c. Compute all the solutions of second and higher order linear differential equation with constant coefficient, Linear equation with variable coefficient.

CO 4 Analytical Geometry 3D and vector calculus:

- a. Describe the various forms of a equation of a plane, straight line, sphere, cone and cylinder, central conicoid, generating lines and paraboloid.
- b. Compute the angle between a line and a plane, length of perpendicular from a point to a line.
- c. Calculate the shortest distance between two skew lines.
- d. Find and interpret the gradient curl, divergence for a function at a given point.
- e. Understand the conic section.

CO 5 Complex Analysis:

- a. Compute sums, Products, quotient Conjugate, modulus and argument of complex numbers.
- b. Write equation of straight line, circle in complex form.
- c. Understand the significance of differentiability for complex functions and be familiar with the Cauchy-Riemann equations.
- d. Classify singularity and poles.

CO 6 Elementary analysis, analysis and Advanced Analysis:

- a. Define Countable, Uncountable sets.
- b. Define and recognize the concept of metric spaces, Open sets, closed sets, limit point and interior point.
- c. Define sequence and different type of sequences as Convergent, Divergent, Oscillatory, Bounded, Monotonic and Cauchy.
- d. Explain infinite series and its convergence by definition, comparison test, Cauchy condensation test and ratio tests.
- e. Find nature of alternating series by Leibnitz test, Dirichlet and Abel's test, Cauchy product of series.
- f. Convergence of Improper Integrals of Kind first and second.
- g. Limit and Continuity of function, algebra of limits and continuity, Boundedness and Intermediate Value Theorem.
- h. Differentiability of function of single Variable, Chain rule, Successive differentiation, Expansion of Function, Minima and maxima and limit evaluation by L-Hospital Rule of Indeterminate forms.
- i. Expansion by Taylor formula, minima and maxima, Inverse and implicit Function Theorem.
- j. Uniform Convergence of Sequence and Series of Function and power series.

CO 7 Numerical analysis:

- a. Find solution and root of algebraic and transcendental equation.

- b. Interpolate value problems based on Newton forward, Newton backward, Lagrange's Newton divided difference, Gauss's, Stirling Bessels.
- c. Find derivative and derivatives of functions, using tabular form set of points and minima and maxima of function at any point between tabular set.
- d. Derive Trapezoidal rule, Simpson's 1/3 and 3/8 rule to find numerical value of definite integral.
- e. Find solutions of first and second order differential equations by Euler's method, Improved Euler's method, Taylor series method and Runge-Kutta method.
- f. Find numerically largest and smallest Eigen value with corresponding Eigenvector.

CO8 Abstract Algebra:

- a. This course introduces the basic concepts of modern algebra such as a group and rings.
- b. Topics to be covered include Group theory-permutation groups, abstract groups, subgroup, cyclic groups, Homomorphism, Group action, Sylow's Theory.
- c. Ring Theory-Rings and Field, Polynomial rings, Factor rings, Homomorphism.

COURSE OUTCOMES FOR B.Com.(Three Years Degree Course)

➤ B.COM PART I

After completing B.Com, Students will be able to

Paper 101 Accounting

- Understand the concept of Accounting Principles and Indian Accounting Standards.
- Learn the meaning of government accounting and Lease accounting.
- Learn how to maintain royalty accounts, Accounts of Instalment Retailing, Branch accounting and accounting of Insurance claim.
- Understand the important concepts of corporate accounting viz. Amalgamation of companies, Accounts of holding companies and liquidation of company.
- Perform accounting related to amalgamation of companies, Holding companies and liquidation of company.

Paper 102 Business Law

- Students will be able to demonstrate an understanding of the Legal Environment of Business.
- Students will be able to apply basic knowledge to business transactions.
- Students will be able to communicate effectively using standard business and legal terminology.

Paper 103 Business Economics

Upon the completion of the paper, the students are expected to be able to acquire a good understanding of:

- The concept of business economics and its role in business decision making.
- Law of demand, elasticity of demand and their applicability in business operations.
- The concept of various types of costs.
- The various factors of production and suitable theories related to them.
- Analyze operations of markets under varying competitive conditions.

Paper 104 Business Communication

Upon the completion of the paper, the students are expected to be able to acquire a good understanding of:

- Effective business writing.
- Effective business communications.
- Developing and delivering effective presentations.
- Effective interpersonal communications.
- Skills that maximize team effectiveness.
- The usefulness of visual aids and identifying common presentation tools.
- Overcome the problem of public speaking.
- Facilitate intercultural communication.

- The shift from paper to digital communication.

Paper 105 Money, Banking and Foreign Exchange

After studying this paper, students will be able to understand:

- Various aspects of money such as its functions, demand, supply, value.
- Composition and working of money market.
- Various aspects of banking such as its functions, significance, types, operation.
- Concept of digital banking.
- Theories of foreign exchange.
- Working of IMF.

Paper 106 Business Organization and Management

On successful completion of the course students will be able in:

- Understanding of the main working aspects of organisations, not only from an economic point of view but also considering organisations as part of society.
- Analysis of the emerging opportunities in business.
- Knowledge of comprehensive major theories of management.
- Interpreting the meaning of the social responsibility and business ethics.

➤ B.COM PART II

Paper VII

Cost Accounting

On successful completion of the course students will be able:

- To understand the basic concepts and processes used to determine product costs.
- To be able to interpret cost accounting statements.
- To be able to analyze and evaluate information for cost ascertainment, planning, control and decision making.
- To be able to solve simple cases.

Paper VIII Auditing

After studying this paper, students will be able to:

- Understand the process of Financial Audit.
- Comprehend the importance of Internal Check, Vouching, Verification and valuation.
- Understand the provisions of companies Act regarding Audit.
- Understand the special points to be considered at the time of audit of statutory corporations, local bodies banking and insurance companies.

Paper IX Business Statistics

On successful completion of this subject, student should be able to:

- Explain basic statistical concepts such as statistical collection, species characteristics,

statistical series, tabular and graphical representation of data, measures of central tendency, dispersion and asymmetry, correlation and regression analysis, time series analysis.

- Independently calculate basic statistical parameters (mean, measures of dispersion, correlation coefficient, indexes).
- Based on the acquired knowledge to interpret the meaning of the calculated statistical indicators.
- Choose a statistical method for solving practical problems.

Paper X Business Finance

- Learn concepts like Finance, Financial management, Time value of money, Leverage.
- Understand the various sources of procurement of funds for different organization.
- Understand the application of different methods of procurement and utilization of funds.

Paper XI Business Environment

After studying this paper, students will be able to understand:

- The concept of business environment and eco-environment.
- Role of the Government in economy-business, industry, agriculture and services.
- Social environment.
- Legal environment.

Paper XII Business Communication and Computers

Upon the completion of the paper, the students are expected to be able to acquire a good understanding of:

- The importance of ethical communication.
- Effective business writing.
- Effective business communications.
- Developing and delivering effective presentations.
- Effective interpersonal communications.
- Skills that maximize team effectiveness.
- Good time management.
- Awareness of concept of computers.

➤ B.COM PART III

Paper XIII Income Tax and Accounts

- Students will be able to develop approach to have proper interpretation of the statute.
- Students will be able to analyze simple fact situations and recognize income tax ramifications.
- Students will be able to demonstrate progressive learning of various tax issues and tax forms related mainly to individuals, HUF, Firm and others.
- Students will be able to communicate effectively using standard business and legal terminology.

Paper XIV Corporate Accounting

The objective of this paper is to:

- Give knowledge about preparation of accounts of companies as per latest companies Act.
- Understand accounting requirement of banking and insurance companies.

Paper XV Human Resource Management

After studying this paper, students will be able to understand:

- Evolution, concept, object and function of HRM.
- Human resource planning, recruitment and selection.
- Management of industrial relations.
- Concept, causes and prevention of industrial disputes.
- Leadership style, qualities of an effective leader.
- Human resource audit and research.

Paper XVI Marketing Management

- Understand the concept of Market, Marketing and Marketing Management.
- Know the process of Product planning, development and its pricing.
- Know the terms related to channels of distribution and promotional tools.
- Learn the concepts of marketing research and rural marketing.

Paper XVII-A Principles & Practice of Life and Property Insurance

- Understand the nature, scope and principles of Insurance.
- Know the importance of taking Insurance policy in life.
- Know about the various types of Insurance available at present.
- Locate the terms like premium, surrender value, re-insurance, double insurance.
- Learn about the characteristics of life and property insurance.

Paper XVII- B Insurance and Risk Management

After studying this paper, students will be able to understand:

- Present insurance law in India.
- The insurance act 1938.
- The LIC act 1956.
- The IRDA act 1999.
- Insurance salesmanship, insurance agent, branch manager and development officer.
- Meaning, nature and sources of risk management, types, objective and process of risk management.
- Importance of risk management in insurance.

COURSE OUTCOMES FOR B.Ed(Two Year Programme)

Vision Statement of Faculty

“Good education depends upon good teachers and goodness of teachers depends upon the quality of teacher education.”

At the end of the course students will be able to:

TE 601: Philosophy and Sociology of Education

- Explain the nature, scope and need of philosophy of education get knowledge about the thinker.
- Identify and comprehend the nature, scope and the need of philosophical education.
- Recognize the characteristics and Ideologies of Indian Education thinkers.
- Explain the importance and unifying the role of education and social reconstruction.
- Comprehend and understand the methods and techniques to be utilized by educational system to attain its goals.
- Explain the importance and unifying the role of education and social reconstruction.

TE 602: Development of Learner

- Bring out the importance of various phases of growth and developments and factors that influence how a child grows physically, mentally and emotionally.
- Familiarise the concept of mental health and adjustment.
- To help students gain an insight and pragmatic understanding about the children with special need.
- Meet the needs of intelligence and personality for the overall development of the child.

TE 603: School Curriculum Development

- Feel the need of education in present scenario.
- To help in the solution of learning experience.
- Enable the students in selecting and organizing the content material learning experiences.
- Familiarizes with scheme of education for **ccc** of teaching learning outcomes.

TE 604: Principles and Methods of Teaching

- Understand the vital role of teaching and communication process.
- Introduction of major skills and the benefits of it in teaching learning process.
- Reflect on the different kinds of teaching.
- Promote and active and participation in various curricular activities to enhance knowledge.

TE 631 : Personality Development and Yoga

- Students will have the command in all major teaching subject in class IX & X.

TE 662-672: Pedagogy of School Subjects

- Describe the pedagogic needs of a subject within the stream chosen under pedagogy at all stages of secondary education.

- Develop an understanding of the pedagogic challenges posed by the subject comprising of a board disciplinary stream.

TE 637: Language across the curriculum

- Develop the ability to read relevant literature critically and understand the theoretical basis of different ideas.
- Build skills related to the chosen area.

TE 605: Assessment of Learning

- Understand assessment evaluation and measurement.
- Explain various process characteristics of good achievement test.
- Understand how various measuring tools can be used for assessment and evaluation.
- Develop conceptual skills.

TE 606: Education Technology and ICT

- Understand the concept, nature, scope types and importance of educational technology.
- Know the uses and advantages of mass media.
- Understand the use of ICT in teaching learning process (built skill and abilities of communication, reflection, art aesthetics, theatrical expression and ICT).
- Become aware of the fundamentals of various hardware and web technologies in educational context.

TE 634-636: School Internship

- Experience and understand the real world of teaching with the help of systematic superior support and feedback.
- Develop a board repertoire of perspectives, professional capacities, teacher dispositions, sensibilities and skills.

TE 604: Psychology of Learning

- Understand different learning theories and other aspects of learning theories and other aspects of learning to facilitate different learners in school.
- The develop and ability to differentiate motivation, memory and creativity.
- Understand the guidance and counselling.
- Develop ability to leadership.

TE 608: Education in Contemporary Indian Society

- Develop the potential for perspective building located in the Indian Socio-cultural context.
- Develop an understanding of the concept of Indian Education.
- Engage with the discourses on contemporary Indian society of education.
- Acquire conceptual tools of critical analysis and the experience of engaging with diverse communities.
- Understand the responsibilities and strength of various administrative bodies/commissions established for education in secondary education.

TE 609: School Management

- Know theoretical concepts and best practices relating to educational administration.
- Know the different types of school building.
- Perform useful functions within the institution aware of such problems and issues of students.
- Contribute in those activities which do not deal directly with students, the relationships of these activities to teaching and learning are not always apparent.

TE 610: Action Research

- Know the significance of research methodology in education.
- Employ innovative practices in classroom.
- Enhance the ability and acquire skills to construct data gathering instruments appropriate to the research design.

TE 637: Language across the Curriculum

- Experience and understand the real world of teaching with the help of systematic superiorly support and feedback.
- Develop a board repertoire of perspectives, professional capacities, teacher dispositions, sensibilities and skills.

COURSE OUTCOMES FOR DIPLOMA IN BIOTECHNOLOGY(ONE YEAR PROGRAM)

➤ FIRST SEMESTER

PAPER-1: INTRODUCTION TO BIOCHEMISTRY, BIOTECHNOLOGY AND COMPUTATIONAL BIOLOGY

- To aware what is Biotechnology? Its history in term of modern biotechnology and ancient Biotechnology. They also learn scope and its hazards.
- To learn the enzyme and its purification techniques, and immobilization techniques.
- To understand the sequencing of DNA and Protein, their biochemical activates.
- To aware about Bioinformatics. What is importance and use of Bioinformatics in different field of Science and Technology.
- To understand the different biological databases used in Bioinformatics.

PAPER 2: APPLIED MICROBIOLOGY

- To understand what is microbes and its diversity in different habitat.
- To learn the different microbes used in household and industrial purpose.
- Learn the techniques of Sterilization and Disinfection in the field of Microbiology.
- Study about different Medias for different microorganisms and its preparation in laboratory.
- Learnt different techniques used for culturing of microorganisms, viz. pour plate techniques, streak plate techniques, spread plate techniques. Serial dilution techniques.
- To learn the steps in microbial growth and different chemical and environmental factors responsible for growth of different microorganisms.
- Understand that after growth of microorganism how they can be identified that this particular microorganism belongs from which group and what is their morphological character.
- To learn the different microorganisms used in food microbiology which is important in industrial point of view.
- To learn how disease of pathogen are transferred to human and animals.
- Study different bioremediation techniques in environmental microbiology.

PAPER 3 :INTRODUCTION TO INSTRUMENTATION & TECHNIQUES

- To learn the Colorimetry techniques, what is it and its use in the field of Biochemistry.
- To study Spectrophotometer, its principal, methodology that how they are operated for quantification of biological liquid as well as Photosynthetic pigments and genetic samples materials.
- Understand the different Chromatographic techniques for purification of biological samples either it are in liquid form or gaseous form.
- Learn the Electrophoresis techniques for separation of either DNA and RNA and protein sample form mixture on the basis of size and charge of biomolecules.
- Understand the different Immunological techniques used in Immunology such as ELISA, RIA, Radial Immunodiffusion techniques, Radial immunofluorescence techniques, Immunocytochemistry techniques.

➤ SECOND SEMESTER

PAPER 1: MOLECULAR BIOLOGY AND GENETIC ENGINEERING

- Understand the DNA damage and repair.
- Learn the techniques of isolation of DNA from plant sample, Bacteriophage and Plasmid DNA.
- Understand different cloning vectors, viz. Cosmid, Phagemids, YAC, BAC.
- Learn the techniques for introduction of plasmid and bacteriophage DNA into *E. coli*.
- Understand different hybridization techniques hybridization, western hybridization.
- Learn PCR techniques and its application.
- Understand DNA fingerprinting and its application.

such as southern hybridization, Northern

PAPER 2: IMMUNOLOGY & IMMUNOTECHNOLOGY

- Introduces Innate and acquired immunity.
- Understand the nature of Antigens and Antibody, structure of antibodies and antigen antibody reactions.
- Study of cell mediated cytotoxicity. Mechanism of T and Natural killer cells. Macrophage mediated cell cytotoxicity. Major Histocompatibility Complex.
- Understand the Vaccines and their types. How it is developed and Immunization.
- Understand the Monoclonal antibody production technology.
- Learn about different immunological techniques such as Agglutination, Precipitation, application of ELISA and RIA.

PAPER 3: PLANT & ANIMAL CELL CULTURE TECHNOLOGY

- Understand the basic concept of Animal tissue culture.
- Learn the techniques for media preparation of Animal cell and tissue culture.
- Understand the aseptic techniques for propagation and maintenance of animal's cell.
- Understand the basic concept of Plant tissue culture and media preparation for Plant tissue culture.
- Study the aseptic culture techniques for plant. Propagation and maintenance of Plant cell.
- Understand and learn the following techniques: Embryo culture, endosperm culture, anther culture, pollen culture and Protoplast culture.

COURSE OUTCOMES FOR M.A.(ENGLISH)(TWO YEARS PROGRAM)

➤ Ist and IInd SEMESTER

PAPER I (LITERARY CRITICISM)

- An interdisciplinary approach is fostered.
- To give an insight into the critical works.
- It helps them trace the origin of critical philosophical thought.

PAPER II (CORE BRITISH LITERATURE)

- To give them a detailed understanding of the British poetry, plays, and novels in perspective of British history.

PAPER III (CORE AMERICAN LITERATURE)

- The students get an insight into the socio-political background of American culture through the works of both traditional and contemporary American writers.

PAPER IV (CORE INDIAN LITERATURE)

- To give a broad overview of the literature written by Indian English writers.

PAPER V (NEW LITERATURE)

- To give a perspective of the emerging literatures of the commonwealth countries.

➤ IIIrd and IVth SEMESTER

PAPER I (BRITISH LITERATURE)

- The students get a detailed overview of Modern and Victorian British Literature.
- The students can connect the texts with the dominant theories of the period that help them in dissertation writing.

PAPER II (FICTION IN INDIA)

- The course enables the students to get a comprehensive outlook the variety of the Indian writings in English.
- Indian cultures and values are exhibited in these writings.

PAPER III (GENDER AND LITERATURE)

- To establish a connection between the dominant gender theorists and the texts prescribed.
- It also enables the students to develop a research based understanding of the gender theories that would help them in their dissertation.

PAPER IV (DISSERTATION)

- Enables the students to develop acumen of research that would help them in further research work.
- The students learn to process and control their thoughts, and delineate them in an orderly fashion.

PAPER V (VIVA VOCE)

- It helps to test the understanding of the students that they have gained with respect to their research works.
- To analyse if they can connect and vividly express their ideas that they have gained during the research process.

COURSE OUTCOMES FOR M.A. (HINDI)(TWO YEARS PROGRAM)

हिन्दी विषय के अध्ययन के उपरान्त छात्राओं को निम्न परिणाम प्राप्त हो सकते हैं -

1) HIN 501 : प्राचीन एवं निर्गुण काव्य

- भारतीय हिन्दी साहित्य की प्राचीन परम्परा से अवगत कराना
- इसके माध्यम से तत्कालीन सामाजिक , आर्थिक , राजनीतिक गतिविधियों को जाना जा सकेगा । नरपति नाल्ह तथा विद्यापति का काव्य भारतीय सामाजिक जीवन को समझने में तथा भाप्रागत विकास को समझने में सहायक है ।
- भारतीय सामाजिक क्रांति के रूप में कबीर की आध्यात्मिक एवं क्रांतिकारी काव्य शैली के द्वारा सामाजिक बदलाव तथा धार्मिक क्षेत्र में हो रहे परिवर्तनों को स्पष्ट कर सकने में सक्षम हो सकेंगी।
- मध्यकालीन काव्य भारतीय जन - जागरण के रूप में देखा जाता है।

2) HIN 502 & हिन्दी गद्य की विभिन्न विधाएं

- भारतीय हिन्दी साहित्य के विकास में गद्य विधाओं के योगदान को बताया जायेगा ।
- भारतीय स्वतन्त्रता आन्दोलन के दौर में भारतेन्दु युगीन पुनर्जागरण कालीन साहित्यिक प्रवृत्तियों से छात्राओं को अवगत कराया जा सकेगा ।
- भारतीय साहित्य पर पाश्चात्य साहित्य के प्रभाव को समझने में आसानी होगी ।
- प्रेमचन्द युगीन कृषक जीवन एवं उनके संघर्षों को समझने तथा उसकी सामाजिक उपादेयता को जाना जा सकेगा ।

3) HIN 03 भारतीय काव्यधास्त्र एवं हिन्दी आलोचना

- हिन्दी साहित्य के विकास में भारतीय काव्यधास्त्रीय परम्पराओं से छात्राएरअवगत हो सकेंगी ।
- रस, छंद , अलंकार , रीति , व रक्ति, ध्वनि का हिन्दी काव्य परम्परा के साथ सम्बन्ध को रेखांकित किया जा सकेगा ।
- भारतीय संस्कृत काव्यधास्त्रीय परम्परा के अनुसार नाटक आदि की रचना में आवश्यक तत्वों के सन्दर्भ में जानकारी प्राप्त हो सकेगी ।

4) HIN 504 हिन्दी साहित्य का इतिहास आरम्भ से रीतिकाल

- साहित्य के इतिहास की लेखन परम्परा से छात्राएरअवगत हो सकेगी ।
- साहित्य के इतिहास लेखन में ऐतिहासिक घटनाओं एवं सत्ताओं के परिवर्तन एवं तत्कालीन प्राप्त अभिलेखों को इतिहास से जोड़ने का प्रयास किया जाएगा ।
- आदिकालीन साहित्य में प्राप्त घटनात्मक विवरण एवं साहित्य से उनके सम्बन्धों को जोड़ना ।
- मध्यकालीन भक्ति काव्यधारा में सामाजिक तत्कालीन सामाजिक जीवन की बाधाओं एवं आकांक्षाओं का विवरण प्राप्त किया जा सकता है।
- भारतीय सामाजिक चिंतन धारा में कबीर , सूर , तुलसी , जायसी, मीरा के काव्य को रखते हुए भारतीय सामाजिक समस्याओं से अवगत कराया जा सकेगा ।
- रीतिकालीन काव्य में प्राप्त सामंती विचारधारा के तत्वों एवं कविता में व्यक्त कविगत संघर्षों की जानकारी प्राप्त हो सकेगी ।

5) HIN 505 सगुण भक्ति काव्य एवं रीतिकाव्य

- भक्ति साहित्य काव्यधारा में सगुणोपासना का महत्व तथा तत्कालीन भारतीय जनमानस को समझा जा सकेगा ।

- सूर का काव्य भारतीय कृषक एवं गोचारण जीवन के काव्य के रूप में अभिव्यक्त हुआ है। अतः कृषक जीवन में गोधन के महत्व को समझ सकेंगे।
- सूर का काव्य न सिर्फ गोपियों एवं कृष्ण के प्रेम सम्बन्धों की अभिव्यक्ति करता है जीवन की स्वच्छता की आकांक्षा भी उसका लक्ष्य है।
- मीराबाईमध्यकालीन नारी चेतना को लेकर आगे बढ़ने वाली पहली भारतीय नारी के हैं।
- नारी जीवन के संघर्षों एवं विभिन्न कुप्रथाओं के परिणाम को मीरा का काव्य बताने में सक्षम है। अतः कविता के स्तर पर मीरा का काव्य नारी जागरण काव्य कहा जा सकता है।

6) HIN 506 नाटक रंगमंच एवं अन्य गद्य विधाएं :

- भारतीय साहित्य में नाट्य विधा के विकास एवं उसकी विभिन्न शैलियों से अवगत कराया जायेगा।
- हिन्दी साहित्य के विकास में आधुनिक कालीन नाटकों की महत्ता को जान सकेंगे।
- भारतीय स्वतन्त्रता आन्दोलन के दौर में प्रसाद के नाटकों के योगदान को समझ सकेंगे।
- नाटक एवं रंगमंच अन्तर तथा उसके लेखन एवं अभिनय के महत्व को समझा जा सकेगा। सामाजिक, मनोवैज्ञानिक एवं ऐतिहासिक नाटकों में व्यक्त व्यक्ति चेतना को समय सापेक्ष समझने में हो सकती है।
- मोहन राकेश, धर्मवीर भारती, रामकुमार वर्मा, भुवनेश्वर, लक्ष्मीकांत वर्मा के नाटकों में व्यक्त सामाजिक जीवन भारतीय जनमानस एवं उसके छन्दों के प्रतीक हो सकते हैं।

7) HIN 507 पाश्चात्य समीक्षा सिद्धान्त

- भूमण्डलीकरण के दौर में आज साहित्य की भी अन्य देशों के साहित्य के साथ मिला कर देखने की जरूरत है।
- यूनानी काव्यधास्त में प्लेटों एवं अरस्तु के विचारों से छात्राओं को अवगत कराया जा सकेगा।
- अरस्तु के काव्य सिद्धान्तों में अनुकरण विरेचन एवं टैजडी के स्वरूप को छात्राएँ जान सकेंगी।
- पाश्चात्य साहित्य चिंतन में विभिन्न युगों के अन्तर्गत चल रहे साहित्यिक परिवर्तनों को समझा जा सकेगा। पुनर्जागरण रिनैसा के दौर पाश्चात्य साहित्य के प्रभाव को समझ सकेंगे।
- पाश्चात्य साहित्य में स्वच्छंदतावादी युग तथा कॉलरिज एवं बर्ड्सवर्थ के वैचारिक, विभिन्नतओं से अवगत कराया जा सकेगा।
- आधुनिक युग में आलोचना की विभिन्न स्थितियों तथा विचारधाराओं के संघर्ष को समझ सकेंगे।

8) HIN 508 हिन्दी साहित्य का इतिहास आधुनिक कालक्रम

- छात्राएँ हिन्दी साहित्य की अवधारणा का विकास आधुनिकता का अर्थ, मध्ययुगीनता एवं आधुनिकता में अन्तर को जान सकेंगी।
- भारतीय स्वतन्त्रता आन्दोलन तथा हिन्दी नवजागरण का उस पर प्रभाव को जानने में मदद मिल सकती है।
- अंग्रेजों की भारत विरोधी नीतियों का विरोध आधुनिक साहित्य की सबसे महत्वपूर्ण विधेषता है।
- भारतेन्दु युग इन्हीं अर्थों में पुनर्जागरण काल के रूप में सामाजिक क्रांतियों एवं साहित्यिक क्रांति का युग रहा यह विभिन्न गद्य विद्याओं के उदय का काल भी रहा।
- हिन्दी पत्रकारिता के विकास को जान सकने में सक्षम हो सकेंगे।
- छायावाद प्रगतिवाद एवं प्रयोगवाद के विकास को सक्षम हो सकेंगे।
- सन् 1936 में ' भारतीय प्रगतिशील लेखक संघ की स्थापना तथा साहित्य के स्वरूप में हो रहे परिवर्तन को समझा जा सकेगा।

9) HIN 601 आधुनिक काव्य द्विवेदी युग से छायावादतबक

- द्विवेदी युगीन साहित्य में भाप्रागत परिवर्तन तथा सरस्वती पत्रिका के योगदान को जान सकेंगे।
- राम काव्य परम्परा तथा राष्ट्रीय चेतना एवं युगीन सन्दर्भों में ' साकेत महाकाव्य के महत्व को समझ सकेंगे

- राम काव्य परम्परा तथा राष्ट्रीय चेतना एवं युगीन सन्दर्भों में साकेत महाकाव्य के महत्व को समझ सकेंगे ।
- प्रसाद , पंत , निराला के साहित्य को तत्कालीन स्वतन्त्रता आंदोलन की अभिव्यक्ति के रूप में देख सकेंगे ।

10) HIN 651 : कबीर विधेप्र प्रश्न पत्रक

- मध्यकालीन भक्ति आन्दोलन में कबीर के महत्व को जान सकेंगे ।
- कबीर की रचना परम्परा तथा तत्कालीन सामाजिक , सांस्कृतिक एवं राजनीतिक परिस्थितियों की अभिव्यक्ति को समझा जा सकेगा ।
- क्रांति चेतना के स्वर , मध्यकालीन समाज में व्याप्त कुप्रथाओं का बहिष्कार कबीर साहित्य का प्रमुख प्रतिपाद्य रहा , जिससे आज का जन - मानस आज भी प्रेरण ग्रहण कर सकता है ।

11) HIN659 प्रयोजनमूलक हिन्दी विशेष प्रश्न पत्रक

- प्रयोजनमूलक हिन्दी से अभिप्राय तथा उसकी परिव्यक्ति को बताया जा सकेगा ।
- भारतीय राष्ट्रभाषा तथा राजभाषा के विकास में प्रयोजनमूलक हिन्दी का विशेष योगदान रहा है ।
- टिप्पण, संक्षेपण प्रतिवेदनत्रासकीय तथा अर्द्धधासकीय पत्र के प्रारूप तथा उदाहरण से अवगत कराया जायेगा ।
- प्रयोजनमूलक हिन्दी भारत सरकार के कार्यालयों में प्रयुक्त हो रहे विभिन्न प्रकार के आवेदन के प्रारूप को समझने में मदद करेगा जिससे रोजगार की दिशा में सफलता मिल सकती है ।

12) HIN602 हिन्दी भाषा विज्ञान इतिहास और सिद्धान्त

- किसी भी संस्कृति के विकास में भाषा के महत्व को समझा जा सकेगा ।
- प्राचीन , मध्यकालीन एवं आधुनिक भारतीय आर्यभाषा के विकास को समझा जा सकेगा ।
- पालि, प्राकृत , अपभ्रंश तथा अवहट्ट में हो रहे मिक बदलाव के माध्यम से हिन्दी भाषा के मानक स्वरूप को समझने में आसानी हो सकती है ।
- देवनागरी लिपि के ऐतिहासिक विकास को जाना जा सकेगा ।
- राजभाषा, राष्ट्रभाषा एवं सम्पर्क भाषा के रूप में हिन्दी के विकास को समझ सकेंगे ।

13) HIN603 छायावादोत्तर काव्य प्रगतिवाद से समकालीन तक

- इस प्रश्नपत्र के अन्तर्गत स्वतंत्रता प्राप्ति के पूर्व एवं स्वतन्त्रता प्राप्ति के पश्चात के साहित्य का अध्ययन किया जायेगा ।
- 1936 के बाद के साहित्य में कार्लमार्क्स के विचारधारात्मक आन्दोलनों की छाया स्पष्ट रूप में देखी जा सकेगी ।
- कविता में भाषा एवं भागवत परिवर्तनों को अज्ञेय सम्पादित तारसप्तक के कवियों की कविताओं में देख सकेंगे ।
- भारतीय हिन्दी साहित्य में आलोचना के विकास को समझ सकेंगे ।
- आलोचना पर विभिन्न विचारधाराओं के प्रभाव तथा उसके प्रभाव से विकसित आलोचनाओं को जान सकेंगे ।
- मार्क्सवादी या प्रगतिवादी विचारधारा के तत्वों को जान सकेंगे ।
- प्रगतिशीलता एवं प्रगतिवादिता के अन्तर्सम्बन्धों को जान सकेंगे ।
- रामविलासनामार्मा, नामवर सिंह , विश्वनाथ त्रिपाठी , शिव कुमार मिश्र , मैनेजर पाण्डेय आदि के मार्क्सवादी दृष्टिकोण से किए गए आलोचनात्मक कार्यों का अध्ययन कर सकेंगे ।
- नयी कविता एवं समकालीन कविता के दौर में अज्ञेय , रामस्वरूपचतुर्वेदी, धर्मवीर भारती , साही, लक्ष्मीकांत वर्मा तथा मलयज आदि के साहित्य से अवगत हो सकेंगे ।

14) HIN606 : भारतीय साहित्य

- भारतीय साहित्य का स्वरूप तथा भारतीय साहित्य के अध्ययन की समस्याओं को जान सकेंगे ।
- भारतीय साहित्य के अन्तर्गत बिग्ला, असमी, उड़िया , पंजाबी , मराठी , गुजराती , तमिल , तेलगू, मलयालयक़ आदि का संक्षिप्त परिचय कराया जायेगा , जिससे छात्रों का भारतवर्ष की अन्य साहित्यिक भाषाओं से परिचय होगा
- प्रसिद्ध क्रांतिकारी पंजाबी कवि ' पाध' की कविताओं के अनुवाद रूप , कन्नड़ उपन्यास - संस्कार यूआरअनन्तमूर्तिक का अनुवाद रूप उर्दु कहानी आवारागर्द का अनुवाद रूप मराठी नाटक घासीराम कोतवाल का अनुवाद रूप हिन्दी में पढ़ाए जाने से छात्रों में हिन्दी अतिरिक्त अन्य भाषाओं को पढ़ने के प्रति रूचि को बढ़ाया जा सकेगा ।
- भारतीय साहित्य के विभिन्न भाषाओं के आपसी समक्ष तथा ज्ञान के परिणाम स्वरूप समाज व्याप्त भाषागत संघर्ष को कम करने सफलता मिल सकेगी ।

COURSE OUTCOMES FOR M.A.
(ANCIENT INDIAN HISTORY, CULTURE AND
ARCHAEOLOGY)(TWO YEARS PROGRAM)

Program Specific Outcomes

In an endeavor to further the holistic understanding of Ancient Indian Culture in all its parameters, this course provides a sound grounding in understanding the various vistas of our history and culture. It helps in promoting the conservation of our heritage and also helps in heritage management. It opens the door to opportunities in the streams of Archaeology, Museology, Conservation, Social Science and Humanities.

PSO1: Understand background of our religion, customs institutions, administration and so on. **PSO2:** Understand the ancient social, political, religious and economic conditions of the people. **PSO3:** Analyze relationship between the past and the present is lively presented in the history. **PSO4:** Develop practical skills helpful in the study and understanding of historical events. They:

- (a) Draw historical maps, charts, diagramsetc.
- (b) Prepare historical models, toolsetc.

PSO5: Develop interests in the study of history and activates relating to history. They:

- (a) Collect ancient arts, old coins and other historicalmaterials.
- (b) Visit places of historical interests, archaeological sites, museums andarchives.
- (c) Read historical documents, maps, chartsetc.
- (d) Play active roles in activities of the historical organizations andassociations.
- (e) Write articles on historicaltopics.

PSO6: The study of history helps to impart moral education.

PSO7: History installs the feeling of patriotism in the hearts of the pupils.

PSO8: Produce written work that incorporates consideration of the relevant historiography along with the theory that informs it.

PSO9: Construct original historical arguments based on primary source material research.

PSO10: To develop a strong corps of research scholars who are equipped with the requisite skill and knowledge base about recent advances in the field of Archeology, Cultural History, World Civilization, Religion, Philosophy, Performing Arts, Museology, Conservation etc.

COURSE OUTCOMES FOR M.A. (EDUCATION)(TWO YEARS PROGRAM)

Vision Statement of the department: *'Teaching is not a job. Teaching is a mission'*

The department of Education strives to prepare students who would be leaders in their classrooms, effective practitioners in their particular field, and lifelong learners.

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

1. EDU 501: Philosophical Foundation of Education

- Receive a set of values and beliefs about education that guide the professional behavior of a teacher.
- Lightened to discover or construct educational concepts with philosophical approach.
- Prepare themselves to face challenges in the classrooms.
- Understand nature of learner, subject matter and teaching methods with philosophical approach.
- Interpret and solve educational problems with philosophical perspective.
- Interpret human behavior in various situations related to field of education.

2. EDU 502: Sociological Foundation of Education

- Understand method and techniques to be utilized by educational system to attain its goals.
- Enjoy social values attained through education.
- Preserve the social and cultural heritage.
- Understand the sociological perspectives of education which include learners, teachers and schools.
- Understand the importance of with the learners in a classroom situation.
- Understand the school community in its entirety as part of the larger society.
- Understand social educational problems.
- Understand the social purpose of education from the societal perspective.
- Become a trained agent in the society.
- Equip with emerging social educational issues.

3. EDU 503: Development of Learner

- Gain knowledge of developmental milestones.
- Understand the learning process.
- Learn relationship building skills.
- Get hand-on learning experience.
- Make the most appropriate decisions possible about expectations for students.
- Understand environmental factors that influence how a child grows physically, emotionally and mentally.
- Understand the individual differences.

4. EDU 504: Methods and procedures of research in education

- Know the significance of research methodology in education.
- Understand the types, tools and methods of research in education.
- Enhance the ability and acquire skills to construct data gathering instruments appropriate to research design.
- Gain experience in conducting literature search from various sources independently.

- Engage research on the various issues related to education.
 - Employ innovative practices in classrooms.
 - Appraise and discuss various features of Indian Education.
- 5. EDU 505: Philosophical foundation of Education-Indian**
- Learn educational implications of various schools of Indian philosophy.
 - Understand basic principles of an educational philosophical framework as posited by renowned Indian philosophers.
 - Envision that the role of education is to develop creativity, skills and make students self-reliant, conscious and situated in a local context.
 - Contribute in building the democratic fervor of the nation and strengthen its secular fabric, the achievement of which, we have pledged in the constitution.
- 6. EDU 506: Qualitative and Quantitative Analysis of Data**
- Overview of students' needs.
 - Make well-informed decisions.
 - Measure the effectiveness of strategies and interventions in the field of education.
 - Knowledge of where to spend time, effort and resources in order to maximize impact.
 - Provide accountability through evidence-based approaches.
- 7. EDU 507: Psychology of Learning**
- Making learning meaningful.
 - Understand different learning theories, learning styles and other aspects of learning to facilitate different learners in the classroom.
 - Understand the different teaching methods, principles and other teaching strategies to teach effectively.
 - Understand different assessment processes in different contexts of learning phases and aspects.
- 8. EDU 601: Comparative Education**
- Describe educational systems, processes, and end products as well as to assist in the development of educational institutions and practices.
 - Highlight the relationships between education and society and establish generalized statements about education that is valid in more than one country.
 - Contribute in administration and management in the field of education.
 - Locate our education more exactly in the present.
 - See more clearly what our educational future may be.
- 9. EDU 602: Educational measurement and evaluation**
- Understand assessment, evaluation and measurement.
 - Discuss the relevance of continuous and comprehensive evaluation which is a mandate under RTE, 2009.
 - Analyze the current evaluation practices on student learning.
 - Formulate indicators for assessment in their own subject areas.
 - Develop the design of different assessment instruments and a scoring rubric in their own subject areas.
- 10. EDU 603: Contemporary issues in education**
- Appraise and discuss various policy discourses on contemporary Indian society and education.

- Enumerate the salient features of our constitution and constitution measures highlighting education as means of social justice.
- Think about the issues and challenges faced due to socio-economic and cultural diversities in India.
- Know various national initiatives and schemes to support education for all.
- Understand the responsibilities and strength of various administrative bodies/commissions established for education in India.

11. EDU 604: Environmental Education

- Relate the concept of environment with development.
- Critically analyze the conflicts and inequalities that result from the complex interactions of social and environmental factors.
- Inquire into the role that teachers can play in dealing with curricular areas that focus on environment.
- Design teaching-learning programmes integrating the environment perspective.
- Critically analyze the school textbooks from an environmental perspective.

12. EDU: Educational Technology

- Understand the concept, nature, scope and importance of educational technology.
- Describe the various models of teaching and apply them in developing teaching aids.
- Implement various techniques in educational practice.
- Develop programmed instruction, multimedia presentations and communication plants for learners at different levels of school education.

13. EDU 606: Educational administration and management

- Know theoretical concepts and best practices relating to educational administration.
- Perform useful functions within the institution.
- Know and understand organizational behavior which is helpful to act more effectively.
- Foster teaching and learning and make a good relationship with their students and college.
- Aware of such problems and issues as decision-making, leadership and communication from the perspective of classroom teacher.
- Contribute in those activities which do not deal directly with students, the relationships of these activities to teaching and learning are now always apparent.

14. EDU 652: Inclusive Education

- Know the different perspectives in the area of education of children with disabilities.
- Identify the children with special needs.
- Deal with sensitivity and positive attitudes towards children with special needs.
- Understand the use of human and material resources in the classroom.
- Use specific strategies involving skills in teaching special needs children in inclusive classrooms.
- Use specific strategies involving skills in teaching special needs children in inclusive classrooms.
- Modify appropriate learner-friendly evaluation procedure.
- Incorporate innovative practices to represent to education of children with special needs.
- Critique policies and contribute to the formulation of policy.

COURSE OUTCOMES FOR M.A. (SOCIOLOGY)(TWO YEARS PROGRAM)

➤ Ist SEMESTER

Paper I: Basic Sociological Concept (Course code: SOC-501-C-01)

- This paper provides strong conceptual and understanding to the students.
- This paper prepares theoretical base for the student to discipline.
- Students get an introduction to basic social institution which help them to understand the society and social institution like family, marriage, and kinship.
- After reading various social principles and concepts in students, it develops a better understanding of understanding the social life and relationships of humans.
- Through this course, the student develops critical understanding to analyze the social relation and institutional changes.

Paper II: Emergence and Growth of Sociology (Course code: SOC-502)

- Grasp how Sociology uniquely contributes to an understanding of the social world and human experience.
- It broadens the horizon of knowledge about the pioneers of Sociology.
- Identify major theoretical orientations used in Sociology; compare and contrast the underlying assumptions of those orientations.
- Apply a sociological perspective and sociological concepts or principles to substantive areas addressed by the sociologists.
- It helps in developing rational and logical views on various sociological concepts.

Paper III: Techniques of Data Collection (Course Code: SOC-501-C-03)

- Basic understanding of Research.
- Understand the difference between qualitative and quantitative research.
- Analyse the different techniques used in social research.
- Understand the basic knowledge of computer through data analysis.

Paper IV: Indian Society: Continuities and changes (Course Code: SOC-501-C-04)

- This course sensitizes students and provides knowledge about the multi-faceted dimensions of Indian Society like religious, linguistic and cultural diversity.
- Students are also acquainted with the basic concept of tribe, village and city and get introduced interrelation between these three and enhance comparative knowledge about these communities.
- This course provides information about the traditional Indian institution like caste, family and marriage and also enriches the knowledge about the changes among these in modern setting.
- Through the blending of modernism with Indian traditions, students learn to keep pace with the change in society.

➤ IInd SEMESTER

Paper I: Modern Sociological Theories (Course Code: SOC-502-C-05)

- Understand the Macro-Micro integration of Indian Society.
- Understand the basic knowledge of modern society.
- Analyze the theory of modern society.
- Develop the comparative understanding of thinkers related to modern theories.

Paper II: Development of Sociology in India (Course Code: SOC-502-C-06)

- This course provides understanding of sociology with its background of emergence as a discipline in India.

- On the basis of previous paper Indian society continuities and changes, develop the thought among students how Indian sociologists contributed in Indian sociological knowledge and how they correlate sociological theories with Indian social structure.
- After reading various sociological perspectives like structural – functional, indological, ethnography, civilizational approaches, and student will be able to categorize and study Indian social structure and institution based on their function.
- Students develop an understanding of contemporary society by studying vivid social issues such as subaltern, environmental and feminist perspective; they are able to connect traditional society with modern society and are able to carry this discussion forward.

Paper III: Sociology of Development (Course Code: SOC-502-E-51)

- Introduce the Sociology of development.
- Understand the comparative thought of thinkers related to Development.
- Analyse the Development of Gender, marginalized group and peasant.
- Describe the contemporary concerns of development.

Paper IV: Political Sociology (Course Code: SOC-502-E-52)

- Provides knowledge of major theoretical approaches in political sociology.
- Provides a broad introduction to the rich research about civil society, citizens, culture and behavior, how these fields have developed over time and where they stand today.
- Acquire habits of socio-political information: finding, sorting and critically examining.
- Reflect on the utility of political sociology as a way to understand social problems.

➤ **IIIrd SEMESTER**

Paper I: Advance Social Theories (Course Code-SOC-503-C-07)

- Understand the basic knowledge of advance Social theories.
- Analyse the critical theories of advance social theories.
- Compare between the modern and post modern theories.
- Understand the feminist theory Indian Society.

Paper II: Sociology of exclusion and inclusive politics in India (Course Code- SOC-503-E-54)

- Students are aware of various socio-economic and political reasons for marginalized communities and excluded groups falling apart from the mainstream.
- As we know that we live in the society which is diverse and stratified on the basis of caste, class, gender and culture and this diversity excluded any group, community or culture from the mainstream society. In this sequence this course provides better conceptual understanding of exclusion, deprivation, humiliation, justice and marginalization to understand the all sorts of inequalities.
- This course enhances the knowledge of student about traditional background of social exclusion by reading the thought's of Jyotiba Phule, Periyar, Gandhi and Ambedkar's.
- To include the marginalized section of the society, this course also provide information policies, fellowships for excluded categories like SC, ST, OBC, Minorities and stigmatized population.

Paper III: Population Studies and Gerontology (Course Code: SOC-503-E-56)

- Apply demographic concepts and population theories to explain past and present population characteristics.
- Demographic changes in the world and their major determinants.
- Assessing the relationship between demographic change and policy.
- Understand and apply the current theory and research in the interdisciplinary field of

gerontology and its role in society.

- Knowledge of relationships among older adults, their families and society.

Paper IV: Sociology of Education (Course Code: SOC-506-E-57)

- Basic understanding of sociology of education.
- Analyse the theoretical perspective of education.
- Understand the education and wider social order.
- Analyse the globalization and its implications on women, Dalits, Tribes and Minorities.

➤ **IVth SEMESTER**

Paper I: Sociological Research logical and Philosophical issues (Course Code: SOC-508)

- Basic understanding of component of Social Research.
- Understand the methodological perspective of Social Research.
- Analyse the Philosophical issues in Social Research.
- Describe the explanations and critical Social Research in Social Sciences.

Paper II: Sociology of Health and Illness (Course Code: SOC-560)

- Applying key sociological concepts to explain the social distribution of health, healthcare and diseases.
- Analyzing disease and illness experiences using a variety of social theories.
- Evaluating the impact of biomedicine on experiences of different lifestages.
- Critical evaluation of significant social issues relating to the organization of health and illness.

Paper III: Social movements of India (Course Code: SOC-561)

- Through this course, the students are aware about changes that have taken place in Indian society so far and also know the role of leadership in advancing the society that no social movement can be successful without good leadership.
- This course teaches students that collective efforts and social organization are needed to bring change and relocation in human society, in the absence of which no society can progress.
- Through the old movements like national, tribal, peasant and labor movements taking place in Indian society, students get knowledge about radical changes in the Indian frontier groups.
- By new movements like Dalit, feminist and environmental movement, students are aware about democratic and constitutional values that distribution of equal resources and equal opportunities is the necessary for the survival of marginal group and also for the ideal society.

Paper IV: Rural Sociology: Indian Perspective (Course Code: SOC-562)

- The main aim of the course is to introduce the contemporary countryside/rural area as a sociologically interesting space and to explain the principles and concepts of the modern rural development.
- It also points out the milestones in social change of countryside during 20th century.
- To understand the rural space in a wider societal-cultural-historical context.
- Acknowledge the specific dimensions that shape the rural realities.
- To reference and discuss the sociological problems of rurality

COURSE OUTCOMES FOR M.A. (PAINTING)(TWO YEARS PROGRAM)

Programme specific Outcomes:

PSO 1- Apply the elements and Principles of design is approaching, analyzing and evaluating work of art.

PSO 2- Identify and explain the various mediums and methods/processes used in the creation of two dimensional and three-dimensional art work.

PSO 3-Students are demonstrated an understanding of the value of aesthetic engagement and the role of visual arts play in society.

PSO 4-Students exhibit technical skill and visual communication particular to the chosen medium.

PSO 5-Students are engaged in creative problem solving in their own work.

Program Purpose

The art department offers a broad scope of opportunities for pursuing art while attaining a liberal art education. From traditional fine art subjects. Such a painting and photography to artisanal craft-based media such as ceramics metal and glass to digital technology such as 3D modeling and printing and to community based genres such a Eco art and social sculptures, students are sure to find as area that suits their expressive style, rigours study of art history across culture and time offers opportunities to consider multiple perspectives as well as providing for the understanding that cultural context is a shaping force for all humanactivity.

At the core of both the fine art and design tracks are common outcomes the help students practice and refine their creative's process students who complete the programme will be able to generate original ideas communicate the contexts and concept the frame and drive their work, develop their craft and adapt behaviours for success.

COURSE OUTCOMES FOR M.Sc. (ZOOLOGY)(TWO YEARS PROGRAM)

➤ **SEMESTER I**

CO1. ZOO 501: Non-Chordata I

- Students will be able to attain knowledge about phyla Protozoa and Porifera in perspective of Nutrition, Reproduction, Locomotory organs and Canal System and Skeletal system respectively.
- Students will be well versed with the phyla Cnidaria, Platyhelminthes and Annelida in the light of : Metagenesis and Polymorphism, Evolution of Parasitism, Tegument and tegumental organs and metameric segmentation and Trochophore larva respectively for better understanding of these phyla.

CO2. ZOO 502 : Non-Chordata II

- Students will be able to receive knowledge about phylum Arthropoda with special reference to Mouth parts and mode of feeding, insect metamorphosis and its hormonal control and crustacean larvae-structure and significance.
- Students will be well versed with phylum Mollusca in special reference to Archimollusca, Segmentation, Molluscan ancestry, Cephalopoda Nervous system and senseorgans.
- The students will be able to attain knowledge about phylum echinodermata with special reference to symmetry, larval form and its significance.

CO 3. ZOO 503 : Chordata

- Students will obtain information about Origin of Chordates, Gnathostomes, Tetrapoda, Reptiles, Birds, Mammalia.
- Students will be able to attain knowledge about Ostracoderms, Devonian fishes, Lung fishes(Dipnoi) and their peculiar features.
- The students will be able to get information about some special topic viz., Mesozoic Reptiles, Palate of Birds, Characteristics features Monotremes, Marsupials and Placentals.

CO 4. ZOO 504 : Evolution

- Students will be able to build concepts involved in process of evolution such as mutation, selection, genetic drift, migration isolation and hybridization etc.
- Students will be able to understand the concepts of molecular evolution and population genetics.
- The students will attain knowledge about concepts of species and speciation and its types.
- Students will be able to know about the various theories and mechanism of evolution.

CO 5. ZOO 505: Paper V: Biostatistics

- The students will be able to understand and apply the concepts of biostatistics such as sampling, representation of data, mean and standard deviation, probability and distribution.
- Students will be able to calculate various biostatistical tests such as test of significance, f- test, chi-square test, test of goodness of fit and analysis of variance and application of these tests.

➤ **SEMESTER II**

CO 6. ZOO 506: Ecology

- Students will be able to understand the concepts of patterns of population growth, Lotka- Volterra Model of interspecific competition, modern concepts of Niche,

Niche parameters and Nicheoverlap.

- Students will attain knowledge about Biodiversity: Measures of species diversity. Global diversity patterns and mechanism.
- The students will be able to understand the concepts of Law of thermodynamics and their application to ecological energetic.
- The students will be well versed to various biogeochemical cycles, community organization and its dynamics, Energy flow models and foodwebs.
- The students will be aware of the concepts of Ecological succession, Remote sensing and its practical application of ecology.

CO 7. ZOO 507: Methodology & Instrumentation

- The students will be aware of various methodology and instruments used in researches such as fluorescence and electron microscopes, UV-Vis Spectrophotometry, Spectrofluometry, Flame Photometer, Nephelometer, Autoradiography, Radioactive labeling and counting.
- Students will acquire knowledge about principles of chromatography, electrophoresis, centrifugation and ultracentrifugation and their application in science research.
- Students will be well versed with Hydro biological techniques for determination of inorganic ions in water.

CO 8. ZOO 508: Animal Physiology

- The students will be able to understand Physiological process in man with special reference to ultra structure of muscles and its contraction, nerve conduction and neurotransmitters, major sense organs and receptors, electric organs, Excretion and osmoregulation and Male and female reproductive physiology.
- Students will be able to build concepts of Active transport across membranes, Signal Transduction Homeostasis, Endocrinology, high altitude and deep sea physiology and bioluminescence.

CO 9. ZOO 509: Biochemistry

- Biochemical components of the body, Structure, chemistry, properties, biosynthesis and metabolism of different biological macromolecules such as of proteins, carbohydrate and lipids and nucleic acids.
- The students will also be able to correlate the pathways and chemicals which are responsible for the energy production in our body such as Glycolysis, Kerb's cycle, oxidation phosphorylation, gluconeogenesis, Hexose monophosphate pathway, glycogen metabolism etc.
- Students will be able to understand and apply the concepts of Thermodynamics, Electrolytes: Concepts of buffer and Handerson-Hasselbachequation.
- Students will be aware of some special concepts about peptidoglycan, Ramchandran plot, protein isolation, solubilities and proteintargeting.
- Students will acquire a detailed information about Enzyme Kinetics, inhibition, mechanism of action, Michaelis and menton equation, isoenzymes allosteric enzymes, ribozymes, Abzymes and structure and functions of Vitamins and coenzymes.

CO 10. Biodiversity and Wildlife

- Students will acquire knowledge about animal taxonomy, ecology, evolutionary biology, conservation biology, quantitative biology, genomics and molecular tools related to biodiversity studies.
- Students will be able to attain knowledge about wildlife habitats, threats of species extinction, wildlife health, overexploitation of wildlife natural resources etc.
- Students will be able to know about the concept of conservation in reference to forest and wildlife management and conservation genetics.

➤ SEMESTER III

CO 11. ZOO 510: Formal and Experimental Embryology

- The students will be able to understand the concepts of embryology with particular reference to frog and chick such as Egg Types and Cleavage patterns, Fate maps, morphogenetic movements, formation of germ layers, Foetal membranes and Gastrulation, Placentation etc.
- The students will understand the process of Early and late embryonic development, organizer concepts, Induction and neurulation.
- Students will acquire knowledge about hormonal regulation, molecular mechanisms involved in Metamorphosis, Regeneration and Teratogenesis.
- Students will be well versed with standard techniques and methods of experimental embryology such as experiments on the analysis of early development and differentiation, vital dyeing, extirpation, isolation, transplanting Role of nucleus, cytoplasm and yolk etc.

CO 12. ZOO 511: Animal Behavior

- Students will be able to acquire knowledge of Modern concepts, general mechanism and Methods of study of animal behavior.
- Students will attain knowledge about Development of Innate and Learned behavior, Types of fixed action patterns (FAPs); Neuro-genetic mechanism of instinct, classification and Neural mechanism of learning and memory.
- Students will also be aware of process of Evolution of behavior and role of Hormones in behavior.

CO 13. ZOO 512: Biotechnology

- Students will be able to understand and apply the concepts of Recombinant DNA technology. Restriction endonucleases and other useful enzymes for molecular cloning, cloning vectors, gene probes as diagnostic tools, tissue culture, hybridoma technology, cell culture, organs cultures, embryonic stem cell transfer, targeted gene transfer, in vitro fertilization in humans, embryo transfer in cattle and animal cloning.
- Students will be able to attain knowledge about Bioconversions, pollution control, microbial enhancement of oil recovery, microbial mining and metal recovery, sewage treatment by biotechnology.
- Students will be aware of Health care biotechnology and role of gene replacement therapy.
- Students will acquire an introductory knowledge of biosensors, biochips, DNA fingerprinting, immobilized enzymes, bio energy and genomic DNA libraries.

CO 14. ZOO 513: Molecular Biology

- Students will be able to understand and apply the concepts of Molecular analysis of eukaryotic DNA, overall composition, reassociation Kinetics and kinetic analysis of eukaryotic DNA, Organization of eukaryotic genes and organelle genomes.
- Students will be able to understand the mechanism of DNA replication, repair and mismatch mechanism, transcription, m-RNA processing and organization of interrupted genes Genetic code, translation and protein synthesis.
- Students will be able to understand the Molecular biology of cancer, Genetic and metabolic disorders and Principles and methods involved in gene targeting and gene silencing.

CO 15. ZOO 562: Cell Biology

- Students will be able to understand the concepts of ultra structure and functions of plasma membrane and nucleus with special reference to transport across cell membranes and internal organization and function of nuclear pore complex.
- Students will be able to attain knowledge about structure and functions of the cell organelles. Endoplasmic reticulum, Golgi apparatus and mitochondria in special

reference to protein uptake and modification, protein sorting and ETS and Oxidative phosphorylation respectively.

- Students will acquire information about structure and functions of Ribosomes, Lysosomes and Peroxisomes.

➤ **SEMESTER IV**

CO 16. ZOO 514: Bioinformatics:

- Students will be able to understand the concepts of Genomics and Proteomics: Cladogram, Dendrogram, Phylogram and Phenogram; Operational taxonomic unit (OUT), Informative sites.
- Students will be able to attain knowledge about role computers in Biology and medicine, Biological sequence data banks (GENBANK, EMBL, SWISSPORT, PDB) sequence alignment and Algorithms.
- Students will be able to attain knowledge about Rooted and unrooted tree, Trees Construction Methods, Bootstrapping and Split decomposition and its application in tree construction.
- Students will acquire concepts of Homoplasy, Orthology, Paralogy and Xenology, Application of Phylogeny; Evolutionary study and Pedigree analysis.

CO 17. ZOO 575: Cell Biology

- Students will be able to understand the concepts of chromosome compaction, significance of heterochromatin, structural and functional significance of specialized chromosomes such as polytene and lampbrush chromosomes.
- Students will acquire knowledge about Cell signaling and communication between cells and their environment.
- Students will get knowledge about cytoskeleton, Cell cycle and its regulation and Cell Aging.

CO 18. ZOO 576: Cell Biology

- Students will be able to understand and apply the concepts of Bioenergetics to various cellular processes.
- Students will be able to understand various concepts of immunology such as immunocompetent cells, humoral and cellular immune response, Antigen processing and presentation and major histocompatibility complex.
- Students will also be able to attain knowledge about structure and functions of monoclonal and polyclonal antibodies and a detailed account of cancer.

CO 19. ZOO 577: Cell Biology

Students will be well versed with various principles, tools, techniques and methodologies involved in Cell Biology such as

- Microscopy
- Tissue preparation
- Histochemical techniques
- Autoradiography and radioisotope tracing techniques
- Various immunocytological techniques

COURSE OUTCOMES FOR M.Sc. (BOTANY)(TWO YEARS PROGRAM)

➤ M.Sc. ISEMESTER

On completion of this course students will be able to-

BOT 501: Phycology and Limnology

- ❖ Analyse and evaluate abiotic and biotic conditions in aquatic systems.
- ❖ To study the structure and dynamics in biogeochemical cycles and organism communities.
- ❖ To study how pollution and other human influences affect the aquatic system from rivers and lakes to coastal and ocean.
- ❖ To learn about modern analytical and computational methods used in research and in environmental monitoring.
- ❖ Gain adequate knowledge on comparative account of various algal divisions.
- ❖ Understand the knowledge about the occurrence, distribution, structure, life cycle, phylogeny and evolutionary concepts of different algal groups.

BOT 502: Mycology and Plant Pathology

- ❖ To understand the history of Plant Pathology and Koch's Postulates.
- ❖ Learn the different symptoms of diseases of Plants and distinguishing characters of fungal, Bacterial and Viral symptoms.
- ❖ Role of Toxins, Chemicals etc, on plant diseases.
- ❖ Learn about the defence mechanism in plant diseases.
- ❖ Understand the Forecasting of Plant diseases.
- ❖ Understand the Dissemination of Plant diseases.
- ❖ Learn History, Origin and characteristic features of Fungi.
- ❖ Learn the Different Classifications of Fungi with special reference of recent work.
- ❖ Learn the sexual, asexual and vegetative methods of different fungal groups.
- ❖ Understand the fungal diseases and economic importance of Fungi.
- ❖ Study the conidiophores in Deuteromycotina.

BOT 503: Bryology and Pteridology

- ❖ Gain adequate knowledge on comparative account of various classes of Bryology and Pteridology.
- ❖ Study and impart knowledge about the occurrence, distribution, structure and life history of various genera of Bryophytes and Pteridophytes.
- ❖ Learn the phylogeny and evolutionary concepts in Bryophyta and Pteridology.
- ❖ Study and impart knowledge about the ecological and economical importance of Bryophytes and Pteridophytes.

BOT 504: Gymnosperm and Palaeobotany

- ❖ Understand the Origin of gymnosperms in view of recent researches.
- ❖ Learn the Classification living & extinct gymnosperms and their distribution in India as well in world.

- ❖ Study the Distinguishing features of gymnosperms and their economic importance.
- ❖ Understand the palaeontology, different types of rocks, Geological time scale and methods of fossilization of plant fossils.
- ❖ Understand different methods for study of fossil specimens.
- ❖ Understand the Applied Palaeobotany with special reference to India. Fundamentals of Paleofloristics, Palaeogeography and Palaeoclimatology.

➤ M.Sc. II SEMESTER

BOT 505: Plant Morphology and Anatomy

- ❖ Study of morphology and anatomy of higher plants.
- ❖ Morphology of root and stem and their modifications.
- ❖ Study of Organization of root apical meristem (RAM) and shoot apical meristem (SAM).
- ❖ Understand the structure of Xylem and Phloem.

BOT 506: Reproductive Biology, Morphogenesis and Tissue Culture

- ❖ Understand the development of embryo to mature seed and original plants.
- ❖ Know the structure and development of monocot and dicot embryos.
- ❖ Understand the morphology and function of pollen grains.
- ❖ Learn about morphogenesis, totipotency and plant tissue culture techniques.
- ❖ Understand the advantage of in vitro propagation in various areas.
- ❖ Know about Cryopreservation and germplasm storage, achievements and limitation of protoplast research.

BOT 507: Taxonomy of Angiosperms and Economic Botany

- ❖ To understand the importance of Artificial, Natural and Phylogenetic and APG system of classification with merits and demerits.
- ❖ Know about the National and International Herbaria and Botanical gardens.
- ❖ Able to make keys for identification of plants.
- ❖ Learn about the different Dicot and Monocot families and their distinguishing characters.
- ❖ Enumerate the macroscopic and microscopic characters, chemical constituents, adulterants, therapeutic, pharmaceutical uses of cereals, spices and medicinal plants.
- ❖ Understand the techniques for drug evaluation (Chemical, Physical and Biological), Phytochemical investigation, standardization and quality control of herbal drugs.

BOT 508: Ecology and Phytogeography

- ❖ The relationship between living and nonliving.
- ❖ Study of different ecosystem aquatic as well as terrestrial.
- ❖ Understand the Food web, Food chain, Energy flow and Ecological pyramids and Plant succession
- ❖ Learn different type of pollution and their effect on health.
- ❖ Understand the different types of forest of India, Endangered species.

➤ M.Sc. III SEMESTER

BOT 601: Plant Physiology

- ❖ Know about the requirement of mineral nutrition for plant growth.
- ❖ Understand the process of Photosynthesis, Respiration and Nitrogen metabolism.
- ❖ Learn about sensory photobiology.

- ❖ Know about the structure, function and regulation of different Plant growth hormones (Auxin, Gibberellins, Cytokinins and Ethylene).
- ❖ Understand the biosynthesis of Terpenes, Phenols and nitrogenous compound.
- ❖ Learn about stress Physiology-Responses of Plants to biotic and Abiotic stresses.

BOT 602: Plant Biochemistry and Biochemical Techniques

- ❖ Understand the primary and secondary structure of Protein, Amino acids and Carbohydrates.
- ❖ Learn about the uses of Protein, Amino acids etc.
- ❖ Understand the law of thermodynamics with relation to biochemistry,
- ❖ Learn about the principle and structure of different types of Microscopes.
- ❖ Understand different methods and Protocol for different experiment in Biochemistry.

BOT 603: Cytogenetics, Plant Breeding and Biostatistics

- ❖ Learn about structural organization and function of intracellular organelles.
- ❖ Gain knowledge on the organization of genes and chromosome.
- ❖ Learn about Mendelian Principles and cell divisions in plants.
- ❖ Know about linkage and crossing over, mutation, extra chromosomal inheritance, chromosomal aberration.
- ❖ Learn about sex determination in plants.
- ❖ Know in detail about plant breeding methods.
- ❖ Learn the techniques of Hybridization.
- ❖ Understand the role of mutations in plant breeding.
- ❖ Learn the principal concepts about biostatistics.
- ❖ Know about statistical reasoning and its application.
- ❖ Understand the concept of hypothesis testing.

BOT 604: Microbiology

- ❖ To aware about the structure and types of various microbes.
- ❖ To know about the different types of Bacteria around us and their economic value.
- ❖ Get aware about various types of Viruses, their habitat, structure and their harmful and beneficial aspects.
- ❖ Knowledge of applications and role of microbiology in air, soil, water, sewage dairy, medicine and other industries.
- ❖ To understand symbiotic and parasitic relationships among microbes and higher plants, animals etc.

➤ **M.Sc. IV SEMESTER**

BOT 605: Plant Molecular Biology and Molecular Techniques

- ❖ To study the Regulation of transcription, Posttranscriptional modification of RNA, RNA editing and transport of RNA.
- ❖ Understand the Post- translational modification: Protein sorting in the cell and regulation of protein synthesis in prokaryotes and eukaryotes.
- ❖ Know about Signal transduction.
- ❖ Study the Isolation and Purification of Nucleic Acids, Electrophoresis and quantification of nucleic acids and DNA Sequencing.

BOT 606: Plant Biotechnology, Bioinformatics and IPR

- ❖ Learn methods of gene transfer.

- ❖ Know in detail about recombinant DNA technology and application of biotechnology in plants.
- ❖ Learn about the bioinformatics concept.
- ❖ Understand the IPR, Biosafety, Biopiracy and Bioethics.

BOT 652: Plant Pathology and Plant Protection (Elective Paper)

- ❖ Understand the history of Plant Pathology and Koch's Postulates.
- ❖ Learn the different symptoms of diseases of Plant and distinguishing characters of fungal, Bacterial and Viral symptoms.
- ❖ Role of Toxins, Chemicals etc. on Plant diseases.
- ❖ Learn about the defence mechanism in Plant diseases.
- ❖ Understand the Forecasting of Plant diseases.
- ❖ Understand the Dissemination of Plant diseases.

BOT 658: Advanced Cytogenetics (Elective Paper)

- ❖ Gain knowledge on the organization of chromosome.
- ❖ Learn about Mendelian inheritance and gene interactions.
- ❖ Know about linkage and crossing over, extra chromosomal inheritance, chromosomal aberration, induced mutagenesis.
- ❖ Learn about sex determination and sex linked inheritance in plants.
- ❖ Understand the modern concept of gene, genetic code and gene mapping.
- ❖ Learn about plant genetic engineering and transgenes.

COURSE OUTCOMES FOR M.Sc. (CHEMISTRY)(TWO YEARS PROGRAM)

➤ **SEMESTER I**

CHE 501- Inorganic Chemistry:

- Understand properly molecular orbital theory and its applications.
- Gain knowledge of molecular symmetry and character table.
- Obtain adequate information about fluorescence and phosphorescence.
- Gain information about metal ligand bonding in transitional complexes.

CHE 502-Organic Chemistry:

- Acquire good knowledge of stereochemistry of carbon compounds.
- Develop ability to interpret aromaticity and molecular orbitals of conjugated systems.
- Possess knowledge of structure, stability and reactions of reactive intermediates like carbonations, carbenes and carbanions.
- Obtain adequate information about conformational analysis.
- Gain knowledge of SN1, SN2 and SET mechanism.

CHE 503- Physical Chemistry:

- Gain knowledge of partial molar properties, Nernst heat theorem and third law of thermodynamics.
- Know the basic principles of statistical mechanics.
- Understand basic concepts of rotation spectra and vibration rotation spectra.
- Obtain adequate information about chemistry of polymers.

CHE 504- Analytical Chemistry:

- Work on gravimetric and volumetric analysis.
- Have thorough knowledge of qualitative and quantitative analysis.
- Be aware about spot tests.
- Analyse elements in organic compounds.

➤ **SEMESTER II**

CHE 505- Inorganic Chemistry:

- Understand the reaction mechanism of transition metal complexes.
- Have detailed knowledge of redox reactions and electron transfer reactions.
- Know the basic principles of term symbols and electro spectroscopy.
- Obtain adequate information about electronic spectra of transition metal complexes.

CHE 506-Organic Chemistry:

- Develop ability to interpret pericyclic reactions.
- Gain knowledge of addition reactions.

- Understand sigmatropic rearrangements.
- Understand E1, E2, and E1cB reactions.

CHE 507- Physical Chemistry:

- Have knowledge of quantum chemistry.
- Know the basic principles of photochemical reactions.
- Gain detailed knowledge of chemical kinetics.
- Develop ability to deal with structure of crystals.

CHE 508- Analytical Chemistry:

- Obtain adequate information about ionic equilibria in solution.
- Develop ability to deal with potentiometric and conductometric titration.
- Have knowledge of different types of transitions.
- Know the basic principles of coulometry and electrodeposition methods.
-

➤ **SEMESTER III**

CHE 512- Rearrangements and Photochemistry:

- Gain knowledge of rearrangement reactions involving migration to electron deficient nitrogen, electron deficient carbon and electron deficient oxygen atom.
- Know the basic principles of photochemistry of carbonyl compounds.
- Obtain adequate information about photochemistry of 1,3 butadiene, benzene and other unsaturated compounds.

CHE 513- Oxidation, Reduction and Organometallics:

- Understand oxidation of hydrocarbons and alcohols.
- Have knowledge of reduction of hydrocarbons, carbonyl compounds and epoxides.
- Know synthetic applications of organometallic compounds.
- Know application of palladium complexes in organic synthesis.

CHE 514- Strategies in organic synthesis:

- Have a basic knowledge of disconnection approach.
- Know the principle of protection of alcoholic, amino, carbonyl and carboxylic groups.
- Obtain adequate information of stereochemistry in organic synthesis.
- Understand synthetic strategies for formation of different bonds.

CHE 552- Spectroscopy of organic compounds:

- Have a detailed knowledge of proton magnetic resonance spectroscopy.
- Understand C 13 spectroscopy, DEPT, INEPT, APT, COSY, NOESY and INADEQATE.
- Know principles of mass spectrometry.
- Be able to solve structural problems by joint application of UV, IR, NMR and mass spectroscopy.\

➤ **SEMESTER IV**

CHE 524- Biosynthesis and chemistry of natural products:

- Have thorough knowledge of biosynthesis of alkaloids, terpenoids and coenzymes.
- Acquire good knowledge of classification, structure and synthesis of carotenoids.
- Develop ability to interpret the stereochemistry, structure determination and synthesis of steroids.
- Know about Nomenclature, classification and synthesis of prostaglandins and plant pigments.

CHE 525- Stereochemistry of some reaction and Vitamins:

- Obtain good knowledge of stereo selective synthesis.
- Understand asymmetric synthesis by use of chiral substrate, chiral auxiliary and chiral reagents.
- Develop ability to deal with stereochemistry of some important named reactions.

CHE 526- Biomolecules

- Know about structure and properties of enzymes.
- Gain knowledge of enzyme kinetics, enzyme immobilization and regulatory enzymes.
- Understand secondary and tertiary structure of nucleic acids.
- Develop ability to deal with chemistry and synthesis of phospholipids and glycolipids.
- Obtain adequate information about synthesis and reactions of antibiotics, pyrethroids, rotenones and pheromones.

CHE 556- Reagents and Reactions

- Understand use of various reagents like complex metal hydrides, Gilman reagent and lithium diisopropyl amide in organic synthesis and functional group transformation.
- Gain adequate information about use of DCC, hydrazine, phenyl hydrazine NHC, ylides including stereochemistry.
- Know synthetic applications of Stork Enamine reaction, Ene reaction, Barton reaction Shapiro reaction etc.

SUBJECT: LAW (Five Year Integrated Course)

Vision Statement: “*Where there is law, there is freedom.*”

Saroj Lalji Mehrotra Centre of Legal Studies strives to provide value based quality education in the field of law to achieve excellence by channelizing the potential of the students and to make for itself a positive mark in the field of legal education.

After completing the course, the students will develop: PO1: analytical and reasoning skills and critical thinking. PO2: communication and networking skills.

PO3: rational and pragmatic outlook.

PO4: human values and professional ethics. PO5: leadership skills.

PO6: drafting, pleading, conveyancing and research skills. PO7: entrepreneurial skills.

PO8: mediation and negotiation skills. PO9: decision making skills.

PO10: social awareness and responsible behavior.

On completion of the course, the students will have the following prospects: PSO1:

Litigation

PSO2: Judicial Services

PSO3: Academics (Teaching and Research)

PSO4: Corporate Sector (Law firms, Consultancies, LPOs, etc.) PSO5: Law Officers in banking sector.

PSO6: Judge Advocate General in the Indian Army. PSO7: Public Prosecutor

PSO8: Legal Advisor and Counselor (Public and Private sector) PSO9: NGOs

Department of Medieval History

Program outcome of M.A in Medieval History

HIS501

Development of Historiography in Non-Indian context Discuss the merit and demerit of various schools of thought

HIS :601-History of USA

Understand the major political, economic, social and military forces that shaped the history of the USA from colonial days to the second world war.

His-563- Emergence of Western world

Study the major developments in the world from the decline of the feudal age to the French revolution.

HIS- 503

History of Contemporary World

HIS 557

History of South Asia

Understand and evaluate historical and current events and development that have shaped South East Asia. We can understand and appreciate our history and move beyond our future

HIS 601

History of India (1206-1320)

Outline challenges faced by the Delhi Sultanate consolidating their rule.

HIS 603

The Great Mughal Empires--Trace the political history of India

HIS 651

The Economic history of India (1206-1526)

Objective is to provide an authenticated evidence-based narrative of economic conditions medieval times.

HIS 655

The Culture History of India-

To promote an integral and holistic growth of Indian heritage and culture

Programme and Course outcome for M.A. Urdu Two Year Programme

उर्दू विषय के अध्ययन के उपरांत छात्राओं को निम्नलिखित परिणाम प्राप्त हो सकते हैं-

एम. ए. प्रथम सेमेस्टर

१.	प्रथम पेपर- क्लासिकी उर्दू गज़ल	<ol style="list-style-type: none"> १. छात्राओं को उर्दू गज़ल के ज़रिये ज़बान व अदब की नस्र व ईशाअत में इजाफा हुआ २. छात्राएं उर्दू गज़ल के ज़रिये उर्दू के मशहूर शायरों और उनकी गज़लों, उनकी शायरी और उनकी खासियतों से अवगत हुए ३. छात्राओं में गज़ल गोशोअरा के हयात कारनामे और उनकी शायरी के तारीखी और शनासाइ में इजाफा हुआ
२.	द्वितीय पेपर- उर्दू मसनवी	<ol style="list-style-type: none"> १. छात्राओं को उर्दू भाषा में मसनवी के विकास हेतु सक्षम बनाने का प्रयास किया जाता है। छात्राओं को पाठ्यक्रम में निर्धारित मसनवी को पढना होता है ताकि वे इसकी सराहना करने की स्थिति में हो।
३.	तृतीय पेपर- उर्दू कसीदा	<ol style="list-style-type: none"> १. छात्राओं में उर्दू कसीदे के ज़रिये कसीदागो के कसीदे की खूबी और उनकी शायरी के तानाजुर में इजाफा हुआ। २. कसीदा के मुत्ताले से छात्राओं में ज़बान के बयान के मुताबिक उनकी दर्स- ओ- तदरीस में इजाफा हुआ।
४.	चतुर्थ पेपर – उर्दू मर्सिया	<ol style="list-style-type: none"> १. मर्सिया हिंदुस्तान की उर्दू शायरी की एक ऐसी सिंफ है जिसको पढ़कर छात्राओं में एक रूहानी ताजगी का एहसास होता है और मूलतः छात्राएँ इसको पढ़कर दिवंगत जनों के शान में पेश की जाने वाली अभिव्यक्तियों से रूबरू होती हैं जिससे शांति और सद्भाव जैसे आदर्शों की ऐसी मजबूत नींव बनती है जो हमेशा छात्रों में सच और झूठ के संघर्ष में सच और इंसानियत का साथ देने जैसी भावनाएं पैदा करती हैं।
५.	पंचम पेपर- उर्दू अदब की तारीख	<ol style="list-style-type: none"> १. छात्राओं को उर्दू अदब की तारीख और तारीखी वाकयात को पढने का अवसर मिलेगा। साथ ही साथ वे हिन्दुस्तानी तहजीब, तारीख, और समाजी हालात से रूबरू होंगी।

एम. ए. तृतीयसेमेस्टर

१.	प्रथम पेपर- उर्दू नस्र की तारीख	छात्राएं उर्दू जुबां के इब्तेदाई नक्श- ओ- निगार और साथ ही सूफियों और मज़हबी रहनुमाओं का मुत्ताले के ज़रिये कौमी एकता एवं इंसानियत के पैगाम से रूबरू होंगी
२.	द्वितीय पेपर- गैर अफसानवी अदब	छात्राओं को उर्दू गद्य की तारीख, लखनऊ और दिल्ली स्कूल की ज़बान, रस्मों – रिवाजों, समाजी और तहजीबी

		सूरतों से अवगत होने का मौका मिलता है
३.	तृतीय पेपर –नजारीतनकीद	छात्राओं को दकत्री साहित्य के बारे में खासकर उस दौर की उर्दू जुबान और बोली का फर्क , मज़हबी आस्थाओं से अवगत होने का मौका मिलता है ।
४.	चतुर्थ पेपर- वैकल्पिक	<ol style="list-style-type: none"> 1) ग़ालिब का एक खुसूसीमुताला : 2) 1857 के ग़दर के ज़रिये उस वक़्त के सियासी हालात एवं ग़ालिब के खतों के ज़रिये उनकी नस्रनिगारी की खूबियों से अवगत होंगी । 3) इकबाल का एक खुसूसीमुताला : छात्राएं इकबाल के मुताले के ज़रिये फ़लसफ़- ए- खुदी की तालीम, इंसानियत का पैगाम, अमल पर जोर , इस तरह की दिलचस्पी पैदा होती है।
५.	पाँचवा पेपर- वैकल्पिक	<ol style="list-style-type: none"> 1) सर सैय्यद का एक खुसूसीमुताला: छात्राएं सर सैय्यद के तालीमी मिशन के ज़रिये तालीम को हासिल करने , नयी शिक्षा प्राप्त करने मज़हब को वैज्ञानिक दृष्टिकोण से आंकने की प्रेरणा मिलती है। 2) प्रेमचंद का एक खुसूसीमुताला: प्रेमचंद की कहानियों एवं उपन्यासों से ज़िन्दगी की हकीकतों से रूबरू होने का मौका मिलता है
६.	प्रोग्राम आउटकम	<p>उर्दू भाषा में रूचि रखने वाली छात्राएं निम्नलिखित क्षेत्रों का विकल्प चुन सकते हैं –</p> <ol style="list-style-type: none"> 1) पेशेवर लेखन 2) मीडिया और पत्रकारिता 3) शिक्षण पेशा 4) फिल्म उद्योग 5) प्रमाण पाठक 6) समाचार पाठक 7) प्रूफ राईटर 8) प्रकाशन कार्य 9) एडिटिंग

Learning Outcome of One year Diploma in Fashion Designing program

****IFOD 101: Introduction to Fashion Design****

Students will be able to use industry terminology and equipment in appropriate ways.

HFOD 102: History of Fashion and Textile*

Students will be able to apply historic costume knowledge to modern fashion design construction.

FDP 103: Fashion Design Process

Students will be able to develop an understanding of the underlying concepts used in fashion making

FI 104: Fashion Illustration

Students will be able to critically evaluate textile product design solutions and use various software tools like Photoshop, Illustrator etc.

FTF 105 : Textile Fibres

Students will be able to identify, analyse, and apply fibre and fabric understanding in the textile industry.

PFM 106: Pattern Making

Students will be able to drape foundation patterns, drape new apparel designs on the dress form within a given time frame.

FGC 107 : Garment Construction

Students will be able to observe optimum fabric sourcing, making & styling.

FSP108: Fashion Styling and Photography

Students will be able to develop a library of fashion croquis/templates.

109 : Entrepreneurship

Students will be able to develop entrepreneur skills and build start-ups of their own.

COURSE OUTCOMES FOR B.Sc. (COMPUTER SCIENCE) (THREE YEARS PROGRAM)

SUBJECT : COMPUTER SCIENCE

Vision statement: “Promote continuous improvement”

B.Sc in Computer Science is a three-year undergraduate degree course that deals with the principles and applications of the computer. The main agenda of the degree course is the technical implementation of computers and computer systems. Students in the three-year degree course undertake various term papers, practical sessions and learning theoretical foundations of the computer.

➤ B.Sc. PART I

Paper – 1 (Digital Electronics)

- Know how to apply the knowledge they have gained to solve real problems.
- Understand the range of opportunities and limitations of computing.

Paper – 2 (Computer Fundamentals)

- To help students build-up a successful career in Computer Science.
- To create awareness about process and product standards.

Paper – 3 (Programming in C)

- Computer programming skills in C programming language.
- To train students in professional skills related to the Software Industry.
- To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems.

➤ B.Sc. PART II

Paper –1 (Computer Organization and Architecture)

- Demonstrate understanding of the principles and working of the hardware and software aspects of computer systems.

Paper – 2 (Computer Networks)

- Understand different types of networks, various topologies and application of networks.
- Understand types of addresses, data communication.
- Understand the concept of networking models, protocols, functionality of each layer
- Learn basic networking hardware and tools.

Paper –3 (Data Structures)

- Basic understanding of use of data structures.
- Basic Mathematical concepts related to matrices.

➤ **B.Sc. PART III**

Paper – 1 (Programming in Java)

- To learn Object Oriented Programming language.
- To handle abnormal termination of a program using exception handling.
- To create flat files.
- To design User Interface using Swing and AWT.

Paper – 2 (Database Management System)

- This curriculum offers you the opportunity to acquire a combination of Database Administration skills.
- The DB program gives you an ideal opportunity to practice what you have learned through real life case studies.

Paper – 3 (Systems Administration and Maintenance)

- Able to develop the necessary learning skills and independence for further studies.
- Can make decisions in an independent, professional manner and support them.
- Can decide which analytical methods and complex theories are applicable.

Course Outcomes From Bachelor Degree in Biochemistry (B.Sc. Biochemistry)

Biochemistry is the **study of the structure, composition, and chemical reactions of substances in living systems**. It emerged as a separate discipline when scientists combined biology with organic, inorganic, or physical chemistry.

The course for Biochemistry has been skillfully designed in three years of graduation Degree to build a multidisciplinary learning and research environment. After completion of course students will be able to understand the principles of various fields of chemistry and biology (organic chemistry, analytical chemistry, biochemistry, genetics, metabolism, and molecular biology).

FIRST YEAR

PAPER I: Cell Biology and the Physico-chemical basis of life

- To learn about the chemical unity of life i.e., how our living world is made up of different elements and biomolecules, their interactions at molecular level to form bonds in biomolecules.
- To learn about the thermodynamics laws and concepts for a living cell, energy transformations in at cellular level, and Importance of Low- and High-energy compounds in integrating the various metabolic pathways.
- To aware about the molecular and cellular basis of life i.e., how could life changes from simple unicellular organisms (Prokaryotes) to complex multicellular organism (Eukaryotes), Ultrastructure of the Eukaryotic Cell and Subcellular Organization of Cell.
- A brief introduction about the evolutionary foundations of life such as how life began and various morphological diversity evolved, phylogeny and differentiation.
- Learn about the techniques to study the ultrastructure of cells through Ultracentrifugation and Marker enzymes.
- A detailed overview about the biological catalysts “Enzymes” like the chemical and physical characteristics of enzymes, how enzymes accelerate reactions, effect of pH, temperature, and other factors on enzyme action, Allosteric enzymes, enzyme-substrate interaction and the Michaelis-Menten constant, Inhibition of enzymes etc.

PAPER II: Chemistry of Biomolecules

- The paper covers the assembly of complex biomolecular structures and importance in the functional organization of the cell.
- Discussion topics include water as a biological solvent Weak acid and bases, types of bonds in biological systems, and physiological buffers.
 - To learn about the detailed overview about the biomolecules such as
 - *Carbohydrates*: Structure and isomerism of sugars, reaction of sugar, structure, occurrence and functions of important sugar derivatives such as mono-, di- and tri- saccharide.
 - *Lipids*: Definition, classification and nomenclature system of fatty acids, structure and

properties of saturated and unsaturated fatty acids, Important concepts and techniques like saponification value, rancidity of fats, Reichert Meissel number and reaction of glycerol, biological significance of important fatty acid derivatives; glycerophospholipids sphingomyelins, glycolipids, cerebrosides, gangliosides, phospholipids, isoprenoids and sterols.

- Proteins: Introduction, functional diversity, and classification. Properties of Amino acids, Structure of peptide bond, levels of structure in protein architecture; primary, secondary structure, helix and pleated sheets, tertiary structure of proteins, behavior of proteins in solutions, Structure and biological functions of important proteins.
- *Nucleic acids*: Structure and function of DNA and RNA. Structure of nucleotides and formation of polynucleotide chain. Watson Crick model of DNA. Forms of DNA; DNA stability over RNA.

PAPER III: Tools and techniques in Biochemistry

- The course covers the various tools and techniques of biochemistry research which will help to apply modern instrumentation theory and practice to biochemical problems.
- To learn about the important concepts in preparation of solutions like concept of molar, molal, and normal solutions, pH and Buffers:
- To aware about the important techniques;
 - *Centrifugation*: Its principles and concepts like centrifugal force sedimentation coefficient, types of centrifuges.
 - *Chromatographic techniques*: its principles and types like Partition and adsorption chromatography, Paper, thin layer, gas liquid, ion exchange and affinity chromatography. Gel filtration. High Performance Liquid Chromatography.
 - *Electrophoretic techniques*: its principles, types such as paper and gel electrophoresis. Polyacrylamide, Gel electrophoresis. SDS-PAGE Agarose gel electrophoresis, Zone electrophoresis.
 - *Colorimetry*: Laws of Absorption, Beer's Law and Lambert's Law. Extinction coefficient, General principles of Colorimeters and spectrophotometers.
 - *Immunological Techniques*: Immunodiffusion, Immunoelectrophoresis, radioimmunoassay, ELISA, Immunofluorescence.

SECOND YEAR

PAPER I: Principles of Human Physiology and Nutrition

This paper is divided in two sections; Basic Human Physiology and Nutrition.

Section A: Physiology

This section provides an overview about functional organization of the human body which includes following topics;

- a. *Homeostasis*: It covers division of body fluids (intracellular and extracellular), concept of homeostasis and feedback control systems.
- b. *Nervous system*: Sensory and motor nerves, major levels of nervous system function, Central and autonomic nervous systems, transmission of nerve impulse, synapse, neurotransmitters.

- c. *Digestion and absorption*: Digestion and absorption of biomolecules like carbohydrates, fats and proteins.
- d. *Blood*: Composition and functions of blood constituents in immunity, hemostasis, blood transfusion and tissue transplant.
- e. *Buffer system*: -Body fluids, buffers in blood, respiratory control, renal control.
- f. *Transport and exchange of respiratory gases*: Carbon Dioxide dissociation curve. Bohr's effect. Haldane effect.
- g. *Excretions system*: Kidney function and urine formation process.
- h. *Endocrinology*: Endocrine glands and hormones produced by them.

Section B: Nutrition

This section provides an integrated overview of the physiological requirements and functions of protein, energy, and the major vitamins and minerals that are determinants of health and diseases in human populations. Topics include the following:

- a. Composition of the human body and common foods.
- b. Energy requirements and its measurement techniques
- c. Recommended Dietary Allowances Reference Indian man and woman.
- d. Biomolecules that fuel our body: Types and Functions of Carbohydrates, Protein, and Fats, Dietary Requirements, food sources.
- e. Water- and fat- soluble vitamins: Functions, Food sources. Fortifications. Deficiencies and excess.
- f. Minerals: Micro- and Macro- minerals, Absorption, Functions, Food sources. Fortification.
- g. Balanced diet: Foods for energy and protection, Nutritional adequacy, locally available foods.

PAPER II: Genetics, Origin of Life and Chemical Evolution

This paper includes the theories and concepts for evolution of life which includes following topics;

- a. Mendelian genetics: Mendel's laws of inheritance, Linkage and crossing over, Chromosome mapping.
- b. Mutation: Molecular basis of mutation, Radiation induced and chemically induced mutations,
- c. Mutagens, Carcinogens, Practical applications of mutations.
- d. Theories of origin of life: Archaeobacteria, Significance of extremozymes.
- e. Evolution of Cell from Prokaryotes to Eukaryotes, Viruses, Theories of evolution: Evolution at the molecular level, Evolution of proteins and nucleotide sequences, Structure functional relationship of Proteins, Proteomics
- f. Introns versus Exons: Role of non-coding RNA in Evolution.

PAPER III: Intermediary Metabolism

This paper introduces about the biochemical metabolism, a central theme in biochemistry regulated by sequences of chemical reactions which includes following topics;

- Metabolism, catabolism and anabolism: Integration of biochemical pathways.
- Concepts in thermodynamics: Free energy, enthalpy and entropy in biochemical reactions Coupled Reactions ATP as energy currency of cell.
- Metabolism of biomolecules:
 - Carbohydrate metabolism: Aerobic and anaerobic reactions which includes glycolysis, fermentation, TCA cycle, gluconeogenesis, glycogenesis and glycogenolysis; Reactions and physiological significance of pentose phosphate pathway. Regulation of glycolysis and TCA cycle, Organisation of ETC
 - Lipid metabolism: Introduction to Lipids as energy sources, β oxidation of saturated fatty acids, biosynthesis of saturated and unsaturated fatty acids. Metabolism of ketone bodies, oxidation of unsaturated and odd chain fatty acids.

- Amino acid metabolism: Transamination, oxidative deamination and decarboxylation. Urea cycle, glycogenic and ketogenic amino acids.
- Nucleotide metabolism: Biosynthesis of purines and pyrimidines.

THIRD YEAR

PAPER I: Molecular Biology

This paper gives students in-depth knowledge of biological and/or medicinal processes through the investigation of the underlying molecular mechanisms. They will gain an understanding of chemical and molecular processes that occur in and between cells which includes following topics;

- They will learn about gene, genome and chromosome and how these are arranged in prokaryotes and eukaryotes.
- Detailed structural analysis of chromosomes, size and concept of genetic recombination through crossing over.
- A detailed overview of important molecular events like DNA replication, transcription and translation (biosynthesis of proteins initiation, elongation and termination) in prokaryotes and eukaryotes and its regulation.
- Course will also provide students an exposure about how gene expression could be controlled in prokaryotes and eukaryotes through regulatory genes, Structural genes, Repressors, and the Operon concept.

PAPER II: Microbiology

After learning Microbiology in this paper, students will be able to:

- Familiar with Introductory concepts, history and theories from spontaneous generation to modern microbiology and biotechnology concepts.
- Provide an overview about classification of microorganisms, autotrophs and heterotrophs, other models of classification, Prokaryotic and eukaryotic structure and properties of microorganisms.
- Students will be familiar with the applied aspects of microbial cells in nutrition and fermentation, how to control of natural and drug-induced microbial populations.

PAPER III: Biotechnology and Genetic Engineering

This paper will help students to get an exposure about modern biotechnology and genetic engineering such as:

- Basic Features of Genetic engineering, Construction of recombinant DNA molecules. Role of different enzymes - restriction endonucleases, DNA ligases, and reverse transcriptase, Introduction of recombinant DNA into host cells by DNA transformation, Release of DNA from host cells, Selection and identification of transformed cells.
- Introduction to Cloning: Expression of cloned genes, Cloning vectors
- Applications of Biotechnology:

PAPER IV: Biochemistry of health and disease

This paper trains students to explore the biological mechanisms that control the functions of living organisms. Students will gain fundamental new knowledge about disease pathogenesis and is informing the development of new therapies which includes following topics;

- Students will get information about the scope of health vs. disease. importance of clinical biochemistry.
- Sources of variation in clinical biochemistry*: Analytical, Physiological. Reference Ranges.
- Clinical Utility*: Sensitivity and Specificity. False positives, false negatives.
- Specimens used in clinical biochemistry*: Collection, storage and use of blood, plasma, serum, Urine, Saliva, other tissues. Significance and limitations.

- e. *Commonly measured analytes in blood*: Complete Blood Count: Hemoglobin, hematocrit, total and differential leukocyte count, microscopy of erythrocytes. Plasma proteins.
- f. *Blood glucose*: Maintenance. Significance. Glucose tolerance test. The glycemic index.
- g. *Renal function tests*: Kidney functions. Kidney diseases. Blood urea. Serum creatinine. GFR.

Applications for disease diagnosis.

- a. Lipoproteins: Classification. Properties. Functions. Diagnosis of dyslipidemia.

Biochemistry of Disease:

The meaning of disease, Categorization of diseases, Climatic and Environmental factors in disease: Disorders related to heat and cold, A brief overview of the following categories of diseases:

- *Nutritional diseases*: Marasmus, Kwashiorkor, Beri Beri, Scurvy, Rickets
- *Metabolic diseases*: Diabetes, Obesity, Alkaptonuria, Phenylketonuria, Goitre
- *Parasitic diseases*: Dengue, malaria
- *Bacterial diseases*: Plague, Diphtheria, Typhoid, Bacillary dysentery, Cholera
- *Viral diseases*: Measles, Mumps, Chickenpox, AIDS, Hepatitis