

The Learning Outcomes  
of  
UG and PG Courses  
**Netaji Subhashchandra Bose College, Nanded.**

Sr. no. Course Outcomes

1. Bachelor of Arts

- Develop a comprehensive understanding of the theories and practice of language use.
- Students will demonstrate advanced critical thinking skills, inclusive of information literacy.
- Students will be able to communicate to diverse audiences in a variety of contexts and genres.
- Students will be prepared for a wide range of writing- related careers or graduate.
- Students will have the ability to use, analyze, and learn communication technologies.
- Students will develop exceptional textual, visual, and verbal communication abilities.

2. Bachelor of Commerce

- Demonstrate knowledge of major theories and models in key areas of organisational behaviour.
- Analyse organisational problems and generate realistic solutions based on current academic research in organisational behaviour
- Demonstrate a knowledge of macroeconomic theory as it relates to current macroeconomics policy and issues
- Demonstrate a knowledge of microeconomic theory as it relates to markets, firms, government policy, and resource allocation
- Demonstrate a knowledge of key concepts underlying quantitative decision analysis
- Apply basic mathematical and statistical skills necessary for analysis of a range of problems in economics, actuarial studies, accounting, marketing, management and finance

3. Bachelor of Science

- Apply their broad knowledge of science across a range of fields, with in-depth knowledge in at least one area of study, while demonstrating an understanding of the local and global contexts in which science is practised;
- Articulate the methods of science and explain why current scientific knowledge is both contestable and testable by further inquiry;
- Apply appropriate methods of research, investigation and design, to solve problems in science, mathematics, technology and/or engineering, including the planning and/or conduct of a significant project, problem or investigation;
- Recognize the need for information; effectively search for, evaluate, manage and apply that information in support of scientific investigation or scholarly debate;
- Employ highly developed conceptual, analytical, quantitative and technical skills and are adept with a range of technologies;
- Articulate the relationship between different science communities of practice, the international scope of science, mathematics, technology and engineering knowledge and methods, and the contributions to their development that have been made by people with diverse perspectives, cultures and backgrounds;
- Evaluate the role of science, mathematics, technology, and engineering in addressing current issues facing local and global communities, for example climate change, health and disease, food security, sustainable energy use;
- Work effectively in groups to meet a shared goal with people whose disciplinary and cultural backgrounds differ from their own;

- Communicate clearly and convincingly about science and technology ideas, practice and future contributions to expert and non-expert audiences, matching the mode of communication to their audience.

#### The learning outcomes of M.Com.

- Impart the students with higher level knowledge and understanding of contemporary trends in commerce and business finance
- Equip the students to evaluate environmental factors that influence business operation with the conceptual requirements and skills on preparation and interpretation of financial statements
- Prepare the students to apply Statistical methods and proficient use of tools for modelling and analysis of business data
- Facilitate the students to apply capital budgeting techniques for investment decisions
- Prepare students to appraise the structure and operations of banking system
- Prepare the students for an in-depth analysis of investment, portfolio management, investment banking and liquidation of investments
- Develop competency in the students about the laws and regulations, and roles of commercial, government and central banks in controlling money market
- Facilitate the students to analyse and frame micro financing schemes for rural banking
- Impart the students the concept of risk mitigation in financial sectors and their role in investment decisions of individuals and business enterprises
- Provide guidance to students to plan and undertake independent research in a chosen discipline
- Train the students on teamwork, lifelong learning and continuous professional development

#### The Learning Outcomes of M. Sc. Chemistry

- Students will have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in Analytical, Inorganic, Organic and Physical Chemistry.
- Students will be able to design and carry out scientific experiments as well as accurately record and Analyse the results of such experiments.
- Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
- Students will be able to clearly communicate the results of scientific work in oral, written and electronic formats to both scientists and the public at large.
- Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.
- Students will appreciate the central role of chemistry in our society and use this as a basis for ethical behavior in issues facing chemists including an understanding of safe handling of chemicals, environmental issues and key issues facing our society in energy, health and medicine.
- Students will be able to explain why chemistry is an integral activity for addressing social, economic, and environmental problems.
- Students will be able to function as a member of an interdisciplinary problem solving team.

#### Learning outcomes of M. Sc. Microbiology

- Molecular Microbiology: the physiology, biochemistry, and genetics of microorganisms, including such topics as structure, function, diversity, metabolism, and the genetics of metabolic regulation;
- Microbial Pathogenesis: the immune response and disease-causing microorganisms, including aspects of the humoral, cell-mediated and non-specific immune responses, as well as the molecular basis for pathogenesis;

- Environmental Microbiology: the taxonomic, ecological, and genetic relationships among microorganisms, including such topics as nutrient cycling, microbial diversity, and the biotechnological application of microorganisms to solve environmental problems;
- Scientific Method: hypothesis generation and testing, including the development of theoretical and practical skills in the design and execution of experiments; and

#### Learning outcomes of M.Sc. Environmental Science

- Understanding concepts and methods from ecological and physical sciences and their application in environmental problem solving.
- Understanding and application of concepts and methods from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions.
- Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.
- Understand the transnational character of environmental problems and ways of addressing them, including interactions across local to global scales.
- Apply systems concepts and methodologies to analyze and understand interactions between social and environmental processes.
- Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world.
- Demonstrate proficiency in quantitative methods, qualitative analysis, critical thinking, and written and oral communication needed to conduct high-level work as interdisciplinary scholars and/or practitioners.

#### Learning outcomes of M.A.Sanskrit

- Nigamas, Darshanas, Puranas, Dharmashastras, Drama, Poetry, literature history, Introduction of poets, Grammar, Linguistic are the main sections of Sanskrit Syllabus.
- The Study of Vedas, Brahmanas, Aranyakas, Upnishadas teaches students the VasudhaivKutumbakam (the Universe is our family).
- Research methodology also introduced in this course.
- Study of Indian philosophical school of thoughts Yogadarsharnshastra. Charvaka, Buddhism, Jainism studies in PG course.
- Environment awareness, social life, family system, Culture, Geography, Hygiene, religious practices of Vedic and post vedic period are introduced in curriculum.
- According to modern Sanskrit student introduced with computer for using communication skills like email, applications, software's, ICT tools, modules and such online resources for effective E-learning process.

## मराठी विभाग

शैक्षणिक वर्ष: 2016 - 17 / 2017-18

बी. ए. प्रथमवर्षः ऐच्छिकमराठी (सत्रपहिले)

अभ्यासपत्रिकाक्रमांक-I - आधुनिकमराठीगद्यवाङ्मय

अभ्यासपत्रिकेचे महत्व: Importance

1. विद्यार्थ्यांना आधुनिकमराठीवाङ्मयाची तोंडओळख करून देणे.
2. आधुनिकविचारसरणीचा परिचय करून देणे.
3. आधुनिकगद्याच्या विकसित होत गेलेल्या टप्प्यांची ओळख करून देणे.

ध्येयसाध्यता: Outcome

1. विद्यार्थ्यांमध्ये साहित्याची रूची निर्माण झाली.
2. आधुनिकविचारसरणीचा परिचय झाला.
3. विद्यार्थ्यांची विवेकबुद्धी जागृत झाली.

अभ्यासपत्रिकाक्रमांक II. - 'आधुनिकमराठीकविता'

अभ्यासपत्रिकेचे महत्व: Importance

1. विद्यार्थ्यांना आधुनिकमराठीकवितायावाङ्मयप्रकाराची ओळख करून देणे.
2. आधुनिककवितेतील प्रतिबिंबित विचारसरणीचा परिचय करून देणे.
3. कवितेतील प्रतिमा आणि प्रतिके समजावून सांगणे.

ध्येयसाध्यता: Outcome

1. विद्यार्थ्यांमध्ये सामाजिक जाणीव निर्माण झाली.
2. विद्यार्थ्यांमध्ये राष्ट्रभक्ती जागृत झाली.
3. विद्यार्थ्यांना कवितेची भाषा अवगत झाली.

बी. ए. प्रथमवर्षः ऐच्छिकमराठी (सत्रदुसरे)

अभ्यासपत्रिकाक्रमांक: III - 'आधुनिकमराठीगद्यवाङ्मय'

अभ्यासपत्रिकेचे महत्व: Importance

1. विद्यार्थ्यांना आधुनिकमराठीवाङ्मयाची तोंडओळख करून देणे.
2. आधुनिकविचारसरणीचा परिचय करून देणे.
3. आधुनिकगद्याच्या विकसित होत गेलेल्या टप्प्यांची ओळख करून देणे.

ध्येयसाध्यता: Outcome

1. विद्यार्थ्यांमध्ये साहित्याची रूची निर्माण झाली.
2. आधुनिकविचारसरणीचा परिचय झाला.
3. विद्यार्थ्यांची विवेकबुद्धी जागृत झाली.

अभ्यासपत्रिकाक्रमांक: IV - 'आधुनिकमराठीकवितेतील प्रवाह'

अभ्यासपत्रिकेचे महत्व: Importance

1. आधुनिककवितेतील विविध प्रवाहांचा परिचय करून देणे.
2. आधुनिककवितेतील सामाजिक, सांस्कृतिक मूल्यांचा वेध घेणे.
3. प्रवाहातील वेगळेपण विद्यार्थ्यांना पटवून सांगणे.

ध्येयसाध्यता: Outcome

1. आधुनिककवितेतीलविधिविधप्रवाहांचापरिचयझाला.
2. दलित, ग्रामीण, आदिवासी, स्त्रीवादीजाणिवाजातझाल्या.
3. महानगरीयकवितेचेवेगळेपणविद्यार्थ्यांच्यालक्षातआले.

बी. ए. प्रथमवर्ष: द्वितीयभाषा (सत्रपहिले):

अभ्यासपत्रिकाक्रमांक: I - 'साहित्यगाथाभागएक'

**अभ्यासपत्रिकेचेमहत्व: Importance**

1. साहित्यप्रकारातीलवेगवेगळ्याकलाप्रकारांचापरिचयकरूनदेणे.
2. साहित्यप्रकारांतूनसामाजिकजाणीवजागृतकरणे.
3. संतपरंपरेचापरिचयकरूनदेणे.

**ध्येयसाध्यता: Outcome**

1. साहित्यप्रकारातीलवेगवेगळ्याकलाप्रकारांचापरिचयझाला.
2. साहित्यप्रकारांतूनसामाजिकजाणीवजागृतझाली.
3. संतपरंपरेचापरिचयझाला.

बी. ए. प्रथमवर्ष: द्वितीयभाषा (सत्रदुसरे):

अभ्यासपत्रिकाक्रमांक: II - 'साहित्यगाथाभागदोन'

**अभ्यासपत्रिकेचेमहत्व:Importance**

1. आधुनिकविचारसरणीचापरिचयकरूनदेणे.
2. ललितसाहित्याचेवेगळेपणविद्यार्थ्यांनासमजावूनसांगणे.
3. साहित्यातीलविनोदाचेस्वरूपउलगडणे.
4. कार्यलयीनपत्रव्यवहाराचीमाहितीदेणे.

**ध्येयसाध्यता:Outcome**

1. आधुनिकविचारसरणीचापरिचयझाला.
2. ललितसाहित्याचेवेगळेपणविद्यार्थ्यांनासमजावूनदिले.
3. साहित्यातीलविनोदाचेस्वरूपलक्षातआले.
4. कार्यलयीनपत्रव्यवहाराचीमाहितीझाली.

बी. ए. द्वितीयवर्ष: (सत्रतिसरे):

अभ्यासपत्रिकाक्रमांक - V - 'आधुनिकवाङ्मयप्रकार: आत्मचरित्र'

**अभ्यासपत्रिकेचेमहत्व:Importance**

1. विद्यार्थ्यांना मध्येवाङ्मयीनअभिरुचीविकसितकरणे.
2. साहित्यपरंपरेचास्थूलपरिचयकरूनदेणे.
3. आत्मचरित्र-आत्मकथनाचेस्वरूपविशेषसमजावूनसांगणे.
4. विद्यार्थ्यांना मध्येस्वतंत्र, न्याय, बंधुताइत्यादीमूल्यांचीआदरकरण्याचीमानसिकतावाढीसलावणे.

**ध्येयसाध्यता:Outcome**

1. विद्यार्थ्यांना मध्येवाङ्मयीनअभिरुचीविकसितकेली.
2. साहित्यपरंपरेचास्थूलपरिचयकरूनदिला.
3. आत्मचरित्र-आत्मकथनाचेस्वरूपविशेषसमजावूनसांगितले.
4. विद्यार्थ्यांना मध्येस्वतंत्र, न्यायव बंधुताइत्यादीमूल्यांचीआदरकरण्याचीमानसिकतावाढीसलागली.

**अभ्यासपत्रिकेचे महत्व: Importance**

1. नाट्यपरंपरेचा परिचय करून देणे.
2. सर्वधर्मसमभाव, सामाजिकसुसंवाद, समता, एकात्मता. मूल्यविद्यार्थ्यांमध्ये विकसित करणे.
3. नाटकाचे वेगळेपण आधारे खित करणे.
4. नाटकाची प्रायोगिक वाङ्मयीन मूल्यांची ओळख करून देणे.

**ध्येयसाध्यता: Outcome**

1. नाट्यपरंपरेचा परिचय करून दिले.
2. सर्वधर्मसमभाव, सामाजिकसुसंवाद, समता, एकात्मता. मूल्यविद्यार्थ्यांमध्ये विकसित झाली.
3. नाटकाचे वेगळेपण आधारे खित केले.
4. नाटकाची प्रायोगिक वाङ्मयीन मूल्यांची ओळख करून दिली.

**बी. ए. द्वितीयवर्षभाषा (सत्रचैथे)**

**अभ्यासपत्रिकेचे महत्व: Outcome**

1. कादंबरीवाङ्मयप्रकाराची ओळख करून देणे.
2. कादंबरीचे घटक, विशेष, प्रकार व रचनाबंधांचा परिचय करून देणे.
3. कादंबरीवाङ्मयासंबंधी विद्यार्थ्यां तऱ्हेची निर्माण करणे.
4. अंधश्रद्धा, दहशतवाद, भ्रष्टाचार या सामाजिक समस्यांची जाणीव करून देणे.

**ध्येयसाध्यता: Outcome**

1. कादंबरीवाङ्मयप्रकाराची ओळख करून दिली.
2. कादंबरीचे घटक, विशेष, प्रकार, रचनाबंधांचा परिचय झाला.
3. कादंबरीवाङ्मयासंबंधी विद्यार्थ्यां तऱ्हेची निर्माण झाली.
4. अंधश्रद्धा, दहशतवाद व भ्रष्टाचार या सामाजिक समस्यांची जाणीव झाली.

**अभ्यासपत्रिकेचे महत्व: Importance**

1. साहित्याची ओळख करून देणे.
2. संतसाहित्यातील ईश्वरभक्तीचे महत्व विशद करणे.
3. अनंतफंदी, होनाजीबाळा यांच्या रचनेचे वेगळेपण सांगणे.
4. एकनाथीभारूडांचा परिचय करून देणे.
5. साहित्यिक मूल्यांचा परिचय करून देणे.

**ध्येयसाध्यता: Outcome**

1. साहित्याची ओळख करून दिली.
2. संतसाहित्यातील ईश्वरभक्तीचे महत्व लक्षात आले.
3. अनंतफंदी, होनाजीबाळा यांच्या रचनेचे वेगळेपण जाणीव झाली.
4. एकनाथीभारूडांचा परिचय करून दिला.
5. साहित्यिक मूल्यांचे महत्व आधारे खित झाले.

**बी. ए. द्वितीयवर्ष: (सत्रतिसरे): द्वितीयभाषा**

### अभ्यासपत्रिकेचे महत्व: Importance

1. ताराबाईशिंदे, लोकहितवादीयांच्या साहित्यांची ओळख करून देणे.
2. कथावाङ्मयाचा परिचय करून देणे.
3. संत तुकाराम, महात्मा फुले यांच्या साहित्याचे वेगळेपण पटवून सांगणे.
4. वामनपंडित, रामजोशी यांच्या कवितेतील वाङ्मयीन मूल्यांची ओळख करून देणे.
5. प्रसारमाध्यमामधील लेखनाची ओळख करून देणे.

### ध्येयसाध्यता: Outcome

1. ताराबाईशिंदे, लोकहितवादीयांच्या साहित्यांची ओळख करून दिली.
2. कथावाङ्मयाचा परिचय झाला.
3. संत तुकाराम, महात्मा फुले यांच्या साहित्याचे वेगळेपण लक्षात आले.
4. वामनपंडित, रामजोशी यांच्या कवितेतील वाङ्मयीन मूल्यांची ओळख झाली.
5. प्रसारमाध्यमामधील लेखनाची ओळख व महत्व पटले.

### अभ्यासपत्रिका क्रमांक - IV - 'साहित्यधारा भाग दोन'

### अभ्यासपत्रिकेचे महत्व: Importance

1. साहित्यातील विनोदाची ओळख करून देणे.
2. ललित साहित्याचे वेगळेपण विशद करणे.
3. आत्मचरित्राची तोंड ओळख करून देणे.
4. मराठीतील संकेतस्थळांची माहिती करून देणे.

### ध्येयसाध्यता: Outcome

1. साहित्यातील विनोदाची ओळख करून दिली.
2. ललित साहित्याचे वेगळेपण लक्षात आले.
3. आत्मचरित्राची तोंड ओळख करून दिली.
4. मराठीतील संकेतस्थळांची माहिती करून दिली.

### बी. ए. तृतीय वर्ष: (सत्र पाचवे)

### अभ्यासपत्रिका क्रमांक - IX - 'मध्ययुगीन मराठी वाङ्मयाचा इतिहास'

### अभ्यासपत्रिकेचे महत्व: Importance

1. मध्ययुगीन मराठी वाङ्मयाचे स्वरूप व परंपरांचा परिचय करून देणे.
2. मध्ययुगीन कालखंडातील वाङ्मयरचना प्रकारांची ओळख करून देणे.
3. मध्ययुगीन काळातील सामाजिक, सांस्कृतिक पार्श्वभूमी समजावून घेणे.
4. मध्ययुगीन वाङ्मयाबाबतची अभिरूची वाढविणे.
5. मध्ययुगीन वाङ्मयातून प्रकट झालेल्या मानवी मूल्यांचे आकलन करून देणे.

### ध्येयसाध्यता: Outcome

1. मध्ययुगीन मराठी वाङ्मयाचे स्वरूप व परंपरांचा परिचय करून दिली.
2. मध्ययुगीन कालखंडातील वाङ्मयरचना प्रकारांची ओळख झाली.
3. मध्ययुगीन काळातील सामाजिक, सांस्कृतिक पार्श्वभूमी समजावून दिली.
4. मध्ययुगीन वाङ्मयाबाबतची अभिरूची वाढविण्यास मदत झाली.
5. मध्ययुगीन वाङ्मयातून प्रकट झालेल्या मानवी मूल्यांचे आकलन करून दिले.

### अभ्यासपत्रिका क्रमांक - X - 'साहित्यविचार'

### अभ्यासपत्रिकेचे महत्व: Importance

1. साहित्याच्यास्वरूप, विशेषांचीमाहितीकरूनदेणे.
2. पौर्वात्यकाव्यशास्त्राचीओळखकरूनदेणे.
3. काव्याचीलक्षणेआणिप्रयोजनेसमजावूनदेणे.
4. विद्याश्रयांचावाङ्मयीनदृष्टिकोनविकसीतकरणे.

**ध्येयसाध्यता:Outcome**

1. साहित्याच्यास्वरूप, विशेषांचीमाहितीकरूनदिली.
2. पौर्वात्यकाव्यशास्त्राचीओळखझाली.
3. काव्याचीलक्षणेआणिप्रयोजनेसमजावूनदिली.
4. विद्याश्रयांचावाङ्मयीनदृष्टिकोनविकसीतकरण्यासमदतझाली.

**अभ्यासपत्रिकाक्रमांक - XI - 'उपयोजितमराठी'**

**अभ्यासपत्रिकेचेमहत्व:Importance**

1. आधुनिकप्रसारमाध्यमामध्येलेखनतंत्रसमजूनघेणेवउपयोजनकरणे.
2. भाषिककौशल्याचेप्रसारमाध्यमामध्येहोणारेउपयोजनकरण्याचीक्षमताविकसीतकरणे.
3. भाषिकव्यवहाराचीनवनवीनक्षेत्रे, प्रसारमाध्यमेयासाठीआवश्यकसंज्ञापनकौशल्य आत्मसातकरणे.
4. मराठीभाषेचाकार्यालयीनव्यावहारिकवमाहितीतंत्रज्ञानक्षेत्रातहोणारावापरवमहत्व समजूनदेणे.

**ध्येयसाध्यता:Outcome**

1. आधुनिकप्रसारमाध्यमामध्येलेखनतंत्रसमजूनघेणेवउपयोजन.
2. भाषिककौशल्याचेप्रसारमाध्यमामध्येहोणारेउपयोजनकरण्याचीक्षमताविकसीतकरण्यास मदतझाली.
3. भाषिकव्यवहाराचीनवनवीनक्षेत्रे, प्रसारमाध्यमेयासाठीआवश्यकसंज्ञापनकौशल्य आत्मसातकेली.
4. मराठीभाषेचाकार्यालयीनव्यावहारिकवमाहितीतंत्रज्ञानक्षेत्रातहोणारावापरवमहत्व समजूनदिले.



## DEPARTMENT OF हिंदी (2016-17)

Program – बी.ए.

### Program Outcomes:

1. राष्ट्रभाषाहिंदीकेसाथराजभाषा, संचारभाषा, रोजगारकीभाषा, तकनीकीभाषाआदिहिंदीकेविभिन्नभाषारूपोंसेछात्रपरिचितहोंगे।
2. हिंदीसाहित्यकीविभिन्नविधाओंसेछात्रपरिचितहो सकेंगे।
3. हिंदीभाषातथासाहित्यकेमहत्त्वकोछात्र समझ सकेंगे।
4. छात्रोंमेंसाहित्यकेप्रतिरुचिनिर्माणकरना।
5. साहित्यकेमाध्यमसेछात्रोंमेंसौन्दर्यबोध, नैतिकता, पर्यावरणऔरसामाजिकसमरसतासंबंधीविषयोंकीसमझविकसितहोगी।
6. छात्रभाषागतमूल्योंकोव्यवहारिकरूपसेभीजान सकेंगे।
7. व्यावसायिकक्षमताकोबढ़ावादेनेकेलिएभाषा, अनुवाद, कंप्यूटर, इन्टरनेटआदिजैसेविषयोंकोहिंदीसेजोड़करपढ़ सकेंगे।
8. साहित्यकीविधाओंकेअध्ययनकेमाध्यमसेछात्रोंकीरचनात्मकताकोनईदिशामिलेगी।
9. छात्रहिंदीभाषामेंनयेपनऔरवैश्विकमाध्यमकीनिर्माणप्रक्रियामेंसहायकबन सकेंगे।
10. हिंदीभाषाकाज्ञानछात्रोंकेव्यक्तित्वविकास, कौशलविकासऔरइसकेद्वाराराष्ट्रविकासमेंसहायकसिद्धहो सकेगा।

### बी. ए. प्रथम वर्ष

#### Program specific outcomes- (paper wise data)

Class	बी. ए. प्रथमवर्ष (प्रथमसत्रCBCS पाठ्यक्रम)
Subject:	हिंदी (द्वितीयभाषा)
Paper Name:	साहित्यभारती
Paper Number:	I
Specific Program Outcom	1. द्वितीयभाषाकेरूपमेंछात्रहिंदीभाषाऔरसाहित्यसेपरिचितहोंगे। 2. कहानीऔरकाव्यविधाकेमाध्यमसेछात्रोंमेंहिंदीभाषाकेप्रतिरुचिनिर्माणहोगी।

e:	<p>3. छात्रहिंदीकेव्यावहारिकज्ञानसेपरिचितहोंगे।</p> <p>4. वर्तमानयुगमेंप्रयोजनमूलकहिंदीकेद्वारारोजगारप्राप्तिकेमार्गनिकलसकतेहैं, इससेछात्रअवगतहोंगे।</p>
----	--

Class	बी. ए. प्रथमवर्ष (द्वितीयसत्रCBCS पाठ्यक्रम)
Subject:	हिंदी (द्वितीयभाषा )
Paper Name:	साहित्यभारती
Paper Number:	II
Specific Program Outcome:	<p>1. द्वितीयभाषाकेरूपमेंछात्रहिंदीभाषाऔरसाहित्यसेपरिचितहोंगे।</p> <p>2. कहानीऔरकाव्यविधाकेमाध्यमसेछात्रोंमेंहिंदीभाषाकेप्रतिरुचिनिर्माणहोगी।</p> <p>3. छात्रहिंदीकेव्यावहारिकज्ञानसेपरिचितहोंगे।</p> <p>4. वर्तमानयुगमेंप्रयोजनमूलकहिंदीकेद्वारारोजगारप्राप्तिकेमार्गनिकलसकतेहैं, इससेछात्रअवगतहोंगे।</p>

Class	बी. ए. प्रथमवर्ष (प्रथमसत्रCBCS पाठ्यक्रम)
Subject:	ऐच्छिकहिंदी
Paper Name:	कथासाहित्य
Paper Number:	I
Specific Program Outcome:	<p>1. हिंदीउपन्यासऔरकहानीविधासेछात्रपरिचितहोंगे।</p> <p>2. छात्रउपन्यासविधाकेसैद्धांतिकपक्षसेपरिचितहोंगे।</p> <p>3. कहानीऔरउपन्यासविधाओंकेमाध्यमसेछात्रोंकीरचनात्मकताकोदिशामिलेगी।</p> <p>4. कथासाहित्यकेमाध्यमसेछात्रोंकेवाचन, लेखनऔरसंभाषणकौशलकीक्षमताविकसितहोगी।</p>

	5. विभिन्नपात्रोंकीमानसिकताएवंक्रियाकलापोंसेछात्रोंमेंसही – गलत, उचित – अनुचितकोपरखनेकीक्षमतानिर्माणकी जा सकेगी।
--	--

<b>Class</b>	बी. ए. प्रथमवर्ष (प्रथमसत्रCBCS पाठ्यक्रम)
<b>Subject:</b>	ऐच्छिकहिंदी
<b>Paper Name:</b>	नाटकतथाएकांकी
<b>Paper Number:</b>	II
<b>Specific Program Outcome:</b>	<ol style="list-style-type: none"> <li>1. छात्रएकांकीविधाकेतत्त्वतथाइतिहाससेपरिचितहोंगे।</li> <li>2. नाटकतथाएकांकीकेअध्ययनकेमाध्यमसेछात्रोंमेंसंवादलेखनऔरवाचनकौशल काविकासकियाजा सकेगा।</li> <li>3. रंगमंचतथाअभिनयकेप्रतिछात्रोंमेंरुचिनिर्माणहोगी।</li> </ol>

<b>Class</b>	बी. ए. प्रथमवर्ष (द्वितीयसत्रCBCS पाठ्यक्रम)
<b>Subject:</b>	ऐच्छिकहिंदी
<b>Paper Name:</b>	कथासाहित्य
<b>Paper Number:</b>	III
<b>Specific Program Outcome:</b>	<ol style="list-style-type: none"> <li>1. छात्रकहानीविधाकेसैधांतिकपक्षसेपरिचितहोंगे।</li> <li>2. कहानीऔरउपन्यासविधाओंकेमाध्यमसेछात्रोंकीरचनात्मकताकोदिशामिलेगी।</li> <li>3. कथासाहित्यकेमाध्यमसेछात्रोंकेवाचन, लेखनऔरसंभाषणकौशलकीक्षमताविकसितहोगी।</li> <li>4. विभिन्नपात्रोंकीमानसिकताएवंक्रियाकलापोंसेछात्रोंमेंसही – गलत, उचित – अनुचितकोपरखनेकीक्षमतानिर्माणहोगी।</li> </ol>

<b>Class</b>	बी. ए. प्रथमवर्षद्वितीयसत्रCBCS पाठ्यक्रम
--------------	---

<b>Subject:</b>	ऐच्छिकहिंदी
<b>Paper Name:</b>	नाटकतथाएकांकी
<b>Paper Number:</b>	□
<b>Specific Program Outcome:</b>	<ol style="list-style-type: none"> <li>1. छात्रनाटकविधाकेतत्त्वतथाइतिहाससेपरिचितहोंगे।</li> <li>2. नाटकतथाएकांकीकेअध्ययनकेमाध्यमसेछात्रोंमेंसंवादलेखनऔरवाचनकौशल काविकासकिया जा सकेगा।</li> <li>3. रंगमंचतथाअभिनयकेप्रतिछात्रोंमेंरुचिनिर्माण होगी।</li> </ol>

## बी. ए. द्वितीयवर्ष

<b>Class</b>	बी. ए. द्वितीयवर्ष (तृतीयसत्रCBCS पाठ्यक्रम)
<b>Subject:</b>	द्वितीयभाषाहिंदी
<b>Paper Name:</b>	कथेतरगद्य
<b>Paper Number:</b>	III
<b>Specific Program Outcome:</b>	<ol style="list-style-type: none"> <li>1. छात्रसाहित्यकीविभिन्नविधाओं – निबंध, हास्यव्यंग्य, आत्मकथा, जीवनी, रिपोर्ताज, डायरी, पत्र, एकांकीसेपरिचितहोंगे।</li> <li>2. मनोरजनकेसाथ-साथइनरचनाओंमेंव्यक्तजीवनमूल्योंसेछात्रअवगतहो सकेंगे।</li> <li>3. इनजीवनमूल्योंद्वाराछात्रोंमेंजोउचितसंस्कारहुए, वेमानवतानिर्माणमेंसहायक होंगे।</li> </ol>

<b>Class</b>	बी. ए. द्वितीयवर्षचतुर्थसत्रCBCS पाठ्यक्रम
<b>Subject:</b>	द्वितीयभाषाहिंदी

<b>Paper Name:</b>	नाटक तथा प्रयोजन मूलक हिंदी
<b>Paper Number:</b>	IV
<b>Specific Program Outcome:</b>	<ol style="list-style-type: none"> <li>छात्र नाटक विधा से तथारंगमंच से परिचित होंगे।</li> <li>नाटक के माध्यम से छात्रों में देशविभाजन की समस्या को तथा उस पर विदेश में मानवीयता तथा साम्प्रदायिक भावना को विकसित किया जा सकेगा।</li> <li>प्रयोजन मूलक हिंदी के अंतर्गत इंटरनेट, वेब सर्चिंग, ब्लॉग लेखन, ई-मेल आदि माध्यमों की जानकारी छात्रों को दी जा सकेगी।</li> <li>इन माध्यमों का व्यावहारिक प्रयोग करना छात्र सीख सकेंगे।</li> </ol>

<b>Class</b>	बी. ए. द्वितीय वर्ष (तृतीय सत्र CBCS पाठ्यक्रम)
<b>Subject:</b>	ऐच्छिक हिंदी
<b>Paper Name:</b>	मध्ययुगीन कविता खण्ड -1
<b>Paper Number:</b>	V
<b>Specific Program Outcome:</b>	<ol style="list-style-type: none"> <li>छात्रों ने आदिकालीन, भक्तिकालीन, एवं रीतिकालीन काव्य के विकास और प्रवृत्तियों को जान सकेंगे।</li> <li>मध्ययुगीन कविनामदेव, कबीर, रैदास, भूषण, रसखान, मीरा और बिहारी इनकी रचनाओं के माध्यम से भक्ति परक, नीति परक, उपदेश परक, श्रंगार तथा वीर रस के काव्य को छात्र समझ सकेंगे।</li> <li>इनके माध्यम से छात्रों में विनम्रता, निष्पक्षता, समन्वयता एवं सहिष्णुता आदि भावों का निर्माण किया जा सकेगा।</li> </ol>

<b>Class</b>	बी. ए. द्वितीय वर्ष (तृतीय सत्र CBCS पाठ्यक्रम)
<b>Subject:</b>	ऐच्छिक हिंदी

<b>Paper Name:</b>	निबंधतथाकथेतरगद्य
<b>Paper Number:</b>	VI
<b>Specific Program Outcome:</b>	<ol style="list-style-type: none"> <li>1. छात्रनिबंधतथाकथेतरगद्यकीविधाओं ( रेखाचित्रऔरसाक्षात्कार ) सेपरिचितहोंगे।</li> <li>2. निबंधविधाकेमाध्यमसेछात्रोंमेंदार्शनिक, बौद्धिक, तार्किकऔरसमीक्षात्मकदृष्टिकाविकासकिया जा सकेगा।</li> <li>3. कथेतरगद्यकीविधाओंद्वाराछात्रोंकोमानवीयसमाजकीविभिन्नसमस्याओंके समाधानढूढनेकीनवीनदृष्टिप्राप्तहोगी।</li> </ol>

<b>Class</b>	बी. ए. द्वितीयवर्ष (चतुर्थसत्रCBCS पाठ्यक्रम)
<b>Subject:</b>	ऐच्छिकहिंदी
<b>Paper Name:</b>	आधुनिककविताखण्ड -2
<b>Paper Number:</b>	VII
<b>Specific Program Outcome:</b>	<ol style="list-style-type: none"> <li>1. आधुनिकयुगसेलेकर 2011 तककेबारहकविऔरउनकीबारहकविताओंकेअध्ययनद्वाराछात्रआधुनिककविताकेविभिन्नआंदोलनोंऔरप्रवृत्तियोंजान सकेंगे।</li> <li>2. येकविताएँमानवकेसंघर्षकीसंवाहकहैतथापरिवर्तितएवंजागरूकविचारोंकीसाक्षी है, यहछात्रसमझ सकेंगे।</li> </ol>

<b>Class</b>	बी. ए. द्वितीयवर्षचतुर्थसत्रCBCS पाठ्यक्रम
--------------	--

<b>Subject:</b>	ऐच्छिकहिंदी
<b>Paper Name:</b>	निबंधतथाकथेतरगद्य
<b>Paper Number:</b>	VIII
<b>Specific Program Outcome:</b>	<ol style="list-style-type: none"> <li>1. निबंधविधाकेउद्भवऔरविकाससेछात्रपरिचितहोंगे।</li> <li>2. पांचनिबंधकेसाथयात्रावृत्तऔरपत्रइनकथेतरगद्यविधाओंकोछात्र समझ सकेंगे।</li> <li>3. इसअध्ययन के द्वारा छात्रोंमेंएकसर्वसमावेशकसमाजव्यवस्थाऔरनैतिकमूल्योंकी क्षमता विकसित होगी।</li> </ol>

## बी. ए. तृतीयवर्ष

<b>Class</b>	बी. ए. तृतीयवर्ष(पंचमसत्रCपाठ्यक्रम) BCS
<b>Subject:</b>	ऐच्छिकहिंदी
<b>Paper Name:</b>	हिंदीभाषातथाहिंदीसाहित्यकाइतिहास
<b>Paper Number:</b>	IX
<b>Specific Program Outcome:</b>	<ol style="list-style-type: none"> <li>1. हिंदीभाषाकेप्रतिछात्रोंमेंरुचिउत्पन्नकी जा सकेगी।</li> <li>2. छात्रोंमेंप्रौद्योगिकीकेरूपमेंहिंदीभाषाकोसमझ ने की क्षमता विकसित होगी।</li> <li>3. छात्रहिंदीकीसंवैधानिकस्थितिसेअवगतहोंगे।</li> <li>4. छात्रनेआधुनिकहिंदीआत्मकथासाहित्यतथासंस्मरणसाहित्यकेविधागतइतिहासकोसमझ सकेंगे।</li> </ol>

<b>Class</b>	बी. ए. तृतीयवर्ष (पंचमसत्रCBCS पाठ्यक्रम)
--------------	---

<b>Subject:</b>	ऐच्छिकहिंदी
<b>Paper Name:</b>	भाषाशिक्षणतथासाहित्यशास्त्र
<b>Paper Number:</b>	X
<b>Specific Program Outcome:</b>	<ol style="list-style-type: none"> <li>1. छात्रोंमेंहिंदीभाषाकेव्यवहारिकतथ्यों तथाभाषाशिक्षणकेमहत्वकोसमझने की क्षमता विकसित हो होगी।</li> <li>2. छात्रसाहित्यकाशास्त्रीयपद्धतिसेअध्ययनकर सकेंगे।</li> <li>3. प्राचीन और नवीन, भारतीय एवं पाश्चात्य काव्य शास्त्रीय प्रतिमानों का अध्ययन करने की क्षमता विकसित होगी।</li> </ol>

<b>Class</b>	बी. ए. तृतीयवर्ष (पंचमसत्रCBCS पाठ्यक्रम)
<b>Subject:</b>	ऐच्छिकहिंदी
<b>Paper Name:</b>	प्रयोजनमूलकहिंदी
<b>Paper Number:</b>	X I (विकल्प में)
<b>Specific Program Outcome:</b>	<ol style="list-style-type: none"> <li>1. छात्रप्रयोजनमूलकहिंदीकेस्वरूपकोसमझ सकेंगे।</li> <li>2. व्यावसायिक क्षमता को बढ़ावा देने के लिए विज्ञापन लेखन तथा पत्र लेखन जैसे विषयों को हिंदी से जोड़कर देख सकेंगे ।</li> </ol>

<b>Class</b>	बी. ए. तृतीयवर्ष(षष्ठमसत्रCBCS पाठ्यक्रम)
<b>Subject:</b>	ऐच्छिकहिंदी
<b>Paper Name:</b>	हिंदीभाषातथाहिंदीसाहित्यकाइतिहास
<b>Paper Number:</b>	X II
<b>Specific Program</b>	<ol style="list-style-type: none"> <li>1. आधुनिककालकेहिंदीकविताकीविभिन्नप्रवृत्तियोंसेछात्रअवगतहो सकेंगे।</li> <li>2. हिंदीव्यंगविधाको छात्र जन सकेंगे।</li> </ol>



<b>Outcome:</b>	3. छात्रोंमेंहिंदीसाहित्यकीअधुनातनप्रवृत्तियों को समझने की क्षमता विकसित होगी।
-----------------	--

<b>Class</b>	बी. ए. तृतीयवर्ष(षष्ठमसत्रCBCS पाठ्यक्रम)
<b>Subject:</b>	ऐच्छिकहिंदी
<b>Paper Name:</b>	भाषाशिक्षणतथासाहित्यशास्त्र
<b>Paper Number:</b>	X III
<b>Specific Program Outcome:</b>	<ol style="list-style-type: none"> <li>1. भाषाशिक्षणकेमाध्यमसेछात्रभाषाईशुद्धताकीओरउन्मुखहो सकेंगे। छात्रों में आलोचनाकीमानवीयसहजप्रवृत्तिकासाहित्यिकविश्लेषणकरने की क्षमता विकसित होगी।</li> <li>2. छात्रअलंकारोंसेपरिचितहोंगे।</li> </ol>

<b>Class</b>	बी. ए. तृतीयवर्ष(षष्ठमसत्रCBCS पाठ्यक्रम)
<b>Subject:</b>	ऐच्छिकहिंदी
<b>Paper Name:</b>	प्रयोजनमूलकहिंदी
<b>Paper Number:</b>	X IV
<b>Specific Program Outcome:</b>	<ol style="list-style-type: none"> <li>1. बदलतेभाषाईपरिवेशमेंछात्रों कोजनसंचारमाध्यमोंसेपरिचितकिया जा सकेगा।</li> <li>2. मीडियालेखनकेमाध्यमसेरोजगारकेविभिन्नअवसरों को जान सकेंगे।</li> <li>3. पत्रकारिताएवंअनुवादकेविभिन्नप्रकारोंको छात्र जानसकेंगे।</li> </ol>

## DEPARTMENT OF SANSKRIT

### Program –M.A. SANSKRIT and B.A. SANSKRIT

#### Program Outcomes:

Sanskrit is an ancient language of Universal language group. Sanskrit is a medium to know about ancient Indian history, culture, religion, social life through its text. The academic programme of both Post Graduate degree and degree courses are designed not only professional skill but also develop a deep understanding of rich heritage and dynamic prevalent scenario of India through various Sanskrit texts.

PO1. Develop a strong concept of ancient Indian history, philosophy and literature.

PO2. Enhance communication skills-Listening, Speaking, Reading, Writing.

PO3. Students will be able to write Devnagari scripts which provide them paleographical knowledge to read out the script of modern languages like Hindi and Marathi.

PO4. Increase in depth knowledge of the Core Areas of the subject.

PO5. Students will demonstrate the skill needed to participate in conversation that builds knowledge with collaboration.

PO6. Reasonable understanding of multi-disciplinary relevance of literature of Sanskrit like Veda, Philosophy, Grammar, Kavya, Smitasastra etc.

PO7. To make them eligible for higher education.

PO8. Develop research aptitude and independent thinking

PO9. After becoming graduate students can apply in the field of B.Ed and other competitive exam organized by Government of Maharashtra etc. After the completion of postgraduation course they can apply for NET/SLET/SET exams against teaching posts in schools, colleges and other educational institutions.

#### Program specific outcomes- (paper wise data)

Subject: Sanskrit, Class M.A. First Year

Paper Name: VedVa Vedic Itihas Paper Number: 01

Introduce with Vedic Suktas, style of reciting the mantras with Chandas.

The Deity, Rushi, Chandas are essential aspects of Rigveda acquaint with to students.

The Vedic Grammar and its rules make easy to learn vedic literature.

Samhita and Vedangas are also discussed with students to increase their curiosity around vedic literature.

Paper Name: Kavyashastra va Soundaryashastra Paper Number: 02

The style of Sanskrit Kavya learning by Shastra sutra texts.

The great poet Vaman, Dandin, both are presented to students by teacher.

Kavya Siddhanta like Rasa, Riti, Dhwanithe main aspects of Kavya imparted to students.

Kavyashatra also pronounced the Guna and Doshas of Kavya.

Paper Name: Kavya va Sahitya Paper Number: 03

Sanskrit Prose (Kavya) Meghdootam purvameghah, Bharavi's Kiratarjuniyam canto 1<sup>st</sup> and 2<sup>nd</sup> introduced students with the Sanskrit kavya.

Second section of this paper deals with the famous Sanskrit Mahakavyas, Kavyas.

Paper Name: Tattvadnyana Paper number: 04

Indian philosophy is one of the ancient and famous canon of thoughts.

In this series the Vedanta, Geeta are two famous philosophy included for the upgrade students brilliancy or way of thoughts.

Second portion introduced students with all the Darshana texts with their siddhantas.

Paper Name Vedic Sahitya Paper Number 05

Introduction of Rikpratisakhya patal 1, the concepts of vedic grammar explained in the text.

Upnishad like taittariya – Brughuvalli and Shikshavalli impressed students with their style of teching.

Also the history of vedic literature included in this paper with their importance.

Paper Name: Natyashastra va kavyasiddhant Paper Number: 06

The origin of act introduced to pupils by Bharata's Natyashastra.

In the explanation of Kavyasiddhantas included Rajshekhara's Kavyaminmansa.

It expresses the various concepts of Kavyas i.e. Alankara, Vakroktim Shakti's and Vadas.

Paper Name Kavya va Kavya Itihasa Paper Number: 07

Sanskrit Prose (Kavya) Meghdootam Uttarmeghah, Magha's Shishupalavadham canto 1<sup>st</sup> and 2<sup>nd</sup> introduced students with the style of Sanskrit kavya.

Second section of this paper deals with the famous Sanskrit Arshakavyas and LaghuKavyas.

Paper Name Upnishad va tarkashastra Paper Number: 08

Indian philosophy is one of the ancient and famous canon of thoughts.

In this series the Kathopanishad and Tarkasangraha are two well-known philosophy texts included for the upgrading students brilliance or way of thoughts.

Second portion introduce students with all the Darshana texts with their siddhantas.

Paper Name: Darshanshastra Paper Number: 09

Indian philosophy is one of the ancient and famous canons of thoughts.

In this series the Sankhyakarika of Ishwarkrishna and Srimadshankaracharya's

Brahmasutrabhashyam are two well-known philosophy texts included for the upgrading students brilliance or way of thoughts.

Second portion introduce students with history of Darshana texts and its commentaries.

Paper Name: Nataka va Natyashastra Paper Number: 10

The concepts of Natyashastra explained in this paper.

The famous Nataka – Mudrarakshasa explained the style of Natyashastra composition.

Bharatnatyamanjiri explained the concepts of Rasa and Bhavas.

Also explained the concepts of origin of Natya, its structure and other relevant of Nataka.

Paper Name: Niruktam Paper Number: 11

The origin of words and its scientific explanation found in the Niruktam. The style of Yaska to give nirvachana of each and every word or Pada introduce to students.

Introduction of the tradition of Sanskrit Grammarian and their works, contribution for the development of Sanskrit grammar and linguistic.

Paper Name: Sanskrit Sanshodhanam Paper Number: 12

Research methodology for Sanskrit introduced to students.

Project Report prepared by the students as per the norms of Swami Ramanand Teerth Marathwada University, Nanded and submitted to Department. The marks of the report included on final year mark sheet also.

Paper Name: Yogadarshana va Siddhanta Paper Number: 13

Yoga is the ancient tradition of India it deals with Physical, Mental and psychological health of Human beings.

The concepts, definitions, nature of Yoga explained with the Yogadarshanam text of Maharshi Patanjali.

Paper Name: Nibandha Paper Number: 14

In this paper the concepts of Indian culture explained in Sanskrit literature. Students collected the references according to the topics mentioned in syllabi and express it. It helps to develop to increase the writing skill of students.

Paper Name: Dharmashastra and Purana Paper Number: 15

The ancient law called as Dharmashastra included in the syllabi for study.

The well-known text Paraskar Gruhyasutra text for study the Indian Sanskaras and its details.

Introduction of Puranic texts create vocabulary of Sanskrit among students. It also contains the introduction of Up-puranas, Mahapuranas and scientific approach of Puranic texts.

Paper Name: Gadya va Geetikavya Paper Number: 16

The well known Gadya text of Sanskrit language : Kadambari and its style defined in the paper.

Geetikavya Geetagevinda is the famous work of Jayadeva on Bhakti Parampara.

This paper also focused on the tradition of Gadya and Gitikavyas.

#### **\*P.G. Dissertation (Project Work)**

To develop a research-oriented approach in P.G. Student

To study various aspects of Sanskrit language.

To develop a research attitude in P.G. Student.

B.A. Sanskrit

Paper Name: Nitishatakam Paper Number: 01 (SL)

The way of life introduced by Sanskrit Nitishastra to all.

Nitishatakam is the collection of some ethics, moral thoughts useful for our daily life.

It explained the importance of Education, earning money, Self discipline, donation, human behaviour and satisfied life and also aware from the drawbacks of surroundings i.e. the nature of selfish, foolish persons etc.

Paper Name: Natakam Paper Number: 01

The Bhasa's Natakchakra is famous in Sanskrit literature. Swapnavasavadattam introduced the style of Bhasa's composition.

Paper Name: Mahakavyam Paper Number: 02

The style of Mahakavi Kalidasa introduced to students with the Raghuvansham canto 1 and 2.

Paper Name: Subhashitsahityam Paper Number: 02 (SL)

Su-Bhashitam i.e. the good sayings about overall development of humanity. The importance of breathing, Pranayama, Snanam (bath), Ahara, Vihara introduced to students with the help of collection of Subhashitas.

Paper Name: Kavyashatra va Kavyashatrakar Paper Number: 03

Introduction of Kavyashatra, the prayojana of Kavya, types of Kavyas and the importance of Kavya.

Paper Name: Vyakaranshastra Paper Number: 04

Introduction of Sanskrit Grammar, concepts of Laghusidhantakoumudi Sadnya and Sandhi prakaranas.

Paper Name: kathasahityam Paper Number: 03 (SL)

There is ancient tradition of Indian story literature. From the vedic period the Akhyanas are famous in this series there are lot of texts composed by poets called as Kathasahitya. In this paper students introduced with Pandit Narayana's Hitopadeshah.

Paper Name: Kavyam Paper Number: 05

The Mahakavya Kumarsambhavam composed by Mahakavi Kalidasa

Paper Name: Dharmashastra Paper Number: 06

The ancient law called as Dharmashastra included in the syllabi for study.

The well-known text Manusmruti adhyaya 2<sup>nd</sup> and 7<sup>th</sup> included for introduction of education system, sanskar and the law and order of King.

Paper Name: Sanskrit Sourabham Paper Number: 04 (SL)

The ethics of Sanskrit literature expressed with Karnabharam and Charakasamhita i.e. Gadya sahityam.

Paper Name: Vyakaranam Paper Number: 07

The concepts of Karaka, Vibhakti, Krudantam and Taddhita are included in syllabi.

Paper Name: Gadyavaibhavam Paper Number: 8

Bhanabhatta's kadambari is the one of the best example of Gadya sahitya. The importance aspects of Sanskrit Gadya Sahitya studied by students.

The great Politician and Sanskrit Scholor Acharya Koutilya and his work Arthashastra is the part of Syllabi for explained the concepts of Vidhya, types of Vidhya, Ashramadharma, Varnashrama.

Paper Name: Shakuntala Paper Number: 09

Mahakavi Kalidasa's famous work Abhidnyanashakuntam paper explained the the concepts of Natyashastra and style of Kalidasa i.e. Upama Kalidasasya.

Paper Name: Vedic Suktam Paper Number: 10

Introduce with Vedic Suktas, style of reciting the mantras with Chandas.

The Deity, Rushi, Chandas are essential aspects of Rigveda acquaint with to students.

The Vedic Grammar and its rules make easy to learn vedic literature.

Samhita and Vedangas are also discussed with students to increase their curiosity around vedic literature.

Paper Name: Kavyashastra Paper Number: 11

Alankaras of Sanskrit literature is the beauty of text. According to Mammata's Kavyaprakasha defines the concepts of Alankaras.

Paper Name: Bhashavidnyan

The definition of Bhashavidnyana, its relevance, types of bhashavidnyana, family of linguistic explained in the paper.

Department of Urdu  
Program B.A. Urdu

Program Outcomes:

As the students complete their B.A.Urdu program, they will be able to:

- PO 1: Perception of genre of Literature: The students will be able to understand the different types of genre of literature such as Short story, drama, poetry, fiction and non-fiction.
- PO 2: Understanding (developing) of communication skills: The students will be able to understand four skills that are Listening, Speaking, Reading and Writing. They will prove that they can think critically and work independently.
- PO3: Comprehension of Grammar: The students will be able to comprehend Urdu grammar in it, they will comprehend Reported Speech, idioms and phrases.
- PO4: Creative Thinking: The students will be able to make close reading of literary texts and are able to make pedagogical innovations. They will develop critical insight into the past theorists.
- PO5: Effective Communication: The students will be able to develop their vocabulary and its usage in communication. They will be able to apply grammatical rules to their daily spoken and written language.
- PO 6: Social Interaction: The students will be able to use interpersonal and intrapersonal communication skills to communicate effectively in social situations like interviews, group discussions, seminars, etc.
- PO7: Effective Citizenship: The students will be able to perform their duties and responsibilities as citizens successfully by being a part of the large community.
- PO8: Ethics: The students will be able to understand the entanglement of human behaviour and identity by reading various forms of literature. They will be able to develop a deeper understanding of human values such as morality, sympathy, affinity, good will etc.
- PO 9: Environment and Imperishable: the students will be able to aware about the issues related to environment and the steps which are needed for the sustainability through the study of texts with ecological elements and dimensions.

PO10: Self-directed and Life-long Learning: The students will be able to hold excellent pieces of Prose and Poetry in Urdu and they will be able to know how each and every lesson will be a lesson lifelong learning.

#### Programme Specific Outcomes

PSO 1: The students will be able to acquaint with the excellent pieces of prose, poetry, short stories.

PSO 2: The students will be able to improve vocabulary and enable to practice communicative skills in their daily life.

PSO 3: The students will be able to improve the skills of describing, analysing and critical thinking.

PSO 4: The students will be able understand the system of speech with Urdu sounds. They will be able to understand and reproduce standard patterns of speech.

PSO 5: The students will be able to understand the evaluation of criticism and its application in language and literature.

PSO6: The students will be able to understand the logics and practices in the field of Urdu grammar. They will be able to use the language with grammatical correctness.

PSO7: The students will be able to apply knowledge to Urdu language to improve skills in listening, speaking, reading and writing.

### **Netaji Subhashchandra Bose Arts, Commerce and Science College, Nanded**

#### **Department of English B.A. English**

##### Programme Outcomes:

As the students complete their B.A English programme, they will be able to:

PO 1: Perception of genre of Literature: The students will be able to understand the different types of genre of literature such as short story, drama, poetry, fiction and non-fiction.

PO 2: Understanding (developing) of communication skills: The students will be able to understand four skills that are Listening, Speaking, Reading and Writing. They will prove that they can think critically and work independently.

PO 3: Comprehension of Grammar: The students will be able to comprehend English Grammar. In it, they will comprehend Reported Speech, idioms and phrases.

PO 4: Creative Thinking: The students will be able to make close reading of literary texts and are able to make pedagogical innovations. They will develop critical insight into the past theorists.

PO 5: Effective Communication: The students will be able to develop their vocabulary and its usage in communication. They will be able to apply grammatical rules to their daily spoken and written language.

PO 6: Social Interaction: The students will be able to use interpersonal and intrapersonal communication skills to communicate effectively in social situations like interviews, group discussions, seminars, etc.

PO 7: Effective Citizenship: The students will be able to perform their duties and responsibilities as citizens successfully by being a part of the large community.

PO 8: Ethics: The students will be able to understand the entanglement of human behavior and identity by reading various forms of literature. They will be able to develop a deeper understanding of human values such as morality, sympathy, affinity, good will etc.

PO 9: Environment and Imperishable: The students will be able to aware about the issues related to environment and the steps which are needed for the sustainability through the study of texts with ecological elements and dimensions.

PO 10: Self-directed and Life-long Learning: The students will be able to hold excellent pieces of Prose and Poetry in English and they will be able to know how each and every lesson will be a lesson lifelong learning.

##### Programme Specific Outcomes

PSO 1: The students will be able to acquaint with the excellent pieces of prose, poetry, short stories.

PSO 2: The students will be able to improve vocabulary and enable to practice communicative skills in their daily life.

PSO 3: The students will be able to improve the skills of describing, analyzing and critical thinking.

PSO 4: The students will be able understand the system of speech with English sounds. They will be able to understand and reproduce standard patterns of speech.

POS 5: The students will be able to understand the evaluation of criticism and its application in language and literature.

POS 6: The students will be able to understand the logics and practices in the field of English grammar. They will be able to use the language with grammatical correctness.

POS 7: The students will be able to apply knowledge to English language to improve skills in listening, speaking, reading and writing.

Course Outcome: F. Y. B.A. English Course: Compulsory English Semester- I

After completing of this course successfully, the students will be able to:

CO 1: Acquaint with short stories, essays, on a variety of important topics.

CO 2: Understand and appreciate prose writing of well-known writers.

CO 3: Acquaint them with 'prose', its meaning and important.

CO 4: Learn grammar items, such as antonyms, synonyms etc.

CO 5: Write grammatically accurate sentence, by identifying common errors in writing.

CO6: Write short reports, personal and business letters.

Course: Optional English Paper I Study of Fiction- Short Story

After completing this course successfully, the students will be able to:

CO 1: Acquaint with the literary genre of fiction, particularly short story.

CO 2: Know the meaning, types, features and functions of 'short story'.

CO 3: Read, understand and appreciate short stories.

CO 4: Know the world famous short story tellers.

CO 5: Develop the habit of reading short stories.

Course: Optional English- Paper II Study of Drama – One-act Play

After completing this course successfully, the students will be able to:

CO 1: Acquaint with the literary genre of 'drama', mainly 'one act play'.

CO 2: Know the meaning, types, features and functions of 'one act play'.

CO 3: Understand the mechanics of stage performance, acting, theatre direction etc.

CO 4: Understanding and appreciate the literary art of play writing. CO 5: Watch and enact one act plays.

CO 6: Develop a liking for watching, enjoying and appreciating the art of drama.

Course: Additional English Paper I

After completing this course successfully, the students will be able to:

CO 1: Acquaint the second learners with the finest English short stories from various countries. CO 2:

Acquaint the second language learners with the instructive, scientific and entertaining prose pieces.

CO 3: Acquaint the second learners with reflective and appealing poetry.

CO 4: Acquire writing skills in English

CO 5: Enrich the vocabulary of the learners.

Semester- II Course: Compulsory English

After completing this course successfully, the students will be able to:

CO1: Understand and appreciate short lyrical

CO2: Enjoy the inherent rhythmic beauty of lyrical poetry.

CO3: Acquaint with famous world poets

CO4: Face competitive exams

CO5: Develop the language skills

CO6: Understand the importance of non-verbal communication

Course: Optional English- Paper III Study of Fiction –Full Length Fiction

After completing this course successfully, the students will be able to:

CO1: Acquaint with the 'Fiction'

CO2: Know the meaning, features, functions and various types of fiction

CO3: Understand and appreciate theme, motifs, symbolism and characters in the novels

CO4: Know the world famous novelists



Course: Optional English-Paper IV Study of Drama-Full Length play

After completing this course successfully, the students will be able to:

CO1: Acquaint with the 'Drama'

CO2: Know the meaning, types, feature and functions of full length drama

CO3: Understand the mechanics of stage performance/ acting/ theater direction etc.

CO4: Achieve a liking for watching, enjoying and appreciating the art of drama for artistic and aesthetic pleasure.

CO5: Watch and enact full length plays during college gathering/ annual days/drama competitions etc.

Course: Additional English- Paper-II

After completing this course successfully, the students will be able to:

CO1: Acquaint the second language learners with the finest English short stories from various countries.

CO2: Acquaint the second language with the instructive, informative, scientific and entertaining prose pieces

CO3: Acquaint the second learners with reflective and appealing poetry

CO5: Enrich the vocabulary of the learners

S.Y.B.A. English Course: Compulsory English Paper- III

After completing this course successfully, the students will be able to:

CO1: Acquaint with short stories, essays on a variety of important topics.

CO2: Understand and appreciate prose, essay on a variety of important topics

CO3: Acquaint with 'Prose', its meaning and importance

CO4: Learn grammar items such as Idioms, Phrases and Reported Speech etc

CO5: Write grammatically accurate sentences, by identifying correct reported speech in writing English

CO6: Prepare for competitive exams by learning English

Course: Optional English Paper-V Study of Poetry-Sonnets and Elegy

After completing this course successfully, the students will be able to:

CO1: Acquaint with the literary genre of 'Poetry' particularly sonnet and elegy

CO2: Know the meaning, types, features and functions of 'Sonnet Elegy'

CO3: Acquaint with the world famous sonnets and elegy

CO4: Develop the habit of reading sonnet and elegy

Course: Optional English Paper-VI Study of Prose- Essays

After completing this course successfully, the students will be able to:

CO1: Acquaint with the literary genre of 'Prose', particularly Essays

CO2: Know the meaning, types, features and functions of 'Prose-Essay'

CO3: Read, understand and appreciate Essays

CO4: Develop the habit of reading Essays

Course: Additional English

After completing this course successfully, the students will be able to:

CO1: Acquaint with the literary genre of 'Prose'

CO2: Know the meaning, types, features and functions of 'Prose-Essay'

CO3: Know about the uses of tenses, voice.

S.Y.B.A. English Course: Compulsory English- Semester- IV

After completing this course successfully, the students will be able to:

CO1: Understand and appreciate short lyrical poems

CO2: Enjoy the inherent rhythmic beauty of lyrical poetry

CO3: Know the famous world poets

CO4: Prepare for competitive exams

CO5: Develop communicative competence by learning to listen, speak, read and write properly.

CO6: Understand the importance of non-verbal communication i.e. body language so as to make communicative situations more meaningful, positive and effective.

Course: Optional English Paper-VII Study of Poetry- Odes and Ballads

After completing this course successfully, the students will be able to:

- CO1: Acquaint with literary genre of 'Poetry' particularly Odes and Ballads
- CO2: Know the meaning types, features, and functions of 'Odes and Ballads'
- CO3: Read, understand and appreciate Odes and Ballads
- CO4: Acquaint with the world famous Odes and Ballads
- CO5: Develop the habit of reading Odes and Ballads

Course: Optional English Paper- VIII Study of Prose-Autobiography

After completing this course successfully, the students will be able to:

- CO1: Acquaint with the literary genre of 'Prose' particularly Autobiography
- CO2: Know the meaning, types, feature and functions of Autobiography
- CO3: Read, understand and appreciate Autobiography
- CO4: Develop the habit of reading Autobiography Course: Additional English

After completing this course successfully, the students will be able to:

- CO1: Acquaint with the literary genre of poetry
- CO2: Know the meaning, types, features and functions of Poetry
- CO3: Know about the Reported Speech, Idioms, Phrasal Verbs.
- CO4: Develop the habit of enriching vocabulary.

Course Outcomes: T.Y.B.A English Paper IX Modern English Structure: Introduction to English Speech Sounds

After completing this course successfully, the students will be able to:

- CO1: Acquaint with the English speech sounds, syllable and its structure.
- CO2: Know the phonemic transcription and consonant cluster
- CO3: Understand the word accent and intonation in English Speeches.
- CO4: Identify the dialects, idiolects and varieties of British English

Course: Optional English Paper- X Literary Theory and Criticism: Introduction to Literary Criticism

After completing this course successfully, the students will be able to:

- CO1: Acquaint with the Greek and Roman Literary Critics
- CO2: Acquaint with the English Literary critics and criticism
- CO3: Understand the literary critical texts of stalwarts
- CO4: Understand the literary terms, phrases and newly coined concepts in English related with the literary theories and criticism

Course: Optional English Paper- XI Indian Writing in English- Poetry, Short-Story, Novel and Language

After completing this course successfully, the students will be able to:

- CO1: Acquaint with the Indian English Literature and its various genres.
- CO2: Acquaint with Indian English poetry since the beginning
- CO3: Comprehend Indian English Short-Stories and their masters
- CO4: Understand Indian English novels- a widespread genre in Indian English Literature.
- CO5: Learn the varieties of Indian English language and its standard.

Course: Optional English Paper- XII Modern English Structure- Introduction to English Grammar After completing this course successfully, the students will be able to:

- CO1: Acquaint with the English word class, its structure and suffixes
- CO2: Know the basic clauses and phrases in English
- CO3: Understand the sentence structure and forms and meaning
- CO4: Identify the common errors and ambiguities in English Sentences
- CO5: Comprehend the varieties of English Language and its dialects

Course: Optional English Paper XIII Literary Theory and Criticism: Introduction to Literary Theory

After completing this course successfully, the students will be able to:

- CO1: Acquaint with emerging literary theories in English Criticism
- CO2: Acquaint with the new English, Literary and Critical Theories and '-isms' in English

CO3: Understand the pre-and-post literary theories in English

CO4: Study in detail the scansion and prosody of the English texts and to comprehend the practical criticism

Course: Optional English Paper XIV Indian Writing in English: Prose, Drama, Translation and Diaspora

After completing this course successfully, the students will be able to:

CO1: Acquaint with Indian English Literature and its various genres

CO2: Acquaint with Indian English prose since the beginning

CO3: Comprehend Indian English Drama and its various forms

CO4: Understand emerging genre in Indian English Literature i.e. Translation into English from Indian Literature

CO5: Study the Indian Diaspora and Dalit Literature in English.

**Department of History  
Academic Year 2016-2017**

**Programme and Course out comes  
Programme - B.A.**

**B.A. I year – SEM-I / II**

**1) Course – History of Ancient India (up to 647 A.D.)**

**Paper – I / II**

1. Student will understand the historical advancement, sources, civilization, Religions and Ancient political work.
2. Introduces basic concept of Ancient Period social & religions life.

**2) Course: History of India (648-1526 A.D.)**

**Paper – II/IV**

1. Students will understand the historical events from 648 AD to 1526 A.D.
2. Contribution of different dynasties in Indian History will be study by students.

**B.A. II year SEM – III / IV**

**3) Course – History of medieval India (1526-1707 A.D.)**

**Paper – V/VII**

1. The medieval Indian King Political History and their impacts on India.
2. Muslim Art & Architecture in medieval India.

**4) Course – History of British India (1757 to 1857 A.D.)**

**Paper- VI / VIII**

1. Student will understand the political and Administration of this British Rule
2. The Relation of Indian King's and British Governor's

**B.A.III Year SEM – V/VI**

**5) Course – History of Modern India – (1858-1947 AD)**

**Paper –IX / XII**

1. Students will study the political, social and economical changes in the Indian History.
2. To inculcate moral qualities like Freedom, Unity, Fraternity, Equality in students.
3. It will help in succeeding in the competitive exam.

**6) Course – Social-Religious Reform Movements in India**

**Paper- X / XIII**

1. Students will study the Social, Religion, Education reforms in modern India.

2. To make preparation for competitive examinations.

## **7) Course – History of Modern Maharashtra (1818-1960 AD)**

### **Paper – XI / XIV**

1. Student will understand the educational development in modern Maharashtra.
2. Students will understand the contribution of social and cultural changes, social reformers in modern Maharashtra.

**Department of Political science**  
B. A. I, II, III [Semester I to VI ]  
Academic Year 2016-17, 2017-18

#### B. A. First Year

Name of paper. :-

- I, III Political theory  
II, IV Government and Politics of Maharashtra

#### B. A. Second Year

Name of paper

- V, VII Indian Constitution, Government and politics  
VI, VIII. National relation, international organization

#### B. A. Third Year

Name of paper

- IX. Western political thinkers  
X. Government and politics of United Kingdom USA and China  
XI. India's foreign policy

OR

Indian political thought.

Political science department has earned a lot of reputation and popularity for providing and quality education and fulfilling growing needs of the students and society now the department is one of the favourite among the humanities. Political Science subject are important of competitive classes and useful to law faculty.

Objectives of the Department are as follows:

- To develop political consciousness among students
- To in calculate political and human values
- To promote the students participation and political activities
- To analyze Indian politics with the help of Western political concepts and theories
- To make the students aware of their Rights and Duties.
- Understand the structure of the Indian Government and politics.
- To make the students aware of political scenario in the World National International Politics.

In short political science is a discipline that uses different approaches to the students train you in a

number of different critical skills which help students to succeed in almost any career and opportunities.

Due to this students are trained to link independently to communicate effectively understand the complex social and political structure and functions in the multicultural world through this students are being able to analyze and understood effectively the cases and effects of political behavior of society.

Department of Political Science  
M. A. First year [Semester I]  
Academic Year 2016-17, 2017-18

#### I. Modern Political Theory

It is important to study political theory as political theory is the foundation of political science as no subject can be created without political theory and the purpose of the subject is to help us understand its function through theory.

#### II. International Relations theory

There are two branches of political science, National Politics and International Politics. Global Politics Influences the Politics of Every Nation It helps to understand the context of world politics through international relations.

#### III. Indian constitutional Process

Indian Constitution is the basic fundamental law. The rights of the government, the relationship between the government and the citizens are included in the constitution

#### IV. Western political thinkers

Political concept cannot be understood unless the diamonds of this thinker are understood. Western political thinker is the basis of political science.

OR

#### Indian Political Thought

The study of thinkers in India helps in understanding the then socio-political economic situation.

M. A. First Year, [Semester II]

#### V. Concepts of Political theory

Political concepts and theories are the foundation of political science. To understand the subject of political science, it is necessary to study the theory

#### VI. India's Foreign Policy

India's Foreign Policy This paper helps in understanding India's position in world politics and its political, socio-economic relations with other countries.

#### VII. Comparative Politics

A study of all the governing bodies of the world through Comparative Political Science helps to understand the system of governance

#### VIII. Political Process in India

It is important to study this paper to understand the nature of politics in India as well as to understand the real impact of political socio-economic relations on Indian politics.

OR

#### Politics in Maharashtra

Politics in Maharashtra is important for studying Center-State relations and Maharashtra's relations with other states.

M. A. Second Year, [Semester III]

#### IX. Concepts in Political theory

Different ideologies help to understand the functioning of political system and government institutions. Paper

#### X. Issues in international politics

Helps to study the context of international politics as well as to understand the

impact of global politics on our country.

XI. Modern political ideologies

The ideology that exists in the world helps to understand the context of world politics as well as the nature of government.

XII. Public Administration theory

Since public administration is a branch of political science, the study of public administration under political science is important as it administers the policy of the government.

Or

Indian administration

This paper is important for studying the governance system in India as well as studying how government policies are implemented and how it affects political development.

M. A. Second Year, [Semester IV]

XIII. Modern Ideologies

The ideology that exists in the world helps to understand the context of world politics as well as the nature of government.

XIV. Political sociology

Indian sociology is a branch of modern science developed from a mixture of sociology and political science

XV. International organisations

Helps to study the context of international politics as well as to understand the impact of global politics on our country.

XVI. Political thought in Maharashtra

The study of thinkers in Maharashtra helps in understanding the then socio-political economic situation.

OR

Local self government

There are stages of decentralization of democracy from which local self government has developed. It helps to understand the decentralization of democracy.

Political science department has earned a lot of reputation and popularity for providing and quality education and fulfilling growing needs of the students and society now the department is one of the favourite among the humanities. Political Science subject are important of competitive classes and useful to law faculty.

**Objectives of the Department are as follows:**

To develop political consciousness among students

To in calculate political and human values

To promote the students participation and political activities

To analyze Indian politics with the help of Western political concepts and theories

To make the students aware of their Rights and Duties.

Understand the structure of the Indian Government and politics.

To make the students aware of political scenario in the World National International Politics.

In short political science is a discipline that uses different approaches to the students train you in a number of different critical skills which help students to succeed in almost any career and opportunities.

**ECONOMICS**  
**Bachelor of Arts**  
**SEMESTER - I PAPER - I**  
**MICRO ECONOMICS comp.**

**COURSE UTILITY:**

- 1 To prepare the students to understand the meaning, nature and scope of micro economics.
- 2 To utilize the students ability to tackle the current economic problems.
- 3 Students will adopt more knowledge in the field of modern economics by studying this course.
- 4 This course will increase the knowledge and teach to use theories in day to day life.

**Bachelor of Arts**  
**SEMESTER - II PAPER - II**  
**CO-OPERATION opt.**

**COURSE UTILITY:**

- 1 Meaning, nature and scope of co-operation will be studied.
- 2 To acquire knowledge of co-operation movement in India before independence and after independence.
- 3 To study the role of co-operation in development of India with special emphasis of Maharashtra state.
- 4 To study challenges faced by co-operation movement in India.

**Bachelor of Arts**  
**SEMESTER - II PAPER - III**  
**MICRO ECONOMICS comp.**

**COURSE UTILITY:**

- 1 Students will get knowledge of production function of a firm and industry.

- 2 To know the market functions, types etc.
- 3 To know the different factors of production in the production process.
- 4 To study the theory of distribution.

**Bachelor of Arts  
SEMESTER - II PAPER - IV  
ECONOMY OF MAHARASHTRA opts.**

**COURSE UTILITY:**

- 1 Awareness about development path of economy of Maharashtra will be studied.
- 2 Students will understand the various challenges of economy of Maharashtra.
- 3 To study measures to improve the economy of Maharashtra.
- 4 To study various sectors and their contribution in the economy of Maharashtra.

**Bachelor of Arts  
SEMESTER - III  
PAPER - V  
MACRO ECONOMICS comp.**

**COURSE UTILITY:**

- 1 To study meaning, nature and scope of micro economics.
- 2 To study various types of measurement of National Income Accounting.
- 3 Students will adopt more knowledge about role of money in the economy and to understand the process of emergence of money and its circular flow.
- 4 To get basic idea of inflation and deflation and its effect on the economy.
- 5 To study consumption function.

**Bachelor of Arts  
SEMESTER - III  
PAPER - VI  
STATISTICAL METHODS opt.**

**COURSE UTILITY:**

- 1 Students will understand data, types of data and its analysis.



2 To acquire knowledge of various statistical methods.

3 To understand various techniques of data analysis and its vast scope in the present day.

**Bachelor of Arts  
SEMESTER - IV  
PAPER - VII  
BANKING comp.**

**COURSE UTILITY:**

1 Students will get knowledge of banking sector in India.

2 To know the RBI, its functions, role in banking sector etc.

3 To know the functions of commercial banks.

4 To study the relation of banking sector with country's trade and development.

**Bachelor of Arts  
SEMESTER - IV  
PAPER - VIII  
STATISTICAL METHODS - II opt.**

**COURSE UTILITY:**

1 Students will study the various indicators such as WPI, CPI etc. and its calculation process.

2 Students will understand the economic and social trend trend with the help of Moving Average Method.

3 To study index numbers.

4 To study various types of dispersion.

**Bachelor of Arts  
SEMESTER - V PAPER - IX  
INDIAN ECONOMY comp.**

**COURSE UTILITY:**

1 To prepare the students to understand the nature of Indian Economy.

2 To increase the students awareness of role of agriculture and industry in Indian economic development.

3 To understand the concept of HDI and to learn calculation of HDI.

- 4 To increase the awareness of students about importance economic planning , its necessity, and importance of infrastructure development in the process of development of Indian economy.
- 5 To increase basic knowledge of LPG model, FDI and several international institutions among the students.

**Bachelor of Arts**  
**SEMESTER - V PAPER - X**  
**HISTORY OF ECONOMIC THOUGHTS                      opt.**

**COURSE UTILITY:**

- 1 Student will study the applicability of western economic thought for the Indian context.
- 2 To study the thoughts of early period, classical period and neo classical period economists in the present scenario.
- 3 Students will get knowledge of the exploitation of Indian Economy in the British rule.
- 4 students will get the knowledge of the Indian economic ideas and theories of several indian economic thinkers / socialists / politicians etc.
- 5 Students acquire knowledge of ancient Indian economic thoughts.

**Bachelor of Arts**  
**SEMESTER - V PAPER - XI**  
**INDUSTRIAL ECONOMICS                      opt.**

**COURSE UTILITY:**

- 1 The students will get knowledge about importance of decision making at the time of establishing a firm.
- 2 To develop entrepreneurial latent of the students.
- 3 To analyze performance and problems of industries in Indian economic context.
- 4 Students will get knowledge about labour welfare policies.
- 5 Students will get knowledge of Indian industrial sector before LPG and after LPG.

**Bachelor of Arts**  
**SEMESTER - V PAPER - XI**  
**QUANTITATIVE TECHNIQUES– I                      opt.**

**COURSE UTILITY:**

- 1 Students will get knowledge of application of quantitative skill to real economic problems.
- 2 To study the use and importance of correlation, correlation coefficient in the research.
- 3 Students will acquire basic idea about Skewness, Kurtosis and Moments.

4 Students will learn about time series, variations in time series.

**Bachelor of Arts**  
**SEMESTER – VIPAPER - XII**  
**PUBLIC FINANCE Comp.**

**COURSE UTILITY:**

- 1 To introduce students with financial aspect of Indian Economy.
- 2 Students will get knowledge about tax system of Indian Economy.
- 3 Student will get basic idea about finance commission.
- 4 To analyze Centre & State financial relations in India.
- 5 To understand the concept of Budget.

**Bachelor of Arts**  
**SEMESTER - VI PAPER - XIII**  
**INTERNATIONAL ECONOMICS opt.**

**COURSE UTILITY:**

- 1 To introduce students balance of payments accounting and the valuation effect.
- 2 It helps students to understand the concept of international trade.
- 3 To understand Indian foreign trade policy.
- 4 To acquire knowledge about international financial institutions.

**Bachelor of Arts**  
**SEMESTER – VIPAPER - XIV**  
**RURAL ECONOMICS opt.**

**COURSE UTILITY:**

- 1 To acquire knowledge of rural development, rural socio economic structure etc.
- 2 To study Gandhi's approach on rural development.
- 3 To understand rural economy and rural industrialization.
- 4 To know governments plans for rural development.
- 5 To know various obstacles in development of rural economy.

**Bachelor of Arts**  
**SEMESTER – VIPAPER - XIV**  
**QUANTITATIVE TECHNIQUES - II opt.**

**COURSE UTILITY:**

- 1 To study the hypothesis testing and acceptance and rejection of hypothesis.
- 2 To study the t-test, chi-square test and its applicability.
- 3 To acquire knowledge of Variance and various techniques of analysis of variance.
- 4 To understand use of Analysis of Variance (ANOVA) to test the degree of differences between two or more groups of an experiment.

### **COURSE OUTCOME DEPARTMENT OF SOCIOLOGY**

Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink):

Program - B.A.

#### **Program specific outcomes- B. A. SOCIOLOGY**

- To introduce the concepts of application in social life.
- To objective of the course is developing awareness among a good number student who in turn may able to address to problem arising in and out of Society.
- To inculcate sense of social and social environment awareness
- To help students build-up a progressive and successful career in various field.

#### **Course Program specific outcomes-**

##### **B. A. F. Y. Sociology**

<b>Class</b>	<b>B. A. First Year (Semester – I)</b>
<b>Subject:</b>	Sociology
<b>Paper Name:</b>	<b>Introduction to Sociology (P-I)</b>
<b>Paper Number:</b>	<b>Paper No. I</b>
<b>Specific Program Outcome:</b>	This Course is introductory paper the student's basic concept in sociology and students could acquire scientific knowledge of introductory sociology. The course is designed to develop awareness of the relationship between individual belief, attitudes and behaviors and the wider society and culture.
<b>Specific Course Outcome:</b>	Students will be able to demonstrate on understanding of how social call affects individual life. To understand society in context of the sociology theory, knowledge concepts.
<b>Paper Name:</b>	<b>New Changes in Social Institutions- II</b>
<b>Paper Number:</b>	<b>Paper No. II</b>
<b>Specific Program Outcome:</b>	The main aim of human societies is to maintain control and order. The social structure which organized and order, created social solidarity and stability in society.

<b>Specific Course Outcome:</b>	Students will obtain a sociological understanding of diverse, social groups , organization and institutions. Social institutions are usually conceived of as the basic focuses of social organization common to all societies.
<b>Paper Name:</b>	<b>Basic Concept in Sociology (III)</b>
<b>Paper Number:</b>	<b>III</b>
<b>Specific Program Outcome:</b>	Tool to think with society, humanly created organization of inter relationship the connect individuals in common culture. A concept is an idea that helps us to organize our thoughts and perceptions or make sense of what we observe.
<b>Specific Course Outcome:</b>	To understand the basic concepts in Sociology and their fundamental theoretical interrelationship such that students will be able to do offline.
<b>Paper Name:</b>	<b>Contemporary Social Institutions- IV</b>
<b>Paper Number:</b>	<b>Paper- IV</b>
<b>Specific Program Outcome:</b>	Indian sociology is an term that describes practitioners who use sociological theories and methods outside of academic setting with aim to produce positive social change through active intervention. Social Institutions are system behavioral and relationship patterns that are density interwoven and enduring and function across an entire of individual by means of their normative character.
<b>Specific Course Outcome:</b>	Institution can refer to mechanism of social order. Institutions are indentified with social purpose transcending individuals and intention by mediating the rules that given living behavior. The study of social institutions will help in the formation of a mature personality.
	<b>B. A. II YEAR- SOCIOLOGY</b>
<b>Paper Name:</b>	<b>Indian Society: Structure and Change- V</b>
<b>Paper Number:</b>	<b>Paper-V</b>
<b>Specific Program Outcome:</b>	After studding this enable to acquire paper, students should be to structure of the Indian society and changing aspects. Student also known as the goal must be unity not uniformity. The feeling of he each religious group are the same. The bond of unity in relation to Indian heritage in a certain underlying uniformity of life, have been reflected in the observations of many foreigners also. This course enhance students understanding on Indian Social Structure and societal values in computable, the structure must embrace social change to allow the society to service. The sociological Changes between the present and the part is an evident feature of the society.
<b>Specific Course Outcome:</b>	Sociologist are typically motivated the desire to better understand the principle of social life and by the conviction that understand these principles may aid in the formulation of enlightened and effective social policy. The Indian society in the recent past, particularly since the independence. There are two main forms of social stratification caste and class both are the agencies of social mobility and selection. They decided largely the position that man occupies in society Democracy is very much linked with

	modernization. Secularism and National integration are soul of India. This course gives insights about social change in India.
--	--

<b>Subject:</b>	<b>SOCIOLOGY</b>
<b>Paper Name:</b>	<b>Human Rights and Social Justice- VI</b>
<b>Paper Number:</b>	<b>Paper- VI</b>
<b>Specific Program Outcome:</b>	This course will understand what are the human rights? And what is the meaning social justice and its necessity? Why they course from and why we have them? Students also develop an understanding of challenges to human rights and social justice. At the end of the course students will understand how human rights can be used as a proactive tool to support them. The course covers modern human rights institution and this work of state and non-state. Human rights and social justice are two different concepts. They are closely linked. In the course focus on Dr. B. R. Ambedkar architecture of Indian statutory mechanism for enforcement of human fights and protection of human rights In India.
<b>Specific Course Outcome:</b>	Social Justice and Human Rights have a shared goal human dignity, equally for all. The issues that make social justice difficult to achieve, such as poverty. Exclusion and discrimination are in direct contradiction with human rights, which apply to all individuals indiscriminately. Human rights can help to rights indignity. In addition to promoting equality generally human rights protect against direct and indirect discrimination based on certain characteristics. Human rights provide legal framework that allows individuals to hold government to account and requires the state to create conditions necessary for the achievement for social justice.
<b>Paper Name:</b>	<b>Personality Development- I (Skill Enhancement Course- SEC)</b>
<b>Paper Number:</b>	<b>SEC- I</b>
<b>Specific Program Outcome:</b>	Personality development essentially aims to enhance and groom ones outer and inner self about a positive change in student's life. The course aims to basic awareness about significance skill Enhancement Course such objectives are. To help the students be positive. Increase and improve self confidence, learn to lead and face the challenges and be a good human being. Personality of a person is defined on the amalgamation of qualities and attributes which contributes to the person character and image few of contents are process of personality development, responsibility, confidence, manners, time management, importance of self-inspirational and development of creativity.
<b>Specific Course Outcome:</b>	Personality development course will polish student's presentation and communication skill and proper to successful career.
<b>Paper</b>	<b>Issues and Problems in Indian Society- VII</b>

<b>Name:</b>	
<b>Paper Number:</b>	<b>Paper- VII</b>
<b>Specific Program Outcome:</b>	The objectives of the course are to sensitize the students to the emerging social issues and problems in Indian Society enable then to acquire sociological understanding of these issues and problems and deals with the real fact. The aim is to introduce the concepts, theories and case studies that seek to clarify social issues and social Problems. This course is designed to identify and analyze come of such emerging social issues and problems from sociological perspective. We will explore the issues and problems in Indian society. Such as course and measure of social problems. Crime against women also includes social issues. Communalism and valence against weaker section.
<b>Specific Course Outcome:</b>	A social issue is a problem that influences a many citizens within a society and one that many people strive to solve. It is often the consequence of factors extending beyond an individual. Afterstudng these course students should able to illustrate what is a social about social science. Demonstrate how certain social contrition become dominates. Distinguish how labeling something can create excretion about behavior and action.
<b>Paper Name:</b>	<b>Neo Social Movement- VIII</b>
<b>Paper Number:</b>	<b>Paper - VIII</b>
<b>Specific Program Outcome:</b>	The objective of the course is Neo-Social Movement concentrate on the grassroots level with the aim to the represent the interests of marginal or excludes groups. To promote understanding of the common groups and shared goals. To consider the strategic value for movement. To provide spaces and opportunities for movement.
<b>Specific Course Outcome:</b>	Social Movement is a type of group action. The knowledge obtained in this social movement was valuable because they could use it for the cause. Social movement laid such an important role in bringing about social change in political, religious, educational, health, corporate, government and other institutional areas. Finally, leering outcomes in social movement more rewarding than other learning outcomes because the outcome includes a impact on social Change.
<b>Paper Name:</b>	<b>Time Management- II (Skill Enhancement Course - II)</b>
<b>Paper Number:</b>	<b>SEC- II</b>
<b>Specific Program Outcome:</b>	Time management course students will learn achieve better results. Through effective planning and clarifying objectives and importance of goal in life. Students should understand the value of time for him to succeed in all aspects of life.
<b>Specific Course Outcome:</b>	When you are aware of what you need to do, you are able to better manage things. Students understanding the how to set smart goals and work toward accomplishing

	those goals by self-reflecting and self- monitoring.
	<b>B. A. III Year - SOCIOLOGY</b>
<b>Paper Name:</b>	<b>Classical Sociological Thinkers – I- DSE – A-</b>
<b>Paper Number:</b>	<b>I- DSE – A</b>
<b>Specific Program Outcome:</b>	Classical Sociology Thinkers thoughts are the study of questions concerning human society and social relations also studying about development stages of sociology. It is intended to cover those who have made substantive contributions to social theory and research including any sociological sub field. This course will help you to introduce with Classical Sociological Thinkers Understand their analysis and build up your own ideas. How to students sociology is different form other social sciences also studying about development stages of sociology.
<b>Specific Course Outcome:</b>	Sociology is branch of social sciences that uses systematic methods. This course is to provide to the sociology students with the understanding of sociological theory. To train students for the application of these theories to social situations, acquaintance with the writing of these four thinkers, so as to equip the students with theoretical insights to know analysis and interpret the social scenario around them. An attempt to familiarize student's with the different sociological perspectives and theories.
<b>Paper Name:</b>	<b>Modern Sociological Thinkers – I- DSE – A</b>
<b>Paper Number:</b>	<b>DSE – A</b>
<b>Specific Program Outcome:</b>	This paper introduces the Modern Sociological thoughts of the Sociological Thinkers. There is need to orient to the students about the modern sociological thoughts of G.H. Mead,C.H. Cooley, Talcott Parson and Robert K. Merton. This course introduces major contribution and thoughts of these scholars to the students of sociology. These thoughts would help students to understand the modern society and contemporary issues problems and challenges of the society. This course also provides sociological insights and perspective on modern society. By studying their sociological concepts, theories and perspectives, students will help to understand our society. On the basis of their contribution, we applied their perspective to understand contemporary issues, problems and challenges faced by human society. This paper introduces the Modern Sociological thoughts of the Sociological Thinkers. There is need to orient to the students about the modern sociological thoughts of G.H. Mead, C.H. Cooley, Talcott Parson and Robert K. Merton. This course introduces major contribution and thoughts of these scholars to the students of sociology. These thoughts



	would help students to understand the modern society and contemporary issues problems and challenges of the society. This course also provides sociological insights and perspective on modern society. By studying their sociological concepts, theories and perspectives, students will help to understand our society. On the basis of their contribution, we applied their perspective to understand contemporary issues, problems and challenges faced by human society.
<b>Specific Course Outcome:</b>	This course has multiple importances. This course introduces modern sociological Theories, concepts and perspectives. These thinkers gave shapes and new direction to the existing sociological knowledge. These modern sociological thinkers developed new sociological perspectives also. Thus, these modern sociologists introduce micro-perspective, alternative thoughts and focused on the individualism, liberty, personality and importance of social interaction and symbols in the individual and social life. Thus, the study of these modern thoughts would make students able to understand the contemporary issues, problems and challenges of the modern society. Thus, this course has importance to adopt new perspective and approaches to know the social world.
<b>Paper Name:</b>	<b>DGE – A :Methods of Social Research - I</b>
<b>Paper Number:</b>	<b>DGE- I</b>
<b>Specific Program Outcome:</b>	Research methodology is a hands on course designed to impart education in the Foundational methods. Sociologist use scientific methods for good reason. The scientific method provide a system of organization that help researchers plan and conduct the study while ensuring that data and results are reliable, valid and objective. Prepare a research proposal using appropriate research methods in order to meet a specified brief. This course aims to provide an understanding of the nature of social phenomena. The issue involved in social research and the ways and means of understanding and studying social reality. Thus the emphasis is threefold. Firstly, on the study of research methods as a means of understanding social reality. Second, the tools and techniques are only instruments and not the end or goal of research.
<b>Specific Course Outcome:</b>	This course has importance in the field of sociological research. Research methodology will be providing base for scientific thinking and rationalizing the minds, thoughts of students. This course has major aims to provide basic and fundamental knowledge of research methodology. This paper provides conceptual objectives, tools and techniques of research methodology. This course has also significance in providing scientific attitude and temper among the student of social sciences in general sociology in particular by doing this

	course, students will get job opportunities the research institutions, teaching, Research field corporate and marketing sector.
<b>Paper Name:</b>	<b>SEC – III: Social Counseling – 1</b>
<b>Paper Number:</b>	<b>SEC- I</b>
<b>Specific Program Outcome:</b>	Counseling is the activity of counselor. Counselor counsels people. This paper Focuses on some of the different factors. The success of counseling largely depends on the goals. The good counselor need on a professional basis to resolve especially personal, social or psychological problems and difficulties of the concerned. Counseling means “Listening to someone and giving that person advice about their problems or issue.”This course would be play very vital roles in the different field of counseling. To introduce social counseling in sociology has very different kinds of Significance; social counseling has many challenges and issues in front of sociologist. In the contemporary era, sociology has very vital role in field of counseling to the individuals of the society for social progress and development. This course consists of important and primary methods of counseling such as case work, group work and community work.
<b>Specific Course Outcome:</b>	Good counseling helps student to build skill, they can use in solving their problems. Counseling is important because it gives the opportunity and offer a positive benefits which can enhance person life.
<b>Paper Name:</b>	<b>DSE – B :Indian Social Reformer - II</b>
<b>Paper Number:</b>	<b>DSE- B</b>
<b>Specific Program Outcome:</b>	Social Reformer has made contribution in social reforms. Therefore, we have to Understand contribution of social reformers in the context of time and space. To understand the contribution of social reformer is sociologically significant. Social reformers played very important role in the contemporary society. They mobilize local people. Motivated them against the social ills and problems. They organize social institutions, social groups and social associations to bring out social changes in the lives of the common people. Thus, to understand contribution of social reform is sociologically important and motivate students for the course of social reforms. This paper has importance to understand the contribution of social reforms in their contemporary era which help to make student able to follow the thoughts of reformers in their life. This course will help students to introduce the contribution of social reforms, who had done lot of work for the cause of social reforms. Knowing their contribution

	would motivate students for the course of social reforms. Thus, the basic objective of this course is to introduce the noble works, thoughts and contribution of these social reformers to the students. Thus, the major aim and objective of this course is to motivate students and make them able to follow these thoughts in their life.
<b>Specific Course Outcome:</b>	This course has multiple utilities. This course will help students to introduce the Philosophy, thoughts, views and works of social reformer of India. This course has aim to orient the students of sociology towards the contribution of modern social reformers of India who spent their entire life for the cause of social reforms. This course would help to enlighten the understanding the importance of the thoughts of social reformers to understand the contemporary social ills, issues, problems and challenges. Thus, this course has sociologically relevance to inculcate these ideas & thoughts of the reformers in the minds of the young students and make them thought for the cause of social reformers. The teaching And reading of the thoughts and ideas of reformers contributed on building up the capacities.

<b>Paper Name:</b>	<b>DSE – B :Fundamental Indian Sociological Thinkers – II</b>
<b>Paper Number:</b>	<b>DSE- B</b>
<b>Specific Program Outcome:</b>	The important features of the Indian Social Structure are predominant rural habitation in small villages. The sense of urgency in dealing with Indian's Social, Economics, Religious and Political problems. A further significance of Indian today comes from the geopolitics of South Asia. Indian Sociological Thinkers have contributed a lot of theories in Indian Sociology which attempts to provide a scientific study of all forms of human life G. S. Ghurye is a towering figure in intellectual and academic circles for his unique contribution in the field of Indian Sociology. He emphasized on ideological approach in the study of social and cultural life of people in India. IrawatiKarve was India's first women anthropologist. Her contribution in general caste system, kinship and village studies. M. N. Shrinivas was, the well known sociologist, recognized as architect of modern Indian sociologist and social anthropologist. He was mostly known for his work on caste and caste system, social stratification, sanskritisation and westernization in southern India and the concept of 'Dominant Cast'. R. K. Mukherjee was Indian Sociologist. He was mostly known for his work on social Ecology, Group Psychology, Values and Symbols, Characteristic of Values and Personality, Society and Values. At last the objectives of this paper is improve

	logical and thinking skill.
<b>Specific Course Outcome:</b>	Indian philosophy refers to ancient philosophical tradition of the India subcontinent. The scientific temper is a way of life. A thinking process based on an evaluation of objectives facts learn of the concepts of social change and social transformation in relation. Logical thinking is process of clearly moving from one related to another. Social science refers to our distinct cultural million and value attitude system.
<b>Paper Name:</b>	<b>DGE – B: Techniques of Social Research - II</b>
<b>Paper Number:</b>	<b>DGE - B</b>
<b>Specific Program Outcome:</b>	Social scientists divided into camps of support for particular research techniques. Evaluate, analyze and interpret qualitative data also identify appropriate statistical procedures to perform basic analysis of quantitative data. Sociological research is a complex process. The social sciences comprised a vast of research methods, models, measures, and concepts and theories. This course aims to provide an understanding of the nature of social phenomena. The issue involved in social research and the ways and means of understanding and studying social reality. Thus the emphasis is threefold. Firstly, on the study of research methods as a means of understanding social reality. Second, the tools and techniques are only instruments and not the end or goal of research. Thirdly, there are different perspectives and methods
<b>Specific Course Outcome:</b>	This course has importance in the field of sociological research. Research methodology will be providing base for scientific thinking and rationalizing the minds, thoughts of students. This course has major aims to provide basic and fundamental knowledge of research methodology. This paper provides conceptual objectives, tools and techniques of research methodology. This course has also significance in providing scientific attitude and temper among the student of social sciences in general sociology in particular by doing this course, students will get job opportunities the research institutions, teaching, research field corporate and marketing field.
<b>Paper Name:</b>	<b>SEC – IV: Social Counseling – 2</b>
<b>Paper Number:</b>	<b>SEC- IV</b>
<b>Specific Program Outcome:</b>	Counseling is the activity of counselor. Counselor counsels people. This paper Focuses on some of the different factors. The success of counseling largely

	depends on the goals. The good counselor need on a professional basis to resolve especially personal, social or psychological problems and difficulties of the concerned. Counseling means “Listening to someone and giving that person advice about their problems or issue.” This course has aim to introduce moral ethics and values which would be helpful for the sustainable development of the human society. Since beginning sociologists had given importance on the values, moral, ethics, culture of the human society. For the same, this course has importance in the course to the different actors of the society. This course has field work and field visit camp to provide opportunities to students to understands issues and problem for solutions and adopts the counseling skills.
<b>Specific Course Outcome:</b>	Good counseling helps student to build skill, they can use in solving their problems. Counseling is important because it gives the opportunity and offers positive benefits which can enhance person life.

### M.Sc. F.Y. MICROBIOLOGY

- To provide fundamental and advanced knowledge in order to produce creative and imaginative microbiologist.
- To practice Microbiological laboratory techniques in support of various industrial fermentation.
- To equip student with knowledge of applied branches of Microbiology.

#### **Outcome :**

- Masters programme in microbiology will address & satisfy needs like; Skilled Microbiologist for industries and fundamental research
- M.sc microbiology student with have knowledge in depth about microbial diversity, physiology & metabolism, pathogenicity, Resistance, Microbial genetics, bioinstrumentation, Agricultural & pharmaceutical Microbiology.

### **Msc F. Y. Microbiology**

<b>CLASS</b>	Msc F. Y. Microbiology
<b>Semester</b>	Semester – I Subject: Microbiology
<b>Paper Name:</b>	Paper Name: Microbial Physiology
<b>Paper Number:</b>	Paper Number: MB-101
<b>Specific Program Outcome:</b>	Like other organisms student will able to learn important life processes of microorganisms such as types of Microbial Nutrition , Bacterial Respiration, Bacterial permeation and Transportation , Reproduction.
<b>Specific Course Outcome:</b>	Acquire knowledge about Physiological groups of Bacteria, Energy generation by oxidation of various inorganic compounds, Types of Respiration, Types of transport mechanisms in Bacteria, Sporulation in Bacteria.
<b>Paper Name:</b>	Practical Paper Name: Microbial Physiology
<b>Paper Number:</b>	PRACTICAL LAB-I MB-101
<b>Specific Program Outcome:</b>	Students will be technically skilled in performing Practicals based on Photosynthesis and Respiration in Bacteria, Active and passive diffusion, IOR and SOR studies in Bacteria.
<b>Specific Course Outcome:</b>	Acquire skills to perform practical by Comparing various parameters like pH, Temperature, chemicals, Heavy metals on growth and physiology of Bacteria.
<b>Paper Name:</b>	ADVANCES IN VIROLOGY
<b>Paper Number:</b>	MB-102
<b>Specific Program Outcome:</b>	The student will understand and be able to explain different branches of Microbiology such as Virology. The student will be able to explain about various

	aspects of viruses in more detail such as their classification, cultivation detection and lifecycles of various viruses.
<b>Specific Course Outcome:</b>	Student will be able to understand and explain the virology in order to prevent and control various viral diseases, including classification, characterization, Cultivation, Multiplication of viruses and pathogenesis.
<b>Paper Name:</b>	ADVANCES IN VIROLOGY
<b>Paper Number:</b>	PRACTICAL LAB-I MB-102
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where virology is involved. Basic skills such as cultivation of viruses, plaque assay, one step growth curve, transduction are practiced.
<b>Specific Course Outcome:</b>	Acquire skills to perform different virology practicals of cultivation of viruses, plaque assay, one step growth curve, transduction, induction of lysogeny, Lambda DNA isolation and plant viruses .
<b>Paper Name:</b>	FOOD AND DAIRY MICROBIOLOGY
<b>Paper Number:</b>	MB-103
<b>Specific Program Outcome:</b>	The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Student will be able to understand and explain the different aspects of Food and Dairy Microbiology including food spoilage, Food Preservation, Food and dairy Fermentations, Quality assurance and Food safety issues along with government regulatory practices and policies.
<b>Paper Name:</b>	Practical Paper Name: FOOD AND DAIRY MICROBIOLOGY
<b>Paper Number:</b>	PRACTICAL LAB-II MB-103
<b>Specific Program Outcome:</b>	Major outcome of this paper is to skill microbiologist in checking quality of food, increasing shelf life of dairy products, food and Dairy Fermentations.
<b>Specific Course Outcome:</b>	Students are enabled to isolate food pathogens, to estimate and extract diacetyl from food products, to extract and detect Aflatoxins form food samples, to estimate Lactic acid in fermented food.
<b>Paper Name:</b>	BIOINSTRUMENTATION
<b>Paper Number:</b>	MB-104
<b>Specific Program Outcome:</b>	Student get acquainted with various laboratory techniques, Chromatography techniques, Electrophoretic Techniques, Spectroscopic and Radioisotopic Techniques.
<b>Specific Course Outcome:</b>	Student will be able to understand explain and apply various biophysical and biochemical techniques during their further studies and research work.
<b>Paper Name:</b>	BIOINSTRUMENTATION
<b>Paper Number:</b>	PRACTICAL LAB-II MB-104
<b>Specific Program Outcome:</b>	Student get acquainted with various laboratory techniques, Chromatography techniques, Electrophoretic Techniques, Spectroscopic and Radioisotopic Techniques.
<b>Specific Course Outcome:</b>	Student skilled with various laboratory techniques, Chromatography techniques, Electrophoretic Techniques, Spectroscopic and Radioisotopic Techniques.
<b>Paper Name:</b>	<b>SEM II CLASS: M. Sc. F.Y. MICROBIAL METABOLISM</b>

<b>Paper Number:</b>	<b>MB-201</b>
<b>Specific Program Outcome:</b>	Major outcome of this paper is to learn Microbial bioenergetics, Various Carbohydrate metabolic Pathways and fermentations, Metabolism of Organic Nitrogenous compounds, Hydrocarbon metabolism and endogenous metabolism.
<b>Specific Course Outcome:</b>	To correlate regulation of metabolism at enzymatic levels and apply, methodology for commercial applications of enzymes To learn mechanisms of transport of solutes across the membrane To get acquainted with mechanism of biosynthesis and degradation of bio molecules To comprehend basic concept of autotrophic mode of metabolism of prokaryotes
<b>Paper Name:</b>	Practical Paper Name: MICROBIAL METABOLISM
<b>Paper Number:</b>	PRACTICAL LAB-III MB - 201
<b>Specific Program Outcome:</b>	Students will be skilled in studying bacterial metabolisms and their relevant pathways.
<b>Specific Course Outcome:</b>	Students develop skill of production and estimation of amino acid production, various reducing sugars and Proteins, demonstrate endogenous metabolism in bacteria, prepare and analyze polar lipids, isolate Hydrocarbon degraders, isolate PHB producers for commercial applications.
<b>Paper Name:</b>	MODERN MICROBIAL GENETICS
<b>Paper Number:</b>	MB-202
<b>Specific Program Outcome:</b>	To understand key concepts of Central Dogma To get knowledge of Prokaryotic Replication, Transcription and Translation
<b>Specific Course Outcome:</b>	<ul style="list-style-type: none"> <li>• To exhibit a knowledge base in Genetics and Molecular Biology</li> <li>• To understand the central dogma of Molecular Biology</li> <li>• To study genetic map of bacteria</li> <li>• To get introduced to concept of recombination and bacteriophage Genetics</li> </ul> To study Regulation of Gene expression
<b>Paper Name:</b>	Practical Paper Name: MODERN MICROBIAL GENETICS
<b>Paper Number:</b>	Paper Number: PRACTICAL LAB-III MB - 202
<b>Specific Program Outcome:</b>	To learn Basic Techniques involved in studying Microbial Genetics and Molecular Biology
<b>Specific Course Outcome:</b>	Students are skilled in various Molecular techniques like Extraction and Purification of DNA, confirmation by spectral studies, Agarose gel electrophoresis of DNA.
<b>Paper Name:</b>	BIOPROCESS ENGINEERING
<b>Paper Number:</b>	Paper Number: MB-203
<b>Specific Program Outcome:</b>	Major outcome is to acknowledge various applications of Microorganisms to produce different commodity chemical compounds on Large scale.
<b>Specific Course Outcome:</b>	<ul style="list-style-type: none"> <li>• To impart technical understanding of commercial fermentations</li> <li>• To apply classical, advanced strain improvement and isolation techniques for fermentation processes.</li> <li>• To optimize and sterilize media used in fermentation industry for commercially economical and efficient fermentations.</li> <li>• To recover the product using suitable methods and ensuring quality of the finished product by quality assurance tests.</li> <li>• To acquaint fermentation economics, process patentability, process validation.</li> <li>• To comprehend the large scale productions of commercially significant fermentation products of classical and recent significance.</li> </ul> To study various parameters of fermentation processes.
<b>Paper Name:</b>	BIOPROCESS ENGINEERING
<b>Paper Number:</b>	PRACTICAL LAB-IV MB - 203
<b>Specific Program</b>	To study qualitative and quantitative Estimation of biomolecules.

<b>Outcome:</b>	To learn Basic techniques and modern techniques Industrial Microbiology
<b>Specific Course Outcome:</b>	Students will be able to isolate industrially important microorganisms, to determine TDP and TDT of Sterilizer. To study batch reactor and continuous reactor. To purify and recover fermentation products.
<b>Paper Name:</b>	ENZYME TECHNOLOGY
<b>Paper Number:</b>	MB-204 (Elective)
<b>Specific Program Outcome:</b>	Students will learn basic and advanced findings in Enzyme Technology. This paper knowledge make them familiar with all aspects of Enzymes and their various applications as diagnostic as well as therapeutic tool.
<b>Specific Course Outcome:</b>	This course will increase their keen interest in enzymes, Biochemistry, Drug delivery systems, Enzyme engineering and various potential applications of enzymes.
<b>Paper Name:</b>	ENZYME TECHNOLOGY
<b>Paper Number:</b>	PRACTICAL LAB-IV MB – 204
<b>Specific Program Outcome:</b>	To understand importance of enzymes in day today life To isolate and purify particular enzyme. To study kinetic behavior of enzymes
<b>Specific Course Outcome:</b>	Especially skilled in Fungal Amylase Production, Purification, Assay and Enzyme activity determination as well enzyme Immobilization, preparation of Biosensor. Determination of molecular weight using PAGE Technique.

### Msc S. Y. Microbiology

<b>CLASS</b>	Msc S. Y. Microbiology
<b>Semester</b>	Semester – III Subject: Microbiology
<b>Paper Name:</b>	Paper Name: MOLECULAR IMMUNOLOGY
<b>Paper Number:</b>	Paper Number: MB-301
<b>Specific Program Outcome:</b>	The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Student will be able to explain and categorize different types of lymphoid organs as primary and secondary lymphoid organs, immunogen and immunoglobulin, Organization and Expression of Immunoglobulin genes, and Major, Minor Histocompatibility Complexes and Clinical immunology.
<b>Paper Name:</b>	Practical Paper Name: MOLECULAR IMMUNOLOGY
<b>Paper Number:</b>	PRACTICAL LAB-V MB-301
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific</b>	Acquire skills to perform practical by Comparing various parameters according to



<b>Course Outcome:</b>	different immunological techniques.
<b>Paper Name:</b>	RECOMBINANT DNA TECHNOLOGY
<b>Paper Number:</b>	MB-302
<b>Specific Program Outcome:</b>	The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Student will be able to understand and explain the recombinant DNA technology, explain steps and tools in genetic engineering and apply recombinant DNA technology in medicine agriculture and veterinary sciences.
<b>Paper Name:</b>	RECOMBINANT DNA TECHNOLOGY
<b>Paper Number:</b>	PRACTICAL LAB-V MB-302
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Acquire skills to perform practicals of isolation, restriction digestion, ligation, amplification, gene mapping and gene cloning required for recombinant DNA technology.
<b>Paper Name:</b>	MICROBIAL DIVERSITY AND EXTREMOPHILES
<b>Paper Number:</b>	MB-303
<b>Specific Program Outcome:</b>	The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Student will be able to understand and explain the microbial diversity present in different extreme environmental conditions in terms of their distribution, abundance, classification, structure and applications of their products.
<b>Paper Name:</b>	Practical Paper Name: MICROBIAL DIVERSITY AND EXTREMOPHILES
<b>Paper Number:</b>	PRACTICAL LAB-VI MB-303 Credits: 02 Specific Program Outcome:
<b>Specific</b>	Impart Knowledge of the diverse places where microbiology is involved.

<b>Program Outcome:</b>	Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome:
<b>Specific Course Outcome:</b>	Students are enabled to isolate thermophiles, halophiles by studying different parameters. Isolation of thermophiles from hot water spring (Study at least one thermostable enzyme). 1. Studies on halophiles isolated from high salt habitat. (Study its pigmentation and salt tolerance phenomenon). 2. Studies on alkalophiles and its enzymes (any one) isolated from extreme alkaline environment. 3. Biogenic methane production using different wastes. 4. Isolation of Thiobacillus ferrooxidans and Thiobacillus thiooxidans culture from metal sulfides, rock coal and acid mine water.
<b>Paper Name:</b>	BIostatISTICS, COMPUTER APPLICATIONS AND RESEARCH METHODOLOGY
<b>Paper Number:</b>	MB-304
<b>Specific Program Outcome:</b>	The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Student will be able to understand explain and apply the biostatistics, computer and research methodology during his further studies.
<b>Paper Name:</b>	BIostatISTICS, COMPUTER APPLICATIONS AND RESEARCH METHODOLOGY
<b>Paper Number:</b>	PRACTICAL LAB-VI MB-304
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome:
<b>Specific Course Outcome:</b>	Students develop skill to apply statistical knowledge and to correlate statistically extracted value by performing knowledge based practical. Also acquires skill to represent data by using the computer knowledge of MS Word, Excel and power point presentation.
<b>Paper Name:</b>	FERMENTATION TECHNOLOGY
<b>Paper Number:</b>	MB-401
<b>Specific Program Outcome:</b>	Student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical

	Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Student able to understand and develop skill of the different microbial fermentation processes, production of fermentation products, therapeutic compound. Bioplastic production, biofertilizer production. Get aware of procedure of IPR, Trademark, copyright.
<b>Paper Name:</b>	Practical Paper Name: FERMENTATION TECHNOLOGY
<b>Paper Number:</b>	PRACTICAL LAB-VII MB - 401
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Students develops skill of production and estimation of acid production glutamic acid, rifamycin production, thuricides, laboratory scale production of biofertilizer. Also acquires skills of microbial production of dextran and hydrogen gas.
<b>Paper Name:</b>	MEDICAL AND PHARMACEUTICAL MICROBIOLOGY
<b>Paper Number:</b>	MB-402
<b>Specific Program Outcome:</b>	The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Student able to understand and develop skill for construct antibiotic, microbiological assay drug resistance. Explain the mechanism and action of antibiotic antimicrobial agent. apply safety in microbiology. students will gain the knowledge and can work in hospital, pharmacy and industry
<b>Paper Name:</b>	Practical Paper Name: MEDICAL AND PHARMACEUTICAL MICROBIOLOGY
<b>Paper Number:</b>	Paper Number: PRACTICAL LAB-VII MB - 402
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Students develops skill of production and bioassay of penicillin, estimation of griseofulvin, production of therapeutic enzymes, determination of MIC and LD, sterility testing, and determination of antimicrobial activity of chemical compounds.

<b>Paper Name:</b>	Paper Name: ENVIRONMENTAL MICROBIOLOGY
<b>Paper Number:</b>	Paper Number: MB-403
<b>Specific Program Outcome:</b>	The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome:
<b>Specific Course Outcome:</b>	Student able to understand and recognise characteristic of environment and ecosystem, characteristics of waste water, solid waste and its treatment by various methods such as aerobic and anaerobic treatment. Also explains biodeterioration, biotransformation & recovery of Metals & Metalloids and impact of these factors on environment.
<b>Paper Name:</b>	Practical Paper Name: ENVIRONMENTAL MICROBIOLOGY
<b>Paper Number:</b>	PRACTICAL LAB-VII MB - 403
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Students develops skill and handling of physical analysis of sewage, measurement of BOD/COD, recovery of toxic metal ions from industrial effluent, study of municipal solid waste management, and microbial dye decolouration.
<b>Paper Name:</b>	MICROBIAL BIOINFORMATICS, GENOMICS AND PROTEOMICS
<b>Paper Number:</b>	MB-404 (Elective)
<b>Specific Program Outcome:</b>	The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Students are able to predict the significance of the biological phenomenon on the Sbasis of available data set. Student develops skill to apply the knowledge of bioinformatic for the analysis of microbial genome and proteins.
<b>Paper Name:</b>	MICROBIAL BIOINFORMATICS, GENOMICS AND PROTEOMICS
<b>Paper Number:</b>	PRACTICAL LAB-VII MB - 404

<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Students develops skill of handling data bases for nucleic acid and protein sequences, structure detection by RASMOL software, gene and protein sequence analysis using BLAST algorithm

## DEPARTMENT OF COMPUTER SCIENCE

### Program –B. Sc.

#### Program Outcomes:

1. An ability to apply knowledge of computing and mathematics appropriate to the discipline.
2. An ability to identify, formulate, and develop solutions to computational challenges.
3. An ability to design, implement, and evaluate a computational system to meet desired needs within realistic constraints.
4. An ability to function effectively on teams to accomplish shared computing design, evaluation, or implementation goals.
5. An understanding of professional, ethical, legal, security, and social issues and responsibilities for the computing profession.
6. An ability to communicate and engage effectively with diverse stakeholders.
7. An ability to analyze impacts of computing on individuals, organizations, and society.
8. Recognition of the need for and ability to engage in continuing professional development.
9. An ability to use appropriate techniques, skills, and tools necessary for computing practice.
10. An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computational systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
11. An ability to apply design and development principles in the construction of software systems of varying complexity.

#### Program specific outcomes-(paper wise data)

<b>Class</b>	<b>B.Sc I semester I</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>Problem Solving Using Computers</b>
<b>Paper Number:</b>	BCSITO01
<b>Specific Program Outcome:</b>	Explore algorithmic approaches to problem solving. Ability to analyze a problem and devise an algorithm to solve it. • Able to formulate algorithms, pseudo codes and flowcharts for arithmetic and logical • problems.

--	--

<b>Class</b>	<b>B.Sc I Semester I</b>
<b>Subject:</b>	<b>Computer Science</b>
<b>Paper Name:</b>	<b>Web Page Designing Through HTML</b>
<b>Paper Number:</b>	BCSITO02
<b>Specific Program Outcome:</b>	<ol style="list-style-type: none"> <li>1. Able to develop Web pages</li> <li>2. Able to Web document Creation</li> <li>3. Able to Responsive images on web pages</li> <li>4. Learn Client-side storage</li> <li>5. Able to learn Data Entry support with HTML</li> <li>6. Able to develop the game</li> <li>7. Able Native APIs usage to enrich a website</li> </ol>

<b>Class</b>	<b>B.Sc I Semester II</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>Analysis of Algorithm &amp; Data Structure</b>
<b>Paper Number:</b>	BCSITO04
<b>Specific Program Outcome:</b>	<p>Understand different methods of organizing large amount of data using data structure. Able to choose appropriate data structure as applied to specified problem definition. • Understand various techniques for representation of the data in the real world. • Able to compute the complexity of various algorithms. • Able to understand internal structure of compiler and interpreters •</p>

<b>Class</b>	<b>B.Sc I Semester II</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>Programming in C</b>
<b>Paper Number:</b>	BCSITO03
<b>Specific Program Outcome:</b>	<p>The course is designed to provide complete knowledge of C language. Students will be able to develop logics which will help them to create programs, applications in C. Also by learning the basic programming constructs they can easily switch over to any other language in future.</p>

<b>Class</b>	<b>B.Sc I Semester II</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>LAB I</b>
<b>Paper Number:</b>	<b>V</b>
<b>Specific Program Outcome:</b>	<b>Learn how to implement the practical using computer</b>

<b>Class</b>	<b>B.Sc II Semester III</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>Theory Paper No.VI</b>
<b>Name:</b>	<b>Operating System</b>

<b>Paper Number:</b>	<b>CCCS-III Section-A</b>
<b>Specific Program Outcome:</b>	High-level understand what is an operating system and the role it plays • A high-level understanding of the structure of operating systems, applications, and the relationship between them. • Some knowledge of the services provided by operating systems. • Exposure to some details of major OS concepts.

<b>Class</b>	<b>B.Sc II Semester III</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>Theory Paper No.VII</b> Programming in C++
<b>Paper Number:</b>	<b>CCCS-III Section-B</b>
<b>Specific Program Outcome:</b>	Able to understand the concept of object oriented programming. • Use the benefits of object oriented design and understand when it is an appropriate methodology to use. Design object oriented solutions for small systems involving multiple objects. ••

<b>Class</b>	<b>B.Sc II Semester III</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>Skill Enhancement Course-I:</b> <b>A) Programming in SCILAB-I</b> <b>OR</b> <b>B) PC Installation &amp; Networking</b>
<b>Paper Number:</b>	<b>SECCS-I</b>
<b>Specific Program Outcome:</b>	learn the Basics of Computer Networking. Open system: A system which is connected to the network and is ready for communication. Closed system: A system which is not connected to the network and can't be communicated with.  To connect a network of personal computers should be joined through a central hub. Allow connecting multiple devices and ports. Collisions occur mostly in setups using hubs. No collisions occur in a full-duplex switch. A network hub can't store MAC addresses.

<b>Class</b>	<b>B.Sc II Semester IV</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>Theory Paper No. VIII</b> Computer Network
<b>Paper Number:</b>	<b>CCCS-IV Section-A</b>
<b>Specific Program Outcome:</b>	<ul style="list-style-type: none"> <li>emonstrate expertise in configuring host and network level technical security controls, to include host firewalls, user access controls, host logging, network filtering, intrusion detection, and prevention and encryption at all levels; <b>(Managing Security—Applied)</b></li> <li>describe the hardware, software, and services that comprise an enterprise network, and be able to articulate how these components integrate to form a network solution; <b>(Network Integration—Theory)</b></li> <li>explain key networking protocols, and their hierarchical relationship in the context of a conceptual model, such as the OSI and TCP/IP framework; be able to articulate the low level data communications</li> </ul>

	<p>and subsequent abstractions that allow networked hosts and applications to communicate across the internet; <b>(Networking Protocols—Theory)</b></p> <ul style="list-style-type: none"> <li>• build multiple host and network architectures, given business requirements and constraints; student will configure operating systems, network specific services, routing, switching, and remote access</li> </ul>
--	--

<b>Class</b>	<b>B.Sc II Semester IV</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>Theory Paper No. IX</b> Programming in JAVA
<b>Paper Number:</b>	<b>CCCS-IV</b> <b>Section-B</b>
<b>Specific Program Outcome:</b>	<p>Write Java application programs using OOP principles and proper program structuring.</p> <p>Develop Java program using packages, inheritance and interface.</p> <p>Create Multithreaded programs</p> <p>Write Java programs to implement error handling techniques using exception handling and develop programs using class and inputs from keyboard</p> <p>Develop graphical User Interface using AWT.</p> <p>.</p>

<b>Class</b>	<b>B.Sc II Semester IV</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>Paper No. XIII</b> <b>Skill Enhancement Course-II:</b> <b>A) Web Applications</b> <b>OR</b> <b>B) Digital Media</b>
<b>Paper Number:</b>	<b>SECCS-II</b>
<b>Specific Program Outcome:</b>	<p>.</p> <p>ocial media platforms include many fields of study, such as sociology, business, psychology, entertainment, politics, news, and other cultural aspects of societies.</p> <p>Applying data mining to social media can provide exciting views on human behavior and human interaction.</p>

<b>Class</b>	<b>B.Sc II Semester V</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>Paper No.XII</b> <b>Laboratory Course Work (LCW)-III:</b> Practical's based on theory papers-VIII & IX (CN & Java)
<b>Paper Number:</b>	<b>CCCSP-III</b>



<b>Specific Program Outcome:</b>	.Learn practical implementation of paper no IX and X
----------------------------------	--

<b>Class</b>	<b>B.Sc III Semester V</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>Theory Paper No.XII</b> Software Engineering
<b>Paper Number:</b>	<b>Section-A</b> <b>DECC</b>
<b>Specific Program Outcome:</b>	Able to design and conduct experiments, as well as to analyze and interpret data. • Able to identify, formulate, and solve engineering problems. • Able to analyze, design, verify, validate, implement, apply, and maintain software • systems. Able to understand different phases of SDLC •

<b>Class</b>	<b>B.Sc II Semester V</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>Skill Enhancement Course-III:</b> <b>Data Mining</b> <b>OR</b> Multimedia and Applications
<b>Paper Number:</b>	<b>Section-A</b> <b>SECCS-III</b>
<b>Specific Program Outcome:</b>	The knowledge gained through data mining can become actionable information a business can use to improve marketing, predict buying trends, detect fraud, filter emails, manage risk, increase sales and improve customer relations.

<b>Class</b>	<b>B.Sc III Semester V</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>Theory Paper No. XIII[A]</b> Visual Programming <b>OR</b> <b>Theory Paper No. XIII[B]</b> Cloud Computing
<b>Paper Number:</b>	<b>Section-B</b> <b>DECC</b> <b>( Elective</b>
<b>Specific Program Outcome:</b>	Describing the difference between a console program and a Graphical User Interface (GUI). 2. Creating a console program. 3. Modifying existing user interfaces in sample programming projects. 4. Creating a GUI incorporating good design principles for a programming project. 5. Using the following GUI components in assignments: buttons, labels, text boxes, dialogs, picture boxes, check boxes, radio buttons, group boxes and list or combo boxes

<b>Class</b>	<b>B.Sc III Semester VI</b>
<b>Subject:</b>	<b>Computer science</b>

<b>Paper Name:</b>	<b>Theory Paper-XIV</b> Relational Database Management Systems & PL/SQL
<b>Paper Number:</b>	<b>Section-A</b> <b>DECC</b>
<b>Specific Program Outcome:</b>	Able to understand database concepts and database management system software. Analyze and design a real database application.● Develop and evaluate a real database application using a database management system.● Able to develop applications using PL/SQL●&front end tools.

<b>Class</b>	<b>B.Sc III Semester VI</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>Theory Paper No. XV[A]</b> Computer System Security <b>OR</b> <b>Theory Paper No. XV[B]</b> <b>E-Commerce</b>
<b>Paper Number:</b>	<b>Section-B</b> <b>DECC</b> ( Elective
<b>Specific Program Outcome:</b>	after reading this chapter, you will be able to: <ul style="list-style-type: none"> <li>Understand the scope of e-commerce crime and security problems, the key dimensions of e-commerce security, and the tension between security and other values.</li> <li>Identify the key security threats in the e-commerce environment.</li> <li>Describe how technology helps secure Internet communications channels, and protect networks, servers, and clients.</li> <li>Appreciate the importance of policies, procedures, and laws in creating security.</li> <li>Identify the major e-commerce payment systems in use today.</li> <li>Describe the features and functionality of electronic billing presentment and payment systems.</li> </ul>

<b>Class</b>	<b>B.Sc II Semester V</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper Name:</b>	<b>Skill Enhancement Course-IV:</b> <b>Office Automation Tools</b> <b>OR</b> Android Programming
<b>Paper Number:</b>	<b>Section-B</b> <b>SECCS-IV</b>
<b>Specific Program Outcome:</b>	Able to understand database concepts and database management system software.● Analyze and design a real database application.● Develop and evaluate a real database application using a database management system.● Able to develop applications using PL/SQL●&front end tools.

## DEPARTMENT OF MICROBIOLOGY

**Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink):**

**Program - B. Sc.**

**Program specific outcomes- B. Sc. Microbiology**

- To enrich students' knowledge and train them in the pure microbial sciences
- To introduce the concepts of application and research in Microbiology
- To inculcate sense of scientific responsibilities and social and environment awareness
- To help students build-up a progressive and successful career

**Course Program specific outcomes-**

**B. Sc. F. Y. Microbiology**

<b>Class</b>	<b>B. Sc. First Year (Semester – I)</b>
<b>Subject:</b>	<b>Microbiology</b>
<b>Paper Name:</b>	Introductory Microbiology (P-I)
<b>Paper Number:</b>	I
<b>Specific Program Outcome:</b>	The aim of the undergraduate degree in Microbiology is to make students familiar about basic concepts of Microbiology and acquire knowledge of the microbiology concepts.
<b>Specific Course Outcome:</b>	Introductory Microbiology trains students for gaining expertise in the microbial world and the way it interacts with humans. It gives an insight about Scope, Development and General characteristics of microorganisms with respect to taxa present around us as well as Harmful and useful aspects of microorganisms.
<b>Paper Name:</b>	Fundamentals of Microbiology (P – II)

<b>Paper Number:</b>	<b>II</b>
<b>Specific Program Outcome:</b>	It gives knowledge about Instruments used to study Microorganisms, and also introduces Ultra structure of bacteria. Further Basic concepts of Microbial Nutrition discussed in order to isolate them in Laboratory conditions using various Growth Media.
<b>Specific Course Outcome:</b>	This course also introduces basic concepts of Microbial Control after studying their Fine details.
<b>Paper Name:</b>	Basic Microbiology & Biomolecules (P-III)
<b>Paper Number:</b>	<b>III</b>
<b>Specific Program Outcome:</b>	The aim of the undergraduate degree in Microbiology is to make students knowledgeable about the various basic concepts in wide-ranging contexts such as Microbial Staining techniques that involves the use of knowledge and skills of Microbiology. Their keen interest, understanding and skills in Microbiology needs to be developed through a thorough teaching learning processes in the class, practical skills through the laboratory work.
<b>Specific Course Outcome:</b>	After studying Fine details of bacterial and Viral ultra structure, in this course introduced core concepts of Biomolecules structure and their function. That also gives Basic foundation to Biochemistry.
<b>Paper Name:</b>	<b>Microbial Physiology</b>
<b>Paper Number:</b>	<b>IV</b>
<b>Specific Program Outcome:</b>	Acquired a fairly good understanding of Bacterial Cultivation methods used in laboratories along with their Vital Life Processes.
<b>Specific Course Outcome:</b>	Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices, controlling microorganisms are practiced.
<b>Paper Name:</b>	Practical's based on Section A & Section B of P I & P II ( PV)
<b>Paper Number:</b>	<b>P-V</b>
<b>Specific Program Outcome:</b>	To introduce important aspects such as i. Safety measures and Good Laboratory Practices in microbiology laboratory. ii. Introduction, operation, precautions and use of common microbiology laboratory instruments: Incubator, Hot air oven, Autoclave, Colorimeter, Laminar air flow hood, Clinical centrifuge as well as Introduction and use of common laboratory glass wares: Test tubes, culture tubes, suspension tubes, screw capped tubes, Petri plates, pipettes, Erlenmeyer flask, volumetric flask, glass spreader, Durham's tube and inoculating needles (wire loop, stab needles). With a focus of inculcating essential basic techniques in Microbiology: Wrapping of glassware, cotton plugging, cleaning and washing of glassware, biological waste disposal.
<b>Specific Course Outcome:</b>	The methodology to develop keen observation i.e. different microscopy techniques, staining techniques and nutritional requirements will be taught in detail; including these aspects at laboratory level as well. Introduction to biochemical characterization of components of micro-organism e.g. proteins, lipids, nucleic acids and carbohydrates and instrumental techniques to estimate these components qualitatively and quantitatively from micro-organisms or other natural sources will be the focus for second theory paper. Relevant experimentation on these topics will be included in

	practical course. In practical course, students will be trained in preparing laboratory manuals, standard operating practices and logbooks.
--	---

## **B. Sc S. Y. Microbiology**

<b>Class</b>	<b>B. Sc. Second Year (Semester – III)</b>
<b>Subject:</b>	<b>Microbiology</b>
<b>Paper Name:</b>	<b>Applied Microbiology (P-VI) CCMB III (Section A)</b>
<b>Paper Number:</b>	<b>VI</b>
<b>Specific Program Outcome:</b>	The aim of the undergraduate degree in Microbiology is to make students knowledgeable about the various basic concepts in wide-ranging contexts, which involve the use of knowledge and skills of Microbiology and acquire knowledge and understanding of the microbiology concepts as applicable to diverse areas such as medical, industrial, environment, genetics, agriculture, food and others. Their understanding, knowledge and skills in Microbiology needs to be developed through a thorough teaching learning processes in the class, practical skills through the laboratory work, their presentation and articulation skills, exposure to industry and interaction with industry experts, write short research-based projects where they are guided and mentored by the academic and other experts of the subject.
<b>Specific Course Outcome:</b>	Applied microbiology trains students for gaining expertise in the microbial world and the way it interacts with humans. It looks at how we can harness and utilize the powers of the microbes in areas ranging from air, water and sewage microbiology to Milk Microbiology and extends to industrial applications. A wide range of microbial by-product production, quality assessment and health hazard monitoring is possible by students who get well versed in this course.
<b>Paper Name:</b>	<b>Immunology</b>
<b>Paper Number:</b>	<b>VII</b>
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens.
<b>Specific Course Outcome:</b>	Understand the basic components of the immune system and how this system serves to protect the host against disease-causing microbes. Understand Concept related to cells and organs related to immune system, Immunity, Immune response and immune mechanism of both Immunity & Hypersensitivity.
<b>Paper Name:</b>	<b>Microbiology Paper Name: Food, Soil Microbiology and Microbial Ecology (P-VIII)</b>
<b>Paper Number:</b>	<b>VIII</b>
<b>Specific Program Outcome:</b>	The aim of the undergraduate degree in Microbiology is to make students knowledgeable about the various basic concepts in wide-ranging contexts, which involve the use of knowledge and skills of Microbiology and acquire knowledge and understanding of the microbiology concepts as applicable to diverse areas such as medical, industrial, environment, genetics, agriculture, food and others. Their understanding, knowledge and skills in Microbiology needs to be developed through a thorough teaching learning processes in the class, practical skills through the laboratory work, their presentation and articulation skills, exposure to industry and interaction with industry experts, write short research-based projects where they are guided and mentored by the academic and other experts of the subject.

<b>Specific Course Outcome:</b>	To apply the knowledge of microorganisms causing food spoilage, pathogens that may cause disease post cooked or storage, those used to produce fermented foods such as cheese, yogurt, bread, beer, and wine, meat and meat products, fruits vegetables and those with other useful roles such as producing probiotics. Understand of principles of soil science, microbiology, and the chemistry and physics of natural elemental cycles, which maintain the balance of our ecosystem. Describe significance of soil fertility, appreciaterole of soil microorganisms which play essential roles in the nutrient cycles that are fundamental to life on the planet. Illustrate and explain how microbes are responsible for cycling nutrients through the environment, creating important symbiotic relationships, providing energy in the absence of sunlight, and digesting the food we eat.
<b>Paper Name:</b>	Medical microbiology (PIX)
<b>Paper Number:</b>	IX
<b>Specific Program Outcome:</b>	Acquired a fairly good understanding of normal microflora of human body, common diseases caused by bacteria, viruses, fungi and other microbes. Specific Course Outcome:
<b>Specific Course Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens.
<b>Paper Name:</b>	Annual Practical's based CCMBP II [CCMB III & IV (Section A)]
<b>Paper Number:</b>	Practical's based on P-VI & P-VIII (P-X) Credits: 02 Marks: 50 (Annual practical Based on CCMBP II [CCMB III & IV (Section A)]
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens.
<b>Specific Course Outcome:</b>	Acquire skills of handling microorganisms in the laboratory and study their characteristics. Has developed laboratory skills in isolating and detecting microbes from soil and water. Laboratory skills of testing microbial load in Food and milk. Has developed skills for growing microorganisms in the laboratory to produce different enzymes
<b>Paper Name:</b>	Annual Practical's based CCMBP III [CCMB III & IV (Section B)]
<b>Paper Number:</b>	Practical's based on P-VII & P-IX (P-XI)
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens.
<b>Specific Course Outcome:</b>	Acquire skills of handling microorganisms in the laboratory and study their characteristics. Has developed laboratory skills in detecting enzymes antigen and antibodies using diagnostic kits Laboratory skills of staining blood and enumerate RBCs and WBCs in whole blood. Has developed skills for growing Pathogenic microorganisms in the laboratory and identifying them on basis of various biochemical tests and perform antibiotic sensitivity tests.
<b>Paper Name:</b>	Public Health Microbiology SECMB - I
<b>PaperNumber:</b>	SECMB - I
<b>Specific Program</b>	The aim of the undergraduate degree in Microbiology is to make students knowledgeable about the various basic concepts in wide-ranging contexts, which

<b>Outcome:</b>	involve the use of knowledge and skills of Microbiology. Their understanding, knowledge and skills in Microbiology needs to be developed through a thorough teaching learning processes in the class, practical skills through the laboratory work, their presentation and articulation skills, exposure to industry and interaction with industry experts, write short research-based projects where they are guided and mentored by the academic and other experts of the subject.
<b>Specific Course Outcome:</b>	Have developed a very good understanding of practical aspects diagnosis of common human waterborne infections, preventive measures for human waterborne infections by the use of antibiotics and vaccines, Gain skills food and milk quality testing.
<b>Paper Name:</b>	Microbial Biofertilizers SECMB - I
<b>Paper Number:</b>	SECMB - I
<b>Specific Program Outcome:</b>	The aim of the undergraduate degree in Microbiology is to make students knowledgeable about the various basic concepts in wide-ranging contexts, which involve the use of knowledge and skills of Microbiology. Their understanding, knowledge and skills in Microbiology needs to be developed through a thorough teaching learning processes in the class, practical skills through the laboratory work, their presentation and articulation skills, exposure to industry and interaction with industry experts, write short research-based projects where they are guided and mentored by the academic and other experts of the subject.
<b>Specific Course Outcome:</b>	Have developed a very good understanding of practical aspects production of biofertilizers.
<b>Paper Name:</b>	Diagnostic Microbiology SECMB - II (Section A)
<b>Paper Number:</b>	SECMB - II
	Specific Program Outcome: The aim of the undergraduate degree in Microbiology is to make students knowledgeable about the various basic concepts in wide-ranging contexts, which involve the use of knowledge and skills of Microbiology. Their understanding, knowledge and skills in Microbiology needs to be developed through a thorough teaching learning processes in the class, practical skills through the laboratory work, their presentation and articulation skills, exposure to industry and interaction with industry experts, write short research-based projects where they are guided and mentored by the academic and other experts of the subject
	Specific Course Outcome: Have developed a very good understanding of practical aspects of collection of different clinical samples, their transport, culture and examination by staining, and molecular and immunological diagnostic methods for diagnosis of microbial diseases.
<b>Paper Name:</b>	Medical Laboratory Techniques SECMB - II (Section B)
<b>Paper Number:</b>	SECMB - II
<b>Specific Program Outcome:</b>	The aim of the undergraduate degree in Microbiology is to make students knowledgeable about the various basic concepts in wide-ranging contexts, which involve the use of knowledge and skills of Microbiology. Their understanding, knowledge and skills in Microbiology needs to be developed through a thorough teaching learning processes in the class, practical skills through the laboratory work, their presentation and articulation skills, exposure to industry and interaction with industry experts, write short research-based projects where they are guided and mentored by the academic and other experts of the subject.
<b>Specific Course Outcome:</b>	Have developed a very good understanding of practical aspects of collection of different clinical samples, their transport, culture and examination by staining, and molecular and immunological diagnostic methods for diagnosis of microbial

	diseases.
--	-----------

## B.Sc. T.Y. Microbiology

<b>Class</b>	<b>B. Sc. Third Year (Semester – V)</b>
<b>Subject:</b>	<b>Microbiology</b>
<b>Paper Name:</b>	Microbial Genetics DSEMB I (Section A)]
<b>Paper Number:</b>	Paper Number: XII
<b>Specific Program Outcome:</b>	To understand key concepts of Central Dogma To get knowledge of Prokaryotic Replication, Transcription and Translation
<b>Specific Course Outcome:</b>	<ul style="list-style-type: none"> <li>• To exhibit a knowledge base in Genetics and Molecular Biology</li> <li>• To understand the central dogma of Molecular Biology</li> <li>• To study genetic map of bacteria</li> <li>• To get introduced to concept of recombination and bacteriophage Genetics</li> </ul>
<b>Paper Name:</b>	Paper Name: Microbial Metabolism DSEMB I (Section B I)
<b>Paper Number:</b>	Paper Number: XIII A
<b>Specific Program Outcome:</b>	Understand the basic components of the Enzymology and Microbial Metabolism. To get insight on cellular Bioenergetics.
<b>Specific Course Outcome:</b>	<ul style="list-style-type: none"> <li>• To understand methods of active site determination, role of enzymes and its cofactors in microbial physiology.</li> <li>• To learn to perform enzyme assay, purification and quantification of enzymes activity, enzyme kinetics in terms of initial, final velocity, mathematical expression of enzyme kinetic parameters.</li> <li>• To correlate regulation of metabolism at enzymatic levels and apply, methodology for commercial applications of enzymes</li> <li>• To learn mechanisms of transport of solutes across the membrane</li> <li>• To get acquainted with mechanism of biosynthesis and degradation of bio molecules</li> <li>• To comprehend basic concept of autotrophic mode of metabolism of prokaryotes</li> </ul>
<b>Paper Name:</b>	Paper Name: Nitrogen Metabolism DSEMB I (Section B II)
<b>Paper Number:</b>	Paper Number: XIII B
<b>Specific Program Outcome:</b>	To understand concepts of catabolism and Anabolism with special focus on the Nitrogenous compounds.
<b>Specific Course Outcome:</b>	To get clear understanding about Amino acid Synthesis pathways, Catabolic pathways of Amino acid breakdown, Protein Synthesis and their breakdown, Energy production and consumption during metabolic pathways.
<b>Paper Name:</b>	Paper Name: Molecular Biology DSEMB II (Section A )
<b>Paper Number:</b>	Paper Number: XIV
<b>Specific Program Outcome:</b>	To understand key concepts of Gene expression in Prokaryotes. To get knowledge of Molecular tools, Enzymes used in Recombinant DNA Technology and Applications of Molecular techniques.
<b>Specific</b>	<ul style="list-style-type: none"> <li>• To know basics of Genetic code</li> </ul>



<b>Course Outcome:</b>	<ul style="list-style-type: none"> <li>• To understand Mutagenesis and Repair mechanisms</li> <li>• To study gene expression in bacteria</li> <li>• To understand the concept cloning in bacteria</li> <li>• To demonstrate the knowledge of common and advanced laboratory practices in Molecular Biology such as Cloning, Gene Expression, Gene Transfer, screening strategies and various applications of molecular techniques</li> </ul>
<b>Paper Name:</b>	Paper Name: Industrial Microbiology DSEMB II (Section B I)
<b>Paper Number:</b>	Paper Number: XV A
<b>Specific Program Outcome:</b>	Major outcome is to acknowledge various applications of Microorganisms to produce different commodity chemical compounds on Large scale.
<b>Specific Course Outcome:</b>	<ul style="list-style-type: none"> <li>• To impart technical understanding of commercial fermentations</li> <li>• To apply classical, advanced strain improvement and isolation techniques for fermentation processes.</li> <li>• To optimize and sterilize media used in fermentation industry for commercially economical and efficient fermentations.</li> <li>• To recover the product using suitable methods and ensuring quality of the finished product by quality assurance tests.</li> <li>• To acquaint fermentation economics, process patentability, process validation.</li> <li>• To comprehend the large scale productions of commercially significant fermentation products of classical and recent significance.</li> </ul>
<b>Paper Name:</b>	Paper Name: Pharmaceutical Microbiology DSEMB II (Section B II)
<b>Paper Number:</b>	Paper Number: XV B
<b>Specific Program Outcome:</b>	<ul style="list-style-type: none"> <li>• To describe role of microbiologist in Pharmaceutics</li> <li>• To explain Good Laboratory Practices and Safety techniques</li> </ul>
<b>Specific Course Outcome:</b>	<ul style="list-style-type: none"> <li>• To learn Pharmacopoeia and Microbiological tests in GLP and safety Techniques Identify and classify types of microorganisms in Microbial spoilage, Contamination and Infection of Pharma products</li> <li>• To learn Pharmaceutical production of various products like vitamins, Enzymes, Vaccines, Antibodies Antiviral products from Microbial sources on large scale .</li> <li>• To apply principles of sanitation, heat treatment, irradiation, modified atmosphere, antimicrobial preservatives and combination of method (hurdle concept) to control microbial growth with emphasis on HACCP guidelines.</li> </ul>
<b>Paper Name:</b>	Paper Name: Practicals Based on P – XII & P – XIV (DSEMBP I [DSEMB I & II Section A])
<b>Paper Number:</b>	Paper Number: XVI
<b>Specific Program Outcome:</b>	To learn Basic Techniques involved in studying Microbial Genetics and Molecular Biology
<b>Specific Course Outcome:</b>	<p>Students will able to purify and Characterize Chromosomal DNA, Plasmid DNA and Study DNA profile.</p> <p>To study Mutagenesis in Bacteria and Yeast by using physical and chemical agents.</p> <p>To study Gene expression in Bacteria.</p> <p>To study process of conjugation, Transformation and Transduction in <i>E. coli</i>.</p>
<b>Paper Name:</b>	Paper Name: Practicals Based on P – XIII A & B & P – XVA & B (DSEMBP II [DSEMB I & II Section B I & II])
<b>Paper Number:</b>	Paper Number: XVII

<b>Specific Program Outcome:</b>	To study qualitative and quantitative Estimation of biomolecules. To learn Basic techniques in Enzyme technology and Industrial Microbiology
<b>Specific Course Outcome:</b>	In this course student will learn various techniques that involves, study of various enzymes, estimation of biomolecules, Primary screening methods, Antibiotic production and its Bioassay, Alcohol, Citric acid , Wine microbial production and their estimations and others.
<b>Paper Name:</b>	Paper Name: Enzyme Technology (SECMBIII A)
<b>Paper Number:</b>	Paper Number: Skill – III
<b>Specific Program Outcome:</b>	To understand importance of enzymes in day today life To isolate and purify particular enzyme
<b>Specific Course Outcome:</b>	Specially skilled in Fungal Amylase Production, Purification, Assay and Enzyme activity determination as well enzyme Immobilization.
<b>Paper Name:</b>	Paper Name: Molecular Biology Techniques (SECMB III B)
<b>Paper Number:</b>	Paper Number: Skill – III
<b>Specific Program Outcome:</b>	To understand importance of tools used in molecular biology To study process of Genetic Engineering.
<b>Specific Course Outcome:</b>	Students are skilled in various Molecular techniques like Extraction and Purification of DNA, confirmation by spectral studies, Agarose gel electrophoresis of DNA.
<b>Paper Name:</b>	Paper Name: Bioprocess Technology (SECMB IV A)
<b>Paper Number:</b>	Paper Number: Skill – IV
<b>Specific Program Outcome:</b>	To understand the bioprocesses To study role of microorganisms involved in treatment of sewage.
<b>Specific Course Outcome:</b>	To learn practices involved in Biocompost, Biofertilizers, Bioinsecticides, Biogas , Biofuel and ethanol production from Agricultural waste. BOD and COD Determination
<b>Paper Name:</b>	Paper Name: Good Manufacturing Practices (GMP) (SECMB IVB)
<b>Paper Number:</b>	Paper Number: Skill - IV
<b>Specific Program Outcome:</b>	To understand importance of GMP in Pharmaceutical Industry. To study sterilization methods of pharmaceutical products.
<b>Specific Course Outcome:</b>	Students skilled in Bioassay of Antibiotic, Bioassay of Glucose Oxidase, Determination Of MIC and LD <sub>50</sub> of Antibiotics, Henol coefficient test and sterility test using <i>B. stercorophilus</i> .

## M.Sc. F.Y. MICROBIOLOGY

- To provide fundamental and advanced knowledge in order to produce creative and imaginative microbiologist.
- To practice Microbiological laboratory techniques in support of various industrial fermentation.
- To equip student with knowledge of applied branches of Microbiology.

### Outcome :

- Masters programme in microbiology will address & satisfy needs like; Skilled Microbiologist for industries and fundamental research
- M.sc microbiology student will have knowledge in depth about microbial diversity, physiology & metabolism, pathogenicity, Resistance, Microbial genetics, bioinstrumentation, Agricultural & pharmaceutical Microbiology.

## Msc F. Y. Microbiology

<b>CLASS</b>	Msc F. Y. Microbiology
<b>Semester</b>	Semester – I Subject: Microbiology
<b>Paper Name:</b>	Paper Name: Microbial Physiology
<b>Paper Number:</b>	Paper Number: MB-101
<b>Specific Program Outcome:</b>	Like other organisms student will able to learn important life processes of microorganisms such as types of Microbial Nutrition , Bacterial Respiration, Bacterial permeation and Transportation , Reproduction.
<b>Specific Course Outcome:</b>	Acquire knowledge about Physiological groups of Bacteria, Energy generation by oxidation of various inorganic compounds, Types of Respiration, Types of transport mechanisms in Bacteria, Sporulation in Bacteria.
<b>Paper Name:</b>	Practical Paper Name: Microbial Physiology
<b>Paper Number:</b>	PRACTICAL LAB-I MB-101
<b>Specific Program Outcome:</b>	Students will be technically skilled in performing Practicals based on Photosynthesis and Respiration in Bacteria, Active and passive diffusion, IOR and SOR studies in Bacteria.
<b>Specific Course Outcome:</b>	Acquire skills to perform practical by Comparing various parameters like pH, Temperature, chemicals, Heavy metals on growth and physiology of Bacteria.
<b>Paper Name:</b>	ADVANCES IN VIROLOGY
<b>Paper Number:</b>	MB-102
<b>Specific Program Outcome:</b>	The student will understand and be able to explain different branches of Microbiology such as Virology. The student will be able to explain about various aspects of viruses in more detail such as their classification, cultivation detection and lifecycles of various viruses.
<b>Specific Course Outcome:</b>	Student will be able to understand and explain the virology in order to prevent and control various viral diseases, including classification, characterization, Cultivation, Multiplication of viruses and pathogenesis.
<b>Paper Name:</b>	ADVANCES IN VIROLOGY
<b>Paper Number:</b>	PRACTICAL LAB-I MB-102
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where virology is involved. Basic skills such as cultivation of viruses, plaque assay, one step growth curve, transduction are practiced.
<b>Specific Course Outcome:</b>	Acquire skills to perform different virology practicals of cultivation of viruses, plaque assay, one step growth curve, transduction, induction of lysogeny, Lambada DNA isolation and plant viruses .
<b>Paper Name:</b>	FOOD AND DAIRY MICROBIOLOGY
<b>Paper Number:</b>	MB-103
<b>Specific Program Outcome:</b>	The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Student will be able to understand and explain the different aspects of Food and Dairy Microbiology including food spoilage, Food Preservation, Food and dairy Fermentations, Quality assurance and Food safety issues along with government regulatory practices and policies.
<b>Paper Name:</b>	Practical Paper Name: FOOD AND DAIRY MICROBIOLOGY

<b>Paper Number:</b>	PRACTICAL LAB-II MB-103
<b>Specific Program Outcome:</b>	Major outcome of this paper is to skill microbiologist in checking quality of food, increasing shelf life of dairy products, food and Dairy Fermentations.
<b>Specific Course Outcome:</b>	Students are enabled to isolate food pathogens, to estimate and extract diacetyl from food products, to extract and detect Aflatoxins from food samples, to estimate Lactic acid in fermented food.
<b>Paper Name:</b>	BIOINSTRUMENTATION
<b>Paper Number:</b>	MB-104
<b>Specific Program Outcome:</b>	Student get acquainted with various laboratory techniques, Chromatography techniques, Electrophoretic Techniques, Spectroscopic and Radioisotopic Techniques.
<b>Specific Course Outcome:</b>	Student will be able to understand explain and apply various biophysical and biochemical techniques during their further studies and research work.
<b>Paper Name:</b>	BIOINSTRUMENTATION
<b>Paper Number:</b>	PRACTICAL LAB-II MB-104
<b>Specific Program Outcome:</b>	Student get acquainted with various laboratory techniques, Chromatography techniques, Electrophoretic Techniques, Spectroscopic and Radioisotopic Techniques.
<b>Specific Course Outcome:</b>	Student skilled with various laboratory techniques, Chromatography techniques, Electrophoretic Techniques, Spectroscopic and Radioisotopic Techniques.
<b>Paper Name:</b>	<b>SEM II CLASS: M. Sc. F.Y. MICROBIAL METABOLISM</b>
<b>Paper Number:</b>	<b>MB-201</b>
<b>Specific Program Outcome:</b>	Major outcome of this paper is to learn Microbial bioenergetics, Various Carbohydrate metabolic Pathways and fermentations, Metabolism of Organic Nitrogenous compounds, Hydrocarbon metabolism and endogenous metabolism.
<b>Specific Course Outcome:</b>	To correlate regulation of metabolism at enzymatic levels and apply, methodology for commercial applications of enzymes To learn mechanisms of transport of solutes across the membrane To get acquainted with mechanism of biosynthesis and degradation of bio molecules To comprehend basic concept of autotrophic mode of metabolism of prokaryotes
<b>Paper Name:</b>	Practical Paper Name: MICROBIAL METABOLISM
<b>Paper Number:</b>	PRACTICAL LAB-III MB - 201
<b>Specific Program Outcome:</b>	Students will be skilled in studying bacterial metabolisms and their relevant pathways.
<b>Specific Course Outcome:</b>	Students develop skill of production and estimation of amino acid production, various reducing sugars and Proteins, demonstrate endogenous metabolism in bacteria, prepare and analyze polar lipids, isolate Hydrocarbon degraders, isolate PHB producers for commercial applications.
<b>Paper Name:</b>	MODERN MICROBIAL GENETICS
<b>Paper Number:</b>	MB-202
<b>Specific Program Outcome:</b>	To understand key concepts of Central Dogma To get knowledge of Prokaryotic Replication, Transcription and Translation
<b>Specific Course Outcome:</b>	<ul style="list-style-type: none"> <li>• To exhibit a knowledge base in Genetics and Molecular Biology</li> <li>• To understand the central dogma of Molecular Biology</li> <li>• To study genetic map of bacteria</li> <li>• To get introduced to concept of recombination and bacteriophage Genetics</li> </ul> To study Regulation of Gene expression
<b>Paper Name:</b>	Practical Paper Name: MODERN MICROBIAL GENETICS

<b>Paper Number:</b>	Paper Number: PRACTICAL LAB-III MB - 202
<b>Specific Program Outcome:</b>	To learn Basic Techniques involved in studying Microbial Genetics and Molecular Biology
<b>Specific Course Outcome:</b>	Students are skilled in various Molecular techniques like Extraction and Purification of DNA, confirmation by spectral studies, Agarose gel electrophoresis of DNA.
<b>Paper Name:</b>	BIOPROCESS ENGINEERING
<b>Paper Number:</b>	Paper Number: MB-203
<b>Specific Program Outcome:</b>	Major outcome is to acknowledge various applications of Microorganisms to produce different commodity chemical compounds on Large scale.
<b>Specific Course Outcome:</b>	<ul style="list-style-type: none"> <li>• To impart technical understanding of commercial fermentations</li> <li>• To apply classical, advanced strain improvement and isolation techniques for fermentation processes.</li> <li>• To optimize and sterilize media used in fermentation industry for commercially economical and efficient fermentations.</li> <li>• To recover the product using suitable methods and ensuring quality of the finished product by quality assurance tests.</li> <li>• To acquaint fermentation economics, process patentability, process validation.</li> <li>• To comprehend the large scale productions of commercially significant fermentation products of classical and recent significance.</li> </ul> To study various parameters of fermentation processes.
<b>Paper Name:</b>	BIOPROCESS ENGINEERING
<b>Paper Number:</b>	PRACTICAL LAB-IV MB - 203
<b>Specific Program Outcome:</b>	To study qualitative and quantitative Estimation of biomolecules. To learn Basic techniques and modern techniques Industrial Microbiology
<b>Specific Course Outcome:</b>	Students will be able to isolate industrially important microorganisms, to determine TDP and TDT of Sterilizer. To study batch reactor and continuous reactor. To purify and recover fermentation products.
<b>Paper Name:</b>	ENZYME TECHNOLOGY
<b>Paper Number:</b>	MB-204 (Elective)
<b>Specific Program Outcome:</b>	Students will learn basic and advanced findings in Enzyme Technology. This paper knowledge make them familiar with all aspects of Enzymes and their various applications as diagnostic as well as therapeutic tool.
<b>Specific Course Outcome:</b>	This course will increase their keen interest in enzymes, Biochemistry, Drug delivery systems, Enzyme engineering and various potential applications of enzymes.
<b>Paper Name:</b>	ENZYME TECHNOLOGY
<b>Paper Number:</b>	PRACTICAL LAB-IV MB – 204
<b>Specific Program Outcome:</b>	To understand importance of enzymes in day today life To isolate and purify particular enzyme. To study kinetic behavior of enzymes
<b>Specific Course Outcome:</b>	Especially skilled in Fungal Amylase Production, Purification, Assay and Enzyme activity determination as well enzyme Immobilization, preparation of Biosensor. Determination of molecular weight using PAGE Technique.

### Msc S. Y. Microbiology

<b>CLASS</b>	Msc S. Y. Microbiology
<b>Semester</b>	Semester – III Subject: Microbiology
<b>Paper Name:</b>	Paper Name: MOLECULAR IMMUNOLOGY
<b>Paper Number:</b>	Paper Number: MB-301
<b>Specific</b>	The student will understand and be able to explain different branches of

<b>Program Outcome:</b>	Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Student will be able to explain and categorize different types of lymphoid organs as primary and secondary lymphoid organs, immunogen and immunoglobulin, Organization and Expression of Immunoglobulin genes, and Major, Minor Histocompatibility Complexes and Clinical immunology.
<b>Paper Name:</b>	Practical Paper Name: MOLECULAR IMMUNOLOGY
<b>Paper Number:</b>	PRACTICAL LAB-V MB-301
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Acquire skills to perform practical by Comparing various parameters according to different immunological techniques.
<b>Paper Name:</b>	RECOMBINANT DNA TECHNOLOGY
<b>Paper Number:</b>	MB-302
<b>Specific Program Outcome:</b>	The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Student will be able to understand and explain the recombinant DNA technology, explain steps and tools in genetic engineering and apply recombinant DNA technology in medicine agriculture and veterinary sciences.
<b>Paper Name:</b>	RECOMBINANT DNA TECHNOLOGY
<b>Paper Number:</b>	PRACTICAL LAB-V MB-302
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.

<b>Specific Course Outcome:</b>	Acquire skills to perform practicals of isolation, restriction digestion, ligation, amplification, gene mapping and gene cloning required for recombinant DNA technology.
<b>Paper Name:</b>	MICROBIAL DIVERSITY AND EXTREMOPHILES
<b>Paper Number:</b>	MB-303
<b>Specific Program Outcome:</b>	The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Student will be able to understand and explain the microbial diversity present in different extreme environmental conditions in terms of their distribution, abundance, classification, structure and applications of their products.
<b>Paper Name:</b>	Practical Paper Name: MICROBIAL DIVERSITY AND EXTREMOPHILES
<b>Paper Number:</b>	PRACTICAL LAB-VI MB-303 Credits: 02 Specific Program Outcome:
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome:
<b>Specific Course Outcome:</b>	Students are enabled to isolate thermophiles, halophiles by studying different parameters. Isolation of thermophiles from hot water spring (Study at least one thermostable enzyme). 1. Studies on halophiles isolated from high salt habitat. (Study its pigmentation and salt tolerance phenomenon). 2. Studies on alkalophiles and its enzymes (any one) isolated from extreme alkaline environment. 3. Biogenic methane production using different wastes. 4. Isolation of Thiobacillus ferrooxidans and Thiobacillus thiooxidans culture from metal sulfides, rock coal and acid mine water.
<b>Paper Name:</b>	BIostatistics, Computer Applications and Research Methodology
<b>Paper Number:</b>	MB-304
<b>Specific Program Outcome:</b>	The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.

<b>Specific Course Outcome:</b>	Student will be able to understand explain and apply the biostatistics, computer and research methodology during his further studies.
<b>Paper Name:</b>	BIostatISTICS, COMPUTER APPLICATIONS AND RESEARCH METHODOLOGY
<b>Paper Number:</b>	PRACTICAL LAB-VI MB-304
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome:
<b>Specific Course Outcome:</b>	Students develop skill to apply statistical knowledge and to correlate statistically extracted value by performing knowledge based practical. Also acquires skill to represent data by using the computer knowledge of MS Word, Excel and power point presentation.
<b>Paper Name:</b>	FERMENTATION TECHNOLOGY
<b>Paper Number:</b>	MB-401
<b>Specific Program Outcome:</b>	Student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Student able to understand and develop skill of the different microbial fermentation processes, production of fermentation products, therapeutic compound. Bioplastic production, biofertilizer production. Get aware of procedure of IPR, Trademark, copyright.
<b>Paper Name:</b>	Practical Paper Name: FERMENTATION TECHNOLOGY
<b>Paper Number:</b>	PRACTICAL LAB-VII MB - 401
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Students develops skill of production and estimation of acid production glutamic acid, rifamycin production, thuricides, laboratory scale production of biofertilizer. Also acquires skills of microbial production of dextran and hydrogen gas.
<b>Paper Name:</b>	MEDICAL AND PHARMACEUTICAL MICROBIOLOGY
<b>Paper Number:</b>	MB-402
<b>Specific Program Outcome:</b>	The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology,



	Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Student able to understand and develop skill for construct antibiotic, microbiological assay drug resistance. Explain the mechanism and action of antibiotic antimicrobial agent. apply safety in microbiology. students will gain the knowledge and can work in hospital, pharmacy and industry
<b>Paper Name:</b>	Practical Paper Name: MEDICAL AND PHARMACEUTICAL MICROBIOLOGY
<b>Paper Number:</b>	Paper Number: PRACTICAL LAB-VII MB - 402
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Students develops skill of production and bioassay of penicillin, estimation of griseofulvin, production of therapeutic enzymes, determination of MIC and LD, sterility testing, and determination of antimicrobial activity of chemical compounds.
<b>Paper Name:</b>	Paper Name: ENVIRONMENTAL MICROBIOLOGY
<b>Paper Number:</b>	Paper Number: MB-403
<b>Specific Program Outcome:</b>	The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome:
<b>Specific Course Outcome:</b>	Student able to understand and recognise characteristic of environment and ecosystem, characteristics of waste water, solid waste and its treatment by various methods such as aerobic and anaerobic treatment. Also explains biodeterioration, biotransformation & recovery of Metals & Metalloids and impact of these factors on environment.
<b>Paper Name:</b>	Practical Paper Name: ENVIRONMENTAL MICROBIOLOGY
<b>Paper Number:</b>	PRACTICAL LAB-VII MB - 403
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable

	position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Students develops skill and handling of physical analysis of sewage, measurement of BOD/COD, recovery of toxic metal ions from industrial effluent, study of municipal solid waste management, and microbial dye decolouration.
<b>Paper Name:</b>	MICROBIAL BIOINFORMATICS, GENOMICS AND PROTEOMICS
<b>Paper Number:</b>	MB-404 (Elective)
<b>Specific Program Outcome:</b>	The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Students are able to predict the significance of the biological phenomenon on the Sbasis of available data set. Student develops skill to apply the knowledge of bioinformatic for the analysis of microbial genome and proteins.
<b>Paper Name:</b>	MICROBIAL BIOINFORMATICS, GENOMICS AND PROTEOMICS
<b>Paper Number:</b>	PRACTICAL LAB-VII MB - 404
<b>Specific Program Outcome:</b>	Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired.
<b>Specific Course Outcome:</b>	Students develops skill of handling data bases for nucleic acid and protein sequences, structure detection by RASMOL software, gene and protein sequence analysis using BLAST algorithm

## DEPARTMENT OF MATHEMATICS

Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink):

**Program – B. Sc.**

**Program Outcomes:**

1. Scientific temper will be developed in students.
2. Students will become eligible for career opportunities and will become eligible for appearing competitive examinations like MPSC and UPSC.
3. Students will gain basic subject knowledge required for higher studies.
4. Students will be able to develop solution oriented approach towards various Science subjects and technical subjects.

**Program specific outcomes- (paper wise data) 2016 – 17 C.B.C.S. Pattern**

<b>Class</b>	<b>B.Sc.I</b>
<b>Subject:</b>	<b>Mathematics</b>
<b>Paper Name:</b>	<b>Differential Calculus</b>
<b>Paper Number:</b>	<b>I</b>
<b>Specific Program Outcome:</b>	After successful completion of the course students will able to learn about: 1. Understanding concept of Limit and Continuity. 2. Higher order derivatives. 3. Mean value theorem concept. 4. Differentiate between derivatives of single variable and two variables.
<b>Class</b>	<b>B.Sc.I</b>
<b>Subject:</b>	<b>Mathematics</b>
<b>Paper Name</b>	<b>Algebra and Trigonometry</b>

<b>Paper Number</b>	II
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: <ol style="list-style-type: none"> <li>1. Algebra of matrices.</li> <li>2. Recognize the different types of matrices.</li> <li>3. Find the inverse of invertible matrices.</li> <li>4. Solve the system of Linear equations.</li> </ol>
<b>Class</b>	B.Sc.I
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Integral Calculus
<b>Paper Number</b>	III
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: <ol style="list-style-type: none"> <li>1. Apply method of integration to find the integral function.</li> <li>2. Find area and volume using integration.</li> <li>3. Multiple integrals.</li> <li>4. Concept of Gamma and Beta function.</li> </ol>
<b>Class</b>	B.Sc.I
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Geometry
<b>Paper Number</b>	IV
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: <ol style="list-style-type: none"> <li>1. Concepts on three dimensional geometry.</li> <li>2. Equations of Planes, Spheres, Cones and Cylinders.</li> <li>3. Convert equation of line from unsymmetrical form to symmetrical form.</li> <li>4. Find the length of perpendicular from a point to a plane.</li> </ol>
<b>Class</b>	B.Sc.I
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Practical Paper
<b>Paper Number</b>	V
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: <ol style="list-style-type: none"> <li>1. The software used for the subject Mathematics.</li> <li>2. Verify the simple operations related to matrices.</li> <li>3. To plot the 2D, 3D graphs on Matlab.</li> </ol>

B.Sc. II (Mathematics)(C.G.P.A.)

<b>Class</b>	B.Sc.II
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Real Analysis - I
<b>Paper Number</b>	VI
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: <ol style="list-style-type: none"> <li>1. Basic concept of sets and their properties.</li> <li>2. Concept of sequence , subsequence, Cauchy sequence.</li> <li>3. Concept of bounds of a sequence, limit point of sequence.</li> </ol>

	4. Concept of series, their types and General convergence.
<b>Class</b>	B.Sc.II
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Group Theory
<b>Paper Number</b>	VII
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: <ol style="list-style-type: none"> <li>1. Concept of equivalence relations.</li> <li>2. Check the properties of Group and types of groups.</li> <li>3. Lagranges theorem to solve problems in number theory.</li> <li>4. Concept of Quotient group and Homomorphism.</li> </ol>
<b>Class</b>	B.Sc.II
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Ordinary Differential Equations
<b>Paper Number</b>	VIII
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: <ol style="list-style-type: none"> <li>1. Concept of solution of differential equation, order and degree.</li> <li>2. Concept of linear equations with constant coefficients.</li> <li>3. Differential equations with variable coefficients.</li> <li>4. Find wronskian and linear independence of the solution.</li> </ol>
<b>Class</b>	B.Sc.II
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Real Analysis - II
<b>Paper Number</b>	IX
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: <ol style="list-style-type: none"> <li>1. Concept of intervals, Sub intervals, partitions and their refinement.</li> <li>2. Concept of upper integral ,lower integral and Riemann integral.</li> <li>3. Meaning of improper integral.</li> <li>4. Convergence and absolute convergence of improper integral, Fourier series.</li> </ol>
<b>Class</b>	B.Sc.II
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Ring Theory
<b>Paper Number</b>	X
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: <ol style="list-style-type: none"> <li>1. Algebraic structure of Ring and examples of Rings.</li> <li>2. Homomorphisms and Isomorphism of rings.</li> <li>3. Concept of Euclidean ring and Principal ideal ring.</li> </ol>
<b>Class</b>	B.Sc.II
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Partial Differential Equations.
<b>Paper Number</b>	XI
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: <ol style="list-style-type: none"> <li>1. Classification of Partial Differential Equations.</li> <li>2. Solve linear and non linear PDE of first and second order.</li> <li>3. Mathematical formulation of real problems.</li> <li>4. Boundary value problems.</li> </ol>
<b>Class</b>	B.Sc.II
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Practical Paper.
<b>Paper Number</b>	XII
<b>Specific</b>	After successful completion of the course students will able to learn about:

<b>Program Outcomes:</b>	<ol style="list-style-type: none"> <li>1. To plot the graphs.</li> <li>2. Solve Ordinary differential equations on software.</li> <li>3. Symbolic operators.</li> </ol>
--------------------------	---

B.Sc.III(Mathematics)C.G.P.A.

<b>Class</b>	B.Sc.III
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Metric Space
<b>Paper Number</b>	XIII
<b>Specific Program Outcomes:</b>	<p>After successful completion of the course students will able to learn about:</p> <ol style="list-style-type: none"> <li>1. Metric space and examples of it.</li> <li>2. Counter examples illustrating the mathematical concepts of metric.</li> <li>3. Concepts of Convergence and Completeness.</li> <li>4. Concept of Continuity and Uniform continuity.</li> </ol>
<b>Class</b>	B.Sc.III
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Linear Algebra
<b>Paper Number</b>	XIV
<b>Specific Program Outcomes:</b>	<p>After successful completion of the course students will able to learn about:</p> <ol style="list-style-type: none"> <li>1. Algebraic concept of vector spaces, subspaces and basis.</li> <li>2. Concept of range, rank and dimensions, Linear transformation, eigen values and eigen vectors.</li> <li>3. Concept of Inner product spaces.</li> <li>4. Representation of matrix as a linear transformation.</li> </ol>
<b>Class</b>	B.Sc.III
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Operation Research
<b>Paper Number</b>	XV (A)
<b>Specific Program Outcomes:</b>	<p>After successful completion of the course students will able to learn about:</p> <ol style="list-style-type: none"> <li>1. Mathematical formulation of LPP and methods to find the solution of it.</li> <li>2. Mathematical formulation of assignment problems and solution of it.</li> </ol>
<b>Class</b>	B.Sc.III
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Numerical Analysis
<b>Paper Number</b>	XVI
<b>Specific Program Outcomes:</b>	<p>After successful completion of the course students will able to learn about:</p> <ol style="list-style-type: none"> <li>1. Estimate the value of a function under certain assumptions.</li> <li>2. Numerical techniques.</li> <li>3. Numerical derivations and Integration.</li> <li>4. Solutions of ordinary differential equations using numerical methods.</li> </ol>
<b>Class</b>	B.Sc.III
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Integral Transform
<b>Paper Number</b>	XVII
<b>Specific Program Outcomes:</b>	<p>After successful completion of the course students will able to learn about:</p> <ol style="list-style-type: none"> <li>1. Concept of Integral Transform.</li> <li>2. Identify the integral transform by their limits and Kernel.</li> </ol>

	3. Solution of differential IVP with various methods.
<b>Class</b>	B.Sc.III
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Topology
<b>Paper Number</b>	XVIII(A)
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: <ol style="list-style-type: none"> <li>1. Fundamental concepts of functions and relations, topological spaces.</li> <li>2. Concept of ordered topology and product topology.</li> <li>3. Concept of limit point, closure of a set, limit points and compact spaces.</li> </ol>
<b>Class</b>	B.Sc.III
<b>Subject:</b>	Mathematics
<b>Paper Name</b>	Practical Paper
<b>Paper Number</b>	XIX
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: <ol style="list-style-type: none"> <li>1. Solve problems in Algebra using software.</li> <li>2. Solve Laplace transform using software.</li> <li>3. Solve Numerical problems using software.</li> </ol>

## DEPARTMENT OF STATISTICS

**Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink):**

**Program – B. Sc.**

**Program Outcomes:**

5. Scientific temper will be developed in students.
6. Students will become eligible for career opportunities and will become eligible for appearing competitive examinations like MPSC and UPSC.
7. Students will gain basic subject knowledge required for higher studies.
8. Students will be able to develop solution-oriented approach towards various Science subjects and technical subjects.

**Program specific outcomes-(paper wise data)**

**Academic Year 2016-17**

<b>Class</b>	<b>B.Sc.I</b>
<b>Subject:</b>	<b>Statistics</b>
<b>Paper Name:</b>	<b>Descriptive Statistics and computing</b>
<b>Paper Number:</b>	<b>I</b>
<b>Specific Program Outcome:</b>	After successful completion of the course students will able to learn about: <ol style="list-style-type: none"> <li>5. Understanding concept of measures of central tendency.</li> <li>6. Measures of Dispersion.</li> <li>7. Moments.</li> <li>8. Statistical Computing Using Ms-Excel.</li> </ol>
<b>Class</b>	B.Sc.I
<b>Subject:</b>	Statistics

<b>Paper Name</b>	Elementary Probability theory
<b>Paper Number</b>	II
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: 5. Probability. 6. Mathematical Expectation. 7. Random variable . 8. Probability generating function
<b>Class</b>	B.Sc.I
<b>Subject:</b>	Statistics
<b>Paper Name</b>	Theory of variables and attributes
<b>Paper Number</b>	III
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: 5. Concepts of correlation 6. Regression fitting of the curves . 7. Theory of Attributes . 8. Fitting of curves by using excel
<b>Class</b>	B.Sc.I
<b>Subject:</b>	Statistics
<b>Paper Name</b>	Discrete probability distribution
<b>Paper Number</b>	IV
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: 5. Concepts of binomial distribution 6. Hyper geometric distribution 7. Differences between distributions 8. Fitting of distribution using Excel.
<b>Practical I Paper V</b>	1. Understanding concept of measures of central tendency. 2. Measures of Dispersion. Probability, Mathematical Expectation. Random variable .Probability generating function 3. Understanding concept of measures of central tendency, Measures of Dispersion, Moments, Statistical Computing Using Ms-Excel. 4. Concepts of binomial distribution ,Hyper geometric distribution Differences between distributions ,Fitting of distribution using Excel

B.Sc. II (Statistics)

<b>Class</b>	B.Sc.II
<b>Subject:</b>	Statistics
<b>Paper Name</b>	Applied Statistics
<b>Paper Number</b>	VI
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: 5. Basic concept multiple and partial correlation & their properties. 6. Time series Analysis 7. Concept of index number 8. Consumer index number
<b>Class</b>	B.Sc.II
<b>Subject:</b>	Statistics
<b>Paper Name</b>	Continuous Probability Distributions
<b>Paper</b>	VII



<b>Number</b>	
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: 5. Concept of Uniform Distribution and Exponential Distribution. 6. Normal Distribution. 7. Advanced distribution. 8. Difference between all the distributions
<b>Class</b>	B.Sc.II
<b>Subject:</b>	Statistics
<b>Paper Name</b>	Statistical Inference & Computing Using -R
<b>Paper Number</b>	VIII
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: 5. Concept of theory of the estimation. 6. Concept of testing of the hypothesis . 7. Non parametric test. 8. Fundamentals of R programming
<b>Class</b>	B.Sc.II
<b>Subject:</b>	Statistics
<b>Paper Name</b>	Exact Sampling Distributions
<b>Paper Number</b>	IX
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: 5. Concept chi square distribution . 6. Concept of chi square for the testing of hypothesis . 7. Concept of t- distribution. 8. Application of t,F and Z distribution.
<b>Practical-II</b>	After successful completion of the course students will able to learn about: 1. Basic concept multiple and partial correlation & their properties. 2. Time series Analysis ,Concept of index number ,Consumer index number 3 Concept of Uniform Distribution and Exponential Distribution. 4 Normal Distribution. Advanced distribution. Difference between all the distributions
<b>Practical-III</b>	1. Basic concept multiple and partial correlation & their properties. 2. Time series Analysis , Concept of index number Consumer index number 3. Basic concept multiple and partial correlation & their properties. 4. Time series Analysis ,Concept of index number ,Consumer index number 5 Concept of Uniform Distribution and Exponential Distribution. 6.Normal Distribution. Advanced distribution. Difference between all the distributions

**B.Sc.III (Statistics)**

<b>Class</b>	B.Sc.III)
<b>Subject:</b>	Statistics
<b>Paper Name</b>	<b>SAMPLING METHODS</b>
<b>Paper Number</b>	XII
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: 5. Sample Survey and types of sampling survey. 6. Difference between sampling techniques. 7. Concept of stratifications 8. Application of the sampling techniques .
<b>Class</b>	B.Sc.III
<b>Subject:</b>	Statistics
<b>Paper Name</b>	<b>OPERATIONS RESEARCH - I</b>
<b>Paper Number</b>	XIII

<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: 5. Concept of operation research and application areas. 6. Concept and solution of the LPP. 7. Concept of transportation problem and assignment problem . 8. Application of TP and AP.
<b>Class</b>	B.Sc.III
<b>Subject:</b>	Statistics
<b>Paper Name</b>	<b>DESIGN OF EXPERIMENTS</b>
<b>Paper Number</b>	XIV (C)
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: 3. Analysis of variance under certain assumptions. 4. Design of experiment techniques. 5. Concept of Latin square design . 6. Factorial Experiment and it applications.
<b>Class</b>	B.Sc.III
<b>Subject:</b>	Statistics
<b>Paper Name</b>	<b>OPERATIONS RESEARCH TECHNIQUES - II</b>
<b>Paper Number</b>	XV
<b>Specific Program Outcomes:</b>	After successful completion of the course students will able to learn about: 1. Concept of sequencing problem. 2. Concept of Limit, queue. 3. Concept of game theory and applications . 4. Concept of network analysis and difference between techniues.
<b>Practical IV</b>	After successful completion of the course students will able to learn about: 1. Sample Survey and types of sampling survey, Difference between sampling techniques., Concept of stratifications, Application of the sampling techniques . 2 Concept of operation research and application areas., Concept and solution of the LPP., Concept of transportation problem and assignment problem . Application of TP and AP
<b>Practical V</b>	After successful completion of the course students will able to learn about: 1. Concept of operation research and application areas. 2. Concept and solution of the LPP, Concept of transportation problem and assignment problem .,Application of TP and AP. 3. Analysis of variance under certain assumptions. 4 .Design of experiment techniques. 7. Concept of Latin square design . 8. Factorial Experiment and it applications.

## DEPARTMENT OF BOTANY

Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink):

Program – B. Sc. BOTANY

Program Outcomes:

PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

PEO1: To impart the knowledge to the students in the field of Cell Biology, Molecular Biology, Plant Breeding, Plant Pathology, Systematic Botany, Herbal Technology and Other fields of Botany.

PEO2: To update curriculum by introducing recent advances in the subject and enable the students to face NET, SET, UPSC and other competitive examinations successfully.

PEO3: To develop laboratory skills in the students that will be helpful for identification of species, diseases and their management.

PEO4: To train and orient the students so as to develop human resource for the educational institutes, industries and other organizations.

PEO5: To develop specific skills amongst students for self-employability through the development of their own enterprises.

PEO6: To develop ability for the application of the acquired knowledge in the fields of life so as to make our country self-reliant and self-sufficient.

PROGRAM OUTCOMES (POs):

PO1: This program will train and orient the students in the field of Cell Biology, Molecular Biology, Plant Breeding, Plant Pathology, Systematic Botany, Herbal Technology and Other fields of Botany.

PO2: This will provide updated curriculum with recent advances in the subject and enable the students to face NET, SET, UPSC and other competitive examinations successfully.

PO3: Students shall be able to identify different plant species, plant diseases and shall be able to do their management.

PO4: This program shall train and orient the students so as to develop human resource for the educational institutes, industries and other organizations.

PO5: This will also develop specific skills amongst students for selfemployability through the development of their own enterprises.

PO6: This shall develop ability in the students for the application of the acquired knowledge in the fields of life so as to make our country self-reliant and self-sufficient.

Program specific outcomes-(paper wise data)

CLASS : B. Sc THIRD YEAR,

SEMESTER–V

DSCB-I:

Paper name:- CELL AND MOLECULAR BIOLOGY

(Theory Paper-XII)

Learning Objectives:

1. To know about the ultra structure of a cell, cell wall, cell membrane, cell organelles and chromosomes, cell cycle and cell division.
2. To study in detail the structure of DNA and RNA, protein synthesis, gene structure, gene mutation and related diseases.
3. To acquire knowledge of cell and molecular biology

Learning Outcomes:

1. The students will be able to understand ultra structure of a cell, cell wall, cell membrane, cell organelles and chromosomes, cell cycle and cell division.
2. The students will be able to understand in detail the structure of DNA and RNA, protein synthesis, gene structure, gene mutation and related diseases.
3. Students will acquire knowledge of cell and molecular biology

SEMESTER–V

DECB-I:

Paper name:- SYSTEMATIC BOTANY-I

(Theory Paper-XIII)

Learning Objectives:

1. To know about the fundamentals of plant classification.
2. To study in detail the principles of plant taxonomy.
3. To acquire knowledge of different families of polypetalae, gamopetalae and apetalae.

Learning Outcomes:

1. The students will be able to understand fundamentals of classification of angiosperms.
2. The students will be able to understand in detail the principles of plant taxonomy.
3. Students will acquire knowledge of different families of polypetalae, gamopetalae and apetalae

## SEMESTER–VI

DSCB-I:

Paper name:- GENETICS AND PLANT BREEDING

(Theory Paper-XIV)

Learning Objectives:

1. To study Mendel an genetics, gene interaction.
2. To study sex determination, linkage, sex linked inheritance and genetic variations.
3. To study various crop improvement methods in plant breeding.

Learning Outcomes:

1. Understand Mendelian genetics, gene interaction.
2. Learn the sex determination, linkage, sex linked inheritance and genetic variations.
3. Understand various crop improvement methods in plant breeding.

SEMESTER–VI DECB-I:

Paper name:- SYSTEMATIC BOTANY-II

(Theory Paper-XV)

Learning Objectives:

1. To acquire knowledge of different families of monocotyledons
2. To know about the principles of taxonomy
3. To study in detail the origin of angiosperms

Learning Outcomes:

1. Students will acquire knowledge of different families of monocotyledons
2. The students will be able to understand principles of taxonomy
3. The students will be able to understand in detail the origin of angiosperms.

## Annual Pattern

DSCBP-I Practical paper-XVI:

Practical based on theory paper-XII&XIV

(Cell and molecular Biology & Genetics and Plant Breeding)

Learning Objectives:

1. To study Cell biology.
2. To study Molecular biology
3. To study Genetics and plant breeding

Learning Outcomes: Students shall

1. Understand Cell biology
2. Learn the molecular biology

### 3. Understand genetics and plant breeding

BOTANY B. Sc. Third Year Botany

Annual Pattern DECBP-I Practical paper-XVII

Practical based on theory paper-XIII&XV

(Systematic Botany-I&II)

Learning Objectives:

1. To study how to describe a flowering plants for their taxonomic details.
2. To study different floras, to prepare plant identification keys and to identify locally available plants.
3. To acquire knowledge of pollen morphology of different plants.

Learning Outcomes:

1. The students will be able to describe a flowering plant for its taxonomic details
2. The students will be able to understand in detail the floras, and able to prepare plant identification for the identification of locally available plants.
3. Students will acquire knowledge of pollen grains of different plants.

### B. Sc. SECOND YEAR BOTANY

Program Educational Objectives: The Objectives of this program are

PEO 1: To provide an updated education to the students at large in order to know the importance and scope of the discipline and to provide mobility to students from one university or state to other.

PEO2: To update curriculum by introducing recent advances in the subject and enable the students to face NET, SET, UPSC and other competitive examinations successfully.

PEO3: To impart knowledge of plant science as the basic objective of Education

PEO4: To develop a scientific attitude to make students open minded, critical and curious.

PEO5: To develop an ability to work on their own and to make them fit for the society.

PEO6: To expose themselves to the diversity amongst life forms.

PEO7: To develop skill in practical work, experiments, equipments and laboratory use along with collection and interpretation of plant materials and data.

PEO8: To make aware of natural resources and environment and the importance of conserving the same.

PEO9: To develop ability for the application of the acquired knowledge in the fields of life so as to make our country self-reliant and self-sufficient.

PEO10: To appreciate and apply ethical principles to plant science research and studies.

Program Outcomes:

The Outcomes of this program are:

PO1: This program will train and orient the students in the field of diversity of different life forms, Plant Anatomy, Plant Embryology, Plant Physiology, Plant Metabolism and Biochemistry.

PO2: This program will help the students for their career development.

PO3: This program will provide updated curriculum with recent advances in the subject and enable the students to face NET, SET, UPSC and other competitive examinations successfully.

PO4: This program shall train and orient the students for laboratory skills and serve as human resource for the educational institutes, industries and other organizations.

PO5: The program also has a strong interdisciplinary component. Emphasis is given on the experimental learning through hands-on laboratory exercises, field trips and assignments.

PO6: Students will be able to understand and explain different specializations of Botany such as anatomy, Embryology, developmental biology, physiology, biochemistry etc. Students will be able to demonstrate the experimental techniques and methods in plant sciences and have innovative research ideas.

PO7: The program will enlighten the current thrust areas of the subject and provide substantial exposure and skills in plant biology.

PO8: Skill Enhancement Courses being offered during this program will provide job opportunities and additional specific skills to the students for self-employability through the development of their own enterprises.

B.Sc. Second Year BOTANY Semester III

CCB-III (A) Theory Paper- VI

Paper name:- Plant Anatomy

Learning Objectives:

1. To know about the internal structure of the most evolved group of plants, the Angiosperm.
2. To study cells, tissues, meristems, epidermal and vascular tissue system in plants.
3. To acquire knowledge of tissue systems, histology and growth pattern in plants.

Learning Outcomes:

1. The students will be able to understand the meristems (RAM & SAM) different simple and complex tissues and secondary growth in root and stem.
2. Students will acquire knowledge of anatomy of root, stem and leaf in dicot and monocot plants

BOTANY B.Sc. Second Year

Semester III CCB-III (B)

Theory Paper- VII

Paper name:- Plant Physiology and Biochemistry

Learning Objectives:

1. To make students realize how plants function, namely the importance of water, minerals, hormones, and light in plant growth and development; understand transport mechanisms and translocation in the phloem, applications of plant physiology.
2. To acquaint the students with the types and their functions of different biomolecules and secondary metabolites
3. To know the role of different plant growth regulators in plant physiology.

#### Learning Outcomes:

1. Students will gain the knowledge of water and nutrient uptake, movement in plants, role of mineral elements, translocation of sugars, Role of various plant growth regulators, phytochrome in plants.
  2. Students shall learn different types of biomolecules and secondary metabolites
  3. Students will learn the flowering physiology, vernalization and seed dormancy in plants.
- 

B.Sc. Second Year

Semester IV CCB-IV (A)

Theory Paper- VIII

Plant Embryology

#### Learning Objective:

1. To study the flowering and fruiting, reproduction process, role of pollinators, ovule fertilization, Endosperm and seed development in angiosperms.

#### Learning Outcomes:

1. This course will be able to demonstrate foundational knowledge in embryology of plants.
2. Students will be able to understand the development of pollen, Ovule, and fertilization and palynological information.

B.Sc. Second Year

Semester IV

CCB-IV (B) Theory Paper- IX

Paper name:- Plant Metabolism and Biotechnology

#### Learning Objectives:

1. To study of different pathways in Photosynthesis , respiration , nitrogen metabolism
2. To gain the knowledge of basic aspects and applications of plant tissue culture
3. To study the different aspects of genetic engineering and bioinformatics

#### Learning Outcomes:

1. Students will be able to understand the various metabolic processes such as photosynthesis, respiration, Nitrogen metabolism etc. which are important for life.
2. Students shall be become familiar with the gene cloning and its transfer in plants
3. Students shall learn different databases and their applications

#### BOTANY

B.Sc. F.Y. Semester – I CCB-I (A)

Theory Paper –I

Paper Name:- Viruses ,Bacteria, Algae, Fungi, Lichens and Mycorrhiza



## Learning Objectives

1. To study and impart knowledge about the occurrence, distribution, structure and life history of lower plants such as algae, fungi, lichens
2. To instill in students an appreciation for the diversity of plant forms and structural organization that exists within plant bodies that allow plants to develop and live as integrated organisms in diverse environments

### Learning outcomes:

1. Understand the morphology, structure and importance of the various organisms
2. Differentiate between various groups of Algae, Fungi, Bacteria, Viruses, and Lichens & Mycorrhiza
3. Learn the life cycles of individuals belonging to Algae, Fungi, Bacteria, Viruses, Lichens & Mycorrhiza

## BOTANY

B.Sc. F.Y. Semester – I CCB-I (B)

### Theory Paper –II

Paper Name :- Plant Ecology, Phytogeography and Environmental Biology

### Learning Objectives:

1. Acquainted with basic concepts of Ecology, Ecosystem Ecological factors, community ecology and Phytogeography
2. To provide students with skills necessary for Ecological studies

### Learning outcomes:

1. Able to understand the ecological principles , interactions taking place in the Ecosystems and the flow of energy
2. Learn about the concept of Phytogeography and its relations with other disciplines

## BOTANY

B.Sc. F.Y. Semester – II CCB-II (A)

### Theory Paper –III

Paper Name:- Bryophytes, Pteridophytes ,Gymnosperms &Paleobotany

### Learning Objectives:

1. To study the occurrence, distribution, structure and life history of bryophytes, pteridophytes and gymnosperms
2. To provide students with skills in paleobotany studies

### Learning outcomes:

1. Learn the life cycles of individuals belonging to Bryophytes, Pteridophytes and Gymnosperms
2. Learn about process of fossil formation and fossils plants

## BOTANY

Theory Paper –IV

Paper Name :- Taxonomy of Angiosperms

Learning Objectives:

1. To study the types of classifications- artificial, Natural and phylogenetic
2. To study the principles and rules of ICN and taxonomical terminology
3. To study the various plant families and their economic importance

Learning Outcomes:

1. Proficiency with the basic terminology of plant morphology
2. Able to identify the major families of plants and their economic importance
3. Understand the methods of collecting and preserving plants

Department of physics Academic year 2016-2017

Programme and Course outcomes Programme B.sc Bsc I st year sem I/II

1)Course:- Paper I:-Mechanics and properties of matter

- Students will examine the basic principles of Mechanics Analyse the measurement methods and rules
- Evaluate the properties of matter. Paper II:-Mathematical Methods in physics.
- Students will be able to determine the residues of a complex function and use the residue theorem to compute certain types of integrals.
- They solve physically relevant partial differential equations using standard methods like separation of variables, series expansion, and integral transforms.
- Able to solve basic classical variational problems.

2) Course:-PaperIII:- Heat and thermodynamics

- Describe basic concepts of Thermodynamics restate definition of system, surrounding, closed and open system, extensive and intensive properties.
- Apply first law of thermodynamics for closed systems and construct conservation of mass and energy equations.

Paper IV:- Electricity and magnetism

- Understand how a point charge placed in an external electric field will behave.
- Understand the behavior of a dipole charge configuration placed in an electric field, including both net force and torque.

Bsc II yrsem III/IV 3)Course:- PaperVI:-Wave and oscillation

- Harmonic motion gives the knowledge of composition of two simple harmonic motion and The construction of Lissajous figures. It also gives the true knowledge of various types of oscillations.
  - Sound waves chapter describes the velocity of sound waves in different medium and the Acoustics of an auditorium.
  - Fourier analysis chapter gives the knowledge about how we can construct and analysis the Square waves, saw tooth waves, etc. It also gives the knowledge of energy of stretched string and also About plucked and struck string.
- Paper VII:- statistical physics, electromagnetics and theory of relativity

- Understanding Maxwell's equation and application of quantum statistics to photo gas
- Understanding application of relativity in day to day life

4)Course:- Paper VIII:-Optics and lasers

- Discuss the important and fascinating areas of interference with many experiments associated with it.
- Apply skill to find the wavelength of spectral lines using Plane diffraction grating

Paper IX:- Basic electronics

- To understand photodiode and application
- TO understand application of semiconductor

BscIIyrsem V/VI 5)Course:- Paper XII:-Quantum mechanics

- Understanding application of quantum mechanics
- Understanding Photoelectric effect Paper XIII:-Solid state physics
- Types of lattice and crystal structure are understand with examples.
- X-ray diffraction method with application

6)Course:- Paper XIV:-Atomic, molecular and Nuclear physics

- Zeeman and stark effect understand
- Understand Raman effect with application Paper

XV :- Digital communications electronics

- Understanding all gates and application
- Understanding the basic communication systemand also TRF receiver .

### **DEPARTMENT OF---Zoology and Environmental Science**

Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink):

#### **Program - B. Sc. (Zoology & Environmental Science) & M.Sc. Environmental Science**

##### **Program Outcomes:**

- 1) To study the fields of Biodiversity of Invertebrates & Chordates and Comparative anatomy of vertebrates and Developmental Biology.
- 2) It will prepare the students for future research in any of the related fields.
- 3) The course widening the prospective biological science.
- 4) This course will induce understanding of the subject so that the student could take up specialized post graduate course and also pure research in the field.

Program specific outcomes-(paper wise data)

<b>Class</b>	<b>B.Sc. First Year Semester- I</b>
<b>Subject:</b>	Zoology
<b>Paper Name:</b>	Life & Diversity of Animals-1(Non-Chordates)
<b>Paper Number:</b>	I
<b>Specific Program Outcome:</b>	1) The student will be able to identify a given Invertebrate up to class level. 2) Ability to understand the contributions of Invertebrates in the Biodiversity Index of any given habitat. 3) Ability to understand & appreciate the ecological and economic importance of Invertebrate and Vertebrate. 4) Ability to identify and describe external morphology and internal anatomical features of representative invertebrate's species.

<b>Class</b>	<b>B.Sc. First Year Semester -I</b>
<b>Subject:</b>	Zoology
<b>Paper Name:</b>	Cell biology

Paper Number:	II
Specific Program Outcome:	1) Students will understand structure and function of cell. 2) Students acquire the knowledge of Prokaryotic and Eukaryotic cells. 3) Students understand the different cell organelle their structure and role in living organism.

<b>Class</b>	<b>B.Sc. First Year Semester -II</b>
Subject:	Zoology
Paper Name:	Life & Diversity of Animals-1(Chordates)
Paper Number:	III
Specific Program Outcome:	1) The students will able to identify a given vertebrate up to class level. 2) Ability to understand the contribution of vertebrates in the biodiversity index of any given habitat. 3) Ability to identify and describe the external morphology and internal anatomical feature of representative vertebrate species.

<b>Class</b>	<b>B.Sc. First Year Semester -II</b>
Subject:	Zoology
Paper Name:	Developmental Biology
Paper Number:	IV
Specific Program Outcome:	1) Student will able to explain the basic processes of vertebrate embryonic development. 2) Ability to describe the various steps in vertebrate development. 3) Identify and explain about the different embryonic structure. 4)Describe the functions of extra embryonic membrane

<b>Class</b>	<b>B.Sc. First Year Annual</b>
Subject:	Zoology Practical
Paper Name:	Life & Diversity of Animals-1(Chordates) + Life & Diversity of Animals (Invertebrates)+Cell biology + Developmental biology (I+II+III+IV= V)
Paper Number:	V
Specific Program Outcome:	1)To develop skill in practical work ,experiments, equipments, and laboratory use along with collection and interpretation of animal material. 2)To make aware of natural resources and environment and importance to conserve them. 3)To develop ability for the acquired knowledge in the fields of life so as to make our country self reliant and self sufficient.

<b>Class</b>	<b>B.Sc. Second Year Semester -III</b>
Subject:	Zoology
Paper Name:	Genetics P-VI
Paper Number:	VI
Specific Program Outcome:	1)To acquire knowledge of Mendelian Genetics and its extension 2) To emphasize the central role of genes and their inheritance in the living organism 3) Students will be able to explain and interpret various processes phenomenon states and

	evolutionary tendencies at biological system.
--	---

<b>Class</b>	<b>B.Sc. Second Year Semester -III</b>
Subject:	Zoology
Paper Name:	Comparative Anatomy and Physiology P-VII
Paper Number:	VII
Specific Program Outcome:	1)Monitor B.P. and identify blood groups 2) Understands functions and types of hearts and Circulatory system. 3)Acquire knowledge on the functions of hormones and learn the mechanism of hormone action
<b>Class</b>	<b>B.Sc. Second Year Semester –III SEC-I</b>
Subject:	Zoology
Paper Name:	Urinology
Paper Number:	
Specific Program Outcome:	1) To promote training in practical and conceptual skill in the biology. 2) To improve students for global competition and their chances of self employment. 3) To equips students with adequate cultural research techniques that will enable them towards the perfection for national and global economics.
<b>Class</b>	<b>B.Sc. Second Year Semester -IV</b>
Subject:	Zoology
Paper Name:	Genetic Engineering and Evolution (P-VIII)
Paper Number:	VIII
Specific Program Outcome:	1) Understand the organization and functions of genetic material in the living world. 2)Understand the recombinant DNA Technology 3)Acquire the theoretical knowledge of various process in Molecular genetics 4) Understands the techniques for obtaining genetically modified organisms.
<b>Class</b>	<b>B.Sc. Second Year Semester -IV</b>
Subject:	Zoology
Paper Name:	Endocrinology, Histology and Biochemistry (P-IX)
Paper Number:	IX
Specific Program Outcome:	1) Understand the chemical structure and functions of various biomolecules. 2) Learn the signaling of biomolecules in the cell molecules. 3) Understand correlations between metabolisms of different types of biomolecules.
<b>Class</b>	<b>B.Sc. SecondYear (Annual Pattern)</b>
Subject:	Zoology
Paper Name:	Practical Paper No.X
Paper Number:	X
Specific Program Outcome:	1) To acquaint the students with operations of the different laboratory equipments. 2)Ability to understand detection of blood groups of human 3) To acquaint the students with operations of clinical procedure for blood & urine analysis.

<b>Class</b>	<b>B.Sc. Second Year (Annual Pattern)</b>
Subject:	Zoology
Paper Name:	XI
Paper Number:	XI
Specific Program Outcome:	1) To acquaint the students with operations of the different laboratory equipments. 2) Ability to understand detection of blood groups of human 3) To acquaint the students with operations of clinical procedure for blood & urine analysis.
<b>Class</b>	<b>B.Sc. Second Year Semester –IV SEC-I</b>
Subject:	Zoology
Paper Name:	Apiculture
Paper Number:	
Specific Program Outcome:	1) Ability to Understand & describe the life stages and social organization of honey bee. 2) Ability to correctly explain and perform bee rearing farming and harvesting. 3) Appreciate the economic importance of derivatives benefits and byproducts of apiculture 4) To identify and take remedial measure against the different bee diseases
<b>Class</b>	<b>B.Sc. Third Year Semester -V</b>
Subject:	Zoology
Paper Name:	Ecology and Zoogeography
Paper Number:	XII
Specific Program Outcome:	1) To acquire knowledge of ecology and its factors 2) To get knowledge about distribution living organism 3) Students will be able to explain role of ecology in distribution of animals.
<b>Class</b>	<b>B.Sc. Third Year Semester -V</b>
Subject:	Zoology
Paper Name:	Environmental Biology-1
Paper Number:	XIII(D)
Specific Program Outcome:	1) Students understand the surrounding better. 2) They can identify different zones 3) They can learn the wild life its threats to the wild life & role of a man in this conflict
<b>Class</b>	<b>B.Sc. Third Year Semester -VI</b>
Subject:	Zoology
Paper Name:	Ethology, Biometry and Bioinformatics
Paper Number:	XIV
Specific Program Outcome:	1) Understand the Behavior of animals the process like learning. 2) Understand the use of spastically data for interpretation 3) They can apply statically methods in biological field.
<b>Class</b>	<b>B.Sc. Third Semester -IV</b>

Subject:	Zoology
Paper Name:	Environmental Biology -II
Paper Number:	XV(D)

<b>Class</b>	<b>B.Sc III Semester II</b>
<b>Subject:</b>	<b>Computer science</b>
<b>Paper</b>	<b>Laboratory Course Work-IV:</b>

Specific Program Outcome:	1) Understand the process of pollution ,how it effect on human health 2) They understand different types of pollution. 3) Understand control measure to be taken by the govt. organization as well as at the individual level.
<b>Class</b>	<b>B.Sc. ThirdYear (Annual Pattern)</b>
Subject:	Zoology
Paper Name:	Ecology, Zoogeography, Ethology,Biometry and Bioinformatics
Paper Number:	XVI
Specific Program Outcome:	1) To acquaint the students with operations of the different laboratory equipments. 2)Ability to understand detection effect of different factors on distribution species 3)Student can understand use of spastically technique for analysis.
<b>Class</b>	<b>B.Sc. Third Year (Annual Pattern)</b>
Subject:	Zoology
Paper Name:	Environmental Biology –I &II
Paper Number:	XVII(D)
Specific Program Outcome:	1) To acquaint the students with operations of the different laboratory equipments. 2)Ability to understand detection of parameters of water analysis 3) Can detect soil health wand find out the NPK in it.



<b>Name:</b>	Practical based on theory papers- <b>XII &amp; XIII</b> <b>Paper No. XVII</b> <b>Laboratory Course Work-V:</b> Project Work <b>04 50 NA</b> Credits: 02 (Marks:50) <b>ESE</b> <b>Marks:260</b> <b>SECCS</b>
<b>Paper Number:</b>	<b>Section-A</b> <b>CCCSP</b> <b>Section-B</b> <b>CCCSP</b>
<b>Specific Program Outcome:</b>	Practical implications of program and application software development

## Netaji Subhashchandra Bose College, Nanded

U.G. Department of Public Administration

Course Outcome of Public Administration

2016-17

### B.A.F.Y. – SEM-I

#### **Paper - I Principles of Public Administration**

1. The course introduces and provides knowledge of public administration.
2. The course define public administration and private administration effectively.
3. The course is useful for understanding public relations and its utility in society.
4. The course is focus on the organizational setup its importance for public work.

#### **Paper – II Evolution of Indian Administration and constitution.**

1. The objectives of these paper to focus the democratic values of our country.
2. The course also useful for the historical study of public administration in India.
3. The course also gave the information of constitutional set up of our country.
4. The course focus on the constitutional framework and its utility in our country.

### B.A.F.Y. – SEM-II

#### **Paper - III Administrative organization**

1. To understand basic knowledge of administrative organization and its principles.
2. To provide knowledge of the functions and qualities of chief executive.
3. To understand the types of administrative organization in working of administration.

#### **Paper - IV Indian Administration**

1. To gave knowledge of the administrative system of India.
2. To identify various silent features of Indian administration.
3. To introduce the working of supreme court and its power in Indian administration.
4. To understand the role of constitutional & Non constitutional bodies of Indian administration.

### B.A.S.Y. – SEM-III

#### **Paper - V Personnel Administration**

1. It will provide the knowledge of personnel administration to the student.
2. It also useful for students to explain the importance of human resources and their effective work in administration.
3. To understand outline the principles of recruitment and the advantages and disadvantages of direct and indirect recruitment.
4. To focus on the key issues like – promotion its merit & demerits, retirement and its utility in administration.

#### **Paper - VI State Government & Administration (Reference to Maharashtra)**

1. To understand the formation and reorganization of Maharashtra as a state.
2. To understand the Legislature, executive & judiciary system and its administration of Maharashtra state.
3. To provide the knowledge of the state govt. and its administration.
4. To provide the difference between constitutional agencies and statutory agencies of Maharashtra state. Also their working in state context.

#### **B.A.S.Y. – SEM-IV**

##### **Paper - VII Office administration**

1. To understand the concept of office administration, its importance & functions.
2. To focus on the working procedure of office administration.
3. Analyze the office procedure and its method in working conditions.
4. It also provide the information about or towards the problems of office administration.

##### **Paper - VIII District Administration**

1. The main objectives is that to understand what is the district administration & how its work?
2. To understand the most important concept of law & order in Indian administration.
3. To understand structure and functions of various administrative offices of district administration.
4. To provide knowledge of district revenue administration, district judiciary and district police administration at ground level of administration.

#### **B.A.T.Y. – SEM-V**

##### **Paper - IX Administrative Thinkers**

1. To provide basic knowledge of administrative theories.
2. To understand the western administrative theory and its utility in Public Administration.
3. To familiarize the students with basic knowledge of modern administrative thoughts.
4. To provide information about Indian context of administrative thoughts.

##### **Paper - X Rural Local Government in Maharashtra**

1. To develop a rural local leadership.
2. To provide awareness of the basic governing system as well as development measures.
3. It will provide knowledge of three tier system of Panchayati Raj in Maharashtra State.
4. Understand the role of Panchayat Raj Institutes as the main instrument of state to achieve its rural development goals.

##### **Paper - XI Financial Administration**

1. To gave the information and awareness of the basic financial system as well as development measures of country.
2. To understand the importance of Budget and its procedure related to financial administration.
3. Analysis the various issues related to Indian budget.
4. To focus on the role of finance administration as the main source of development.

##### **Paper - XI (OR) Recent trends in Public Administration.**

1. To provide information about new technological concept & changes in public administration.
2. To understand the emerging and recent development in public administration.
3. To know the importance and uses of information technology in public administration.
4. To introduce and provide knowledge about administrative reforms in our country.

#### **B.A.T.Y. – SEM-VI**

##### **Paper - XII Administrative theory**

1. To understand motivation theory and human relation theory.
2. To understand organization theory and psychological theory.
3. To provide knowledge of Behavioral theory and ecological theory.
4. To provide information about theory for understanding public administration.

##### **Paper - XIII Urban Local Government in Maharashtra**

1. It help the students conceptualize about the development process as nations develop cities, grow and how planning is done & implemented in a bottom to top approach.
2. To provide awareness of the basic governing system (Urban) as well as development measures.
3. Exhibit the efforts for urban development in Maharashtra State.
4. To understand various issues & problems of urban local government in Maharashtra.

##### **Paper - XIV Major trends & Issues in Public Administration**

1. To provide information about Right to information act and its impact on public administration.
2. To analyze the environment administration.
3. To discuss about peoples participation in public administration.
4. To introduce the concept of Adhar (UID) & its utility in recent development.

**Paper - XIV (OR) Financial administration and public policy**

1. Develop the knowledge of account & audit about financial administration.
2. To discuss the role of finance commission in India.
3. It helps to student to understand the impact of New economic policy on Indian finance administration.
4. These useful for understand the public policy and relations between public administration.

**Netaji Subhashchandra Bose College, Nanded**

**P.G. Department of Public Administration**

**Course Outcome of Public Administration**

**2016-17**

**M.A.F.Y. (Sem-I)**

**I. Paper Name : Introduction of Public Administration**

1. The course introduces and provides basic knowledge and concepts of public administration.
2. To understand the Evolution of Public Administration in World as well as In India.
3. To understand the difference between various branches of Administration.

**II. Paper Name : Social Welfare Administration.**

1. The course introduces the importance of social welfare administration and organizations in India.
2. To understand the ministerial as well as administrative set up for social welfare in India.
3. To understand the programmes and policies for the empowerment of socially and Economically Backward Classes.

**III. Paper Name :Research Methodology in Public Administration**

1. To understand the research methodology and its importance in Public Administration.
2. To understand the need and objectives of social Research.
3. To understand the basic concepts of the research for the quality research.

**IV. Paper Name : Comparative public Administration**

1. The course introduces and provide wide knowledge of comparative public administration.
2. To understand the administrative set up of the countries like U.K. and U.S.A.
3. The course provide the comparative administrations knowledge in the era of Liberalization, Privatization and Globalization.

**M.A.F.Y. (Sem-II)**

**V. Paper Name : Modern Public Administration**

1. To understand the difference between traditional and modern public administration.
2. To understand the new dimensions of the staff of public administration.
3. To understand the overall reforms in traditional public administration.

**VI. Paper Name : Economic Administration**

1. The course introduces the Meaning and importance of Economic administration.
2. To understand the various economic policies as well as industrial policies of Government of India.
3. To understand the L.P.G. policies in India.

**VII. Paper Name : Research Techniques in Public Administration**

1. To understand the Research Techniques in Pub. Administration
2. To know the importance of Research data collection and analysis.
3. To understand the various methods of report writing.

**VIII. Paper Name : Comparative Personnel Administration in U.K. & U.S.A.**

1. The course introduces and provide wide knowledge of comparative personnel Administration.
2. To understand the administrative set up of U.K. and U.S.A.
3. The course provide the comparative knowledge of the concept of Recruitment of Retirement in U.K. & U.S.A.

**M.A.S.Y. (Sem-III)**

**IX. Paper Name : Administrative Thinkers**

1. The course provides the knowledge of various Administrative Theories.
2. To understand the ideas of various Administrative Thinkers.
3. Discuss and Debate with students, the ideas of western and eastern administrative thinkers.

**X. Paper Name : Rural Development Administration**

1. The course introduces the meaning and importance of Rural Development Administration.
2. To develop the rural local leadership as well as understand the three tier system of Pachayat Raj.
3. To understand the various programmes & policies of Rural Development.

**XI. Paper Name : International Administration**

1. The course provide the knowledge of scope and importance of International Administration.
2. To understand the receipt trends in International Administration.
3. To understand the organizations like UNO & UNESCO.

**XII. Paper Name :Disaster Management**

1. The course introduces the meaning and importance of Disaster Management
2. To understand the Government Mechanism and Machinery dealing with disaster Management.
3. To train the student for future disaster Management.

**M.A.S.Y. (Sem-IV)**

**XIII. Paper Name : Administrative Thoughts.**

1. The course offers the basic knowledge of various administrative theories.
2. To understand the ideas of various administrative thinkers.
3. To familiarize the student with futuristic & Modern Administrative Thoughts.

**XIV. Paper Name : Rural Development Policies and Programmes**

1. The course Provides the knowledge of various Rural Development plicies and Programmes.
2. To understand the Machinery and Mechanism for the Rural Development by the state as well as National Government.
3. To understand the Problems and challenges infront of Rural Development.

**XV. Paper Name : Health Administration**

1. The course offers the meaning and importance of Health Administration.
2. To understand the organizational structure of public Health sector and Administration in India.
3. To understand the various programmes & policies for the betterment of Health Administration in India.

**XVI. Paper Name : Principles of Management**

1. The course introduces and provides basic knowledge and concepts of Management.
2. To understand the importance and difference between Management and Administration.
3. To understand the similar basic concepts in Management and Administration.

**P.G. Dissertation (Field Related Project Work)**

1. To develop a research-oriented approach in P.G. Student
2. To solve a study any best practices of public administration field.
3. To create an approach in student to solve problems of public administration like-issues in police administration, problems of welfare administration etc.
4. To develop a theory as well as practical attitude in P.G. Student.

## DEPARTMENT OF CHEMISTRY

**Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink):**

**Program - B. Sc.**

**Program specific outcomes- B. Sc. Chemistry**

- It would help in practical development skill of student
- To help students build-up a progressive and successful career

**Course Program specific outcomes-**

**B. Sc. F. Y. Chemistry**

<b>Class</b>	<b>B. Sc. First Year (Semester – I)</b>
<b>Subject:</b>	<b>Chemistry</b>
<b>Paper Name:</b>	<b>organic + Inorganic Chemistry</b>
<b>Paper Number:</b>	<b>I (CCC1 ,Section A)</b>
<b>Specific Program Outcome:</b>	The aim of the undergraduate degree in chemistry is to make students familiar about basic concepts of organic and Inorganic chemistry. Discuss the preparation and interpret the chemical properties of alkanes,cycloalkanes ,alkenes ,diens,alkynes,alcohol,ethers and organohalogenes .
<b>Specific Course Outcome:</b>	Student's acquire knowledge about the basic concepts in organic chemistry,nomenclature of compounds , explain the periodic properties of elements ,Relate the periodicity of elements with their properties.

<b>Paper Name:</b>	<b>Physical + Inorganic Chemistry (P – II)</b>
<b>Paper Number:</b>	<b>II (CCC-I ,Section B)</b>
<b>Specific Program Outcome:</b>	It gives knowledge about Graphical representation of equation . able to solve problems of $pH$ and $pOH$ ,Explain types of adsorption ,Explain freundlich ,langmuir adsorption isotherm Able to solve numericals on vander-wall's constant,determining crystal structure of NaCl and KCl on the basis of Bragg's equation ,analyze and arrive at the adsorption isotherm for industrial application.
<b>Specific Course Outcome:</b>	This course also introduces how to balance redox reaction by oxidation number method and ion electron method define the term oxidation ,reduction,oxidizing agent,reducing agent Explain diagonal relationship between Li and Mg Balance the net reaction using the half reaction method in acidic or basic solution learning importance of redox reaction ,they are the principle source of energy on this planet,both natural ,biological and artificial .
<b>Paper Name:</b>	<b>Organic + Inorganic chemistry</b>
<b>Paper Number:</b>	<b>III (CCCII, Section A)</b>
<b>Specific Program Outcome:</b>	Recognize and distinguish between aromatic and antiaromatic compounds by their structure . student understand that all liquids have an ionic -make up that decides whether they are an acid or base . write the properties of P block elements and their chemistry . Discuss the stability,preparation and chemical properties of aromatic compounds . Recognize and able to write the mechanism of electrophilic aromatic substitution .
<b>Specific Course Outcome:</b>	After studying session 3 student will be able to understand what is meant by chemical reaction . With the help of HSAB principle relative stability ,feasibility of chemical reaction can be determined . Explain diagonal relationship between B and Si. Explain effect of activating and deactivating groups on Aromatic electrophilic substitution reaction .
<b>Paper Name:</b>	<b>Physical + Inorganic chemistry</b>
<b>Paper</b>	<b>IV ( CCCII,Section B )</b>

<b>Number:</b>	
<b>Specific Program Outcome:</b>	<p>Define atomic number and atomic mass ,Visualize the interior of atoms and molecules,and there by predicting properties of matter.</p> <p>Student understand theory of surface tension ,the property of liquid surface .</p> <p>explain viscosity ,Identify the formula and explain each variable .</p> <p>acquired basic knowledge of surface and colloid chemistry .</p>
<b>Specific Course Outcome:</b>	<p>Distinguish metallic bonding from other type of bonding ‘</p> <p>Compare different types of hydrogen bonds chemical bonds,hybridisation and structure of compounds.</p> <p>List out diffrent application of colloid in day to day life .</p>
<b>Paper Name:</b>	<b>Practicals (CCCP-I)</b>
<b>Paper Number:</b>	<b>P-V</b>
<b>Specific Program Outcome:</b>	<p>To introduce important aspects such as i. Safety measures and Good Laboratory Practices in chemistry laboratory .</p> <p>How to handelglassware ,how to determine M.P and B.P .</p> <p>perform experiments using stalgmometer,viscometer.</p> <p>Identify two acidic and two basic radical by semi-micro qualitative analysis .</p> <p>Ability to perform scientific experiments skillfully by application of procedural knowledge.</p>
<b>Specific Course Outcome:</b>	<p>students will able to prepare organic compounds .</p> <p>Implement the laboratory safety measures in everyday process.</p>

### B.Sc SY Chemistry

<b>Class</b>	<b>B. Sc. Second Year (Semester – III)</b>
<b>Subject:</b>	<b>Chemistry</b>
<b>Paper Name:</b>	<b>Organic and Inorganic chemistry</b>
<b>Paper pNumber:</b>	<b>VI,(CCC-III,section A)</b>
<b>Specific Program Outcome:</b>	<p>To educate students on topic : Name reaction ,to offer an advance study on organometallic compounds .</p> <p>Understand how soap works .</p> <p>Use of solubility product ,common ion effect and complex ion formation in analysis of basic radicals .</p>

	Describe the structure, bonding and stability of organometallic compounds and their applications as industrial catalyst .
<b>Specific Course Outcome:</b>	<p>Introduce qualitative analysis : micro ,macro,semi micro .</p> <p>Use of reagent in qualitative analysis .</p> <p>Synthesis and chemical reaction of A) Benzoic acid ,B) Anthranilic acid C) Salicylic acid ,D) Pthalic acid ,E) Benzene sulphonic acid .</p> <p>Introduced acidity of alpha hydrogen .</p> <p>Explain chemical nature , general physical properties and Chemical properties of oils,fats,soaps ,detergents .Describe and give mechanism of various name reaction.</p> <p>Describe the reaction and procedure of preparation of various organometallic compounds .</p>
<b>Paper Name:</b>	<b>Physical and Inorganic chemistry</b>
<b>Paper Number:</b>	<b>VII ,(CCC-III,Section B )</b>
<b>Specific Program Outcome:</b>	Impart Knowledge of the interior of atom and molecule.gives great insight into the entire class of chemical reaction ,bonds and their physical properties .Define the terms and laws of thermodynamics.Calculate the various energy changes and heat capacities of different system .
<b>Specific Course Outcome:</b>	<p>Recognize the thermodynamic conditions for one and two component systems .</p> <p>List out various fundamental particles and nuclear forces .</p> <p>Discuss the application of radioisotopes and radioactive waste disposal .</p> <p>Calculate the molarity and rate of some simple reaction .</p> <p>Describe the concept in nuclear chemistry ,radioactivity and illustrate their application in various fields.</p>
<b>Paper Name:</b>	<b>Organic and Inorganic chemistry</b>
<b>Paper Number:</b>	<b>VIII (CCC-IV,Section A)</b>
<b>Specific Program Outcome:</b>	<p>After studying stereochemistry student will be able to identify stereogeniccentres in organic molecules.</p> <p>Recognize and draw structural isomers ,sterioisomers including</p>



	<p>enantiomers and diastereomers, racemic mixture, and meso compounds.</p> <p>Identify several major functions of carbohydrates.</p>
<b>Specific Course Outcome:</b>	<p>Application of reagents in organic synthesis.</p> <p>Electronic configuration of second and third transition series elements. general characteristics of d block elements.</p> <p>Describe the electron configurations of the lanthanide and actinide elements.</p> <p>List uses of lanthanides and actinides.</p>
<b>Paper Name:</b>	<b>Physical and Inorganic chemistry</b>
<b>Paper Number:</b>	<b>IX, (CCC-IV, section B)</b>
<b>Specific Program Outcome:</b>	<p>Understand the concept of change associated with chemical change, recognizing that the rate of change and how it can be measured, determine the sequence of elementary reaction, or the reaction mechanism that comprise complex reaction</p> <p>Provides evidences for the mechanism of chemical process.</p>
<b>Specific Course Outcome:</b>	<p>Explain thermodynamically the operation of a concentration cell, and be able to predict the concentration in the cell based on the cell potential.</p> <p>Study conductometric titrations.</p> <p>Explain theory and practice of common photochemical and photophysical method, and able to execute these experimentally.</p> <p>Describe the interaction of excited state with their surroundings, and apply theoretical methods for treating excited states. preparation, properties, structure of zeolite, carbide, fullerene. basic properties of halogens.</p>
<b>Paper Name:</b>	<b>Annual Practical's</b>
<b>Paper Number:</b>	<b>Practical's based on P-VI &amp; P-VIII (P-X) (CCC III and IV, Section A)</b>
<b>Specific Program Outcome:</b>	<p>Impart Knowledge of the Identification of organic compounds from unknown sample.</p> <p>Identify different types of errors in quantitative analysis.</p>
<b>Specific Course</b>	<p>Perform volumetric analysis.</p> <p>Preparation of solutions.</p>

<b>Outcome:</b>	
<b>Paper Name:</b>	<b>Annual Practical's</b>
<b>Paper Number:</b>	<b>Practical's based on P-VII &amp; P-IX (P-XI) (CCC-III and IV ,Section B )</b>
<b>Specific Program Outcome:</b>	<p>Perform potentiometric and conductometric titration skillfully .</p> <p>Separation of binary mixtures and estimation of any one by volumetric method .</p> <p>Learn to handelstalagmometer , viscometer .</p>
<b>Specific Course Outcome:</b>	<p>Ability to perform scientific experiments skillfully by application of procedural knowledge .</p> <p>Evaluate potentiometric titration .</p> <p>Estimation different metal cation by colorometric method.</p> <p>Distinguish the application of quantitative analysis .</p>
<b>Paper Name:</b>	<b>Food processing and adulteration ,Sill Enhancement course</b>
<b>PaperNumb er:</b>	<b>SECC-I(A)</b>
<b>Specific Program Outcome:</b>	The aim of the undergraduate degree in chemistry. is to make students knowledgeable about the various basic concepts in skill chemistry.Able to describe the role and importance of various componants of food.
<b>Specific Course Outcome:</b>	<p>Discuss the various sources of food poisoning and adulteration.</p> <p>Explain the different methods of food processing and preservation.</p>
<b>Paper Name:</b>	<b>Water pollution</b>
<b>Paper Number:</b>	<b>SECC-I (A)</b>
<b>Specific Program Outcome:</b>	Learn effect of water pollution control measures of water pollution
<b>Specific Course Outcome:</b>	Understanding chemical parameters such as PH .PoH ,dissolve oxygen,hardness,COD,BOD
<b>Paper</b>	<b>Preparation of solution and it's standardization ,Skill Enhancement</b>

<b>Name:</b>	<b>course</b>
<b>Paper Number:</b>	<b>SECC-II (B)</b>
<b>Specific program outcome</b>	After completion of course student will be able to prepare standard solutions.
	Learned ways of expressing the concentration of solutions and their application.
<b>Paper Name:</b>	<b>Analytical method and chromatography</b>
<b>Paper Number:</b>	<b>SECC-II (B)</b>
<b>Specific Program Outcome:</b>	Learn different types of chromatography Precisely handle various analytical instruments Learn application of chromatography

#### **B.Sc. T.Y. chemistry**

<b>Class</b>	<b>B. Sc. Third Year (Semester – V)</b>
<b>Subject:</b>	<b>Chemistry</b>
<b>Paper Name:</b>	Organic and Inorganic chemistry( DSEV - _V, Section A)
<b>Paper Number:</b>	Paper Number: XII
<b>Specific Program Outcome:</b>	Describe the symptoms and causes of some common diseases . classify the types of drugs and their role. List out a few health promoting drug. Explain the therapeutic role of different classes of drug. Deduce the reaction mechanism and stability of the coordination compounds. Explain the science of coordination compounds and the types of the ligands .
<b>Specific Course Outcome:</b>	Explain electrophilic substitution reaction. Understand that sodium,potassium,calcium and chloride ions are important in maintaining the correct compositionof cells and of the tissue fluid around them. List and explain vitamins essential to the healthy functioning of the human body . Identify food that contain vitamins they need daily. Describe the different types of simple and complex carbohydrates,describe the process

	of carbohydrate digestion and absorption.
<b>Paper Name:</b>	<b>Physical and Inorganic chemistry</b>
<b>Paper Number:</b>	<b>XIII ,(DSEC-V,section B)</b>
<b>Specific Program Outcome:</b>	<p>Explain the behaviour of molecular systems in external electromagnetic field .</p> <p>Identify the terms in and describe deviation to Beer's law .</p> <p>Compare the contrast atomic and molecular spectra .</p> <p>Describe the cause of droplerbroadening .</p> <p>Determine the sequence of elementary reaction ,or the reaction mechanism ,that comprise chemical reaction.</p>
<b>Specific Course Outcome:</b>	<p>Understand the concept of rate of change associated with chemical change ,recognizing that the rate of change and how it can be measured .</p> <p>The speed at which chemical reaction transform into new substances by breaking and reforming their molecular bonds .</p> <p>Synergism between the ligand to metal forward sigma donation and the metal to ligand backward pi donation observed in a metal -CO interaction.</p>
<b>Paper Name:</b>	<b>Physical and Inorganic chemistry</b>
<b>Paper Number:</b>	<b>Paper Number: XIII (DSEC-V section B)</b>
<b>Specific Program Outcome:</b>	<p>Know the importance of solution of Non electrolyte .</p> <p>Understand the basic principle of colligative property.</p>
<b>Specific Course Outcome:</b>	<p>Study the theoryand application of polarography.</p> <p>Analyze the application of Isopoly and heteropoly acids and anions.</p> <p>Introduction and application of Isolobalityanalogies .</p>
<b>Paper Name:</b>	<b>Organic and Inorganic chemistry</b>
<b>Paper Number:</b>	<b>Paper Number: XIV (DSEC-VI,Section A)</b>
<b>Specific Program Outcome:</b>	<p>To learn the basic principles and terms used in UV,IR and NMR spectroscopy.</p> <p>Describe the types of rearrangements.</p> <p>Calculate CFSE for tetrahedral and octahedral complexes.</p>

<b>Specific Course Outcome:</b>	<p>Explain the types of electronic transition and selection rule .</p> <p>Apply spectroscopic techniques in analyzing the structure of simple organic molecules.</p> <p>Acquire the fundamental knowledge of classification and synthesis of Amino acid peptides.</p> <p>Postulates and limitation of CFT and VBT</p>
<b>Paper Name:</b>	<b>Organic and Inorganic chemistry (A2)</b>
<b>Paper Number:</b>	<b>XIV (DSEC-VI,Section A)</b>
<b>Specific Program Outcome:</b>	<p>Understand the basic concept of sugar and alcohol industry .</p> <p>Synthesis and uses of Agrochemicals .</p> <p>To enable the students to understand the classification of fiber.</p> <p>To learn the basic concept and classification of Inorganic polymer .</p>
<b>Specific Course Outcome:</b>	<p>Able to understand theory of green chemistry .</p> <p>Ability to apply green chemical laboratory techniques.</p> <p>To stimulate the learner in understanding the basic concepts application of nanotechnology.</p>
<b>Paper Name:</b>	<b>Physical and Inorganic Chemistry</b>
<b>Paper Number:</b>	<b>Paper Number: XV (DSEC-VI,Section B)</b>
<b>Specific Program Outcome:</b>	<p>Basic concept of electrochemistry and its application</p> <p>Understanding the nearest heat theorem and the thermodynamic open system</p> <p>Know the van-Hoff's reaction and numerical on it</p>
<b>Specific Course Outcome:</b>	<p>Explain the types of magnetic substances and effect of temperature on it</p> <p>Biological role of alkali and alkaline earth metal ions</p> <p>Describe the structure and function of metal ions</p>
<b>Paper Name:</b>	<b>Practical paper (semester Vth and VIth )</b>
<b>Paper</b>	<b>Paper Number: XVI (DSECP-IV) (Section A)</b>

<b>Number:</b>	
<b>Specific Program Outcome:</b>	Identify the functional groups of an organic molecule by characteristics tests Determine the physical constants of organic substances accurately
<b>Specific Course Outcome:</b>	Perform a systematic and skillful gravimetric analysis Idea about research in chemistry and knowledge of the significance of the scientific concepts learnt which find application in industry, medicines and modern science
<b>Paper Name:</b>	<b>Practical paper (semester Vth and VI th )</b>
<b>Paper Number:</b>	<b>Paper Number: XVII DSEC-V, Section B )</b>
<b>Specific Program Outcome:</b>	Perform skillfully conductometric and potentiometric titration Precisely conduct redox titration
<b>Specific Course Outcome:</b>	Preparation and estimation of Inorganic metal ions
<b>Paper Name:</b>	<b>Skill Enhancement course (Section A) computer application in chemistry</b>
<b>Paper Number:</b>	<b>Paper Number: Skill – III</b>
<b>Specific Program Outcome:</b>	Able to know the use of software and excel in chemistry Graps the concept of quality assurance and quality control
<b>Specific Course Outcome:</b>	Using software determine biological activity and toxicity of various organic compounds
<b>Paper Name:</b>	<b>Applied analytical chemistry</b>
<b>Paper Number:</b>	<b>Paper Number: Skill – III</b>
<b>Specific Program Outcome:</b>	Illustrate the physical and chemical analysis of soil and fuel
<b>Specific Course Outcome:</b>	Be able to evaluate biological activity and toxicity of organic compounds using softwares
<b>Paper</b>	<b>Spectroscopic techniques and cosmetic preparation</b>

<b>Name:</b>	
<b>Paper Number:</b>	<b>Skill – IV(DSCEP-IV,Section B)</b>
<b>Specific Program Outcome:</b>	To train the students for the preparation of various cosmetics
<b>Specific Course Outcome:</b>	Be able to determine the structure by using spectra
<b>Paper Name:</b>	<b>Basic analytical chemistry</b>
<b>Paper Number:</b>	<b>Paper Number: Skill – IV</b>
<b>Specific Program Outcome:</b>	Know the classification and fatty acid composition of oils and fats
<b>Specific Course Outcome:</b>	Analysis of oils and fats by physical and chemical method

### **M.Sc. F.Y. Chemistry**

- To look at the evidence and experiments that are used in the analysis of the reaction pathways of metal complexes
- To understand the concept of organometallic chemistry, coordination chemistry and material chemistry to catalysis
- To understand the nature and bonding in metal complexes with spectroscopic methods
- To move students for higher education

### **• outcome**

### **Msc F. Y. Chemistry**

<b>CLASS</b>	<b>Msc F. Y. Chemistry</b>
<b>Semester</b>	<b>Semester – I Subject: Chemistry</b>
<b>Paper Name:</b>	<b>Inorganic chemistry</b>
<b>Paper Number:</b>	<b>I,(CH-411)</b>
<b>Specific Program Outcome:</b>	<p>Learn various approaches in analyzing structure of simple molecule</p> <p>Understand the proposed pathway of reaction taking place in coordination complexes such as substitution reactions, redox reactions, etc and the various factor affecting the rate of these reaction</p> <p>Learned about mechanism proposed for reaction taking place in coordination complexes, and will be able to understand to explain the product formation based on these reaction</p>
<b>Specific Course</b>	Understand how to construct molecular orbital diagram for simple molecule as

<b>Outcome:</b>	<p>well as coordination complexes</p> <p>Draw molecular orbital diagram for sigma and pi bond formation in coordination complexes and will be able to understand and explain difference between respective molecular orbital diagram</p>
<b>Paper Name:</b>	<b>Organic chemistry</b>
<b>Paper Number:</b>	<b>II,CH-412</b>
<b>Specific Program Outcome:</b>	<p>Gain the knowledge of addition reaction between a hetero atom and double bonded carbon compounds.</p> <p>Learn familiar name Reaction</p>
<b>Specific Course Outcome:</b>	<p>Obtain an outline about mechanism of Aromatic Substitution reactions</p> <p>Know synthetically the process relevant Organic –Chemical reactions and be able to discuss the mechanism of these reactions.</p>
<b>Paper Name:</b>	<b>Physical chemistry-I</b>
<b>Paper Number:</b>	<b>CH-413</b>
<b>Specific Program Outcome:</b>	<p>Explain basic concepts, laws and postulates of quantum mechanics</p> <p>Describe different wave functions and operators</p> <p>The Schrodinger wave equation for the calculation</p> <p>Energies of rigid rotor and harmonic oscillator and solve for hydrogen atom</p>
<b>Specific Course Outcome:</b>	<p>Explain the concept of angular momentum</p> <p>Describe the electronic structure of atoms</p> <p>Good overview of laws of thermodynamics, properties for different systems and concept and example of non-ideal systems</p> <p>Discuss concept distribution with examples, they will be able to explain most probable distribution</p> <p>thermodynamic probability</p> <p>Concept of partition functions and its significance</p> <p>Can relate and explain the entropy production in different system and understand Onsager's relations</p> <p>Solve problems related to quantum chemistry, will have large horizon of critical thinking and analytical reasoning</p>
<b>Paper Name:</b>	<b>Physical method in chemistry</b>



<b>Paper Number:</b>	<b>IV ,CH-414</b>
<b>Specific Program Outcome:</b>	Understand how to recognize symmetry elements in a molecule. Assign the point group to a molecule.
<b>Specific Course Outcome:</b>	Deal with degenerate and non-degenerate representations.
<b>Class ,semester</b>	<b>M.Scfy semester -II</b>
<b>Paper name and number</b>	<b>Inorganic chemistry II ,CH-421</b>
<b>Specific Program Outcome:</b>	<p>Learn basic terms regarding electronic spectra of coordination complexes, interpretation of electronic spectra and various important parameters necessary for it, drawing of Orgel and T-S diagrams used for electronic spectra, prediction of possible electronic transitions present in electronic spectra of coordination complexes etc.</p> <p>He/she will understand magnetic nature \ measurement of magnetic moment in coordination complexes, prediction of magnetic nature of complexes using spin only formula.</p> <p>He/she will learn the terms such as diamagnetic and paramagnetic nature of coordination complexes, difference between them, anomalous magnetic moments, spin cross over etc.</p>
<b>Specific Course Outcome:</b>	<p>He/she will learn chemistry of boranes, carboranes and metal clusters, the concept of 3C-2e bond used to explain structural aspects in boranes and carboranes, polyhedral skeletal electron pair theory and its applications in explaining structures of metal clusters etc.</p> <p>He/she will understand the chemistry of carbonyl and nitrosyl molecules, their application as ligand molecules in complex formation, structure and bonding present in various carbonyl and nitrosyls complexes, applications etc.</p>
<b>Paper Name:</b>	<b>Organic chemistry II</b>
<b>Paper Number:</b>	<b>X, CH-422</b>
<b>Specific Program Outcome:</b>	Gain the knowledge of addition reaction between a hetero

	atom and double bonded carbon compounds. Learn familiar name Reaction
<b>Specific Course Outcome:</b>	<p>Obtain an outline about mechanism of Aromatic Substitution reactions</p> <p>Know synthetically the process relevant Organic –Chemical reactions and be able to discuss the mechanism of these reactions.</p> <p>Understand the skill of solving problems of pericyclic reactions</p> <p>Get the clear picture of about pyricyclic reactions</p>
<b>Paper Name:</b>	<b>Physical chemistry II</b>
<b>Paper Number:</b>	<b>XI, CH-423</b>
<b>Specific Program Outcome:</b>	<p>Understand the basic concepts and properties of surfactants and macromolecules .</p> <p>State and apply different laws, principles, theories related to the electrochemistry of the solutions.</p> <p>Discuss and apply the information about corrosion, its monitoring and presentation. .</p> <p>Distinguish different theories of reaction rates.</p>
<b>Specific Course Outcome:</b>	<p>Understand the kinetics of complex reactions, catalysis etc.</p> <p>Perform the calculations and solve the numerical of electrochemistry and chemical kinetics.</p>
<b>Paper Name:</b>	<b>Principles of spectroscopy</b>
<b>Paper Number:</b>	<b>XII, CH-424</b>
<b>Specific Program Outcome:</b>	<p>Explain the basic principles of rotational, vibrational, electronic and Raman spectroscopy.</p> <p>Identify and explain factors that influence the strength and frequency of peaks in the Microwave, IR spectra.</p> <p>Describe the selection rule for rotational, Vibrational and electronic spectroscopy.</p> <p>Determine the vibrations for a molecule and identify whether they are active in infrared and/or Raman spectroscopy.</p> <p>Explain the difference between Stokes and anti-Stokes lines in a Raman spectrum and justify the difference in intensity between Stokes and anti-Stokes lines.</p>
<b>Specific Course Outcome:</b>	<p>Draw the Stokes and anti-Stokes lines in a Raman spectrum of a compound when given the energies of the different transitions.</p> <p>Understand the electronic spectra of atomic and diatomic molecular systems.</p>

	<p>Justify the absorption lines in atomic electronic spectra and the broad bands in molecular electronic spectra.</p> <p>Able to interpret the molecular electronic spectra and deduce the electronic structure information in ground and excited states of diatomic molecules.</p> <p>Importance of the Nuclear Quadrupole Resonance Spectroscopy in the characterizing organic and inorganic compounds.</p>
<b>Paper Name:</b>	<b>Laboratory course I</b>
<b>Paper Number:</b>	<b>V , Inorganic chemistry</b>
<b>Specific Program Outcome:</b>	<p>Learn synthesis methods for the preparation of various coordination complexes and will understand the basic principles involved in operational procedures while synthesizing the complexes to a deeper level.</p> <p>To characterize a synthesized complex using various characterization techniques such as melting point determination, solubility behavior in various solvents, molar conductance, magnetic susceptibility measurements, IR and electronic spectra etc.</p>
<b>Specific Course Outcome:</b>	<p>While following all these methods he/she will be able to understand operation procedures, care that should be taken while using these techniques and the practical utility of these techniques.</p> <p>Understand the basic principles lying behind inorganic analysis such as precipitation, solubility product, buffer solution, applications of buffer solution in maintaining pH, common ion effect etc. and this much information will be helpful while analyzing any inorganic compound in future.</p>
<b>Paper Name:</b>	<b>Laboratory course II</b>
<b>Paper Number:</b>	<b>VI, organic chemistry ,CH-416</b>
<b>Specific Program Outcome:</b>	<p>Learn the pilot separation of the binary mixture</p> <p>Familiarize the systematic procedure of organic mixture analysis</p> <p>The preparation involving nitration, bromination, Sandmeyer reaction, and Aldol condensation</p> <p>Learn the test involving identification of special elements</p> <p>Learn the confirmatory test for various functional groups</p>
<b>Specific Course</b>	Understand the technique involving drying and

<b>Outcome:</b>	crystallization by various methods Expertise the various techniques of preparation and analysis of organic substances Learn the estimation of various organic compounds. Understand micro scale technique.
<b>Paper Name:</b>	<b>Laboratory course III</b>
<b>Paper Number:</b>	<b>VII, physical chemistry ,CH-417</b>
<b>Specific Program Outcome:</b>	Apply their knowledge for setting various experiments based on the instrumentations studied
<b>Specific Course Outcome:</b>	Perform different qualitative and quantitative analysis.
<b>Paper Name:</b>	<b>Laboratory course IV</b>
<b>Paper Number:</b>	<b>VIII, analytical chemistry , CH-418</b>
<b>Specific Program Outcome:</b>	Understand the basic principles and theory of different instruments used during the conduction of the experiments Perform the different experiments on conductometer, pH meter, potentiometer, colorimeter, polarimeter, flame photometry
<b>Specific Course Outcome:</b>	Apply their knowledge for setting various experiments based on the instrumentations studied Perform different qualitative and quantitative analysis.

### **Msc S. Y. Chemistry**

1. Global level research opportunities to pursue Ph. D. program targeted approach of CSIR–NET examination.
2. Enormous job opportunities at all level of chemical, pharmaceutical, food products, life oriented material industries.
3. Specific placements in R & D and synthetic division of polymer industries as well as in allied division.
4. To impart the chemistry knowledge of global standard.
5. Discipline specific competitive examinations conducted by different organization.

<b>CLASS</b>	<b>Msc S. Y. Chemistry</b>
<b>Semester</b>	<b>Semester – III Subject: Chemistry</b>
<b>Paper Name:</b>	<b>Advanced Spectroscopic method (CH-531)</b>
<b>Paper Number:</b>	<b>XV</b>

<b>Specific Program Outcome:</b>	<p>Learn the structure determination of organic molecules by spectroscopic methods.</p> <p>Know the use electronic spectroscopy to determine absorption maximum in dienes, enones and aromatic compounds.</p>
<b>Specific Course Outcome:</b>	<p>Know the applications of IR spectroscopy for functional group determination. Learn the structure elucidation of organic compounds by PMR spectroscopy.</p> <p>Gathering basic knowledge to know the position of carbon in carbon compounds. Recognize the molecular mass of the organic molecule by fragmentation pattern. Know the complete structure of compounds using UV, IR, PMR, CMR and Mass spectroscopic methods.</p>
<b>Paper Name:</b>	<b>Natural product</b>
<b>Paper Number:</b>	<b>XVI (CH-532/2)</b>
<b>Specific Program Outcome:</b>	<p>Structure elucidation, degradation, applications, stereochemistry of Vitamins, Terpenoids, Steroids.</p> <p>Synthetic methods for total synthesis of natural products</p>
<b>Specific Course Outcome:</b>	<p>Medicinal Application of different natural products</p> <p>Rotenones, pyrethroids, prostoglandins and their applications</p>
<b>Paper Name:</b>	<b>Organic synthesis</b>
<b>Paper Number:</b>	<b>XVII, (CH-533/2)</b>
<b>Specific Program Outcome:</b>	<p>To understand the Dakin reaction, Etard reaction, HVZ reaction, Umpolung synthesis and Stephen reaction .</p> <p>To know about the Barton reaction, Jones oxidation, Oppenauer oxidation and Michel addition .</p> <p>To familiarize the different types of reduction reaction .</p>
<b>Specific Course Outcome:</b>	<p>To learn about the synthesis and applications of the organic reagents like 9- Borabicyclo(3.3.1)nonane (9-BBN) and n-butyl lithium .</p> <p>To learn the synthesis and applications of the organic reagents like ceric ammonium nitrate (CAN), DCC, Grignard reagent, LDA, Gilman reagent, NBS and PCC.</p> <p>To know about the complex metal hydrides, Hilman's reagent, lithium dimethyl cuprate and dicyclohexyl</p>

	carbodiimide,1,3-dithiane.  To know the detail study of woodward, provost hydroxylation, selenium dioxide, crown ethers and Peterson's synthesis, Wilkinson's catalyst and Baker yeast.
<b>Paper Name:</b>	<b>Medicinalchemistry</b>
<b>Paper Number:</b>	<b>XVIII, (CH-534/2)</b>
<b>Specific Program Outcome:</b>	Understand key component of drug discovery process and drug designing  Understanding the role of medicinal chemist in development of medicinal agents  Have understanding about functional group modification and their utility in SAR and QSAR.
<b>Specific Course Outcome:</b>	Analyze the recent research articles related with drug design of antimycobacterial agents and antibiotics.
<b>Semester ,paper name</b>	<b>IV,</b> <b>Advanced heterocyclic chemistry</b> <b>XX (CH-541/2)</b>
<b>Specific course outcome</b>	This course aims at giving a fundamental theoretical understanding of heterocyclic chemistry, including alternative general methods for ring synthesis and application of such methods for the preparation of specific groups of heterocyclic systems.
<b>Specific Course Outcome:</b>	The student will get familiar with particular properties and reactions for the most important heterocycles as well as different systems of nomenclature.
<b>Paper Name:</b>	<b>Bio inorganic and green chemistry</b>
<b>Paper Number:</b>	<b>XXI-CH-542/2</b>
<b>Specific Program Outcome:</b>	To learn about the different enzymes participating in the chemical reaction inside the body and their function.  To study about the different oxygen carriers present in the body with their structure and stereochemistry

<b>Specific Course Outcome:</b>	<p>To study in detail about nitrogen fixation reactions and microorganisms involved in nitrogen fixation reactions</p> <p>To know about the biological redox systems and their classifications</p> <p>To create awareness about metal toxicities, their detection and permissible levels in</p>
<b>Paper Name:</b>	<b>Organic synthesis -II</b>
<b>Paper Number:</b>	<b>XXII-543/2</b>
<b>Specific Program Outcome:</b>	<p>To persuade the subject specific knowledge as well as relevant understanding of the Retrosynthesis</p> <p>The academic and professional skills required for Chemistry-based professions.</p>
<b>Specific Course Outcome:</b>	Learning experiences gained from this Disconnection approach is important for industrial purpose.
<b>Paper Name:</b>	<b>Medicinal chemistry</b>
<b>Paper Number:</b>	<b>XXIII CH-544/2</b>
<b>Specific Program Outcome:</b>	Understand key components of drug discovery of Anti-cancer and Anti-AIDS agents, Hypoglycemic agents, Cardiac drugs, antiviral antimalarial agents
<b>Paper name</b>	<b>Laboratory course -V</b>
<b>Paper number</b>	<b>XXV CH-502/2</b>
<b>Specific program outcome</b>	Learn basics practical knowledge of qualitative analysis.
<b>Specific program outcome</b>	Become skilled at organic compounds determination.
<b>Paper name</b>	<b>Laboratory course-VI</b>

<b>Paper number</b>	<b>XXVI CH-502/2</b>
<b>Specific program outcome</b>	<p>Learn basics practical knowledge of multistage synthesis of organic molecules.</p> <p>Learn fundamentals of organic synthesis in drug discovery.</p>
<b>Specific program outcome</b>	Learn about the one-pot organic synthesis by microwave techniques.
<b>Paper name</b>	<b>Laboratory course -VII</b>
<b>Paper number</b>	<b>XXVII- CH_503/2</b>
<b>Specific program outcome</b>	All required solutions must be prepared by the students.
<b>Specific program outcome</b>	In examination one experiment is on Instrumental and one should be on non-instrumental.
<b>Paper name</b>	<b>Laboratory course -IV</b>
<b>Paper number</b>	<b>XXVIII- CH_504/2</b>
<b>Specific program outcome</b>	<p>To develop scientific research attitude among students.</p> <p>To learn different structure determination techniques.</p>
<b>Specific Program Outcome:</b>	Learn basics practical knowledge of qualitative and quantitative analysis.



## DEPARTMENT OF DYES AND DRUGS

Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink):

Program - B. Sc. Program specific outcomes-

B. Sc. Dyes And Drugs To acquire basic knowledge of the subject Dyes and Drugs To provide fundamental and advanced knowledge in order to produce creative and imaginative pharmacist. To equip student with knowledge of applied branches of Dyes and drugs. To understand recent developments in the subject of dyes and drugs. To introduce simple and advanced techniques of dyeing and drug formulation. To acquire knowledge for small scale and large scale dye and drug plant construction. Course Program specific outcomes

B. Sc. F. Y. Dyes and Drugs Class B. Sc. First Year (Semester I) Subject: Dyes and Drugs Paper Name: Introductory to Dyes Paper Number: I (CCDD I section A) Specific Program Outcome: Learn the introduction and classification of dyes, textile fibers Know the process of dyeing and basic operation in dyeing Specific Course Outcome: Explaining theories of Color and chemical constitution of Dyes Paper Name: Introduction to Drugs Paper Number: II (CCDD I Section ,B) Specific Program Outcome: To Explore the chemistry of pro-drug and role of medicinal micro biology. Specific Course Outcome: Outline the principles involved in drug designing and metabolic of drugs inside the human body understand different routes of drug administration Paper Name: Introduction to Dye Intermediate Paper Number: III (CCDD II ,Section A ) Specific Program Outcome: Correlate the colour and chemical constitution of dyes classify dyes based on their constitution and application Specific Course Outcome: Explore various application of Dyes write the reaction involved in the synthesis of some representative drugs and dye intermediate. Paper Name: Dosage forms,purity of Drugs and Biostatistics Paper Number: IV (CCDD II ,Section B) Specific Program Outcome: To understand dosage forms, routes of administration and practical knowledge assay of drug. Specific Course Outcome: Know the application of biostatistics in drug chemistry. To solve numerical on biostatistics. Paper Name: Practical's based on Section A & Section B of (CCDD I and II ) Paper Number: P-V Specific Program Outcome: preparation of dye intermediate .Study of their physical properties. Specific Course Outcome: Preparation of drugs from various classes.

B. Sc S. Y. DYES and DRUGS Class B. Sc. Second Year (Semester – III) Subject: Dyes and Drugs Paper Name: Study of pigments azo and azoic dyes Paper Number: VI (CCDD III , Section A ) Specific Program Outcome: Learn the nature classification and applications of pigments,azo and azoic dyes. Specific Course Outcome: Synthesis of various dyes Paper Name: Synthesis and application of drug acting on CNS Paper Number: VII (CCDD III, Section B ) Specific Program Outcome: Get Acquainted with Drugs acting on CNS like anaesthetics,Tranquillizer,sedatives, analgesics antipyretics. Paper Name: Practicals based on paper VI and VII Paper Number: X (XXDD II ,III Section A ) Specific Program Outcome: Acquire practical Skill regarding preparation of dyes, dye intermediates dyeing methods and dye estimations. Semester IV Paper Name: Study of methane methane ,Anthraquinone,xanthene ,heterocyclic dyes. Paper Number: VIII ( CCDD IV Section A ) Specific Program Outcome: Introduction and classification of methane ,Anthraquinone,xanthene ,heterocyclic dyes Specific Course Outcome: Applications of various dyes

B.Sc. T.Y. Dyes and Drugs Paper Name: Synthesis and application of chemotherapeutic drugs Paper Number: IX (CCDD IV section B ) Specific Program Outcome: Know the synthesis and applications of Chemotherapeutic drugs Specific Course Outcome: Paper Name: Annual Practical's based on P VIII and IX Paper Number: (CCDD III and IV ,section B ) Specific Program Outcome: Acquire practical Skill regarding preparation of drug,drugintermediate,assay of drug test for identity and purity of drugs And qualitative study of drugs.. Class B. Sc. Third Year (Semester – V) Subject: Dyes and Drugs Paper Name: Chemistry of synthetic Dyes Paper Number: XII (DSECDD I ,Section A ) Specific Program Outcome: Acquire knowledge of various Dispersedye,reactivedye,mordant dye Specific Course Outcome: Learn factors affecting fastness of dye fiber Paper Name: Chemistry of synthetic drug Paper Number: XIII (DSECDD I Section B ) Specific Program Outcome: Discuss the major categories of drugs as they related to the treatment of cardiac diseases Specific Course Outcome: Synthesis and applications of various drugs Paper Name: Practical's based on XII and XIV Paper Number: XVI (DSECDDP I AND II Section A ) Specific Program Outcome: Preparation of Dyes Specific Course Outcome: Estimation of dyes by reduction method Skillfully separate the given mixture by chromatography method

Semester VI Paper name Chemistry of synthetic dyes II Paper Number: IX ( DSECDD II Section A ) Specific Program Outcome: Introduction and general properties of sulphur dyes Introduction to fluorescent brightening agent Specific Course Outcome: Application of chromatography technique in analysis of dyes Identification and evaluation of dyes Paper Name: Pharmaceutical dosage form Paper Number: XV ( DSECDD II Section B ) Specific Program Outcome: Describe the reason we need dosage form Describe how dosage forms are classified Specific Course Outcome: Describe dosage forms according to their route of administration Paper Name: Practical's based on XIII and XV Paper Number: XVII( DSECDDP II Section B ) Specific Program Outcome: Perform complexometric titration carefully Specific Course Outcome: Determination of refractive index of various drugs

M.Sc. F.Y. MICROBIOLOGY ● To provide fundamental and advanced knowledge in order to produce creative and imaginative microbiologist. ● To practice

Microbiological laboratory techniques in support of various industrial fermentation. • To equip student with knowledge of applied branches of Microbiology. Outcome : • Mastersprogramme in microbiology will address & satisfy needs like; Skilled Microbiologist for industries and fundamental research • M.sc microbiology student will have knowledge in depth about microbial diversity, physiology & metabolism, pathogenicity, Resistance, Microbial genetics, bioinstrumentation, Agricultural & pharmaceutical Microbiology. Msc F. Y. Microbiology CLASS Msc F. Y. Microbiology Semester Semester – I Subject: Microbiology Paper Name: Microbial Physiology Paper Number: MB-101 Specific Program Outcome: Like other organisms student will be able to learn important life processes of microorganisms such as types of Microbial Nutrition, Bacterial Respiration, Bacterial permeation and Transportation, Reproduction. Specific Course Outcome: Acquire knowledge about Physiological groups of Bacteria, Energy generation by oxidation of various inorganic compounds, Types of Respiration, Types of transport mechanisms in Bacteria, Sporulation in Bacteria. Paper Name: Practical Paper Name: Microbial Physiology Paper Number: PRACTICAL LAB-I MB-101 Specific Program Outcome: Students will be technically skilled in performing Practicals based on Photosynthesis and Respiration in Bacteria, Active and passive diffusion, IOR and SOR studies in Bacteria. Specific Course Outcome: Acquire skills to perform practical by Comparing various parameters like pH, Temperature, chemicals, Heavy metals on growth and physiology of Bacteria. Paper Name: ADVANCES IN VIROLOGY Paper Number: MB-102 Specific Program Outcome: The student will understand and be able to explain different branches of Microbiology such as Virology. The student will be able to explain about various aspects of viruses in more detail such as their classification, cultivation detection and lifecycles of various viruses. Specific Course Outcome: Student will be able to understand and explain the virology in order to prevent and control various viral diseases, including classification, characterization, Cultivation, Multiplication of viruses and pathogenesis. Paper Name: ADVANCES IN VIROLOGY Paper Number: PRACTICAL LAB-I MB-102 Specific Program Outcome: Impart Knowledge of the diverse places where virology is involved. Basic skills such as cultivation of viruses, plaque assay, one step growth curve, transduction are practiced. Specific Course Outcome: Acquire skills to perform different virology practicals of cultivation of viruses, plaque assay, one step growth curve, transduction, induction of lysogeny, Lambda DNA isolation and plant viruses. Paper Name: FOOD AND DAIRY MICROBIOLOGY Paper Number: MB-103 Specific Program Outcome: The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Student will be able to understand and explain the different aspects of Food and Dairy Microbiology including food spoilage, Food Preservation, Food and dairy Fermentations, Quality assurance and Food safety issues along with government regulatory practices and policies. Paper Name: Practical Paper Name: FOOD AND DAIRY MICROBIOLOGY Paper Number: PRACTICAL LAB-II MB-103 Specific Program Outcome: Major outcome of this paper is to skill microbiologist in checking quality of food, increasing shelf life of dairy products, food and Dairy Fermentations. Specific Course Outcome: Students are enabled to isolate food pathogens, to estimate and extract diacetyl from food products, to extract and detect Aflatoxins from food samples, to estimate Lactic acid in fermented food. Paper Name: BIOINSTRUMENTATION Paper Number: MB-104 Specific Program Outcome: Student get acquainted with various laboratory techniques, Chromatography techniques, Electrophoretic Techniques, Spectroscopic and Radioisotopic Techniques. Specific Course Outcome: Student will be able to understand explain and apply various biophysical and biochemical techniques during their further studies and research work. Paper Name: BIOINSTRUMENTATION Paper Number: PRACTICAL LAB-II MB-104 Specific Program Outcome: Student get acquainted with various laboratory techniques, Chromatography techniques, Electrophoretic Techniques, Spectroscopic and Radioisotopic Techniques. Specific Course Outcome: Student skilled with various laboratory techniques, Chromatography techniques, Electrophoretic Techniques, Spectroscopic and Radioisotopic Techniques. Paper Name: SEM II CLASS: M. Sc. F.Y. MICROBIAL METABOLISM Paper Number: MB-201 Specific Program Outcome: Major outcome of this paper is to learn Microbial bioenergetics, Various Carbohydrate metabolic Pathways and fermentations, Metabolism of Organic Nitrogenous compounds, Hydrocarbon metabolism and endogenous metabolism. Specific Course Outcome: To correlate regulation of metabolism at enzymatic levels and apply, methodology for commercial applications of enzymes To learn mechanisms of transport of solutes across the membrane To get acquainted with mechanism of biosynthesis and degradation of bio molecules To comprehend basic concept of autotrophic mode of metabolism of prokaryotes Paper Name: Practical Paper Name: MICROBIAL METABOLISM Paper Number: PRACTICAL LAB-III MB - 201 Specific Program Outcome: Students will be skilled in studying bacterial metabolisms and their relevant pathways. Specific Course Outcome: Students develop skill of production and estimation of amino acid production, various reducing sugars and Proteins, demonstrate

endogenous metabolism in bacteria, prepare and analyze polar lipids , isolate Hydrocarbon degraders, isolate PHB producers for commercial applications. Paper Name: MODERN MICROBIAL GENETICS Paper Number: MB-202 Specific Program Outcome: To understand key concepts of Central Dogma To get knowledge of Prokaryotic Replication, Transcription and Translation Specific Course Outcome: · To exhibit a knowledge base in Genetics and Molecular Biology · To understand the central dogma of Molecular Biology · To study genetic map of bacteria · To get introduced to concept of recombination and bacteriophage Genetics To study Regulation of Gene expression Paper Name: Practical Paper Name: MODERN MICROBIAL GENETICS Paper Number: Paper Number: PRACTICAL LAB-III MB - 202 Specific Program Outcome: To learn Basic Techniques involved in studying Microbial Genetics and Molecular Biology Specific Course Outcome: Students are skilled in various Molecular techniques like Extraction and Purification of DNA, confirmation by spectral studies, Agarose gel electrophoresis of DNA. Paper Name: BIOPROCESS ENGINEERING Paper Number: Paper Number: MB-203 Specific Program Outcome: Major outcome is to acknowledge various applications of Microorganisms to produce different commodity chemical compounds on Large scale. Specific Course Outcome: · To impart technical understanding of commercial fermentations · To apply classical, advanced strain improvement and isolation techniques for fermentation processes. · To optimize and sterilize media used in fermentation industry for commercially economical and efficient fermentations. · To recover the product using suitable methods and ensuring quality of the finished product by quality assurance tests. · To acquaint fermentation economics, process patentability, process validation. · To comprehend the large scale productions of commercially significant fermentation products of classical and recent significance. To study various parameters of fermentation processes. Paper Name: BIOPROCESS ENGINEERING Paper Number: PRACTICAL LAB-IV MB - 203 Specific Program Outcome: To study qualitative and quantitative Estimation of biomolecules. To learn Basic techniques and modern techniques Industrial Microbiology Specific Course Outcome: Students will be able to isolate industrially important microorganisms, to determine TDP and TDT of Sterilizer. To study batch reactor and continuous reactor. To purify and recover fermentation products. Paper Name: ENZYME TECHNOLOGY Paper Number: MB-204 (Elective) Specific Program Outcome: Students will learn basic and advanced findings in Enzyme Technology. This paper knowledge make them familiar with all aspects of Enzymes and their various applications as diagnostic as well as therapeutic tool. Specific Course Outcome: This course will increase their keen interest in enzymes, Biochemistry, Drug delivery systems, Enzyme engineering and various potential applications of enzymes. Paper Name: ENZYME TECHNOLOGY Paper Number: PRACTICAL LAB-IV MB – 204 Specific Program Outcome: To understand importance of enzymes in day today life To isolate and purify particular enzyme. To study kinetic behavior of enzymes Specific Course Outcome: Especially skilled in Fungal Amylase Production, Purification, Assay and Enzyme activity determination as well enzyme Immobilization, preparation of Biosensor. Determination of molecular weight using PAGE Technique. Msc S. Y. Microbiology CLASS Msc S.Y. Microbiology Semester Semester – III Subject: Microbiology Paper Name: Paper Name: MOLECULAR IMMUNOLOGY Paper Number: Paper Number: MB-301 Specific Program Outcome: The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Student will be able to explain and categorize different types of lymphoid organs as primary and secondary lymphoid organs, immunogen and immunoglobulin, Organization and Expression of Immunoglobulin genes, and Major, Minor Histocompatibility Complexes and Clinical immunology. Paper Name: Practical Paper Name: MOLECULAR IMMUNOLOGY Paper Number: PRACTICAL LAB-V MB-301 Specific Program Outcome: Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Acquire skills to perform practical by Comparing various parameters according to different immunological techniques. Paper Name: RECOMBINANT DNA TECHNOLOGY Paper Number: MB-302 Specific Program Outcome: The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be

able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Student will be able to understand and explain the recombinant DNA technology, explain steps and tools in genetic engineering and apply recombinant DNA technology in medicine agriculture and veterinary sciences. Paper Name: RECOMBINANT DNA TECHNOLOGY Paper Number: PRACTICAL LAB-V MB-302 Specific Program Outcome: Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Specific Course Outcome: Acquire skills to perform practicals of isolation, restriction digestion, ligation, amplification, gene mapping and gene cloning required for recombinant DNA technology. Paper Name: MICROBIAL DIVERSITY AND EXTREMOPHILES Paper Number: MB-303 Specific Program Outcome: The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Student will be able to understand and explain the microbial diversity present in different extreme environmental conditions in terms of their distribution, abundance, classification, structure and applications of their products. Paper Name: Practical Paper Name: MICROBIAL DIVERSITY AND EXTREMOPHILES Paper Number: PRACTICAL LAB-VI MB-303 Credits: 02 Specific Program Outcome: Specific Program Outcome: Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Specific Course Outcome: Students are enabled to isolate thermophiles, halophiles by studying different parameters. Isolation of thermophiles from hot water spring (Study at least one thermostable enzyme). 1. Studies on halophiles isolated from high salt habitat. (Study its pigmentation and salt tolerance phenomenon). 2. Studies on alkalophiles and its enzymes (any one) isolated from extreme alkaline environment. 3. Biogenic methane production using different wastes. 4. Isolation of Thiobacillus ferrooxidans and Thiobacillus thiooxidans culture from metal sulfides, rock coal and acid mine water. Paper Name: BIOSTATISTICS, COMPUTER APPLICATIONS AND RESEARCH METHODOLOGY Paper Number: MB-304 Specific Program Outcome: The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome Specific Course Outcome: Student will be able to understand explain and apply the biostatistics, computer and research methodology during his further studies. Paper Name: BIOSTATISTICS, COMPUTER APPLICATIONS AND RESEARCH METHODOLOGY Paper Number: PRACTICAL LAB-VI MB-304 Specific Program Outcome: Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Specific Course Outcome: Students develop skill to apply statistical knowledge and to correlate statistically extracted value by performing knowledge based practical. Also acquires skill to represent data by using the computer knowledge of MS Word, Excel and power point presentation. Paper Name: FERMENTATION TECHNOLOGY Paper Number: MB-401 Specific Program Outcome: student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology,

Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Student able to understand and develop skill of the different microbial fermentation processes, production of fermentation products, therapeutic compound. Bioplastic production, biofertilizer production. Get aware of procedure of IPR, Trademark, copyright. Paper Name: Practical Paper Name: FERMENTATION TECHNOLOGY Paper Number: PRACTICAL LAB-VII MB - 401 Specific Program Outcome: Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Specific Course Outcome: Students develops skill of production and estimation of acid production glutamic acid, rifamycin production, thuricides, laboratory scale production of biofertilizer. Also acquires skills of microbial production of dextran and hydrogen gas. Paper Name: MEDICAL AND PHARMACEUTICAL MICROBIOLOGY Paper Number: MB-402 Specific Program Outcome: The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Student able to understand and develop skill for construct antibiotic, microbiological assay drug resistance. Explain the mechanism and action of antibiotic antimicrobial agent. apply safety in microbiology. students will gain the knowledge and can work in hospital, pharmacy and industry Paper Name: Practical Paper Name: MEDICAL AND PHARMACEUTICAL MICROBIOLOGY Paper Number: Paper Number: PRACTICAL LAB-VII MB - 402 Specific Program Outcome: Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Students develops skill of production and bioassay of penicillin, estimation of griseofulvin, production of therapeutic enzymes, determination of MIC and LD, sterility testing, and determination of antimicrobial activity of chemical compounds. Paper Name: Paper Name: ENVIRONMENTAL MICROBIOLOGY Paper Number: Paper Number: MB-403 Specific Program Outcome: The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Specific Course Outcome: Student able to understand and recognise characteristic of environment and ecosystem, characteristics of waste water, solid waste and its treatment by various methods such as aerobic and anaerobic treatment. Also explains biodeterioration, biotransformation & recovery of Metals & Metalloids and impact of these factors on environment. Paper Name: Practical Paper Name: ENVIRONMENTAL MICROBIOLOGY Paper Number: PRACTICAL LAB-VII MB - 403 Specific Program Outcome: Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Specific Course Outcome: Students develops skill and handling of physical analysis of sewage, measurement of BOD/COD, recovery of toxic metal ions from industrial effluent, study of municipal solid waste management, and microbial dye decolouration Paper Name: MICROBIAL BIOINFORMATICS, GENOMICS AND PROTEOMICS Paper Number: MB-404 (Elective) Specific

Program Outcome: The student will understand and be able to explain different branches of Microbiology such as Bacteriology and Virology. The student will be able to explain about various applications of Microbiology such as Molecular Immunology, Microbial Diversity and Extremophiles, Environmental Microbiology, Industrial Microbiology, Fermentation Technology, Food Microbiology, Medical and Pharmaceutical Microbiology and Microbial Pathogenicity. The student will be able to design and execute experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics, and will be able to execute a short research project incorporating techniques of Basic and Advanced Microbiology under supervision. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Students are able to predict the significance of the biological phenomenon on the basis of available data set. Student develops skill to apply the knowledge of bioinformatic for the analysis of microbial genome and proteins. Paper Name: MICROBIAL BIOINFORMATICS, GENOMICS AND PROTEOMICS Paper Number: PRACTICAL LAB-VII MB - 404 Specific Program Outcome: Impart Knowledge of the diverse places where microbiology is involved. Understanding of diverse Microbiological processes. Basic skills such as culturing microbes, maintaining microbes, safety issues related to handling of microbes, Good Microbiological practices etc. Moderately advanced skills in working with microbes such as Pathogens. The student will be equipped to take up a suitable position in academia or industry, and to pursue a career in research if so desired. Specific Course Outcome: Students develops skill of handling data bases for nucleic acid and protein sequences, structure detection by RASMOL software, gene and protein sequence analysis using BLAST algorithm

## **DEPARTMENT OF COMMERCE**

**Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink):nsbcn.org**

**Program – M.COM.**

**Program Outcomes:**

- 1 After completing two years for Masters in Commerce (M.Com) program, students would gain a thorough grounding in the advance level of Commerce.**
- 2 The syllabus of this course focused on national level competitive exams such as SET/NET(JRF)/PET**
- 3 The all-inclusive outlook of the course offers vast study of statistical tools as well as economical concepts which helps students to develop their career in above mentioned subjects.**
- 4 The advance level of knowledge in the field of Banking and Finance/ human resource management/ international marketing makes students aware about the recent trends in commerce and finance.**

**Program specific outcomes- (paper wise data)**

<b>Class</b>	<b>M.com First year First semester</b>
<b>Subject:</b>	<b>Commerce</b>
<b>Paper Name:</b>	<b>Managerial Economics</b>
<b>Paper Number:</b>	<b>M.com I year (I st Sem) Paper I</b>
<b>Specific Program Outcome:</b>	<b>Students will be able to understand Production function, laws of variable Proportion, demand forecasting, Pricing policies, types of inflation, effects of inflation, international price discrimination &amp; dumping, law penetration pricing, transfer pricing, price discrimination.</b>

## DEPARTMENT OF COMMERCE

Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink): nsbcn.org

Program – M.COM.

Program Outcomes:

- 1 After completing two years for Masters in Commerce (M.Com) program, students would gain a thorough grounding in the advance level of Commerce.
- 2 The syllabus of this course focused on national level competitive exams such as SET/NET(JRF)/PET
- 3 The all-inclusive outlook of the course offers vast study of statistical tools as well as economical concepts which helps students to develop their career in above mentioned subjects.
- 4 The advance level of knowledge in the field of Banking and Finance/ human resource management/ international marketing makes students aware about the recent trends in commerce and finance.

Program specific outcomes- (paper wise data)

Class	M.com First year First semester
Subject:	Commerce
Paper Name:	Management function and behavior.
Paper Number:	M.com I year (I st Sem) Paper II
Specific Program Outcome:	Students will be able to understand management Function, concepts, tools and techniques of management such as organizational behaviors, Maslow's Need priority Model. Maslow's Need Hierarchy. Theories of motivation. Theory X and Y, Group Behaviour, Group concesiveness, Basic principles of inter personal attraction. Developing Inter personal Relationships Different ways of influencing Behaviour.

## DEPARTMENT OF COMMERCE

Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink): nsbcn.org

Program – M.COM.

Program Outcomes:

- 1 After completing two years for Masters in Commerce (M.Com) program, students would gain a thorough grounding in the advance level of Commerce.
- 2 The syllabus of this course focused on national level competitive exams such as SET/NET(JRF)/PET
- 3 The all-inclusive outlook of the course offers vast study of statistical tools as well as economical concepts which helps students to develop their career in above mentioned subjects.
- 4 The advance level of knowledge in the field of Banking and Finance/ human resource management/ international marketing makes students aware about the recent trends in commerce and finance.

Program specific outcomes- (paper wise data)

<b>Class</b>	<b>M.com First year First semester</b>
<b>Subject:</b>	<b>Commerce</b>
<b>Paper Name:</b>	<b>QUANTITATIVE ANALYSIS FOR MANAGEMENT APPLICATION</b>
<b>Paper Number:</b>	<b>M.com I year (I st sem) Paper III</b>
<b>Specific Program Outcome:</b>	Students will be able to apply the statistical tools and techniques for managerial decision making, such as Partial Correlation and Multiple Correlations; Significance and limitation of partial and multiple correlations, Chi -Square Test, F-Test, T – Test, Methods of Studying Association; Yule’s Coefficient of Association, Significance of Diagrams and Graphs. Bar Diagrams; Pie Diagrams; Histogram and Ogives.

## **DEPARTMENT OF COMMERCE**

**Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink): nsbcn.org**

**Program – M.COM.**

**Program Outcomes:**

- 1 After completing two years for Masters in Commerce (M.Com) program, students would gain a thorough grounding in the advance level of Commerce.**
- 2 The syllabus of this course focused on national level competitive exams such as SET/NET(JRF)/PET**
- 3 The all-inclusive outlook of the course offers vast study of statistical tools as well as economical concepts which helps students to develop their career in above mentioned subjects.**
- 4 The advance level of knowledge in the field of Banking and Finance/ human resource management/ international marketing makes students aware about the recent trends in commerce and finance.**

**Program specific outcomes- (paper wise data)**

<b>Class</b>	<b>M.com First year First semester</b>
<b>Subject:</b>	<b>Commerce</b>
<b>Paper Name:</b>	<b>INTERNATIONAL BUSINESS ENVIRONMENT</b>
<b>Paper Number:</b>	<b>M.com I year (I st Sem) Paper IV</b>
<b>Specific Program Outcome:</b>	Students will be able to understand concepts such as, Significance of foreign investment - trade and investment - types of foreign investment -factors affecting international investment - growth of foreign investment - dispersion of FDI - portfolio investment - foreign investment by Indian companies. Globalisation of world economy - Globalisation of business - meaning and dimensions -features of current globalisation - Globalisation stages - Essential conditions for globalization - Foreign market entry strategies - Pros and Cons of globalization - Globalisation of Indian business. Regulation of foreign trade - Foreign trade (Development and Regulation) Act - Foreign trade policy - Export promotion.

## **DEPARTMENT OF COMMERCE**

**Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink): nsbcn.org**

**Program – M.COM.**



### **Program Outcomes:**

- 1** After completing two years for Masters in Commerce (M. Com) program, students would gain a thorough grounding in the advance level of Commerce.
- 2** The syllabus of this course focused on national level competitive exams such as SET/NET(JRF)/PET
- 3** The all-inclusive outlook of the course offers vast study of statistical tools as well as economical concepts which helps students to develop their career in above mentioned subjects.
- 4** The advance level of knowledge in the field of Banking and Finance/ human resource management/ international marketing makes students aware about the recent trends in commerce and finance.

### **Program specific outcomes- (paper wise data)**

<b>Class</b>	<b>M.com First year second semester</b>
<b>Subject:</b>	<b>Commerce</b>
<b>Paper Name:</b>	<b>Accounting for Managerial Decisions</b>
<b>Paper Number:</b>	<b>M.com 1ST Year ( IInd Semester) Paper – I</b>
<b>Specific Program Outcome:</b>	<b>The objective of this course is to acquaint students with the accounting concepts, tools and techniques for managerial decisions such as, Standard costing and variance analysis, Marginal costing and Break even analysis, Concept of Margin of Safety, Angle of Incidence, Decisions regarding sales mix, Make or buy, Accounting for price level changes, Budgetary control, Types of Budget.</b>

## **DEPARTMENT OF COMMERCE**

**Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink): nsbcn.org**

### **Program – M.COM.**

### **Program Outcomes:**

- 1** After completing two years for Masters in Commerce (M.Com) program, students would gain a thorough grounding in the advance level of Commerce.
- 2** The syllabus of this course focused on national level competitive exams such as SET/NET(JRF)/PET
- 3** The all-inclusive outlook of the course offers vast study of statistical tools as well as economical concepts which helps students to develop their career in above mentioned subjects.
- 4** The advance level of knowledge in the field of Banking and Finance/ human resource management/ international marketing makes students aware about the recent trends in commerce and finance.

### **Program specific outcomes- (paper wise data)**

<b>Class</b>	<b>M.com First year second semester</b>
<b>Subject:</b>	<b>Commerce</b>
<b>Paper Name:</b>	<b>CORPORATE TAX PLANNING AND MANAGEMENT</b>
<b>Paper</b>	<b>M.com 1ST Year ( IInd Semester) Paper – II</b>

<b>Number:</b>	
<b>Specific Program Outcome:</b>	This course aims to make the student conversant with the concept of Corporate Tax Planning and Management and its application in corporate world such as, Concept of tax planning; tax avoidance; tax evasion and tax management, Tax planning in respect of: own or lease decision, make or buy decision; Tax Planning in respect of persons such as an individual; a HUF; a Firm and a Company.

## DEPARTMENT OF COMMERCE

Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink): nsbcn.org

**Program – M.COM.**

**Program Outcomes:**

- 1 After completing two years for Masters in Commerce (M.Com) program, students would gain a thorough grounding in the advance level of Commerce.
- 2 The syllabus of this course focused on national level competitive exams such as SET/NET(JRF)/PET
- 3 The all-inclusive outlook of the course offers vast study of statistical tools as well as economical concepts which helps students to develop their career in above mentioned subjects.
- 4 The advance level of knowledge in the field of Banking and Finance/ human resource management/ international marketing makes students aware about the recent trends in commerce and finance.

**Program specific outcomes- (paper wise data)**

<b>Class</b>	M.com First year second semester
<b>Subject:</b>	Commerce
<b>Paper Name:</b>	OPERATIONS RESEARCH
<b>Paper Number:</b>	M.com 1ST Year ( IInd Semester) Paper – III
<b>Specific Program Outcome:</b>	The Objective of this course is to acquaint students with the Operation research tools and techniques and their application in management process such as, Features of Transportation Problems, Problems on North-west Corner method; Row-minima method, Column minima method and Vogel's Approximation method (VAM), Assumption in sequencing problems, Processing in jobs through two machines.

## DEPARTMENT OF COMMERCE

Program outcomes, Program specific outcomes and course outcomes for all programs offered institution are stated and displayed in website of the institution (weblink): nsbcn.org

**Program – M.COM.**

**Program Outcomes:**

**1** After completing two years for Masters in Commerce (M.Com) program, students would gain a thorough grounding in the advance level of Commerce.

**2** The syllabus of this course focused on national level competitive exams such as SET/NET(JRF)/PET

**3** The all-inclusive outlook of the course offers vast study of statistical tools as well as economical concepts which helps students to develop their career in above mentioned subjects.

**4** The advance level of knowledge in the field of Banking and Finance/ human resource management/ international marketing makes students aware about the recent trends in commerce and finance.

**Program specific outcomes- (paper wise data)**

<b>Class</b>	<b>M.com First year second semester</b>
<b>Subject:</b>	<b>Commerce</b>
<b>Paper Name:</b>	<b>Strategic Management</b>
<b>Paper Number:</b>	<b>M.com 1ST Year ( IInd Semester) Paper – IV</b>
<b>Specific Program Outcome:</b>	<b>To develop the capabilities of the students to understand the concept relating to strategic management. To acquaint student with strategies framed at different levels of management. For organizational success in changing environment. To make student competent to think and act globally. Also, Different types of diversification strategy, change of different strategies, Recent development. Human capital management, significance of corporate appraisal in strategy making, types of strategic control, techniques of strategic evaluation &amp; control.</b>