

Janseva Foundation Loni Budruks
Arts and Commerce College, Shendi
Dept. Of English
PO's And Co's

| Program Specific Outcome of English | |
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| PSO1 | Reading |
| PSO2 | Nation and Tradition |
| PSO3 | Critical Insight in Literary Texts |
| PSO4 | Issues and awareness of Sexuality and Gender: Arts |
| PSO5 | Realizing Moral Values |
| PSO6 | Writing skills. |
| PSO7 | Learning Effective Communication |
| Objectives: | |
| PO1 | To expose students to the best examples of prose and poetry in English so that they realize the beauty and communicative power of English |
| PO2 | To instill human values and develop the character of students as responsible citizens of the world |
| PO3 | To develop the ability to appreciate ideas and think critically |
| PO4 | To enhance employability of the students by developing their linguistic competence and communicative skills |
| PSO5 | To revise and reinforce structures already learnt in the previous stages of learning. |
| F. Y. B. A- English | |
| After studying this course student will be able to: | |
| CO1 | To expose students to the basics of literature and language and develop an integrated view about language and literature in them |
| CO2 | To acquaint them with minor forms of literature in English and help them to appreciate the creative use of language in literature |
| CO3 | To introduce them to the basics of phonology of English so that they can pronounce better and speak English correctly. |
| CO4 | To prepare students to go for detailed study and understanding of Literature and language |
| CO5 | To enhance the job potential of students by improving their language skills |
| F. Y. B. Com Compulsory English | |
| After studying this course student will be able to: | |
| CO1 | To offer relevant and practically helpful pieces of prose and poetry to students so that they not only get to know the beauty and communicative power of English but also its practical application |
| CO2 | To expose students to a variety of topics that dominate the contemporary socioeconomic and cultural life |
| CO3 | To develop oral and written communication skills of the students so that their employability |

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| | enhances d) To develop overall linguistic competence and communicative skills of students. |
| S. Y. B. A English Compulsory English | |
| CO1 | To familiarize students with some excellent pieces of drama and poetry in English so that they realize the beauty and communicative power of English. |
| CO2 | To enable students to become competent and effective users of English in real life situations |
| CO3 | To contribute to the overall personality development of the students |
| CO4 | To instil humanitarian values and foster sympathetic attitude in the students |
| CO5 | To acquaint the students with the verbal and nonverbal communication |
| CO6 | To impart knowledge of some essential soft skills to enhance their employability |
| T. Y. B. A. Compulsory ENGLISH | |
| CO1 | To familiarize students with some excellent pieces of prose and poetry in English so that they realize the beauty and communicative power of English. |
| CO2 | To enable students to become competent and effective users of English in real life situations |
| CO3 | To contribute to the overall personality development of the students. |
| CO4 | To instill humanitarian values and foster sympathetic attitude in the students. |
| CO5 | To train the students in practical writing skills required in work environment. |
| CO6 | To impart knowledge of some essential soft skills to enhance their employability |
| T. Y. B. A. Compulsory ENGLISH | |
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| CO6 | To impart knowledge of some essential soft skills to enhance their employability |

Janseva Foundation Loni Budruks
Arts and Commerce College Shendi
Dept. Of Marathi
PO's And Co's

| PROGRAMME OUTCOMES MARATHI DEPARTMENT | |
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| B.A | |
| After successful completion of three year bachelor and two master degree program in Marathi a student should be able to | |
| PO1 | विषयाचा अभ्यास करणाऱ्या विद्यार्थ्यांस स्थूलपणे मराठी साहित्य, मराठी भाषा आणि मराठी संस्कृती यांचा क्रमशः परिचय होतो. |
| PO2 | साहित्यासंबंधी – विशेषतः मराठी साहित्यासंबंधी रुची निर्माण होते. |
| PO3 | विद्यार्थ्यांच्या वाङ्.मयीन अभिरुचीचा विकास होतो. |
| PO4 | आस्वाद घेण्याची डोळस क्षमता विकसित होते. |
| PO5 | साहित्याभ्यासातून जीवन विषयक समज विकसित होते |
| PO6 | मराठी साहित्याभ्यासातून जीवन विषयक समज विकसित होते. |
| PO7 | जागतिकीकरणात विविध क्षेत्रांना सामोरे जाण्यासाठी भाषिक क्षमता विकसित होते. |
| PROGRAMME OUTCOMES | |
| F.Y.B.A Marathi | |
| मराठी साहित्य कथा आणि भाषिक कौशल्य विकास सत्र दुसरे मराठी साहित्य एकांकिका आणि भाषिक कौशल्य विकास | |
| CO1 | साहित्य संबंधी रुची निर्माण होते. |
| CO2 | मराठी भाषा व संस्कृती विषयी ज्ञान प्राप्त होते. |
| CO3 | कथा व कविता या साहित्य प्रकारचा आस्वाद घेण्याची क्षमता निर्माण होते. |
| F.Y.B.Com Marathi | |
| भाषा साहित्य आणि कौशल्य विकास | |
| CO1 | भाषा व्यवहारहाचे स्वरूप समजते. |
| CO2 | कार्यालयीन मराठी भाषा वापरण्याचे तंत्र विकसित होते. |
| SYBA GEN | |
| भाषिक कौशल्यविकास व आधुनिक मराठी साहित्यप्रकार | |
| CO1 | भाषिक कौशल्य विकसित होतात. |
| CO2 | चरित्र व आत्मचरित्र या साहित्य प्रकारचे ज्ञान प्राप्त होते. |
| CO3 | आस्वाद आणि मूल्यमापन करण्याची क्षमता वाढते. |
| SYBA S1 | |
| आधुनिक मराठी साहित्य : प्रकाशवाटा | |
| CO1 | वेगवेगळ्या कालखंडातील परंपरा व संस्काराचा परिचय होते. |
| CO2 | नाटक व कादंबरी या साहित्य प्रकारचे आस्वाद व आकलन होण्याची क्षमता निर्माण होते. |

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| SYBA S2 | |
| साहित्यविचार | |
| CO1 | विशिष्ट कालखंडातील साहित्याच्या प्रेरणा समजतात. |
| CO2 | ऐतिहासिक परंपरांचे ज्ञान होते. |
| SYBSC | |
| मराठी साहित्य आणि उपयोजित मराठी | |
| CO1 | विज्ञान साहित्य विषयी आवड निर्माण होते. |
| CO2 | भाषिक कौशल्य विकसित होतात. |
| TYBA G3 | |
| आधुनिक मराठी साहित्य आणि व्यावहारिक मराठी | |
| CO1 | विविध साहित्य प्रकाराचा परिचय होतो. |
| CO2 | ग्रंथ परिक्षणाची आवड निर्माण होते. |
| TYBA S3 | |
| आधुनिक मराठी साहित्य आणि व्यवहारिक मराठी | |
| CO1 | साहित्याचे विविध स्वरूप समजते. |
| CO2 | साहित्याची वाङ्.मयीन मुल्ये समजतात. |
| TYBA S4 | |
| वर्णनात्मक भाषाविज्ञान | |
| CO1 | भाषाविषयी सखोल ज्ञान मिळते. |
| CO2 | भाषेतील 'स्वनिम' संकल्पना समजते. |

Janseva Foundation Loni Budruks
Arts and Commerce College Shendi
 Tal- Akole Dist- Ahmednagar
 Dept. of Geography

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| F.Y.B.A. | |
| Gg- 110 (A) PhysiCl Geography Semester I | |
| On completion of the course students will be able to | |
| CO1 | To introduce the students to the basic concepts in Physical geography. |
| CO2 | To introduce latest concept in Physical geography |
| CO3 | To acquaint the students with the utility and application of Physical geography in different regions and environment. |
| CO4 | To make the students aware about Earth system (Lithosphere, Atmosphere, Biosphere and Hydrosphere) |
| Gg- 110 (B) Human Geography Semester II | |
| On completion of the course students will be able to | |
| CO1 | To introduce the students to the basic concepts in Human geography. |
| CO2 | To introduce latest concept in Human geography |
| SYBA | |
| Environment Geography (SEM- III) | |
| CO1 | To create the awareness about dynamic environment among the students |
| CO2 | To acquaint students with fundamental concept of environment. Geography for development in different aria |
| CO3 | To students should be able to integrate varies factors of environment dynamic accept environmental geography |
| CO4 | To make aware the student about the problems of environment, their utilization and conservation in the view of sustainable development |
| SYBA | |
| Environment Geography (SEM- IV) | |
| CO1 | To create the awareness about dynamic environment among the students |
| CO2 | To acquaint students with fundamental concept of environment. Geography for development in different aria |
| CO3 | To students should be able to integrate varies factors of environment dynamic accept environmental geography |
| TYBA SEM- V | |
| Geography of Tourism- I CC1E (G3) | |
| CO1 | To understand the history of Tourism |
| CO2 | To introduce the students to the basic concepts in Tourism Geography. |
| CO3 | To understand the types of Tourism |
| CO4 | To gain knowledge different aspects of Tourism Geography. |

| Geography of Tourism- II CC1F (G-3) (SEM – VI) | |
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| CO1 | To understand the history of Tourism |
| CO2 | To introduce the students to the basic concepts in Tourism Geography. |
| CO3 | To understand the types of Tourism |
| CO4 | To gain knowledge different aspects of Tourism Geography. |
| Practical Geography- I (Techniques of Spatial Analysis) DSE- 2 C (S-4) (SEM-VI) | |
| CO1 | To introduce the basic concepts and techniques of Geographical Analysis. |
| CO2 | To introduce the students with SOI Top sheets and acquire the Knowledge of Top sheet interpretation |
| CO3 | To introduce the students with Weather Maps and acquire the Knowledge of its interpretation |
| CO4 | To introduce the students with Aerial Photographs and Satellite Images and acquire knowledge to interpret it |
| CO5 | To acquaint students with the spatial and structural characteristics of Practical Geography. |
| Practical Geography- II (Techniques of Spatial Analysis, Surveying and Excursion /Village/ Project Report) DSE- 2 D (S-4) (SEM-VI) | |
| On completion of the course students will be able to | |
| CO1 | To introduce the basic concepts and techniques of Geographical Analysis. |
| CO2 | To introduce the students with SOI Top sheets and acquire the Knowledge of Top sheet interpretation. |
| CO3 | To introduce the students with Weather Maps and acquire the Knowledge of its interpretation |
| CO4 | To introduce the students with Aerial Photographs and Satellite Images and acquire knowledge to interpret it . |
| CO5 | To acquaint students with the spatial and structural characteristics of Practical |

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Dept. Of Hindi
PO's And Co's

| प्रथम वर्ष कला F.Y.B.A.हिन्दी | |
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| सामान्य हिन्दी जी 1- | |
| PO1 | छात्रों को साहित्य विधाओं से अवगतकरना |
| PO2 | छात्रों को हिन्दी भाषा द्वारा संवाद कौशल में विकसित करना |
| PO3 | छात्रों को मौलिक लेखन और विज्ञापन लेखन कौशल में विकसित करना |
| PO4 | छात्रों को अनुवाद और हिन्दी कम्प्यूटर की जानकारी से अवगत करना |
| द्वितीय वर्ष कला S.Y.B.A.हिन्दी | |
| CC1-C)G हिन्दी व्यावहारिक तथा कहाणी काव्य आधुनिक 2- | |
| PO1 | छात्रों को काव्य साहित्य से अवगतकरना |
| PO2 | छात्रों को कहानी साहित्य से अवगतकरना |
| PO3 | छात्रों को कारक साहित्य से अवगतकरना |
| PO4 | छात्रों को शब्द युग्म का अर्थ समझकर वाक्य में प्रयोग से अवगतकरना |
| PO5 | छात्रों को संक्षेपण लेखन का कार्य से अवगतकरना |
| PO6 | छात्रों में सर्जनात्मकता का विकास करना |
| PO7 | छात्रों को व्यंग पाठ से अवगतकरना |
| PO8 | छात्रों को साक्षात्कार कला से परिचित हुए अवगतकरना साक्षात्कारसे और |
| PO9 | छात्रों को भाषा का मोबाइल तंत्र से अवगतकरना |
| PO10 | छात्रों को पल्लव कला से अवगतकरना |
| SEC-2A अनुवाद स्वरूप एवं व्यवहार | |
| PO1 | छात्रों को अनुवाद कौशल से अवगतकरना |
| PO2 | छात्रों को अनुवाद के स्वरूप से अवगतकरना |
| PO3 | छात्रों को अनुवाद क्षेत्र से अवगतकरना |

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| PO4 | छात्रों को मराठी से हिन्दी में प्रत्यक्ष अनुवाद से अवगतकरना। |
| PO5 | छात्रों को अंग्रेजी से हिन्दी में प्रत्यक्ष अनुवाद से अवगतकरना। |
| PO6 | छात्रों को माध्यम लेखन से अवगतकरना।। |
| PO7 | छात्रों में सृजनात्मक लेखन कौशल से अवगतकरना। |
| PO8 | छात्रों को दृक से भाषा की माध्यमों श्राव्य-अवगतकरना। |
| DSE-(S-1)काव्यशास्त्र (सामान्य) | |
| PO1 | छात्रों को भारतीय काव्यशास्त्र से अवगतकरना। |
| PO2 | छात्रों को काव्य परिभाषा शब्दशक्ति।अवगतकरना से तत्व , |
| PO3 | छात्रों को रस के स्वरूप से अवगतकरना। |
| PO4 | छात्रों में भारतीय काव्यशास्त्र में रुचि निर्माण होकर आलोचनात्मक दृष्टि से अवगतकरना। |
| PO5 | छात्रों में भारतीय काव्यशास्त्र में कारक साहित्य से अवगतकरना। |
| PO6 | छात्रों को साहित्यिक भेद से अवगतकरना। |
| PO7 | छात्रों को महाकाव्य खण्डकाव्यऔर मुक्तक काव्य परिचय करना। |
| PO8 | छात्रों को पद्य भेद से अवगतकरना। |
| PO9 | छात्रों को नाटक के भेद से अवगतकरना। |
| PO10 | छात्रों को नाट्य अभिनय में रुचि विकसित करना। |
| DSE-2A मध्ययुगीन काव्य तथा उपन्यास S-2 | |
| PO1 | छात्रों को कबीर के साहित्य से से अवगतकरना। |
| PO2 | छात्र मीराबाई के साहित्य से अवगतकरना। |
| PO3 | छात्र भारतीय उपन्यास की अवधारणा से अवगतकरना। |
| PO4 | छात्रों में उपन्यास की कृति के मूल्यांकन से अवगतकरना। |
| PO5 | छात्रों में साहित्य कृतिओं आत्मविस्तृत को मूल्यों जीवन प्रस्तुत करने की क्षमता से अवगतकरना। |
| PO6 | छात्र रहीम के साहित्य से अवगतकरना। |
| PO7 | छात्र बिहारी के काव्य अभिव्यंजना से अवगतकरना। |

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| PO8 | छात्र में अभिनय गुण से अवगतकरना |
| PO9 | छात्र हिंदी नाटक और रंगमंच से अवगतकरना |
| PO10 | छात्र नाट्यालोचना से अवगतकरना |
| MIL-हिन्दी भाषा शिक्षण (हिन्दी) | |
| PO1 | छात्रों में हिंदी भाषा श्रवण कौशल से अवगतकरना |
| PO2 | छात्रों में हिंदी भाषा संवाद कौशल से अवगतकरना |
| PO3 | छात्रों में हिंदी भाषा वाचन कौशल से अवगतकरना |
| PO4 | छात्रों में हिंदी भाषा लेखन कौशल से अवगतकरना |
| PO5 | छात्र हिंदी भाषा विधी तथा भाषा व्यवहार से अवगतकरना |
| PO6 | छात्रों में हिंदी भाषा की लघुकथा कौशल से अवगतकरना |
| PO7 | छात्रों में हिंदी भाषा वाक्य भेद से अवगतकरना |
| PO8 | छात्रों में हिंदी काव्य सृजन गीत से अवगतकरना |
| तृतीय वर्ष कला TYB A | |
| G-3 कथेतर विधाएँ | |
| PO1 | छात्रों को संस्मरण साहित्य से अवगतकरना |
| PO2 | छात्रों को रेखाचित्र साहित्य से अवगतकरना |
| PO3 | छात्रों को इतिवृत्त से साहित्य लेखन वार्ता ,अवगतकरना |
| PO4 | छात्रों को गजल साहित्य से अवगतकरना |
| PO5 | छात्रों को सरकारी पत्रलेखन का कार्य से अवगतकरना |
| विशेष हिंदी इतिहास का साहित्य हिंदी 3- | |
| PO1 | छात्रों को हिंदी साहित्य के कालविभाजन और नामकरण का परिचय से अवगतकरना |
| PO2 | छात्रों को आदिकाल का साहित्य ,कवि और काव्य प्रवृत्तियों का परिचय से अवगतकरना |
| PO3 | छात्रों को भक्तिकाल की शाखा अवगतकरना से परिचय का प्रवृत्तियों काव्य और कवि ,साहित्य , |
| PO4 | छात्रों को रीतिकाल के साहित्य अवगतकरना से परिचय का प्रवृत्तियों काव्य और कवि , |

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| PO5 | छात्रों को आधुनिक काल के गद्यस पद्य -ाहित्य अवगतकरना से प्रवृत्तियों काव्य और साहित्यकार , |
| विशेष हिंदी 4-भाषाविज्ञान | |
| PO1 | छात्रों को को साहित्य की परिभाषा अवगतकरना से ज्ञान का प्रयोजनों और ,हेतु ,स्वरूप , |
| PO2 | छात्रों को काव्य के तत्व अवगतकरना से ज्ञान का शब्दशक्ति और ,भेद , |
| PO3 | छात्रों को अलंकार और छंदों का परिचय से अवगतकरना |
| PO4 | छात्रों को गद्य और पद्यों के भेद तथा तत्वों की जानकारी से अवगतकरना |
| PO5 | छात्रों को आलोचना की जानकारी से अवगतकरना |
| Skill Enhancement Course -साहित्य और फिल्मांतरण | |
| PO1 | छात्रों को स्क्रिप्ट लेखन से परिभाषा ,अर्थ ,अवगतकरना |
| PO2 | छात्रों को कथा अवगतकरना से संवाद और पटकथा , |
| PO3 | छात्रों को ड्राफ्ट बनाने से अवगतकरना |
| PO4 | छात्रों को सिनेमा के स्वरूप से अवगतकरना |
| PO5 | छात्रों को हिंदी साहित्य और सिनेमा के अन्त संबंध से अवगतकरना |
| PO6 | छात्रों को हिंदी उपन्यासों पर आधारित फिल्मों से अवगतकरना |

Janseva Foundation Loni Budruks
Arts and Commerce College Shendi
Dept. Of History
PO's And Co's

| Programme Specific Outcomes, Department History | |
|---|---|
| PSO1 | After completion of this course they gather knowledge about the socio-cultural heritage of India and world as well. |
| PSO2 | Help to grow national and international understanding among history students. |
| PSO3 | Careers options for students to engage as MPSC ,UPSC and other Competitive exam. educators, archivists, producers of multimedia material and even as a researcher in historic Sites and Museums, Historical Organizations, Cultural Resources Management and Historic Preservationist. |
| PSO4 | History helps them in knowing the past people, their culture, their religions, and their social systems, and transforms them into responsible citizens to make a better future. |
| PSO1 | After completion of this course they gather knowledge about the socio-cultural heritage of India and world as well. |
| PSO2 | Help to grow national and international understanding among history students. |
| F.Y BA Semester –I | |
| Early India: From Prehistory to the Age of the Mauryas | |
| On completion of the course students will be able to | |
| CO1 | The history of Early India is a crucial part of Indian history. It is a base for understanding the entire Indian history. The course is aimed at helping the student to understand the history of early India from the prehistoric times to the age of the Maury's. |
| CO2 | It attempts to highlight the factors and forces behind the rise, growth and spread of civilization and culture of India along with the dynastic history. It also attempts to help the students to understand the contribution of Early Indians to polity, art, literature, philosophy, religion and science and technology. |
| CO3 | It also aims to foster the spirit of enquiry among the students by studying the major developments in early Indian history. |
| F.Y BASemester-II | |
| Early India: Post Mauryan Age to the Rashtrakutas | |
| On completion of the course students will be able to | |
| CO1 | The history of India after the Mauryas is very important to understand the developments in early India after the Mauryas, which finally led to the transition to medieval India. |
| CO2 | .The course is aimed at introducing the students to the developments in different |

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| | parts of India through a brief study of regional kingdoms up to the tenth century C.E. It attempts to highlight the consequences of the foreign invasions, particularly on the polity, economy, society and art and architecture. The attempt is also to instill the spirit of enquiry among the students. |
| S.Y BA-III | |
| G-II Modern India (1857-1950) | |
| On completion of the course students will be able to | |
| CO1 | The course is designed to help the student to know- History of freedom movement of India, aims, objectives problems and progress of Independent India. It aims at enabling the student to understand the processes of rise of modern India. |
| CO2 | The Course attempts to acquaint student with fundamental aspects of Modern Indian History. |
| CO3 | To explain the basic concepts/ concerns/ frame work of Indian History. |
| CO4 | Appreciate the skills of leadership and the administrative system of the Marathas |
| CC-2(3)History of the Marathas: (1707-1818) | |
| On completion of the course students will be able to | |
| CO1 | Students will be able to analyze the Marathas policy of expansionism and its consequences |
| CO2 | They will understand the role played by the Marathas in the 18th century India.. |
| CO3 | They will be acquainted with the art of diplomacy in the Deccan region. |
| CO4 | It will help to enrich the knowledge of the administrative skills and profundity of diplomacy |
| S.Y BA-III | |
| S-I DSE-1A (3)1.Medieval India - Sultanate Period | |
| CO1 | Provides examples of sources used to study various periods in history |
| CO2 | Relates key historical developments during medieval period occurring in one place with another . |
| CO3 | Analyses socio - political and economic changes during medieval period |
| CO4 | Estimate the foreign invasion and the achievement of rulers |
| S.Y BA Sem-IV | |
| S-I DSE-1B (3)4.Medieval India: Mughal Period | |
| CO1 | Draws comparisons between policies of different rulers. |
| CO2 | Understanding Role of Akbar in the consolidation of Mughal rule in India. |
| CO3 | Understand Aurangzeb's conflict with Rajputas, Maratha and weakening Mughals age. |
| CO4 | Analyses factors which led to the emergence of new religious ideas and movements (bhakti and Sufi) |
| S.Y BA-III | |
| S- IIDSE-2A (3)2.Glimpses of the Modern World - Part I | |

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| CO1 | It will enable students to develop the overall understanding of the Modern World. |
| CO2 | The students will get acquainted with the Renaissance, major political, socio-religious and economic developments during the Modern World. |
| CO3 | It will enhance their perception of the history of the Modern World. |
| CO4 | It will enable students to understand the significance of the intellectual, economic, political developments in the Modern World. |
| S.Y BA Sem-IV | |
| S- II DSE-2B (3)5. Glimpses of the Modern World - Part II | |
| CO1 | It will enable students to develop the overall understanding of the Modern World. |
| CO2 | The students will get acquainted with the major nationalist movements, the World War II and its consequences, the Cold War and its Consequences. |
| CO3 | It will enhance their overall perception of the history of the Modern World. |
| CO4 | It will enable students to understand the significance of the strategic political developments in the Modern World. |
| S.Y BA-III | |
| Art & Architecture in Early India | |
| CO1 | Students will get an overall understanding of the emergence and development of the art and architecture in Early India. |
| CO2 | They will understand the emergence of the Pottery, Terracotta figures, Ornaments, Town Planning, preparation of seals and coins. |
| CO3 | They will have an understanding of the art and architecture in early India |
| S.Y BA-III | |
| 6. Medieval Indian, Art & Architecture | |
| CO1 | Students will get an overall understanding of the development of the Medieval Art and Architecture. |
| CO2 | They will understand the changing patterns of the Art and Architecture during the Medieval India. |
| CO3 | They will have an understanding of the impact of Persian Art on Islamic Art and Architecture in Medieval India. |
| T.Y BA Sem-V | |
| G-III CC- 3(3) Indian National Movement (1885-1947) | |
| On completion of the course students will be able to | |
| CO1 | It will enable students to develop an overall understanding of Modern India. |
| CO2 | It will increase the spirit of healthy Nationalism, Democratic Values and Secularism among the Students |
| CO3 | Students will understand various aspects of the Indian Independence |
| CO4 | Movement and the creation of Modern India. |
| T.Y BA Sem-VI | |

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| G-III CC- 4(3)India After Independence- (1947-1991) | |
| CO1 | It will enable students to develop an overall understanding of the Contemporary India. |
| CO2 | To increase the spirit of healthy Nationalism, Democratic Values and Secularism among the students. |
| CO3 | Students will understand various aspects of India's domestic and foreign policies that shaped Post-Independence India. |
| T.Y BA Sem-V | |
| S-III DSE-3 C (3).Introduction to Historiography | |
| CO1 | Students will be introduced to the information and importance of Historiography. |
| CO2 | Students will be introduced to the different Methods and Tools of data collection. |
| CO3 | Students can study the interdisciplinary approach of History. |
| CO4 | Students will learn about the usefulness of History in the 21st century, its changing perspectives, the new ideas that have been invented, and the importance of History in acompetitive World. |
| T.Y BA Sem-VI | |
| S-III DSE-3 C (3)10 Applied History | |
| CO1 | Students will be introduced to the information and importance of applied history |
| CO2 | Student will learn about the Historical significance of Archaeology and Archives andopportunities in the field of Archaeology and Archives. |
| CO3 | Through this course, students will be informed about the opportunities in the field of Media,Museums |
| CO4 | the about learn will Students usefulness of history in the 21st Century, its changing Perspectives, the new ideas that have been invented, and the importance of History in aCompetitive World. |
| T.Y BA Sem-V | |
| S-IV DSE-4 D (3)8.Maharashtra in the 19th Century | |
| CO1 | Student will develop the ability to analyze sources for 19th century Maharashtra History. |
| CO2 | Student will learn significance of Regional History and Socio- religious reformism foundationof the region. |
| CO3 | It will enhance their perception of 19th Century Maharashtra. |
| CO4 | Appreciate the skills of leadership and the Socio-religious System of the Maharashtra |
| T.Y BA Sem-V | |
| Skill Enhancement Course (SEC)-10.Research Paper Writing | |
| CO1 | Students will be introduced to the information and importance of Historiography. |
| CO2 | Students can study the interdisciplinary approach History |
| CO3 | This curriculum Will help to develop Research ability and process of research |

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| | paper Writing |
| T.Y BA Sem-VI | |
| Skill Enhancement Course (SEC)-13.Archaeology | |
| CO1 | Students will learn to understand the definition, aims and scope of Archaeology so as to understand its applications in interpreting the human past. |
| CO2 | They will be able to understand the nature of the archaeological record and the unique role of science in archaeology |
| CO3 | They will have an overall understanding of the Archaeology |

**Janseva Foundation Loni Budruks
Arts and Commerce College Shendi
Department of Economics
PO's And Co's**

| Programme Outcomes | |
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| PO1. | To provide in depth knowledge of socio-economic aspects. |
| PO2. | To familiarize with current and recent developments in Economics |
| PO3. | To enrich knowledge through problem solving, hands-on activities projects. |
| PO4. | To provide a broad and comprehensive knowledge in micro and macro Economics, Public Economics, Indian Economy and Agricultural Economics |
| PO5. | To develop analytical abilities towards real world problems |
| Programme Specific Outcome | |
| PSO1 | After completion of program, students will be able to have in-depth knowledge of basic concepts in Economics. |
| PSO2 | A good academic background to be able to seek admission for master's degree in Economics |
| PSO3 | An academic background to be able to crack the banking and administrative examinations |
| F.Y.B.A Economic | |
| (INDIAN ECONOMIC ENVIRONMENT) | |
| CO1 | Develop ideas of the basic characteristics of Indian economy; its potential on natural resources. |
| CO2 | Understand the importance, causes and impact of population of growth and its distribution, translate and related them with economic development. |
| CO3 | Grasp the importance, of planning undertaken by the government of India, have knowledge on the various objectives, failures and achievements as the foundation of the ongoing planning and economic reforms taken by the government |
| CO4 | Understand agriculture as the foundation of economic growth and development, analyses the progress and changing nature of agricultural sector and its contribution to the economy as a whole. |
| CO5 | not only be aware of the economy as a whole, they would understand the basic features of mizoram's economy, sources of revenue, and how the state government finance its programmes and projects. |
| S.Y.B.A. [G2] SEMIII/SEM-IV (CBCS2019) | |
| Financial System-I/II | |
| CO1 | To understand fundamentals of modern financial system. |
| CO2 | To understand the recent trends and developments in banking system. |
| CO3 | To understand the role of the Reserve Bank of India in Indian financial system. |
| CO4 | To provide the knowledge of various financial and nonfinancial institutions. |
| CO5 | To provide the students the intricacies of Indian financial system for better financial decision making. |
| T.Y.B.A. (CBCS-2019) Semester- V | |
| Indian Economic Development -I | |

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| CO1 | The course will be useful for learners aiming towards careers in the government sector, policy analysis and the social sector. |
| CO2 | This course would take an overview of aspects of economic development with special reference to India. |
| CO3 | The course aims to introduce the learner to the main concepts in economic and human development, equip them compare and contrast different economies: recognize various indicators of economic and human development. |
| CO4 | The course will also provide a broad outline of the Sustainable Development Goals |
| T.Y.B.A. (CBCS-2019) Semester- VI | |
| Indian Economic Development -II | |
| CO1 | This course would take an overview of the process of Economic Planning and the Development Goals. |
| CO2 | The course aims to introduce the learner to the main concepts in Economic Planning, equip them with understanding of the planning process in India and changing in recent times and familiarize them to the Sustainable Development Goals. |
| CO3 | The Course also reviews the relation between Economic Development and Environment. |
| F.Y.B.COM | |
| BUSINESS ECONOMICS) (MICRO) | |
| On completion of the course students will be able to | |
| CO1 | To familiarize the students with the basic concept of micro economics. |
| CO2 | To make student understand the demand and supply analysis in business applications. |
| CO3 | To familiarize student with the production and cost structure under different stages of production. |
| CO4 | Develop ideas of the basic characteristics of Indian Economy, its potential on natural resources. |
| CO5 | Understand the importance, causes and impact of population growth and its distribution, translate and relate them with economic development. |
| CO6 | Demonstrate marginal productivity theory of distribution, theory of wages, identify different types of rent, and illustrate different theories of interest and profits. |
| CO7 | Understand how factor market works, illustrate basic tool in welfare economics and illustrate the concept of social welfare functions and compensation principles. |
| CO8 | Identify the various types of investment function analysis and understand the elements of social cost benefit analysis |
| S.Y.B.Com. SEMIII/SEM-IV (CBCS2019) | |
| Business Economics (Macro) | |
| CO1 | Understand the basic concepts of Macro Economics and Its application. |
| CO2 | Analyze the various concepts of Macro Economic Variables |
| CO3 | Identify various difficulties in National Income Accounting |

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| CO4 | Explain the Theories of Output & Employment |
| CO5 | Discuss the Concepts of Consumption, Saving & Investment |
| T.Y.B.Com. (CBCS-2019) Semester- V | |
| Indian & Global Economic Development-I | |
| CO1 | To develop ability to analyze economic development process of India. |
| CO2 | To impart knowledge about the relevance of economic practices in modern competitive world |
| CO3 | To help the students develop a sound theoretical foundation for their future academic ventures. |
| T.Y.B.Com. (CBCS-2019) Semester- VI | |
| Indian & Global Economic Development-II | |
| CO1 | To develop ability of students to analyze economic development process of India. |
| CO2 | To acquaint the students with the knowledge of recent trends in Human Development Index. |
| CO3 | To acquaint students with the emerging issues in policies of India's foreign trade. |
| CO4 | To update the students about international institutions and organizations |

**Janseva Foundation Loni Budruks
Arts and Commerce College Shendi
Department of Political Science
PO's And Co's**

| Programmed Specific Outcome | |
|---|---|
| PSO 1 | Understanding the nature and developments in national and international politics |
| PSO 2 | Analyzing the Indian constitutional provisions, major legislations and reforms |
| PSO 3 | Critical evaluation of social, economic and political variables for a proper understanding of the Plurality of Indian society |
| PSO4 | Building overall consciousness regarding national political history, international relations and Present Indian and Western political thinkers. |
| PSO5 | Developing knowledge of administrative studies with special reference to Indian administrative structures and practices. |
| F. Y. B. A. (G-1) | |
| Semester-I - INTRODUCTION TO INDIAN CONSTITUTION (Total Credits: 03) | |
| CO1. | To acquaint students with the important features of the Constitution of India and with The basic framework of Indian government |
| CO2. | To familiarize students with the working of the Constitution of India. |
| F. Y. B. A. (G 1) | |
| Semester II - INTRODUCTION TO INDIAN CONSTITUTION | |
| CO1 | To acquaint students with the important features of the Constitution of India and with the basic Framework of Indian government |
| CO2 | To familiarize students with the working of the Constitution of India. |
| FYBA (2 Extra Credit) | |
| Democracy Election and Governance | |
| CO1 | To introduce the student meaning of democracy and the role of the governance. |
| CO2 | to help them understand the various approaches to the study of democracy and governance |
| S. Y. B. A. (G-2) | |
| SEMESTER- III PERIOD CC-I C (3) | |
| INTRODUCTION TO POLITICAL IDEOLOGIES | |
| This course is designed to acquaint students with the | |
| CO1 | Role of different political ideologies and their impact in politics |
| CO2 | Close link between an idea and its actual realization in public policy |
| CO3 | Legacy of all the major ideologies |
| S. Y. B. A. (G-2) | |
| SEMESTER IV CC-1 D (3) | |
| INTRODUCTION TO POLITICAL IDEOLOGIES | |
| This course is designed to acquaint students with the – | |

| | |
|---|---|
| CO1 | Role of different political ideologies and their impact in politics |
| CO2 | Close link between an idea and its actual realization in public policy |
| CO3 | Legacy of all the major ideologies |
| T. Y. B. A. V -CC-2 E (3) (G-3) | |
| CO1 | The methods of development in Local self –government bodies in Maharashtra were told. The Students understood it. |
| CO2 | Students understood that 73 rd amendment is for rural areas and 74 th amendment is for urban development. |
| CO3 | Students got knowledge about various components of Local Self |
| T. Y. B. A.VI- CC-2 E(3) (G-3) | |
| CO1 | To introduce the students the structure of Local Self Government |
| CO2 | To make Students aware about composition, power and functions of Local bodies |
| CO3 | To introduce the evolution of Local Self Government in Maharashtra |

**Janseva Foundation Loni Budruks
Arts and Commerce College Shendi
Department of Commerce
PO's And Co's**

| Bachelor of Commerce B.Com | |
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| After successfully Completing B.Com programme, students will able to | |
| PO1 | In depth knowledge, understanding and skills in commerce. |
| PO2 | Build a strong foundation of knowledge in different areas of Commerce. |
| PO3 | Develop the skill of applying concepts and techniques used in Commerce for real life problems. |
| PO4 | Inculcate reading, writing, speaking skills and Business correspondence. |
| PO5 | Creates awareness among society about Law and Legislations related to commerce and business. |
| PO6 | Use effectively recent Trends in Business, Organizations and Industries. |
| PO7 | Communicate effectively about Economic Environment of Country as well as World |
| PO8 | Use effectively practical skills in real life related to banking and corporate world. |
| PO9 | Provides a platform for overall development and develop knowledge level and awareness about Recent Trends of World |
| PO10 | Use new technologies effectively to communicate ideas in the area of commerce. |
| PO11 | Critically evaluate new research findings, ideas, methodologies and theoretical frame work in specialized study. |
| PO12 | Work collaboratively and productively in groups. |
| PSO1 | Students will be able to apply basic skills learnt in commerce necessary for analysis ofvarious problems in accounting, marketing, business economics, management and finance. |
| PSO2 | Students will demonstrate progressive affective domain development of values, the role of accounting in society and business. |
| PSO3 | Students will able to demonstrate quantitative and qualitative knowledge in key areas of organization behavior. |
| PSO4 | : Students will able to evaluate national and international issue and discussion on economic, commercial and business related topics |
| Bachelor of Commerce B.Com | |
| After successfully Completing B.Com programme, students will able to | |
| PO1 | In depth knowledge, understanding and skills in commerce. |
| PO2 | Build a strong foundation of knowledge in different areas of Commerce. |
| PO3 | Develop the skill of applying concepts and techniques used in Commerce for real life problems. |
| PO4 | Inculcate reading, writing, speaking skills and Business correspondence. |
| PO5 | Creates awareness among society about Law and Legislations related to commerce and business. |

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| PO6 | Use effectively recent Trends in Business, Organizations and Industries. |
| PO7 | Communicate effectively about Economic Environment of Country as well as World |
| PO8 | Use effectively practical skills in real life related to banking and corporate world. |
| PO9 | Provides a platform for overall development and develop knowledge level and awareness about Recent Trends of World |
| PO10 | Use new technologies effectively to communicate ideas in the area of commerce. |
| PO11 | Critically evaluate new research findings, ideas, methodologies and theoretical frame work in specialized study. |
| PO12 | Work collaboratively and productively in groups. |
| PSO1 | Students will be able to apply basic skills learnt in commerce necessary for analysis ofvarious problems in accounting, marketing, business economics, management and finance. |
| PSO2 | Students will demonstrate progressive affective domain development of values, the role of accounting in society and business. |
| PSO3 | Students will able to demonstrate quantitative and qualitative knowledge in key areas of organization behavior. |
| PSO4 | : Students will able to evaluate national and international issue and discussion on economic, commercial and business related topics |
| S.Y.B.COM | |
| Course 2113: Business Communication- outcomes | |
| After successfully completing this course, student will be able to - | |
| CO1 | Discuss the Meaning, Definition, Features, Principles, Importance, Process of Communication, Barriers to Communication & its Remedies. |
| CO2 | Identify the different methods and channels of communication |
| CO3 | Classify the various soft-skills and its elements such as Grooming Manners and Etiquettes, Effective Speaking, Interview Skills, Listening, Group Discussion and Oral Presentation |
| CO4 | Describe the concept of business letter, its Meaning, Importance, Qualities or Essentials, Physical Appearance, and Layout of Business Letter. |
| CO5 | Develop the writing skill of business letters on various situations in business like Enquiry letter, order letter, sales letter etc. |
| CO6 | Discuss the Types & Drafting of Job Application Letters |
| CO7 | Study the internal office correspondence like OfficeMemo, Office Orders, Office Circulars,and Press Releases. |
| CO8 | Explain the application of new technology in business communication like WhatsApp, Twitter, Facebook, LinkedIn, YouTube, Cellular Phone and Video Conferencing. |

Course 2143: Business Management**After successfully completing this course, student will be able to –**

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| CO1 | Discuss the Meaning, Definition, Features, Principles, Importance, challenges before management and Brief Review of Management Thoughts of FW Taylor & Henry Fayola. |
| CO2 | Discuss Meaning, Definition, Nature, Importance, Forms, Types, Steps, and limitations of Planning and Decision Making. |
| CO3 | Describe Meaning, Process & Principles, Departmentalization of Organization and Organization Structure, Staffing and Recruitment |
| CO4 | Discuss Meaning, Elements, Principles, Techniques & importance of Direction and communication and Process & Barriers of Communication |
| CO5 | Explain the different theories of motivation such as Maslow's Need Hierarchy Theory, Herzberg's Two Factors Theory, Douglas Mc Gregor's Theory. |
| CO6 | Study the leadership style for effective management and political leadership such as Mahatma Gandhi, Dr. Babasaheb Ambedkar & Pandit Jawaharlal Nehru. |
| CO7 | Discuss the concept Need, Techniques, difficulties, steps and techniques of coordination and control |
| CO8 | Apply the recent trends in business management like Business Ethics, Corporate Social Responsibility, Corporate Governance, Disaster Management, Management of Change. |

Marketing Management – I**After successfully completing this course, student will be able to –**

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| CO1 | To orient the students recent trends in marketing management |
| CO2 | To create awareness about marketing of eco friendly products in the society through students |
| CO3 | To inculcate knowledge of various aspects of marketing management through practical approach |
| CO4 | To acquaint the students with the use of E-Commerce in competitive environment |
| CO5 | To help the students understand the influences of marketing management on consumer behavior |

Banking & Finance –I**After successfully completing this course, student will be able to –**

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| CO1 | To create the awareness among the students of Indian banking system. |
| CO2 | To enables students to understand the reforms and other developments in the Indian Banking |

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| CO3 | To provide students insight into the functions and role of Reserve Bank of India |
| Elements of Company Law. | |
| After successfully completing this course, student will be able to – | |
| CO1 | To impart students with the knowledge of fundamentals of Company Law. |
| CO2 | To update the knowledge of provisions of the Companies Act of 2013. |
| CO3 | To apprise the students of new concepts involving in company law regime |
| CO4 | To acquaint the students with the duties and responsibilities of Key Managerial Personnel |
| CO5 | To impart students the provisions and procedures under company law. |
| Corporate Accounting | |
| To enable the students to develop awareness about Corporate Accounting in conformity with the provisions of Companies Act and Accounting as per Indian Accounting Standards | |
| CO1 | To make aware the students about the conceptual aspect of corporate accounting |
| CO2 | To enable the students to develop skills for Computerized Accounting |
| CO3 | To enable the students to develop skills about accounting standards |
| T.Y.B.Com. | |
| Course Business Regulatory Framework (Mercantile Law) 351 | |
| CO1 | Acquaint knowledge and maturity to understand Contract Law. |
| CO2 | To Acquaint knowledge and application of Partnership Deed. |
| CO3 | To get training to face emerging issues relating Sale of Goods Act. |
| CO4 | To give Comprehensive insight about the emerging trend of Arbitration and conciliation and its regulatory mechanism |
| Course Advanced Accounting 352 | |
| CO1 | Developing understanding on applicability of various Accounting Standards |
| CO2 | Knowledge about of the Accounting for Capital Restructuring |
| CO3 | Conceptual Clarity and Practical understanding of preparation of final accounts of banking compass |
| CO4 | Developing knowledge about Investment Accounting |
| Auditing 354 | |

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| CO1 | Acquaint with knowledge and maturity to understand concept of Auditing, types of Audit and Audit Process |
| CO2 | Conceptual Clarity and Practical understanding of Vouching Verification and valuation and Types of Audit Report. |
| CO3 | Practical knowledge about appointment, reappointment and other related provision. Practical knowledge about Tax Audit as per I.T. Act 1961 (Form 3CA, 3CB & 3CD) |
| CO4 | Understanding new concepts under Audit of Computerized Systems & Forensic Audit |
| Marketing Management-II – 355 (h) | |
| CO1 | The objective of this course is to facilitate understanding of the conceptual framework of marketing and its applications in decision making under various environmental constraints. |
| CO2 | The course will make learners understand how to make effective marketing decisions,including assessing marketing opportunities and developing marketing strategies and implementation plans |
| Marketing Management- III 356(H) | |
| CO1 | Student will understand the concept of advertising and advertising media |
| CO2 | To enable them to analyze and interpret |
| CO3 | To enable the students to study the Appeals and Approaches in Advertisement |
| CO4 | It will help the students to apply the various Economic and social aspects of advertising |
| CO5 | It will help them to implement this knowledge in practical situations by enhancing their skills in the field of Marketing |
| CO1 | Student will understand the concept of advertising and advertising media |

**Janseva Foundation Loni Budruks
Arts and Commerce College Shendi
Department of Chemistry
PO's And Co's**

| Programme : B.Sc. (Bachelor of Science) | |
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| Knowledge outcome | |
| PO1 | Transfer and apply the acquired fundamental knowledge of chemistry, including basic concepts and principles of 1) Physical, Analytical Chemistry, organic chemistry, Inorganic chemistry and biochemistry (2) analytic techniques and experimental methods for chemistry to study different branches of chemistry |
| PO2 | Demonstrate the ability to explain the importance of the Periodic Table of the Elements and represent key aspects of it and its role in organizing chemical information. |
| Skills Outcomes | |
| PO1 | Apply and demonstrate knowledge of essential facts, concepts, laws, principles and theories related to chemistry. |
| PO2 | Demonstrate the learned laboratory skills, enabling them to perform qualitative and quantitative analysis of given samples and able to make conclusions on it. |
| PO3 | Set procedure and synthesize simple compounds like soap of commercial importance. |
| PO4 | Engage in oral and written scientific communication, and will prove that they can think and work independently. |
| PO5 | Respond effectively to unfamiliar problems in scientific contexts |
| PO6 | Plan, execute of design experiment, make documentation of it, interpret data at entry-level of chemical industry and report the results. |
| After successfully completing B.Sc. Chemistry Programme students will be able to: | |
| Programme : B.Sc. (Bachelor of Science) | |
| PSO1 | Understand the nature and basic concepts of Physical, Organic and Inorganic chemistry |
| PSO2 | Analyze Organic and inorganic compounds qualitatively and quantitatively; |
| PSO3 | Understand the applications of physical, organic, inorganic and analytical chemistry in pharmaceutical, agriculture and chemical industries. |
| PSO4 | Able to perform experimental procedures as per laboratory manual in the area of physical, Inorganic and organic chemistry; |
| PSO5 | Interpretation and synthesis of chemical information and data obtained from chemical and instrumental analysis |
| CH- 101: Physical Chemistry | |
| The student who successfully completes this course students will be able to: | |

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| CO1 | Students will be able to apply thermodynamic principles to physical and chemical process. |
| CO2 | Calculations of enthalpy, Bond energy, Bond dissociation energy, resonance energy |
| CO3 | Maintain records of quantitative and qualitative analysis. |
| CO4 | Variation of enthalpy with temperature –Kirchhoff's equation |
| CO5 | Third law of thermodynamic and its applications, Knowledge of Chemical equilibrium will make students to understand |
| CO6 | Relation between Free energy and equilibrium and factors affecting on equilibrium constant. |
| F. Y. B.Sc. Chemistry | |
| CH- 102: Organic Chemistry | |
| The student who successfully completes this course students will be able to: | |
| CO1 | The students are expected to understand the fundamentals, principles, and recent Developments in the subject area. |
| CO2 | It is expected to inspire and boost interest of the students towards chemistry as The main subject |
| CO3 | To create foundation for research and development in Chemistry |
| F. Y. B.Sc. Chemistry | |
| CH- 103: Chemistry Practical Course | |
| The student who successfully completes this course students will be able to: | |
| CO1 | Importance of chemical safety and Lab safety while performing experiments in laboratory |
| CO2 | Determination of thermo chemical parameters and related concepts |
| CO3 | Elemental analysis of organic compounds (non-instrumental) |
| CO4 | Techniques of pH measurements |
| CO5 | Chromatographic Techniques for separation of constituents of mixture |
| F. Y. B. Sc. Chemistry | |
| CH-201: Inorganic Chemistry | |
| The student who successfully completes this course students will be able to: | |
| CO1 | Various theories and principles applied to reveal atomic structure. |
| CO2 | Origin of quantum mechanics and its need to understand structure of hydrogen |

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| | Atom. |
| CO3 | Schrodinger equation for hydrogen atom |
| CO4 | Shapes of orbital's identification |
| CO5 | Explain rules for filling electrons in various orbital's- Aufbau's principle, Pauli exclusion principle, Hund's rule of maximum multiplicity |
| CO6 | Discuss electronic configuration of an atom and anomalous electronic configurations. |
| CO7 | Describe stability of half-filled and completely filled orbital's |
| CO8 | Discuss concept of exchange energy and relative energies of atomic |
| CO9 | Design Skeleton of long form of periodic table. |
| CO10 | Describe Block, group, modern periodic law and periodicity |
| CO11 | Classification of elements as main group, transition and inner transition elements |
| CO12 | Explain characteristics of ionic bond, types of ions, energy consideration in ionic bonding, lattice and hydration energy and their importance in the context of stability and solubility of ionic compounds |
| CO13 | Explain characteristics of ionic bond, types of ions, energy consideration in ionic bonding, lattice and hydration energy and their importance in the context of stability and solubility of ionic compounds. |
| CO14 | Define Fajan's rule, bond moment, and dipole moment and percent ionic character. |
| F. Y. B.Sc. Chemistry | |
| CH- 202: Analytical Chemistry | |
| The student who successfully completes this course students will be able to: | |
| CO1 | Calculations of mole, molar concentrations and various units of concentrations which will be helpful for preparation of solution. |
| CO2 | Relation between molecular formula and empirical formula |
| CO3 | Stoichiometry calculation and explanation |
| CO4 | Define term mole, millimole, molar concentration, molar equilibrium concentration and Percent Concentration. |
| CO5 | SI units, distinction between mass and weight |
| CO6 | Basics of type determination, characteristic tests and classifications, reactions of different functional groups. |
| CO7 | Elemental analysis Lassaigne's test |

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| S.Y.B.Sc. Chemistry | |
| CH- 301: Physical Chemistry | |
| The student who successfully completes this course students will be able to: | |
| CO1 | Define / Explain concept of kinetics, terms used, rate laws, molecularity, order. |
| CO2 | Explain factors affecting rate of reaction. Explain / discuss / derive integrated rate laws, characteristics, expression for half-life and examples of zero order, first order, and second order reactions |
| CO3 | Determination of order of reaction by integrated rate equation method, graphical method, half-life method and differential method. |
| CO4 | Explain / discuss the term energy of activation with the help of energy diagram. |
| CO5 | Explanation for temperature coefficient and effect of temperature on rate constant k. |
| CO6 | Derivation of Arrhenius equation and evaluation of energy of activation graphically. |
| CO7 | Derivations of collision theory and transition state theory of bimolecular reaction and comparison. |
| CO8 | Solve / discuss the problem based applying theory and equations. |
| CO9 | Define / explain adsorption, classification of given processes into physical and chemical adsorption. |
| CO10 | Discuss factors influencing adsorption, its characteristics, differentiates types as Physisorption and Chemisorptions |
| CO11 | Classification of Adsorption Isotherms, to derive isotherms. |
| CO12 | Explanation of adsorption results in the light of Langmuir adsorption isotherm, Freundlich's adsorption Isotherm and BET theory. |
| CO13 | Apply adsorption process to real life problem. |
| CO14 | Solve / discuss problems using theory. |
| S. Y. B.Sc. Chemistry | |
| CH- 301: Analytical Chemistry | |
| The student who successfully completes this course students will be able to: | |
| CO1 | Define, explain and compare meaning of accuracy and precision. |
| CO2 | Apply the methods of expressing the errors in analysis from results. |
| CO3 | Explain / discuss different terms related to errors in quantitative analysis. |
| CO4 | Apply statistical methods to express his / her analytical results in laboratory. |

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| | Solve problems applying equations |
| CO5 | Explain / define different terms in volumetric analysis such as units of concentration, indicator, equivalence point, end point, standard solutions, primary and secondary standards, completing agent, precipitating agent, oxidizing agent, reducing agent, redox indicators, acidbase indicators, metallochrome indicators, etc. |
| CO6 | Perform calculations involved in volumetric analysis. |
| | Explain why indicator show color change and pH range of color change. |
| CO7 | To prepare standard solution and b. perform standardization of solutions. |
| CO8 | To construct acid – base titration curves and performs choice of indicator for particular titration. |
| CO9 | Explain / discuss acid-base titrations, complex metric titration / precipitation titration / redox titration. Apply volumetric methods of analysis to real problem in analytical chemistry / industry |
| S. Y. B.Sc. Chemistry | |
| CH- 302: Inorganic Chemistry | |
| The student who successfully completes this course students will be able to: | |
| CO1 | Define terms related to molecular orbital theory (AO, MO, sigma bond, pi bond, bond order, magnetic property of molecules, etc.). |
| CO2 | Explain and apply LCAO principle for the formation of MO's from AO's. |
| CO3 | Explain formation of different types of MO's from AO's. |
| CO4 | Distinguish between atomic and molecular orbital's, bonding, anti-bonding and nonbonding molecular orbital's. |
| CO5 | Draw and explain MO energy level diagrams for homo and hetero diatomic molecules |
| CO6 | Define different terms related to the coordination chemistry (double salt, coordination compounds, coordinate bond, ligand, central metal ion, complex ion, coordination number, magnetic moment, crystal field stabilization energy, types of legend, chelate effect, etc.) |
| CO7 | Explain Werner's theory of coordination compounds. Differentiate between primary and secondary Valiancy. Correlate coordination number and structure of complex ion. |
| CO8 | Apply IUPAC nomenclature to coordination compound. |
| S.Y.B.Sc. Chemistry | |
| CH- 302: Organic Chemistry | |
| The student who successfully completes this course students will be able to: | |
| CO1 | Identify and draw the structures aromatic hydrocarbons from their names or from structure name can be assigned. |

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| CO2 | Explain / discuss synthesis of aromatic hydrocarbons. |
| CO3 | Give the mechanism of reactions involved. |
| CO4 | Explain /Discuss important reactions of aromatic hydrocarbon. |
| CO5 | To correlate reagent and reactions. |
| CO6 | Write / discuss the mechanism of Nucleophilic Substitution (SN1 , SN2 and S _N i) reactions. |
| CO7 | Explain /Discuss important reactions of alkyl / aryl halides. |
| CO8 | To correlate reagent and reactions. |
| CO9 | Give synthesis of expected alkyl / aryl halides. |
| CO10 | Identify and draw the structures alcohols / phenols from their names or from structure name can be assigned. |
| CO11 | Able to differentiate between alcohols and phenols |
| CO12 | Explain / discuss synthesis of alcohols / phenols. |
| CO13 | Write / discuss the mechanism of various reactions involved. |
| CO14 | Explain /Discuss important reactions of alcohols / phenols. |
| CO15 | To correlate reagent and reactions of alcohols / phenols |
| CO16 | Give synthesis of expected alcohols / phenols. |
| CO17 | Write / discuss the mechanism of Nucleophilic Substitution (SN1 , SN2 and S _N i) reactions. |
| CO18 | Explain /Discuss important reactions of alkyl / aryl halides. |
| CO19 | To correlate reagent and reactions. |
| CO20 | Give synthesis of expected alkyl / aryl halides. |
| S.Y.B.Sc. Chemistry | |
| CH- 303: Chemistry Practical – III | |
| The student who successfully completes this course students will be able to: | |
| CO1 | Verify theoretical principles experimentally. |
| CO2 | Interpret the experimental data on the basis of theoretical principles. |
| CO3 | Correlate theory to experiments. Understand/verify theoretical principles by experiment observations; explain practical output / data with the help of theory. |
| CO4 | Understand systematic methods of identification of substance by chemical methods. |

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| CO5 | Write balanced equation for the chemical reactions performed in the laboratory. |
| CO6 | Perform organic and inorganic synthesis and is able to follow the progress of the chemical reaction by suitable method (color change, ppt. formation, TLC). |
| CO7 | Set up the apparatus / prepare the solutions - properly for the designed experiments. |
| CO8 | Perform the quantitative chemical analysis of substances explain principles behind it. |
| CO9 | Systematic working skill in laboratory will be imparted in student. |
| CO10 | Verify theoretical principles experimentally. |
| CO11 | Interpret the experimental data on the basis of theoretical principles. |
| CO12 | Correlate theory to experiments. Understand/verify theoretical principles by experiment |
| S. Y. B. Sc. Chemistry (Semester :IV) | |
| CH- 403:Physical Chemistry | |
| The student who successfully completes this course students will be able to: | |
| CO1 | Define the terms in phase equilibrium such as- system, phase in system, components in system, degree of freedom, one / two component system, phase rule, etc. |
| CO2 | Explain meaning and Types of equilibrium such as true or static, met stable and unstable equilibrium |
| CO3 | Discuss meaning of phase, component and degree of freedom. |
| CO4 | Derive of phase rule. |
| CO5 | Explain of one component system with respect to: Description of the curve, Phase rule relationship and typical features for i) Water system ii) Carbon dioxide system iii) Sulphur system |
| CO6 | Define the terms in phase equilibrium such as- system, phase in system, components in system, degree of freedom, one / two component system, phase rule, etc. |
| CO7 | Explain meaning and Types of equilibrium such as true or static, met stable and unstable equilibrium |
| CO8 | Discuss meaning of phase, component and degree of freedom. |
| CO9 | Derive of phase rule. |
| CO10 | Explain of one component system with respect to: Description of the curve, Phase rule relationship and typical features for i) Water system ii) Carbon dioxide system iii) Sulphur system |
| CO11 | Define the terms in phase equilibria such as- system, phase in system, components in system, degree of freedom, one / two component system, phase rule, etc. |

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| CO12 | Explain meaning and Types of equilibrium such as true or static, met stable and unstable equilibrium |
| CO13 | Discuss meaning of phase, component and degree of freedom. |
| CO14 | Define various terms, laws, differentiate ideal and no-ideal solutions. |
| CO15 | Discuss / explain thermodynamic aspects of Ideal solutions-Gibbs free energy change, Volume change, Enthalpy change and entropy change of mixing of Ideal solution. |
| CO16 | Differentiate between ideal and non-ideal solutions and can apply Raoult's law. |
| CO17 | Interpretation of i) vapors pressure–composition diagram ii) temperature- composition diagram. |
| CO18 | Explain distillation of liquid solutions from temperature – composition diagram. |
| CO19 | Explain / discuss zoetrope's, Lever rule, Henrys law and its application. |
| CO20 | Discuss / explain solubility of partially miscible liquids- systems with upper critical. Solution temperature, lower critical solution temperature and having both UCST and LCST. |
| CO21 | Explain / discuss concept of distribution of solute amongst pair of immiscible solvents. |
| CO22 | Derive distribution law and its thermodynamic proof. |
| CO23 | Apply solvent extraction to separate the components of from mixture interest. |
| CO24 | Solve problem by applying theory. |

S. Y. B.Sc. Chemistry (Semester :IV)

CH- 403:Analytical Chemistry

The student who successfully completes this course students will be able to:

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| CO1 | Conductance, Ohm's law, cell constant, specific and equivalent conductance, molar conductance, Kohlrausch's law, etc. □ Discuss / explain Kohlrausch's law and its Applications, Conductivity Cell, Conductivity Meter, Whetstone Bridge. |
| CO2 | Explain / discuss Conduct metric titrations. |
| CO3 | Apply Conduct metric methods of analysis to real problem in analytical laboratory. |
| CO4 | Solve problems based on theory / equations. |
| CO5 | Correlate different terms with each other and derive equations for their correlations |
| CO6 | absorbance, molar, Lamberts Law, Beer's Law, molar absorptive |
| CO7 | Discuss / explain / derive Beer's law of absorptive. |
| CO8 | Explain construction and working of colorimeter. |
| CO9 | Apply colorimetric methods of analysis to real problem in analytical laboratory. |
| CO10 | Solve problems based on theory / equations. |
| CO11 | Correlate different terms with each other and derive equations for their correlations |
| CO12 | Explain / define different terms in column chromatography such as stationary phase, mobile phase, elution, adsorption, ion exchange resin, adsorb ate, etc. |
| CO13 | Explain properties of adsorbents, ion exchange resins, etc. |
| CO14 | Discuss / explain separation of ionic substances using resins. |
| CO15 | Discuss / explain separation of substances using silica gel / alumina. |
| CO16 | Apply column chromatographic process for real analysis in analytical laboratory. |

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| CO17 | Explain / define different terms in column chromatography such as stationary phase, mobile phase, elution, adsorption, ion exchange resin, adsorbate, etc. |
| CO18 | Explain properties of adsorbents, ion exchange resins, etc. |
| S. Y. B. Sc. Chemistry (Semester :IV) | |
| CH- 404:Inorganic Chemistry | |
| The student who successfully completes this course students will be able to: | |
| CO1 | Isomerism in coordination complexes |
| CO2 | Explain different types of isomerism in coordination complexes. |
| CO3 | Apply principles of VBT to explain bonding in coordination compound of different geometries. |
| CO4 | Correlate no of unpaired electrons and orbital's used for bonding. |
| CO5 | Identify / explain / discuss inner and outer orbital complexes. |
| CO6 | Explain principle of CFT. |
| CO7 | Apply crystal field theory to different type of complexes (Td, Oh, Sq, Pl complexes) |
| CO8 | Explain: i) strong field and weak field legend approach in Oh complexes ii) Magnetic properties of coordination compounds on the basis of weak and strong legend field |
| CO9 | Legend concept. iii) Origin of color of coordination complex. |
| CO10 | Calculate field stabilization energy and magnetic moment for various complexes. |
| S. Y. B. Sc. Chemistry (Semester :IV) | |
| CH- 404: Organic Chemistry | |
| The student who successfully completes this course students will be able to: | |
| CO1 | Isomerism in coordination complexes |
| CO2 | Explain different types of isomerism in coordination complexes. |
| CO3 | Apply principles of VBT to explain bonding in coordination compound of different geometries. |
| CO4 | Correlate no of unpaired electrons and orbital's used for bonding. |
| CO5 | Identify / explain / discuss inner and outer orbital complexes. |
| CO6 | Explain principle of CFT. |
| CO7 | Apply crystal field theory to different type of complexes (Td, Oh, Sq, Pl complexes) |
| CO8 | Explain: i) strong field and weak field legend approach in Oh complexes ii) Magnetic properties of coordination compounds on the basis of weak and strong legend field |
| CO9 | Legend concept. iii) Origin of color of coordination complex. |
| CO10 | Calculate field stabilization energy and magnetic moment for various complexes. |
| S. Y. B. Sc. Chemistry (Semester :IV) | |
| CH- 404: Organic Chemistry | |
| The student who successfully completes this course students will be able to: | |
| CO1 | After studying the aldehydes and ketones student will able to |
| CO2 | Identify and draw the structures aldehydes and ketones from their names or from structure name can be assigned |
| CO3 | Explain / discuss synthesis of aldehydes and ketones. |

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| CO4 | Write / discuss the mechanism reactions aldehydes and ketones. |
| CO5 | Explain /Discuss important reactions of aldehydes and ketones. |
| CO6 | To correlate reagent and reactions of aldehydes and ketones |
| CO7 | Give synthesis of expected aldehydes and ketones. |
| CO8 | Identify and draw the structures carboxylic acids and their derivatives from their names or from structure name can be assigned. |
| CO9 | Explain / discuss synthesis of carboxylic acids and their derivatives. |
| CO10 | Write / discuss the mechanism reactions carboxylic acids and their derivatives. |
| CO11 | Explain /Discuss important reactions of carboxylic acids and their derivatives. |
| CO12 | Correlate reagent and reactions of carboxylic acids and their derivatives |
| CO13 | Give synthesis of expected carboxylic acids and their derivatives. |
| CO14 | Identify and draw the structures amines from their names or from structure name can be assigned. |
| CO15 | Explain / discuss synthesis of carboxylic amines. |
| CO16 | Write / discuss the mechanism reactions carboxylic amines. |
| CO17 | Explain /Discuss important reactions of carboxylic amines. |
| CO18 | To correlate reagent and reactions of carboxylic amines. |
| CO19 | Give synthesis diazonium salt from amines and reactions of diazonium salt. |
| CO20 | Draw the structures of different conformations of cyclohexane. |
| CO21 | Define terms such as axial hydrogen, equatorial hydrogen, and confirmation, substituted Cyclohexane, etc. |
| CO22 | Convert one conformation of cyclohexane to another conformation and should able to |
| CO23 | Identify governing structural changes. |
| CO24 | Explain / discuss stability with respect to potential energy of different conformations of Cyclohexane. |

S.Y.B.Sc. Chemistry (Semester :IV)

CH- 405: Practical Chemistry

The student who successfully completes this course students will be able to:

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| CO1 | Verify theoretical principles experimentally |
| CO2 | Interpret the experimental data on the basis of theoretical principles. |
| CO3 | Correlate the theory to the experiments. Understand / verify theoretical principles by experiment or explain practical output with the help of theory |
| CO4 | Understand systematic methods of identification of substance by chemical methods. |
| CO5 | Write balanced equation for all the chemical reactions performed in the laboratory. |
| CO6 | Perform organic and inorganic synthesis and able to follow the progress of the chemical reaction. |
| CO7 | Set up the apparatus properly for the designed experiments. |
| CO8 | Perform the quantitative chemical analysis of substances and able to explain principles |

**Janseva Foundation Loni Budruks
Arts and Commerce College Shendi
Department of Botany
PO's And Co's**

| Programme Outcomes | |
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| PO 1 | Understand the fundamental and advanced concepts, principles, protocols, methodologies, processes, scientific theories and phenomenon's related to subject and their applications in daily life. |
| PO 2 | Obtain the basic as well as applied skills, theoretical and practical knowledge of the subject for constructing the life career in the field of Botany. |
| PO 3 | Boost up and became self-confident in solving the subject and life related problems by acquiring the subject oriented employable knowledge and life skills for empowerment of self as well as social development. |
| PO 4 | Hardened the subject oriented thinking ability of the students to make them creative researcher for proposing the novel ideas in the field of basic and applied Botany and its implementation, being as a Human resource for fulfillment of human needs. |
| PO 5 | Cultured the life skills in student's mind for self-employment, improvement of economic status in local region, utilization of raw resources for furnished products at small scale as well as large scale agro-based industries. |
| PO 6 | Always keep aware of cultivation, conservation, protection, production of value added services to the society by utilizing the natural resources and subject knowledge for betterment and sustainable development of life. |
| F.Y.B.Sc. (CBCS pattern) | |
| Semester I, Botany Paper I (BO 111): Plant Life and Utilization I) | |
| On Completion of the course, students are able to: | |
| CO1 | Understand the outline classification of plant kingdom and diversity among the plants. |
| CO2 | Know the systematic, morphology and structure, of Algae. Understand the life cycle Spirogyra. Usefulness of the algae. |
| CO3 | Acquire the knowledge about Symbiotic association, types and utilization of Lichen. |
| CO4 | Know the systematic, morphology and structure, of Fungi, the life cycle of Agaricus mushroom, and utilization of fungi. |
| CO5 | Understand the systematic, morphology and structure, of Bryophytes with the life cycle study of representative Riccia. Utilization of bryophytes. |
| F.Y.B.Sc. (CBCS pattern) | |
| Semester I, Botany Paper II (BO 112): Plant Morphology and Anatomy | |
| CO1 | CO1. Introduction and scope of morphology; importance of morphology in Identification, Nomenclature, Classification and Phylogeny and Plant breeding. |
| CO2 | CO2. Know the morphology of reproductive parts (Inflorescence, Flower, Floral whorls, |

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| | Fruit and Seeds) in relation to their parts, types, modifications, functions and importance. |
| CO3 | CO3. Importance of anatomy in taxonomy, physiology, ecological interpretations, pharmacognosy and wood identification. |
| CO4 | CO4. Exploring the knowledge of internal organization of plants and their parts. Types of tissues and their role in plant body construction and functioning. |
| CO 5 | CO5. Understand the internal porganization of primary plant body w.r.t. root, stem and leaf of monocotyledonous and dicotyledonous plants. |
| F.Y.B.Sc. (CBCS pattern) | |
| Semester I, Botany Paper III (BO 113): Practical Based on BO 111 and BO112 | |
| CO1 | Introduction to handling of microscope, sectioning and slide preparation, practical performance in view of examination. |
| CO2 | Understanding the life cycle pattern of various plant groups with specimen study of Spirogyra, Agaricus, and Riccia. |
| CO3 | Understand the types of lichens and process of mushroom cultivation. |
| CO4 | Know the external morphological features of reproductive parts viz, inflorescence, flower, floral whorls, fruits, seeds, their types, modifications and functions. |
| CO5 | Understand the internal primary structure of monocots and dicots with reference to root, stem and leaf for observing difference at internal organization level between these two groups. |
| CO6 | Botanical excursion to the nearby biodiversity area to observe the various plants of Algae, Fungi, Bryophytes, Lichens. |
| F.Y.B.Sc. (CBCS pattern) | |
| Semester II, Botany Paper I (BO 121): Plant Life and Utilization II) | |
| CO1 | Understand the diversity among the higher plant groups pteridophytes, gymnosperms and angiosperms. |
| CO2 | Understand the systematic, morphology and structure, of Pteridophytes with the life cycle study of representative Nephrolepis and utilization of pteridophytes. |
| CO3 | Know the systematic, morphology and structure, of Gymnosperms. Understand the life cycle of Cycas. Utilization and economic importance of the Gymnosperms |
| CO4 | Get acquainted with the outline classification of most evolved plant group Angiosperms. Able to understand the difference between monocot and dicot. Economic importance of Angiosperms in food, fodder, fiber, medicine and horticulture. |
| F.Y.B.Sc. (CBCS pattern) | |
| Semester II, Botany Paper II (BO 122): Principles of Plant Science | |
| CO1 | To understand the scope and importance of plant physiology. |
| CO2 | Know the physiological phenomenon involved in plant such as Diffusion, Osmosis, Plasmolysis. |
| CO3 | Understand the concept of plant growth and factors affecting the growth. |
| CO4 | Know the structural details of prokaryotic and eukaryotic cell, cell wall, and ultrastructure of chloroplast. |

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| CO5 | Understand the cell cycle in plants with reference to divisional stages of mitosis and meiosis. |
| CO6 | Understand the central dogma, DNA structure, Watson and crick model of DNA, types of DNA and RNA, chromosome and DNA replication process. |
| F.Y.B.Sc. (CBCS pattern) | |
| Semester II, Botany Paper III (BO 123): Practical Based on BO 121 and BO122 | |
| CO1 | CO1. Understanding the life cycle pattern of plant groups Pteridophytes and Gymnosperms with specimen study of Nephrolepis and Cycas. |
| CO2 | CO2. Know the comparative account of Dicotyledonous and Monocotyledonous plants w.r.t to external morphological characters |
| CO3 | CO3. Demonstrating the use of plant resources in food, fodder, fiber, medicine, and horticulture industries. |
| CO4 | CO4. Understand the differences between prokaryotic and eukaryotic plant cells. |
| CO5 | CO5. Know the cell divisional stages of meiosis and mitosis with suitable plant material. |
| CO6 | CO6. Understand the Chlorophyll estimation process, phenomenon of plasmolysis and demonstration of osmosis through curling experiment. CO7. Know the diffusion pressure deficit (DPD) phenomenon in plants. |
| S.Y.B.Sc. (CBCS pattern) | |
| Semester III, Botany Paper I (BO231) : Taxonomy of Angiosperms and Plant Ecology | |
| CO1 | On Completion of the course, students are able to: Get knowledge regarding introduction, scope and importance of taxonomy in study of angiospermic plants. |
| CO2 | Aware with available systems of plant classification along with their merits and demerits utilized in the taxonomy from ancient period to the date for classification of flowering plants. |
| CO3 | Understand the plant diversity, and study the representative specimen of plant families with reference to systematic position, salient features, floral formula, floral diagram and economic importance of that family. |
| CO4 | Know naming the plants in botanical terms using rule of nomenclature and following the system of Binomial nomenclature. |
| CO5 | Understand the introduction to ecology in terms of concept, types of ecology, ecosystem and their components, food chain, food web, and ecological pyramids. |
| CO6 | Understand the grouping of plants on the basis of external and internal ecological adaptation present in the plant in response to climatic conditions surrounding. |
| S.Y.B.Sc. (CBCS pattern) | |
| Semester III, Botany Paper II (BO 232) : Plant Physiology | |
| CO1 | Understand the introduction about plant physiology with its scope and applications. |
| CO2 | CO2. Know the role of water in plants, mechanism of water absorption and factors affecting it. |
| CO3 | Understand the vital, physical and transpiration pull theories of ascent of sap and factors affecting ascent of sap. |

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| CO4 | Know the process of transpiration and stomata structure involved in transpiration; mechanism, significance and factors affecting transpiration |
| CO5 | Understand the process of nitrogen metabolism with reference to BNF, and processes of denitrification, ammonification, nitrification, amination, transamination and role of nitrogen in plants. |
| CO6 | Learn the types of seed dormancy, methods of seed dormancy and metabolic changes during seed germination. |
| CO7 | Understanding the physiology of flowering with reference to photoperiodism, Phytohormones, and vernalization. |

S.Y.B.Sc. (CBCS pattern)

Semester III, Botany Paper III (BO 233): Practical based on BO 231 and BO 232

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| CO1 | Understand the taxonomic and ecological tools used in study of taxonomy and ecology. |
| CO2 | Know the plant families with reference to diagnostic features, floral formula, floral diagram, and systematic position with locally available plant material of the given family. |
| CO3 | Understand the external and internal ecological adaptations in Hydrophytes and Xerophytes. |
| CO4 | To get acquainted with vegetation study by List-Count Quadrant method. |
| CO5 | Understand the process of starch and protein estimation by phytochemical test and leaf protein isolation and estimation. |
| CO6 | Performing the physiological experiments for identification of Diffusion pressure deficit (DPD), and rate of transpiration in different climatic conditions. |
| CO7 | Know the demonstration of various plant physiology experiments and determination of seed germination index. |
| CO8 | Understand the vegetation of nearby localities through Botanical excursion. |

S.Y.B.Sc. (CBCS pattern)

Semester IV, Botany Paper I (BO 241) : Plant Anatomy and Embryology

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| CO1 | CO1. Know the scope of plant anatomy in various field. |
| CO2 | Understand the structure, types and functions of epidermal tissue system with reference to epidermis, stomata and epidermal outgrowths. |
| CO3 | Learn the mechanical tissue system with reference to their distribution in plants and following the principle for providing the strength and support to the plants. |
| CO4 | Understand the types of vascular tissue system and their role in development of normal or abnormal secondary growth in various plant as per the need of plant. |
| CO5 | Study of scope and importance of plant embryology with reference to microsporangium and male gametophyte development; megasporangium and female gametophyte development. |
| CO6 | Provide in depth knowledge to the students related to pollination mechanism; process and significance of double fertilization followed by structure, types, and functions of endosperm and embryo in flowering plants. |

S.Y.B.Sc. (CBCS pattern)

Semester IV, Botany Paper II (BO 242) : Plant Biotechnology

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| CO1 | Understand the concept, scope, importance and current status of Biotechnology. |
| CO2 | Know the concept of plant tissue culture and cellular totipotency, basic techniques of PTC, commercial applications of PTC and tissue culture laboratories in India. |
| CO3 | Understand the concept of single cell protein (SCP), importance of protein, production of SCP from algae (Spiraling) and fungi (Yeast) and its acceptability with economic application. |
| CO4 | Understand the concept, and techniques of plant genetic engineering for development of genetically modified plants and their applications for sustainable development. |
| CO5 | Learn the concepts of Genomics, Proteomics and Bioinformatics. |
| CO6 | Understand the concept of bioremediation using plants and microbes and methods of phytoremediation. |
| CO7 | Know the concept and types of renewable and non-renewable energy sources, concept of Biogas, Bioethanol, Biobutanol Biodiesel and Biohydrogen. |
| S.Y.B.Sc. (CBCS pattern) | |
| Semester IV, Botany Paper III (BO 243): Practical based on BO 241 and BO 242 | |
| CO1 | Understand the plant anatomy practically, through study of epidermal tissue system, mechanical tissue and their distribution in root, stem and leaves. |
| CO2 | Understand the normal and abnormal secondary growth pattern in plants with suitable examples. |
| CO3 | Understand the plant embryology with respect to study of tetrasporangiate anther, types of ovules, dicot and monocot embryo. |
| CO4 | Know the instrumentation used in PTC, stages of PTC such as media preparation and sterilization, surface sterilization and inoculation of explant. |
| CO5 | Understand the process of SCP cultivation using Spirulina. |
| CO6 | Know the demonstration experiments of Biotechnology such as Transgenic crops, principle and working of agarose gel electrophoresis, centrifuge, spectrophotometer. |
| CO7 | Understand the setup of Commercial plant tissue laboratory through the visit to nearby PTC commercial unit. |

**Janseva Foundation Loni Budruks
Arts and Commerce College Shendi
Department of Zoology
PO's And Co's**

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| F.Y. B. Sc. Semester I | |
| Life and Diversity of Animals-I (ZOO1101) | |
| On completion of the course, the students will be able to: | |
| CO1 | Define terms related to animal systematics and outline the various systems of classification. |
| CO2 | Outline the names of protozoan and helminthes parasites of animals and illustrate their life cycles and pathogenicity. |
| CO3 | Demonstrate the structure and functions of spicule of sponges and classify the sponges on the basis of their skeleton. |
| CO4 | Explain the systematic position, habitat, body wall, coelom of earthworm and explain the structure and functions of their organ system. |
| CO5 | Classify the invertebrates on the basis of comparative morphology of animals and justify the reasons. |
| F.Y. B. Sc. Semester I | |
| Cell Biology (ZOO1102) | |
| CO1 | Describe the concept of cell theory, cell -cell signalling, apoptosis, oncogenes and proto-oncogenes. Recall types of cells and label its components. |
| CO2 | Differentiate plant cell, animal cell and compare their properties. Explain the structure and functions of various cell organelles and the process of cell division. |
| CO3 | Illustrate the mechanism of programmed cell death, cell to cell communication and the process of mitosis and meiosis. |
| CO4 | Identify and draw diagrams of cell organelles and analyse their functions. |
| CO5 | Review the process of apoptosis, cell cycle, characteristics of cancerous cells. |
| CO6 | Integrate the postulates of the cell theory with cellular activities which leads to repairing and regeneration of the cells and the production of energy. |
| F.Y. B. Sc. Semester I | |
| Zoology Practical – I (ZOO1103) | |
| CO1 | Describe fundamental concepts of systematics, cell division and standard operating procedures of compound microscope. |
| CO2 | Classify different species of animals from protozoa, porifera, coelenterate, platyhelminthes and aschelminthes. |
| CO3 | Demonstrate the procedure of detection of mitochondria, preparation of slide for mitosis and identify various stages of mitosis. |
| CO4 | Differentiate the features of prokaryotic and eukaryotic cells and compare plant cell and animal cell. |
| CO5 | Justify the identification and classification of animals with the help of their distinguishing features. |

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| CO6 | Compile the data obtained from observations of animals in the field and organize it as per animal systematics. |
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| F.Y. B.Sc. Semester II | |
| Life and Diversity of Animals-II (ZOO1201) | |
| CO1 | Define different terminology of the genetics. Describe the concepts of Genetics, gene interaction, lethal genes, euploidy, aneuploidy, sex linked inheritance and principles of inheritance. |
| CO2 | Explain and differentiate between multiple alleles and multiple genes. Explain the pattern of inheritance of complementary, supplementary, inhibitory and duplicate factors. |
| CO3 | Execute the crosses of sex-linked inheritance, inheritance of blood groups, monohybrid cross, dihybrid cross and the test cross. |
| CO4 | Differentiate the autosomes and sex chromosomes, euchromatin and heterochromatin. Outline the cell cycle of <i>Drosophila melanogaster</i> . |
| CO5 | Apprise structural and numerical aberrations of chromosomes and give their characteristics and examples. |
| CO6 | Specify the importance of genetic basis of life, integrate the principles of inheritance with plant and animal breeding and the medicolegal importance of blood group studies. |
| F.Y. B.Sc. Semester II | |
| Zoology Practical – II (ZOO1203) | |
| CO1 | Recall the fundamental concepts of systematics, genetics, sex linked inheritance, multiple alleles and mutation. |
| CO2 | Discuss, identify and classify different species of animals from Hemichordata, Cephalochordata, Urochordata, Cyclostomata, cartilaginous fishes and Bony fishes Examine different genetic traits in human being and analyze the human karyotype. |
| CO3 | Detect A, B, AB, O and Rh blood groups. |
| CO4 | Appraise and classify the specimens from zoology museum. |
| CO5 | Compile the data of different syndromes in human beings and prepare a report. |
| S.Y. B. Sc. Semester III | |
| Life and Diversity of Animals-III (ZOO2301) | |
| CO1 | Identify the Molluscs, Annelids, Echinodermata on the basis of comparative morphology and describe their evolutionary importance. |
| CO2 | Articulate the mechanisms and hormonal control of metamorphosis process in insects. |
| CO3 | Outline characteristics of Annelids, Molluscs, Arthropods, Echinodermata. |
| CO4 | Explain the diversity and adaptive radiations of invertebrates |
| CO5 | Apprise morphology of shell and foots modification in molluscs. Discriminate the mouth parts of various insects. |
| CO6 | Write the field report on the basis of comparative morphology of animals by conducting the field survey. |

| S.Y. B. Sc. Semester III | |
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| Applied Zoology -I (ZOO2302) | |
| CO1 | Describe and discuss the basic concept and principals involved in the culture and breeding of common edible freshwater and marine species. |
| CO2 | Explain cage, pen and integrated culture techniques and differentiate between them. Discuss and outline the preservation techniques of fishes. |
| CO3 | Demonstrate the use of different crafts and gears; outline the modern and traditional techniques and methods of fishery by-products industry |
| CO4 | Differentiate between freshwater, estuarine and marine fisheries. Compare the difference between culture fisheries and harvesting |
| CO5 | Compare integrated fish farming, prawn culture with monoculture. Assess and discuss the advantages and disadvantages of different integrated culture techniques. |
| CO6 | Design the structure of a fish farm for culture of fishes. Determine the different zoogeographical realms and prepare a world map on the basis of ichthyographical distribution of different species. |
| S.Y. B. Sc. Semester III | |
| Zoology Practical III (ZOO2303) | |
| CO1 | Identify the fishes from freshwater and marine water. Describe external characters and other important systems of sea star. Design the experiment to culture and identify the crustacean larvae. |
| CO2 | Classify and explain animals from phylum mollusc, Annelida, Arthropoda, Echinodermata. Demonstrate and identify the use of different crafts and gears. |
| CO3 | Identify and compare the shell and foots modification in molluscs and mouth parts of different insects.. |
| CO4 | Determine the age of fishes and measure the length -weight of given fish. Calculate fin formula of the given fish specimen. |
| CO5 | Determine the distribution of fishes on world map and carry out morphometric analysis of fish. |
| S.Y. B. Sc. Semester IV | |
| Life and Diversity of Animals-IV (ZOO2401) | |
| CO1 | Identify and describe the characters of class – Reptilia, aves and mammals. |
| CO2 | Differentiate and interpret the morphological characters of class reptilia, aves and mammals. |
| CO3 | Classify the reptiles, aves and mammals. |
| CO4 | Compare and interpret the structure and functions of organs of Scoliodons. |
| CO5 | Discriminate the poisonous and non-poisonous snakes with the help of identification key |
| CO6 | Write the field report on the basis of comparative morphology of animals by conducting the field survey. Carry out the field survey and write the field report on the basis of comparative morphology of vertebrate animals. |
| S.Y. B. Sc. Semester IV | |
| Applied Zoology II (ZOO2402) | |

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| CO1 | Articulate the basic concept of Apiculture and Sericulture, its importance, history and present status. Describe the taxonomy, morphological sex differences in pupa, larvae and adult of silkworm and honey bee. |
| CO2 | Differentiate between different life stages of silkworm and honey bee and explain their life cycle. Discuss control and prevention of pests and diseases. |
| CO3 | Demonstrate and discuss the culture methods of B.mori and Apis species. Outline the silkworm rearing technology, bee pollination and management of bee colonies for pollination. |
| CO4 | Differentiate diseases of silk worms and honey bees, and different methods for control. Outline the important tools and equipment's used in apiculture and sericulture |
| CO5 | Compare and explain bee behaviour and bee communication. Review of bee colony, castes, natural colonies, their yield and types of montages, spinning, harvesting. |
| CO6 | Write about judicious use of their by-products and moriculture. Evaluate, appreciate and specify the importance of embarking on self-employment through rearing of silkworms, rearing honey bee |

S.Y. B. Sc. Semester IV

Zoology Practical III (ZOO2403)

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| CO1 | CO1 Identify the birds on the basis of beak and feet. Discriminate, poisonous and non-poisonous snakes with the help of identification key. |
| CO2 | Classify the vertebrates, reptiles, aves, mammals. |
| CO3 | Demonstrate external characters and other important systems of Scoliodon |
| CO4 | Identify and explain mouth parts, wings legs and sting of honey bee. Describe the life cycle of honey bee and silk worm. |
| CO5 | Assess the quality of soil and interpret its suitability for moriculture. |
| CO6 | Prepare sericulture maps indicating mulberry and non –mulberry belts in India. Prepare a report on bird diversity in Fergusson College campus. Identify the various instruments used in apiculture and sericulture. |

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| F.Y.B.Sc Paper- I Semester – I | |
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| Physics Paper – I (PHY-111) Mechanics and Properties of Matter | |
| On successful completion of this course students will be able to do the following | |
| CO1 | Demonstrate an understanding of Newton's laws and applying them incalculations of the motion of simple systems |
| CO2 | Use the free body diagrams to analyses the forces on the object. |
| CO3 | Understand the concepts of energy, work, power, the concepts of conservation of energy and be able to perform calculations using them. |
| CO4 | Understand the concepts of elasticity and be able to perform calculations using them |
| CO5 | Understand the concepts of surface tension and viscosity and be able to perform calculations using them. |
| CO6 | Use of Bernoulli's theorem in real life problems. |
| CO7 | Demonstrate quantitative problem solving skills in all the topics covered. |
| F.Y.B.Sc Paper- I Semester – II | |
| Physics Paper – I (PHY-121) Heat and Thermodynamics | |
| After successfully completing this course, the student will be able to do the following: | |
| CO1 | Describe the properties of and relationships between the thermodynamic properties of a pure substance |
| CO2 | Describe the ideal gas equation and its limitations |
| CO3 | Describe the real gas equation |
| CO4 | Apply the laws of thermodynamics to formulate the relations necessary toanalyze a thermodynamic process |
| CO5 | Analyses the heat engines and calculate thermal efficiency |
| CO6 | Analyze the refrigerators, heat pumps and calculate coefficient of performance. |
| CO7 | Understand property „entropy“ and derive some thermo dynamical relationsusing entropy concept. |
| CO8 | Understand the types of thermometers and their usage. |
| F.Y.B.Sc Paper- II Semester – I | |
| Physics Paper – II (PHY-112) Physics Principles and Applications | |
| On successful completion of this course students will be able to do the following: | |
| CO1 | To understand the general structure of atom, spectrum of hydrogen atom. |
| CO2 | To understand the atomic excitation and LASER principles. |
| CO3 | To understand the bonding mechanism and its different types. |

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| CO4 | To demonstrate an understanding of electromagnetic waves and its spectrum. |
| CO5 | Understand the types and sources of electromagnetic waves and applications. |
| CO6 | To demonstrate quantitative problem solving skills in all the topics covered |
| F.Y.B.Sc Paper- II Semester – II | |
| Physics Paper – II (PHY-122) Electricity and Magnetism | |
| On successful completion of this course students will be able to do the following: | |
| CO1 | To understand the concept of the electric force, electric field and electric potential for stationary charges |
| CO2 | Able to calculate electrostatic field and potential of charge distributions using Coulomb's law and Gauss's law |
| CO3 | To understand the dielectric phenomenon and effect of electric field on dielectric |
| CO4 | To Study magnetic field for steady currents using Biot-Savart's and Ampere's Circuital laws |
| CO5 | To study magnetic materials and its properties. |
| CO6 | Demonstrate quantitative problem solving skills in all the topics covered. |
| S.Y.B.Sc Paper- I Semester – III | |
| Course Physics Paper – I (PHY-231) Mathematical Methods in Physics-I | |
| After the completion of this course students will be able to | |
| CO1 | Understand the complex algebra useful in physics courses. |
| CO2 | Understand the concept of partial differentiation. |
| CO3 | Understand the role of partial differential equations in physics. |
| CO4 | Understand vector algebra useful in mathematics and physics. |
| CO5 | Understand the concept of singular points of differential equations |
| S.Y.B.Sc Paper- I Semester – IV | |
| Course Physics Paper – I (PHY-241) Oscillations, Waves, and Sound | |
| On completion of this course | |
| CO1 | To study underlying principles of oscillations and its scope in development. |
| CO2 | To understand and solve the equations / graphical representations of motion for simple harmonic, damped, forced oscillators and waves. |
| CO3 | To explain oscillations in terms of energy exchange with various practical applications |
| CO4 | To solve numerical problems related to un damped, damped, forced oscillations and superposition of oscillations |
| CO5 | To study characteristics of sound, decibel scales and applications. |
| S.Y.B.Sc Paper- II Semester – III | |
| Course Physics Paper – II (PHY-232) Electronics | |
| On successful completion of this course the students will be able to | |
| CO1 | Apply different theorems and laws to electrical circuits. |

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| CO2 | Understand the relations in electricity. |
| CO3 | Understand the parameters, characteristics and working of transistors. |
| CO4 | Understand the functions of operational amplifiers |
| CO5 | Design circuits using transistors and applications of operational amplifiers |
| CO6 | Understand the Boolean algebra and logic circuits |
| S.Y.B.Sc Paper- II Semester – IV | |
| Course Physics Paper – II (PHY-242) Optics | |
| On successful completion of this course the students will be able to | |
| CO1 | Acquire the basic concept of wave optics. |
| CO2 | Describe how light can constructively and destructively interfere. |
| CO3 | Explain why a light beam spread out after passing through an aperture |
| CO4 | Summarize the polarization characteristics of electromagnetic wave |
| CO5 | Understand the operation of many modern optical devices that utilize wave optics |
| CO6 | Understand optical phenomenon such polarization, diffraction and interference in terms of the wave model |