

## Course Outcomes - 2021-22 (TY)

Choice Based Credit System - 2019

### Faculty of Arts

#### B.A. (Geography)



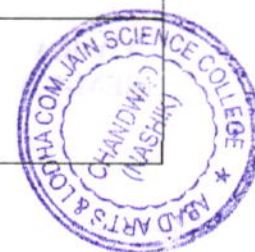
| Class               | Course  | Course Outcomes   |
|---------------------|---|---|
| T.Y.B.A<br>(SEM-V)  | Geography of Tourism-I,<br>(G3)<br>Subject Code:<br>Gg: 310(A)  | <ol style="list-style-type: none"> <li>1. Student understands the history of Tourism.</li> <li>2. Acquaint students the fundamental basic concepts in Tourism Geography.</li> <li>3. Students Understands about types of Tourism.</li> <li>4. Students gain knowledge different aspects of Tourism Geography.</li> </ol>  |
| T.Y.B.A<br>(SEM-V)  | Geography of India –I (S3) -<br>Subject Code:<br>Gg: 320(A)   | <ol style="list-style-type: none"> <li>1. Students Understand to the geography of our Nation.</li> <li>2. Student aware of the magnitude of problems and Prospects at National level.</li> <li>3. Students understand the inter relationship between the subject and the society.</li> <li>4. Students understand understand the recent trends in regional studies.</li> </ol>  |
| T.Y.B.A<br>(SEM-V)  | (S4)Practical<br>Geography - I<br>(Techniques<br>of Spatial<br>Analysis)<br>subject Code:<br>Gg: 301(A)     | <ol style="list-style-type: none"> <li>1. Students will be able to develop practical knowledge and the basic concepts and techniques of Geographical Analysis.</li> <li>2. Students developed our interpretation skill with SOI Topo sheets.</li> <li>3. Students developed our interpretation skill with Weather Maps (IMD).</li> <li>4. Students able to elementary and essential principles on field of practical work.</li> </ol> |
| T.Y.B.A<br>(SEM-VI) | Geography of Tourism-II,<br>(G3)<br>Subject Code:<br>Gg: 310(B)   | <ol style="list-style-type: none"> <li>1. Student understand accommodation importance Tourism.</li> <li>2. Acquaint students the planning and policies of tourism management</li> <li>3. Students Understands impact of tourism.</li> <li>4. Students gain the knowledge of different physical features in the world as tourist place.</li> </ol>   |
| T.Y.B.A<br>(SEM-VI) | Geography of India –II (S3)<br>Subject Code:<br>Gg: 320(B)  | <ol style="list-style-type: none"> <li>1. Students Understand the cultural setting of geography in India</li> <li>2. Student aware to the recourses importance in nation building.</li> <li>3. Students understand the the importance of transportation and communication in regional development.</li> <li>4. Students understand significance of agriculture in Indian economy.</li> </ol>  |
| T.Y.B.A<br>(SEM-VI) | (S4),<br>Practical<br>Geography II<br>(Techniques<br>of Spatial<br>Analysis)<br>subject Code:<br>Gg: 301(B) | <ol style="list-style-type: none"> <li>1. Develop practical knowledge of geographical data and its basic analysis</li> <li>2. Students developed our calculation of central tendency and dispersion.</li> <li>3. Students Developed knowledge of testing and application of hypothesis.</li> <li>4. Students able to data collection, surveying and create a brief field report.</li> </ol>   |

#### B.A. (English)

| Class           | Course                | Course Outcomes   |
|-----------------|-----------------------|---|
| TYBA<br>Sem. -V | Compulsory<br>English | <ol style="list-style-type: none"> <li>1. To familiarize students with some excellent pieces of prose and poetry in English so that they realize the beauty and communicative power of English.</li> <li>2. To enable students to become competent and effective users of English in real life situations.</li> <li>3. To contribute to the overall personality development of the students.</li> </ol> |

|                 |  |  |
|-----------------|--|--|
| TYBA<br>Sem.-VI | Compulsory<br>English                          | <ol style="list-style-type: none"> <li>1. To instill humanitarian values and foster sympathetic attitude in the students.</li> <li>2. To train the students in practical writing skills required in work environment.</li> <li>3. To impart knowledge of some essential soft skills to enhance their employability.</li> </ol>   |
| TYBA<br>Sem.-V  | Skill<br>Enhancement<br>Course                 | <ol style="list-style-type: none"> <li>1. To get the awareness of career opportunities available to them.</li> <li>2. To identify the career opportunities suitable to them.</li> <li>3. To understand the use of English in different careers.</li> </ol>   |
| TYBA<br>Sem.-VI | Skill<br>Enhancement<br>Course                 | <ol style="list-style-type: none"> <li>1. To develop competence in using English for the career of their choice.</li> <li>2. To enhance skills required for their placement.</li> <li>3. To use English effectively in the career of their choice.</li> <li>4. To exercise verbal as well as nonverbal communication effectively for their career.</li> </ol>  |
| TYBA<br>Sem.-V  | Discipline<br>Specific<br>Elective             | <ol style="list-style-type: none"> <li>1. To introduce students to the basics of novel as a literary form</li> <li>2. To expose students to the historical development and nature of novel</li> <li>3. To make students aware of different types and aspects of novel</li> </ol>   |
| TYBA<br>Sem.-VI | Discipline<br>Specific<br>Elective             | <ol style="list-style-type: none"> <li>1. To develop literary sensibility and sense of cultural diversity in students</li> <li>2. To expose students to some of the best examples of novel</li> <li>3. To introduce students to the major movements and figures of English Literature through a study of selected literary texts/pieces published during the period prescribed for study.</li> </ol> |
| TYBA<br>Sem.-V  | Discipline<br>Specific<br>Elective             | <ol style="list-style-type: none"> <li>1. To introduce students to the basics of literary criticism</li> <li>2. To make them aware of the nature and historical development of criticism</li> <li>3. To make them familiar with the significant critical approaches and terms</li> </ol>   |
| TYBA<br>Sem.-VI | Introduction<br>to Literary<br>Criticism       | <ol style="list-style-type: none"> <li>1. To encourage students to interpret literary works in the light of the critical approaches</li> <li>2. To develop aptitude for critical analysis</li> <li>3. To introduce students to the nature, function and relevance of literary criticism and theory</li> </ol>  |
| TYBA<br>Sem.-V  | Mastering<br>Life Skills<br>and Life<br>Values | <ol style="list-style-type: none"> <li>1. To equip the students with the social skills</li> <li>2. To train the students interpersonal skills</li> <li>3. To build self-confidence and communicate effectively</li> <li>4. To Encourage the students to think critically</li> </ol>  |
| TYBA<br>Sem.-VI | Mastering<br>Life Skills<br>and Life<br>Values | <ol style="list-style-type: none"> <li>1. To learn stress management and positive thinking</li> <li>2. To enhance leadership qualities</li> <li>3. To aware the students about universal human values</li> <li>4. To develop overall personality of the students</li> </ol>  |

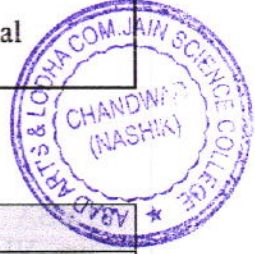
**B.A. / B.Com. Economics**



| Sr. No.           | Course                                | Course Outcomes  |
|-------------------|---------------------------------------|--|
| T.Y.B.A<br>(CBCS) | G-3 Indian<br>Economic<br>Development | <ol style="list-style-type: none"> <li>1. To relate and recognize the concept and indicators of Economic Development.</li> <li>2. To describe and analyze the concept and indicators of Human Development.</li> <li>3. To explain the characteristics of Developing and Developed Countries.</li> <li>4. To describe the constraints to the process of Economic Development</li> </ol> |

|                      |  |  |
|----------------------|--|--|
| T.Y.B.A.<br>(CBCS)   | S-3<br>International<br>Economics                          | <ol style="list-style-type: none"> <li>1. To relate and recall the concepts of International Economics and International Trade.</li> <li>2. To describe and apply the theories of international trade.</li> <li>3. To explain and comprehend the issues relating to Terms of trade and Balance of Payment.</li> </ol>  |
| T.Y.B.A.<br>(CBCS)   | S-4 Public<br>Finance                                      | <ol style="list-style-type: none"> <li>1. To relate and recognize the Nature and Scope of Public Finance.</li> <li>2. To describe and analyze the concept of Public Revenue and its components.</li> <li>3. To explain types of Public Expenditure and reasons for rising Public Expenditure.</li> <li>4. To explain the types of Public Debt and its effects.</li> </ol>  |
| T.Y.B.A.<br>(CBCS)   | Business<br>Management<br>(Skill<br>Enhancement<br>Course) | <ol style="list-style-type: none"> <li>1. Management of Business.</li> <li>2. Business planning and decision making</li> <li>3. Leadership Skills- Ability to work in teams at the same time, ability to show leadership</li> <li>4. qualities</li> </ol>  |
| T.Y.B.Com.<br>(CBCS) | Indian &<br>Global<br>Economic<br>Development              | <ol style="list-style-type: none"> <li>1. Students will be able to understand present Economic Scenario of Indian Economy as well as World Economy.</li> <li>2. Students will be able to understand the various aspects of development in Agricultural, Industrial and service sector in India.</li> <li>3. Student will be able to critically evaluate the role of India in international economy.</li> <li>4. Students will be able to evaluate the working of international financial organization and institutions.</li> </ol> |

### B.A. Marathi



| Class           | Course                                     | Course Outcomes  |
|-----------------|--|--|
| TYBA<br>Sem.-V  | साहित्यप्रकार<br>: प्रवासवर्णन             | <ol style="list-style-type: none"> <li>1. मुद्रित माध्यमांसाठी लेखन कौशल्य आत्मसात केले .</li> <li>2. वासवर्णन या साहित्यप्रकाराचे स्वरूप, प्रेरणा, प्रयोजने, वैशिष्टे आणि वाटचाल समजून विद्या र्थ्यांनी समजून घेतली .</li> </ol>  |
| TYBA<br>Sem.-VI | साहित्यप्रकार :<br>कविता                   | <ol style="list-style-type: none"> <li>1. मराठी साहित्य, भाषिक कौशल्य आणि शासनव्यवहार यांची माहिती घेतली .</li> <li>2. कविता या साहित्यप्रकाराचे स्वरूप , वाटचाल , प्रेरणा, प्रवृत्ती आणि वैशिष्टे, समजून घेतली</li> <li>3. नेमलेल्या अभ्यासपुस्तकातील निवडक कवितांचे आकलन , आस्वाद आणि विश्लेषण केले . .</li> <li>4. कविता या साहित्यप्रकारातील विविध आविष्कार व भाषा रूपांची अभ्यासपुस्तकातील कवितांच्या आधारे ओळख विद्यार्थ्यांनी करून घेतली .</li> </ol> |
| TYBA<br>Sem.-V  | व्यावहारिक व<br>उपयोजित<br>मराठी-भाग ५     | <ol style="list-style-type: none"> <li>1. संभाषणविषयक भाषिक कौशल्य आत्मसात केले .</li> <li>2. वृत्तपत्रविषयक भाषिक कौशल्य आत्मसात केले .</li> <li>3. मराठी साहित्य, भाषिक कौशल्यविकास आणि शासनव्यवहार यांची माहिती करून घेतली .</li> </ol>   |
| TYBA<br>Sem.-VI | व्यावहारिक व<br>उपयोजित<br>मराठी -भाग<br>६ | <ol style="list-style-type: none"> <li>1. भाषाविषयक उपयोजित लेखन क्षमता विकसित करून घेतली .</li> <li>2. विविध माध्यमे आणि नवसमाजमाध्यमातील विविध भाषिक आविष्काराचे स्वरूप समजून घेतली .</li> </ol>   |

|                 |   |  |
|-----------------|---|--|
|                 |   | 3. विविध माध्यमे आणि नवसमाजमाध्यमांसाठी लेखन क्षमता विकसित केली.   |
| TYBA<br>Sem.-V  | मध्ययुगीन<br>मराठी<br>वाङ्मयाचा स्थूल<br>इतिहास<br>: प्रारंभ ते<br>इ.स १६०० | 1. वाङ्मयेतिहास संकल्पना, स्वरूप, प्रेरणा, प्रवृत्ती विद्यार्थ्यांनी समजून घेतले.<br>2. मध्ययुगीन कालखंडाची सामाजिक, सांस्कृतिक पार्श्वभूमी समजून घेतली.<br>3. मराठी भाषा, साहित्याची कालखंडानुरूप इतिहास समजून घेतला.   |
| TYBA<br>Sem.-VI | मध्ययुगीन<br>मराठी<br>वाङ्मयाचा स्थूल<br>इतिहास-इ.स<br>१६०० ते १८१७         | 1. मध्ययुगीन कालखंडाची सामाजिक, सांस्कृतिक पार्श्वभूमी समजून घेतली.<br>2. मराठी भाषा, साहित्याची कालखंडानुरूप इतिहास विद्यार्थ्यांनी समजून घेतला.  |
| TYBA<br>Sem.-V  | वर्णनात्मक<br>भाषाविज्ञान<br>: भाग १  | 1. भाषा स्वरूप, वैशिष्ट्ये व कार्य समजावून घेणे.<br>2. भाषा अभ्यासाची आवश्यकता स्पष्ट करून घेतली.<br>3. भाषा अभ्यासाच्या शाखा आणि विविध पद्धतींचा थोडक्यात परिचय करून घेतला.<br>4. वागीन्द्रियाची रचना, कार्य आणि स्वनिर्मिती प्रक्रिया समजावून घेतली.<br>5. स्वनिमविचार आणि मराठीची स्वनिमव्यवस्था समजावून घेतली. |
| TYBA<br>Sem.-VI | वर्णनात्मक<br>भाषाविज्ञान<br>: भाग 2  | 1. रूपविन्यास आणि मराठी रूप व्यवस्था समजावून घेतली.<br>2. वाक्याविन्यास आणि मराठी वाक्यव्यवस्थेचा मराठी भाषेच्या सदर्भात परिचय करून घेतला.<br>3. अर्थविन्यास या या संकल्पनेचा भाषावैज्ञानिक अंगाने परिचय विद्यार्थ्यांनी परिचय करून घेतला.   |
| TYBA<br>Sem.-V  | कार्यक्रम<br>संयोजनातील<br>भाषिक<br>कौशल्य                                  | 1. विद्यार्थ्यांनी कार्यक्रमांचे स्वरूप आणि प्रकार समजून घेतले.<br>2. +२ कार्यक्रम संयोजनातील भाषिक कौशल्य आत्मसात केले.   |
| TYBA<br>Sem.-VI | कार्यक्रम<br>संयोजनातील<br>भाषिक<br>कौशल्य                                  | 1. कार्यक्रम संयोजनातील लेखनकौशल्ये संपादन केले.<br>2. कार्यक्रम संयोजनातील भाषिक कौशल्य प्राप्त करून घेतली.<br>3. आभासी कार्यक्रमांचे भाषिक कौशल्ये संयोजन कसे करावे ते समजून घेतले.  |

B.A. Politics

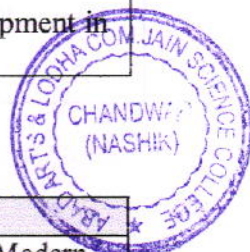


| Class                   | Course  | Course Outcomes   |
|-------------------------|---|---|
| T. Y. B. A<br>Sem. - V  | G-III<br>(CC-1E)<br>Modern<br>Political<br>Analysis | 1. Students are able to analyze various political Ideologies and issues<br>2. It helps to explain the functions of political system<br>3. It helps Students to describe the impact of political culture over the political system<br>4. It helps to understand the importance of political socialization in civil society |
| T. Y. B. A<br>Sem. - VI | G-III<br>(CC-2E)<br>Modern<br>Political             | 1. It helps Students to describe the various factors affecting political participation<br>2. It helps Students to understand the influence of Political Elites over the political system  |

|                         |   |  |
|-------------------------|---|--|
|                         | Analysis                                      | <ol style="list-style-type: none"> <li>Students are able to understand the ideology of feminism in Indian aspect</li> <li>It helps to understand the importance of political communication in democracy</li> </ol>   |
| T. Y. B. A<br>Sem. - V  | S-3<br>(DSE-1C)<br>Public<br>Administration   | <ol style="list-style-type: none"> <li>It helps students to understand the nature and scope of public administration</li> <li>Students explain the difference between traditional public and new public administration.</li> <li>Students are able to explain the various approaches to study of public administration</li> <li>Students are able to explain the benefits of E-governance.</li> </ol>  |
| T. Y. B. A<br>Sem. - VI | S-3<br>(DSE-1D)<br>Public<br>Administration   | <ol style="list-style-type: none"> <li>To understand the role of bureaucracy in public welfare state</li> <li>Students understood the process of recruitment, training and promotion in civil services</li> <li>Students are able to explain the budgetary process in India</li> <li>It helps to understand the legislative and judicial control over the administration</li> </ol>  |
| T. Y. B. A<br>Sem. - V  | S-4<br>(DSE-2C)<br>International<br>Relations | <ol style="list-style-type: none"> <li>Students understand the nature and scope of International Relations</li> <li>Students are understand the various Approaches to the study of International Relations</li> <li>It helps students to explain the concept of the Cold War</li> <li>Students are understand the objectives of international organizations in International Relations</li> </ol>  |
| T. Y. B. A<br>Sem. - VI | S-4<br>(DSE-2D)<br>International<br>Relations | <ol style="list-style-type: none"> <li>It helps students to understand the role of Non-Alignment movement in international relations.</li> <li>It helped students to understand the concept of Globalization and its impacts on sovereignty</li> <li>Students are able to understand the importance of Political economy in new world order</li> <li>Students are able to explain the contemporary global issues like Terrorism, Environmental issues, Poverty, Hunger etc.</li> </ol> |
| T. Y. B. A<br>Sem. - V  | SEC-2C<br>Sanyukta<br>Maharashtra<br>Movement | <ol style="list-style-type: none"> <li>It helps to understand the historical background of foundation of Sanyukta Maharashtra</li> <li>Students are able to explain deference between the Nationalism and Regionalism</li> </ol>   |
| T. Y. B. A<br>Sem. - VI | SEC-2D<br>Sanyukta<br>Maharashtra<br>Movement | <ol style="list-style-type: none"> <li>It helps to understand the role of 'Sons of Soil' in Sanyukta Maharashtra Movement</li> <li>Students are able to explain regional imbalance and Development in Maharashtra</li> </ol>   |

### B.A. History

| Sr. No.                  | Course  | Course Outcomes   |
|--------------------------|---|---|
| T. Y. B. A<br>Sem. - III | G-II<br>Indian National<br>Movement<br>(1885-1947)  | <ol style="list-style-type: none"> <li>It will enable students to develop an overall understanding of Modern India.</li> <li>It will increase the spirit of healthy Nationalism, Democratic Values and Secularism among the Students.</li> <li>Students will understand various aspects of the Indian Independence Movement and the creation of Modern India.</li> </ol>              |
| T. Y. B. A<br>Sem. - IV  | G-II<br>India After<br>Independence-<br>(1947-1991) | <ol style="list-style-type: none"> <li>It will enable students to develop an overall understanding of the Contemporary India.</li> <li>To increase the spirit of healthy Nationalism, Democratic Values and Secularism among the students.</li> <li>Students will understand various aspects of India's domestic and foreign policies that shaped Post-Independence India.</li> </ol> |



|                          |  |   |
|--------------------------|--|---|
| T. Y. B. A<br>Sem. - III | Introduction to<br>Historiography              | <ol style="list-style-type: none"> <li>1. Students will be introduced to the information and importance of Historiography.</li> <li>2. Students will be introduced to the different Methods and Tools of data collection.</li> <li>3. Students can study the interdisciplinary approach of History.</li> <li>4. 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 a competitive World.</li> </ol>   |
| T. Y. B. A<br>Sem. - IV  | Applied<br>History                             | <ol style="list-style-type: none"> <li>1. Students will be introduced to the information and importance of applied history.</li> <li>2. Student will learn about the Historical significance of Archaeology and Archives and opportunities in the field of Archaeology and Archives.</li> <li>3. Through this course, students will be informed about the opportunities in the field of Media, Museums.</li> <li>4. Student's usefulness of history in the 21st Century, its changing Perspectives, the new ideas that have been invented, and the importance of History in a Competitive World.</li> </ol> |
| T. Y. B. A<br>Sem. - III | Maharashtra in<br>the 19 <sup>th</sup> Century | <ol style="list-style-type: none"> <li>1. Student will develop the ability to analyse sources for 19th century Maharashtra History.</li> <li>2. Student will learn significance of Regional History and Socio- religious reformism foundation of the region.</li> <li>3. It will enhance their perception of 19th Century Maharashtra.</li> <li>4. Appreciate the skills of leadership and the Socio-religious System of the Maharashtra.</li> </ol>  |
| T. Y. B. A<br>Sem. - IV  | Maharashtra in<br>the 20 <sup>th</sup> Century | <ol style="list-style-type: none"> <li>1. Student will develop the ability to analyses sources for 20th Century Maharashtra History.</li> <li>2. Student will learn significance of regional history and Socio- Religious Reformism foundation of the region.</li> <li>3. It will enhance their Perception of 20th Century Maharashtra.</li> <li>4. Appreciate the skills of leadership and the Socio-Religious System of the Maharashtra.</li> </ol>   |
| T. Y. B. A<br>Sem. - III | SEC 2 C (2)<br>Museology                       | <ol style="list-style-type: none"> <li>1. The Students will understand the Concepts of Museum ad learn the basic Principles of Museology</li> <li>2. The Students will gain Comprehensive Knowledge of the Process of Cringe and Conserving Museum of objects</li> </ol>  |
| T. Y. B. A<br>Sem. - IV  | SEC 2 D (2)<br>Archaeology                     | <ol style="list-style-type: none"> <li>1. Students will learn to understand the definition, aims and scope of Archaeology so as to understand its applications in interpreting the human past.</li> <li>2. They will be able to understand the nature of the archaeological record and the unique role of science in archacology.</li> <li>3. They will have an overall understanding of the Archaeology.</li> </ol>  |

### Faculty of Commerce

T.Y.B.Com.

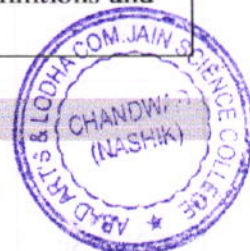


| Class                  | Course   | Course Outcomes  |
|------------------------|--|--|
| T.Y.B.Com.<br>Sem. - V | Business<br>Regulatory<br>Framework<br>(Mercantile<br>Law) | <ol style="list-style-type: none"> <li>1. To understand acquaint knowledge and maturity to understand Contract Law.</li> <li>2. To understand the knowledge and application of partnership Deed.</li> <li>3. To get training to face emerging issues relating Sale of Goods Act.</li> <li>4. Students will be able to Interface of which type of contract is.</li> </ol> |
|                        | Advanced<br>Accounting.                                    | <ol style="list-style-type: none"> <li>1. To developing understanding on applicability of various Accounting Standards.</li> <li>2. Learn the developing knowledge about investment Accounting.</li> </ol>   |

|                     |   |   |
|---------------------|---|---|
|                     |   | <ol style="list-style-type: none"> <li>To Understand knowledge about of the Accounting for capital Restructuring.</li> <li>To Impart Students Knowledge of various Advanced Accounting Concepts.</li> </ol>   |
|                     | Auditing                                    | <ol style="list-style-type: none"> <li>To Understand Concept of Auditing, types of audit and audit Process.</li> <li>Conceptual &amp; Practical understanding of vouching verification and</li> <li>Valuation verification and valuation and types of audit Report.</li> <li>Understand new concepts under Audit of Computerized System &amp; Forensic Audit.</li> <li>Practical knowledge about Tax Audit as per I.T. Act 1961 ( Form 3CA, 3CB &amp; 3CD)</li> </ol> |
|                     | Cost and Works Accounting Special Paper II  | <ol style="list-style-type: none"> <li>To understand the collection and allocation of overhead.</li> <li>Student will develop the knowledge of Cost Sheet for Motor transport service and Cost Statement for Hospital and Hotel Organization</li> <li>The student will experience handling the cost accounting.</li> </ol>  |
|                     | Cost & Works Accounting III                 | <ol style="list-style-type: none"> <li>To understand concepts- Fixed cost, Variable costs, Contribution,</li> <li>Profit-volume Ratio, Break-Even Point.</li> <li>To learn types of budget.</li> <li>Study the implementation of modern costing environment.</li> </ol>   |
| T.Y.B.Com. Sem. - V | Business Entrepreneurship Special Paper II  | <ol style="list-style-type: none"> <li>To understand the small scale industries work in social activity</li> <li>To Learn the concept and government schemes related to MSME</li> <li>To understand various aspects of business plan and Project Report</li> <li>To Understand the role and schemes of various institutions in project assistance</li> </ol>  |
|                     | Business Entrepreneurship Special Paper III | <ol style="list-style-type: none"> <li>Learn the Behaviour of organizational and individual.</li> <li>To develop their Competency in a way of learning, by self-analysis on Necessary areas for improvement and necessary skills to advance in career or industry.</li> <li>To understand the concept of group and group dynamics for Entrepreneurship.</li> </ol>  |
|                     | Banking And Finance II                      | <ol style="list-style-type: none"> <li>Understand the Meaning, Functions, Credit instruments, Deficiencies and recent Development in Money Market in India.</li> <li>To learn the meaning, definition, functions, participants and recent development in foreign exchange market.</li> <li>To study the structure and role of Financial System in India.</li> </ol>   |
|                     | Banking And Finance III                     | <ol style="list-style-type: none"> <li>To understand the Banking Regulation Act 1949 with Objectives and Selective Provisions.</li> <li>To Learn the Provisions of Negotiable Instruments Act, 1881</li> <li>To introduce the Objectives, Importance, Selective Definitions and provisions insolvency and Bankruptcy.</li> </ol>  |

### Faculty of Science

T.Y.B.Sc. - Chemistry



| Class                      | Course               | Course Outcomes  |
|----------------------------|----------------------|--|
| T.Y.B.Sc. Chemistry SEM. I | Physical Chemistry-I | <ol style="list-style-type: none"> <li>To know development of quantum mechanics in Chemistry</li> <li>To learn De Broglie hypothesis and the uncertainty principle</li> <li>To understand various operators like position , momentum &amp; energy</li> <li>Learn to solve Schrodinger equation</li> <li>Learn classic and quantum mechanics</li> </ol> |





|                                    |  |
|------------------------------------|--|
| Inorganic Chemistry - III          | <ol style="list-style-type: none"> <li>1. Understand concept of acid and base.</li> <li>2. Learn Crystal structure of solids</li> <li>3. Understand Born-Haber Cycle.</li> <li>4. Know Zeolite and their classification</li> <li>5. To learn methods and properties of Zeolite.</li> <li>6. To learn toxicity of chemicals on enzymes</li> </ol> |
| Organic Chemistry-II               | <ol style="list-style-type: none"> <li>1. Learn principles of various spectroscopy techniques.</li> <li>2. Learn to find correct structure of molecule</li> <li>3. Learn to draw structure of cyclohexane</li> <li>4. Interpret various spectra</li> <li>5. Understand geometrical isomers of decline</li> </ol>                                 |
| Organic Chemistry-III              | <ol style="list-style-type: none"> <li>1. Learn terms of retro synthesis</li> <li>2. Learn various name reactions</li> <li>3. Know oxidising and reducing agent</li> <li>4. Know the purification and synthesis of terpenoides</li> <li>5. Know purification and structure determination of alkaloids.</li> </ol>                                |
| Chemistry of oil and Agrochemicals | <ol style="list-style-type: none"> <li>1. Know soil and its components</li> <li>2. Learn problem and treatment of soil</li> <li>3. Know nutrient management of soil</li> <li>4. Increase awareness about pesticides among students</li> <li>5. Understand mode of action of pesticide</li> </ol>   |
| Analytical Chemistry-II            | <ol style="list-style-type: none"> <li>1. Learn various chromatography techniques</li> <li>2. Learn various parameters in analysis of sample.</li> <li>3. Know principles of solvent extraction</li> <li>4. Learn to solve problems related with analysis</li> <li>5. Design analytical procedure for given sample</li> </ol>                    |



#### T.Y.B.Sc. - Botany

| Class                 | Course | Course Outcomes   |
|-----------------------|--------|---|
| T.Y.B.Sc Semester V   | Botany | <ol style="list-style-type: none"> <li>1. BO 351: Understand the application, economical and biological importance of Algae and Fungi.</li> <li>2. BO 352: Understand the application, economical and biological importance of Bryophytes.</li> <li>3. BO 353: To study morphological, anatomical characters of Gymnosperm and Angiosperm &amp; understand the different classification systems of Gymnosperm and Angiosperm.</li> <li>4. BO 354: To study relationship between Plants &amp; Environment.</li> <li>5. BO 355: To study the cell structure, replication, transcription &amp; translation process.</li> <li>6. BO 356: To study inheritance &amp; gene structure as well function.</li> <li>7. BO 357: To gain practical knowledge about Algae, Fungi &amp; Bryophytes.</li> <li>8. BO 358: To gain practical knowledge about Angiosperms &amp; Plant-Environment relationship.</li> <li>9. BO 359: To gain practical knowledge about Cell structure &amp; Chromosome structure.</li> <li>10. BO 3510: To know about medicinal properties of plants.</li> <li>11. BO 3511: To know about plant diversity &amp; human health.</li> </ol> |
| T.Y.B.Sc. Semester VI | Botany | <ol style="list-style-type: none"> <li>1. BO 361: To study fundamental processes such as photosynthesis, Respiration, Stomatal biology, translocation in phloem, plant growth regulators etc.</li> <li>2. BO 362: To study various biomolecules like Amino acids, Proteins, Lipids, Fats etc.</li> <li>3. BO 363: To know about various plant diseases &amp; there preventions.</li> </ol>  |

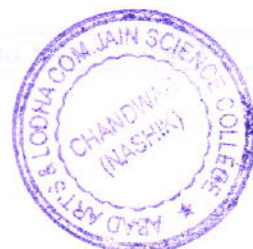
|  |  |   |
|--|--|---|
|  |  | <ol style="list-style-type: none"> <li>4. BO 364: To study about evolutionary process of various plant groups &amp; population genetics.</li> <li>5. BO 365: To study different techniques in biotechnology.</li> <li>6. BO 366: To study breeding techniques &amp; seed morphology as well as anatomy.</li> <li>7. BO 367: To gain practical knowledge about various metabolic processes &amp; biomolecules.</li> <li>8. BO 368: To gain practical knowledge about plant diseases, control measures &amp; evolutionary processes.</li> <li>9. BO 369: To gain practical knowledge about plant biotechnological tools &amp; breeding techniques.</li> <li>10. BO 3610: To know about nursery &amp; gardening managements.</li> <li>11. BO 3611: To know about benefits of bio fertilizers over chemical fertilizers.</li> </ol> |
|--|--|---|

### T.Y.B.Sc. - Mathematics

| Class                                  | Course Title                                     | Course Outcomes  |
|--|--|--|
| T.Y.B.Sc.<br>Mathematics<br>Semester I | MT:-351:<br><br>Metric<br>Spaces                 | <ol style="list-style-type: none"> <li>1. Understand the introductory concepts of metric spaces;</li> <li>2. Correlate these concepts to their counter parts in modern analysis by studying examples;</li> <li>3. Learn to analyze mappings between spaces.</li> <li>4. Attain background for advanced courses in real analysis, functional analysis, and topology.</li> <li>5. Appreciate the abstractness of the concepts such as open balls, closed balls, compactness, connectedness etc. beyond their geometrical imaginations.</li> </ol>  |
|  | MT- 352:<br><br>Real<br>Analysis-I               | <ol style="list-style-type: none"> <li>1. Learn the basic facts in logic and set theory</li> <li>2. Learn to define sequence in terms of functions from <math>\mathbb{N}</math> to a subset of <math>\mathbb{R}</math> and to understand several properties of the real line.</li> <li>3. Recognize bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate their limit superior, limit inferior, and the limit of a bounded sequence.</li> <li>4. Use the ratio, root, and alternating series and limit comparison tests for convergence and absolute convergence of an infinite series of real numbers.</li> </ol> |
|  | MT-353:<br>Group<br>Theory                       | <ol style="list-style-type: none"> <li>1. Recognize the mathematical objects that are groups, and classify them as abelian, cyclic and permutation groups, etc;</li> <li>2. Analyze consequences of Lagrange's theorem</li> <li>3. Learn about structure preserving maps between groups and their consequences.</li> <li>4. Explain the significance of the notion of cosets, normal subgroups, and factor groups.</li> </ol>  |
|  | MT-354:<br>Ordinary<br>Differential<br>Equations | <ol style="list-style-type: none"> <li>1. Understand the genesis of ordinary differential equations.</li> <li>2. Learn various techniques of getting exact solutions of solvable first order differential equations and linear differential equations of higher order.</li> <li>3. Grasp the concept of a general solution of a linear differential equation of an arbitrary order and also learn a few methods to obtain the general solution of such equations.</li> </ol>   |



|   |  |  |
|---|--|--|
|   | MT 355(A):<br>Operations<br>Research                         | <ol style="list-style-type: none"> <li>1. Analyze and solve linear programming models of real-life situations.</li> <li>2. The graphical solution of LPP with only two variables, and illustrate the concept of convex set and extreme points. The theory of the simplex method is developed.</li> <li>3. The relationships between the primal and dual problems and their solutions with applications to transportation, assignment and two-person zero-sum game problem.</li> </ol>  |
|   | MT-356 (C):<br>Laplace<br>Transform<br>and Fourier<br>Series | <ol style="list-style-type: none"> <li>1. The use of Laplace transform in system modeling, digital signal processing, process control.</li> <li>2. Solve an initial value problem for an nth order ordinary differential equation using the Laplace transform.</li> <li>3. Find the Fourier series representation of a function of one variable</li> </ol>   |
|   | MT -3510:<br>Programming<br>in Python –I                     | <ol style="list-style-type: none"> <li>1. The student will be able to explain basic principles of Python programming language.</li> <li>2. The student will implement object oriented concepts.</li> </ol>   |
|   | MT-3511:<br>LaTeX for<br>Scientific<br>Writing               | <ol style="list-style-type: none"> <li>1. Write a simple LaTeX input document based on the article class.</li> <li>2. Turn the input document into pdf with the pdf latex program.</li> <li>3. Format Words, Lines, and Paragraphs.</li> <li>4. Understand how to present data using tables.</li> </ol>  |
|   | MT - 361:<br>Complex<br>Analysis                             | <ol style="list-style-type: none"> <li>1. Understand the significance of differentiability of complex functions leading to the understanding of Cauchy-Riemann equations.</li> <li>2. Evaluate the contour integrals and understand the role of Cauchy-Goursat theorem and the Cauchy integral formula.</li> <li>3. Expand some simple functions as their Taylor and Laurent series, classify the nature of singularities, find residues and apply Cauchy Residue theorem to evaluate integrals.</li> <li>4. Represent functions as Taylor, power and Laurent series, classify singularities and poles, find residues and evaluate complex integrals using the residue theorem.</li> </ol> |
| T.Y.B.Sc.<br>Mathematics<br>Semester II | MT: 362<br>Real<br>Analysis-II                               | <ol style="list-style-type: none"> <li>1. Some of the families and properties of Riemann integrable functions, and the applications of the fundamental theorems of integration.</li> <li>2. Beta and gamma functions and their properties.</li> <li>3. Recognize the difference between point wise and uniform convergence of a sequence of functions.</li> <li>4. Illustrate the effect of uniform convergence on the limit function with respect to continuity, differentiability, and integrability.</li> </ol>   |
|   | MT: 363<br>Ring Theory                                       | <ol style="list-style-type: none"> <li>1. The fundamental concept of Rings, Fields, subrings, integral domains and the corresponding morphisms.</li> <li>2. Learn in detail about polynomial rings, fundamental properties of finite field extensions, and classification of finite fields.</li> <li>3. Appreciate the significance of unique factorization in rings and integral domains.</li> </ol>  |
|   | MT 364:<br>Partial<br>Differential<br>Equations              | <ol style="list-style-type: none"> <li>1. Formulate, classify and transform partial differential equations into canonical form.</li> <li>2. Solve linear partial differential equations using various methods and apply these methods in solving some physical problems.</li> <li>3. Solve Laplace equations using various analytical methods</li> </ol>   |





|  |   |
|--|---|
| MT 365(B):<br>Calculus of<br>Variation and<br>Classical<br>Mechanics | <ol style="list-style-type: none"> <li>1. Understand problems, methods and techniques of calculus of variations.</li> <li>2. Understand necessary conditions for the equilibrium of particles acted upon by various forces and learn the principle of virtual work for a system of coplanar forces acting on a rigid body.</li> <li>3. Deal with the kinematics and kinetics of the rectilinear and planar motions of a particle including the constrained oscillatory motions of particles.</li> <li>4. Determine the center of gravity of some materialistic systems and discuss the equilibrium of a uniform cable hanging freely under its own weight.</li> </ol> |
| MT- 366(B):<br>Computational<br>Geometry                             | <ol style="list-style-type: none"> <li>1. Construct algorithms for simple geometrical problems.</li> <li>2. Characterize invariance properties of Euclidean geometry by groups of transformations.</li> <li>3. Describe and construct basic geometric shapes and concepts by computational means.</li> </ol>  |
| MT-3610:<br>Programming<br>in Python – II                            | <ol style="list-style-type: none"> <li>1. Demonstrate the use of Python in Mathematics such as operations research and computational Geometry etc.</li> <li>2. Study graphics and design and implement a program to solve a real world problem.</li> <li>3. The students will implement the concepts of data with python and database connectivity.</li> </ol>  |

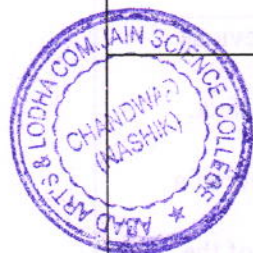
#### T.Y.B.Sc. – Zoology

| Class                          | Course   | Course Outcomes   |
|--------------------------------|--|---|
| T.Y.B.Sc.<br>Zoology<br>Sem. V | Paper I: Pest<br>Management<br>Code: ZO 351                        | <ol style="list-style-type: none"> <li>1. Define pest management.</li> <li>2. Describe the economic, ecological, and sociological benefits of IPM.</li> <li>3. Distinguish positive and negative impacts of pesticide use.</li> </ol>   |
|                                | Paper II:<br>Course Title:<br>Histology<br>Course Code:<br>ZO 352  | <ol style="list-style-type: none"> <li>1. The students will be able to understand, classify and identify the different types of tissue.</li> <li>2. The students will understand the complexity of various tissues The students will be able to learn structure &amp; functions of various tissues.</li> <li>3. The students will understand the various diseases related to organs.</li> </ol>   |
|                                | Course Title:<br>Biological<br>Chemistry<br>Course code:<br>ZO 353 | <ol style="list-style-type: none"> <li>1. To understand the basic concepts and significance of biochemistry.</li> <li>2. To understand the basic concepts pH and Buffers</li> <li>3. To understand the chemical structures of carbohydrate, and their biological and clinical significance.</li> <li>4. To understand the structure and importance of proteins and lipids</li> </ol>  |
|                                | Course Title:<br>Parasitology<br>Course code:<br>ZO 356            | <ol style="list-style-type: none"> <li>1. The students will be able to learn basics and scope of parasitology.</li> <li>2. The students will be able to learn the types of host and parasite with examples.</li> <li>3. Effectively using the six levels of classification.</li> <li>4. The students will be able to learn about the morphology, life cycle, pathogenicity and treatment of common parasites (Protists and Platyhelminthes).</li> </ol> |

#### T.Y.B.Sc. – Physics

| Class | Course | Course Outcomes |
|-------|--------|-----------------|
|-------|--------|-----------------|

|                        |  |   |
|------------------------|--|---|
| T. Y. B. Sc.<br>Sem. V | PH 351)<br>Mathematical<br>Methods in<br>Physics II<br>(Paper I)<br>(2 credit) | <ol style="list-style-type: none"> <li>1. Introduction of Cartesian, Spherical polar and cylindrical coordinate systems.</li> <li>2. Introduction to postulates of special relativity, Lorentz transformation and its applications</li> <li>3. Understand and to get solution of the ODE &amp; singular differential equations in physics using separation of variables and power series solutions. .</li> <li>4. To study special functions their recurrence relations and properties.</li> </ol>                    |
|                        | (PH 352)<br>Electrodynamics (paper II)<br>(2 credit)                           | <ol style="list-style-type: none"> <li>1. The outcome of this course is to understand the covariant formulation of electrodynamics to explore the unification of electricity and magnetism..</li> <li>2. Origin of the electromagnetic radiation by an accelerating charge particle: Its applications to linear and circular accelerators.</li> <li>3. Understanding of the scattering of electromagnetic wave by free and bound electron.</li> </ol>   |
|                        | (PH 353)<br>Classical<br>Mechanics<br>(paper III)<br>(2 credit)                | <ol style="list-style-type: none"> <li>1. Training the students of B. Sc. class in the Mechanics of the particles.</li> <li>2. Lagrangian and Hamiltonian formalisms to a scope that they can use these in the modern branches.</li> <li>3. Understanding of Central force, Reduction of two body problem into equivalent one body problem, Motion in inverse square law force field and to state Kepler's laws.</li> <li>4. To understand Canonical transformation and Poisson's bracket.</li> </ol>                 |
|                        | ((PH 354)<br>Atomic and<br>Molecular<br>Physics (Paper<br>IV) (2 credit)       | <ol style="list-style-type: none"> <li>1. Describe the latest vector atom model and drawbacks of previous models.</li> <li>2. Two valence electron system, LS and JJ coupling schemes.</li> <li>3. Know and understand the normal and anomalous Zeeman Effect, Paschen Back and Stark effect.</li> <li>4. Studying the X-Ray and characterization by using X-Ray.</li> <li>5. To study Molecular and Raman Spectroscopy</li> </ol>  |
|                        | (PH 355)<br>Computational<br>Physics<br>(Paper V)<br>(2 credit)                | <ol style="list-style-type: none"> <li>1. To understand fundamentals of C languages.</li> <li>2. Develop algorithm/flowcharts for problem solving &amp; writing programs.</li> <li>3. Learn to use functions, arrays, pointers and file handling in C language.</li> <li>4. Identify different errors in computation and how to overcome it like round off, numerical systematic, inherent, etc.</li> <li>5. To develop C programs for finding root of equation using Bisection and Newton Raphson method.</li> </ol> |
|                        | (PH 356)<br>Elective 1 (D)<br>Renewable<br>Energy Sources<br>I<br>(Paper VI)   | <ol style="list-style-type: none"> <li>1. To study conventional and non-conventional energy resources.</li> <li>2. Structure of sun, solar radiation outside and on earth.</li> <li>3. Instruments to study solar energy like Liquid flat plate collector, solar cooker, solar heater, solar dryer, etc.</li> <li>4. Study of Biogas and principle of bio digestion</li> <li>5. To understand the future scope of renewable energy sources.</li> </ol>  |
|                        | (PH 357)<br>Physics<br>Laboratory 3-A<br>(Paper VII)                           | <ol style="list-style-type: none"> <li>1. To study about pendulum and do experiment on Kater's Pendulum.</li> <li>2. To find the Young's Modulus by Koenig method.</li> <li>3. To perform experiment on surface tension hence find surface tension of mercury by ripple method</li> <li>4. Study of forced oscillations by electromagnetically driven simple pendulum</li> <li>5. Laboratory course deals with the experiments based on fundamental concepts in Physics.</li> </ol>                                   |



|                         |   |  |
|-------------------------|---|--|
| T. Y. B. Sc.<br>Sem. V  | (PH 358)<br>Physics<br>Laboratory 3-B<br>(Paper VIII)<br>(2 credit)             | <ol style="list-style-type: none"> <li>1. To study charging and discharging of capacitor and hence find the time constant.</li> <li>2. To perform experiment on diode and hence find the IV characteristic of diode</li> <li>3. To understand the C- Programming by performing experiment.</li> <li>4. To study numerical based computational physics.</li> </ol>  |
|                         | (PH 359)<br>Project -I (Paper IX)<br>(2 credit)                                 | <ol style="list-style-type: none"> <li>1. Project gives free hand to student to work in any physics subject to carry</li> <li>2. It is intended to develop a set of skills pertaining to the laboratory work apart from the cognition of students</li> </ol>   |
|                         | Skill enhancement course PHY-3510(H) Energy studies<br>(2 credit)               | <ol style="list-style-type: none"> <li>1. Students become capable of conducting energy audits and give consultancy in that field.</li> <li>2. Students can design different types of solar heaters for small domestic as well as large scale community level applications.</li> <li>3. Students get ideas and hence become self-employed in the field of design , production, commissioning and implementation of bio-mass energy sources , bio-gas plants, gasifiers, wind mills, hybrid systems etc.</li> <li>4. Students can go for research in the fields of super-capacitors, battery technologies, fuel cells and material synthesis for implementation of these technologies.</li> <li>5. Students acquire skills to implement solar P-V systems at domestic levels as well as for office premises and educational institutions. Students become able to start their own enterprise in net metering.</li> </ol> |
|                         | Skill enhancement course PHY-3511(K) Physics Workshop Skill<br>2 credit         | <ol style="list-style-type: none"> <li>1. After completion of this course students will able to handle and test various instruments.</li> </ol>  |
| T. Y. B. Sc.<br>Sem. VI | (PH 361) Solid State Physics<br>(Paper I)<br>(2 credit)                         | <ol style="list-style-type: none"> <li>1. Have a basic knowledge of crystal systems and spatial symmetries..</li> <li>2. Be able to perform structure determination of simple structures by XRD and Characterization techniques like TGA, UV- VIS and SEM.</li> <li>3. Know Bloch's theorem and origin of energy bands which distinguish between metal, semiconductor and insulator.</li> </ol>  |
|                         | (PH 362)<br>Quantum mechanics<br>(Paper II) (2 credit)                          | <ol style="list-style-type: none"> <li>1. Show an understanding of wave mechanics.</li> <li>2. Know the concept of operators in quantum mechanics.</li> <li>3. Perform calculations on wave functions, and solve the Schrödinger equation for simple potential problems.</li> <li>4. Apply Schrodinger's equation in Hydrogen atom.</li> <li>5. Describe the structure of the hydrogen atom and show an understanding of quantization of angular momentum.</li> </ol>  |
|                         | (PH 363)<br>Thermodynamics and Statistical Physics<br>(Paper III)<br>(2 credit) | <ol style="list-style-type: none"> <li>1. Describe the latest vector atom model and drawbacks of previous models, and Statistical Physics.</li> <li>2. Know and understand the normal and anomalous Zeeman effect, Paschen Back effect and Stark effect.</li> <li>3. Define and discuss the concepts of microstate and macrostate of a model system.</li> <li>4. Define and discuss the Boltzmann distribution and the role of the partition function.</li> </ol>  |



|                         |   |   |
|-------------------------|---|---|
| T. Y. B. Sc.<br>Sem. VI | (PH 364)<br>Nuclear<br>Physics<br>(Paper IV)<br>(2 credit)                          | <ol style="list-style-type: none"> <li>1. Understand the fundamental principles and concepts governing nuclear and particle physics.</li> <li>2. Demonstrate knowledge and understanding of scientific and technological applications, of Nuclear Physics as well as their social, economic and environmental applications.</li> <li>3. Demonstrate comprehension of physical reality through estimation, approximation, and mathematical modeling, and understand how small number fundamental physical principles underlie a huge variety of interconnected natural phenomena.</li> </ol> |
|                         | (PH 365)<br>Electronics /<br>Advanced<br>Electronics<br>(Paper V)<br>(2 credit)     | <ol style="list-style-type: none"> <li>1. Electronics is nothing but efficient applications of semiconductor materials.</li> <li>2. Here students learn various electronic devices with fundamental and application point of view.</li> <li>3. Define and discuss Algebraic and K-map simplification methods. Implementation of Boolean equation.</li> <li>4. Be able to explain Flip-Flop (RS, JK, T and D) i. e combinational logic circuits adder and subtractions.</li> </ol>   |
|                         | (PH 366)<br>Elective<br>Renewable<br>Energy Sources<br>II (Paper VI)                | <ol style="list-style-type: none"> <li>1. Introduction to Bioenergy.</li> <li>2. To study wind energy and its applications.</li> <li>3. To study the energy management system.</li> </ol>   |
|                         | (PH 367)<br>Physics<br>Laboratory 4-A<br>(Paper VII)                                | <ol style="list-style-type: none"> <li>1. To study sound absorption.</li> <li>2. To study Hall Effect and measure Hall coefficient.</li> <li>3. To study platinum resistance thermometer.</li> <li>4. To study thermal conductivity of rubber tube.</li> <li>5. To study characteristics of radiations and detectors.</li> </ol>  |
|                         | (PH 368)<br>Physics<br>Laboratory 4-B<br>(Paper VIII)<br>(2 credit)                 | <ol style="list-style-type: none"> <li>1. To study characteristics of JFET.</li> <li>2. To design and built AS table multivibrator.</li> <li>3. To study Schmitt trigger.</li> <li>4. To study LVDT and interference by Quinck's method.</li> <li>5. Laboratory course deals with the experiments based on fundamental concepts in Physics.</li> </ol>  |
|                         | (PH 369)<br>Project -II<br>(Paper IX)   | <ol style="list-style-type: none"> <li>1. Project gives free hand to student to work in any physics subject to carry.</li> <li>2. It is intended to develop a set of skills pertaining to the laboratory work apart from the cognition of students.</li> </ol>  |
|                         | PHY-3610(V)<br>Solar PV<br>System:<br>Installation,<br>Repairing and<br>Maintenance | <ol style="list-style-type: none"> <li>1. Learn basics of light conversion in electricity.</li> <li>2. Hands on training will motivate to use Solar PV system.</li> <li>3. Become entrepreneur / self-employed.</li> <li>4. Participants will learn about solar PV module and batteries used in solar PV plant</li> </ol>   |
|                         | PHY-3611(Z)<br>Instrumentation<br>for Agricultural                                  | <ol style="list-style-type: none"> <li>1. Able to test soil and water parameters.</li> <li>2. Able to develop their own juice extract plant.</li> <li>3. Able to develop their own green house.</li> </ol>  |



T.Y.B.Sc. Electronics

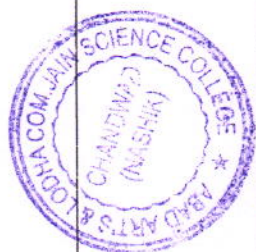
| Class | Course Title | Course Outcomes |
|-------|--------------|-----------------|
|-------|--------------|-----------------|

|                            |   |   |
|----------------------------|---|---|
| T. Y. B. Sc.<br>Semester-I | EL 351:<br>Paper I:<br>Digital<br>Design using<br>VERILOG                   | <ol style="list-style-type: none"> <li>1. Know and understand structure of HDL and Verilog.</li> <li>2. Understand different modeling styles in Verilog.</li> <li>3. Use Verilog effectively for simulation, verification and synthesis of digital system.</li> <li>4. Understand basics of programmable logic devices.</li> </ol>  |
|                            | Paper II: Micro<br>controller<br>Architecture &<br>Programming              | <ol style="list-style-type: none"> <li>1. Understand the basics of microcontroller.</li> <li>2. Acquire basic programming skills in C language.</li> <li>3. Understand and acquire basic programming skills for AVR microcontroller.</li> </ol>   |
|                            | EL 353:<br>Paper III:<br>Analog circuit<br>Design and<br>Applications       | <ol style="list-style-type: none"> <li>1. Understand basics of analog circuit design.</li> <li>2. Analyze waveform generators required for testing different circuits.</li> <li>3. Build application circuits using specialized ICs.</li> <li>4. Design analog systems using available ICs.</li> </ol>  |
|                            | EL 354:<br>Paper IV:<br>Nano<br>Electronics                                 | <ol style="list-style-type: none"> <li>1. Understand basic concepts of nano electronic devices and nano technology.</li> <li>2. Understand the electron transport mechanism in nanostructures.</li> <li>3. Understand techniques of characterization of nanostructures.</li> <li>4. Understand different devices constructed using nanotechnology.</li> </ol>   |
|                            | EL 356(A):<br>Paper VI(A):<br>Optics and<br>Fiber Optic<br>Communication    | <ol style="list-style-type: none"> <li>1. To acquire Knowledge of optical fiber communication system.</li> <li>2. To understand different parameters of optical fibers.</li> <li>3. To learn essential optical components of Fiber Optic Communication.</li> <li>4. To analyze and integrate fiber optical network components in variety of networking schemes.</li> </ol>  |
|                            | EL 357:<br>Paper VII:<br>Practical<br>Course I                              | <ol style="list-style-type: none"> <li>1. Analyze different design and test procedures for analog circuits and systems.</li> <li>2. Measure different parameters of optical fiber communication systems</li> <li>3. Understand importance of product design and entrepreneurship.</li> <li>4. Develop electronic systems for given application</li> </ol>   |
|                            | EL 358:<br>Paper VIII:<br>Practical<br>Course II                            | <ol style="list-style-type: none"> <li>1. Develop and simulate design digital systems using Verilog.</li> <li>2. Design and develop AVR microcontroller based systems.</li> <li>3. Understand different nano electronic devices.</li> <li>4. Inculcate basic skills required for design and development of embedded systems.</li> </ol>   |
|                            | EL 359:<br>Paper IX:<br>Practical<br>Course<br>III(Project)                 | <ol style="list-style-type: none"> <li>1. Understand basic methodology of selection of topic for project.</li> <li>2. Understand how to do literature review for selected topic for project.</li> <li>3. Apply the knowledge for design and development of the selected project.</li> <li>4. Use different software and hardware for testing, validation and verification of circuits for successful outcome of project</li> <li>5. Understand documentation process in the form of presentation and project report</li> <li>6. Understand process of systematic development of electronic system and Development of skills for successful outcome</li> </ol> |
|                            | ELSEC 351:<br>Paper X: SEC1:<br>Electronic<br>Design<br>Automation<br>Tools | <ol style="list-style-type: none"> <li>1. Design the electronics circuits using EDA software tools</li> <li>2. Simulate various analog and digital circuits using EDA software tools</li> <li>3. Plot various waveforms.</li> <li>4. Simulate basic electronic system blocks</li> </ol>   |





|                             |   |   |
|-----------------------------|---|---|
|                             | ELSEC 352:<br>Paper XI: SEC2:<br>Internet of Thing<br>and Applications          | <ol style="list-style-type: none"> <li>1. Know the basic building blocks of IoT</li> <li>2. Know IoT protocols</li> <li>3. Understand how to Design and Develop IoT based system through case studies.</li> </ol>   |
| T. Y. B. Sc.<br>Semester-II | EL 361:<br>Paper I:<br>Modern<br>Communication<br>Systems                       | <ol style="list-style-type: none"> <li>1. Understand the digital modulation techniques.</li> <li>2. Understand different types of pulse modulation techniques.</li> <li>3. Describe the evolution and importance of Mobile communication and cellular communication</li> <li>4. Know the basics of satellite communication systems.</li> </ol>  |
|                             | EL 362:<br>Paper II:<br>Embedded<br>System Design<br>using Micro<br>controllers | <ol style="list-style-type: none"> <li>1. Understand features and architecture of PIC microcontroller.</li> <li>2. Demonstrate how to interface PIC microcontroller with different peripherals</li> <li>3. Understand features and architecture of ARM microcontroller.</li> <li>4. Demonstrate embedded system using given microcontroller.</li> </ol>   |
|                             | EL 363:<br>Paper III:<br>Industrial<br>Electronics                              | <ol style="list-style-type: none"> <li>1. Understand basics of semiconductor power devices.</li> <li>2. Analyze basic power electronics circuits and demonstrate applications.</li> <li>3. Understand basics of motor control.</li> <li>4. Understand basics of Electric Vehicle systems</li> </ol>   |
|                             | EL 364:<br>Paper IV:<br>Manufacturing<br>Processes for<br>Electronics           | <ol style="list-style-type: none"> <li>1. Understand basics of Passive Electronic Component Manufacturing Processes</li> <li>2. Understand process involved in PCB manufacture and Modern Circuit Assembly</li> <li>3. Know about the Semiconductor Device IC Fabrication Process</li> </ol>  |
|                             | EL 365:<br>Paper V:<br>Process<br>Control<br>Systems                            | <ol style="list-style-type: none"> <li>1. Familiar with different types of sensors and related systems</li> <li>2. Know different types of measurement systems.</li> <li>3. Understand control parameters in process automation</li> <li>4. Understand different types of process control systems and their characteristics.</li> </ol>   |
|                             | EL 366 (A):<br>Paper VI<br>(A) : PLC and<br>SCADA                               | <ol style="list-style-type: none"> <li>1. Know about the basics of programmable logic controllers and their components</li> <li>2. Demonstrate PLC programming using ladder programming.</li> <li>3. Develop PLC based systems by programming different components in PLC.</li> </ol>   |
|                             | EL 366 (B):<br>Paper VI (B):<br>Sensors<br>and Systems                          | <ol style="list-style-type: none"> <li>1. Understand basic principles and types of different sensors</li> <li>2. Understand basic principles and types of actuators.</li> <li>3. Know about signal conditioning systems for sensors.</li> </ol>   |
|                             | EL 367:<br>Paper VII:<br>Practical<br>Course I                                  | <ol style="list-style-type: none"> <li>1. Demonstrate power electronic circuits.</li> <li>2. Demonstrate different types of digital communication systems</li> <li>3. Understand working principles of different power devices and their characteristics</li> </ol>   |
|                             | EL 368:<br>Paper VIII:<br>Practical<br>Course II                                | <ol style="list-style-type: none"> <li>1. Design embedded systems using PIC microcontroller.</li> <li>2. Design embedded systems using ARM microcontroller.</li> <li>3. Demonstrate PLC SCADA using ladder programming.</li> <li>4. Design and develop sensor systems for different applications.</li> </ol>  |
|                             | EL 369:<br>Paper IX:<br>Practical<br>Course III<br>(Project)                    | <ol style="list-style-type: none"> <li>1. Understand basic methodology of selection of topic for project.</li> <li>2. Understand how to do literature review for selected for project.</li> <li>3. Apply the knowledge for design development of the Project</li> <li>4. Use different software and hardware for testing, validation and verification of circuits for successful outcome of project</li> <li>5. Understand documentation in the form of presentation of project.</li> </ol> |



|   |  |   |
|---|--|---|
|   |  | 6. Understand process of systematic development of electronic system and Development of skills for successful outcome   |
| ELSESEC 361:<br>Paper X SEC1:<br>Design of<br>Printed<br>Circuit Boards |  | <ol style="list-style-type: none"> <li>1. Understand basics of PCB.</li> <li>2. Know about the PCB design technology.</li> <li>3. Know about different soldering techniques.</li> </ol>   |
| ELSESEC 362:<br>Paper XI:SEC2<br>Mobile<br>Application<br>Development   |  | <ol style="list-style-type: none"> <li>1. Understand basics of Mobile application development.</li> <li>2. Develop ability to work in android development environment.</li> <li>3. Design and develop mobile applications.</li> </ol> |



**PRINCIPAL**

K.K.H.A. Art's, S.M.G.L. Comm.  
& S.P.H.J. Science College,  
Chandwad Dist. Nashik.