



Shri Shivaji Education Society Amravati's  
**SHRI SHIVAJI SCIENCE AND ARTS COLLEGE**  
**Chikhli, Dist. Buldana- 443201.**  
NAAC Reaccredited with 'B++' Grade (CGPA 2.82)  
**ISO: 9001-2015**

**Dr. Omraj S. Deshmukh**  
**Principal**

**Hon'ble Shri Harshvardhan P. Deshmukh**  
**President**

**1.3.1 Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum**

## **Content**

### **Syllabus**

- Syllabus on Professional Ethics,
- Syllabus on Gender Sensitization
- Syllabus on Human Values
- Syllabus on Environment and Sustainability

**Activities Conducted for the address cross cutting issues relevant to**

- Environment and Sustainability,
- Gender Sensitization
- Human Values
- Professional Ethics



  
**Dr. Omraj S. Deshmukh**  
**Principal**  
Shri Shivaji Sci. & Arts  
College, Chikhli, Dist. Buldana

**Syllabus on  
Professional Ethics**

## Criterion – I- Curricular Aspects [QIM – 1.3.1]

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प्रा.लांजेवार, गुल्हाने, कडु : लेखाकर्म भाग-१ ; संगम प्रकाशन.

नाथ, लांजेवार, भागवत : उच्च लेखाकर्म भाग-१ ; महाराष्ट्र राज्य ग्रंथ निर्मिती मं.

प्रा.ए.एस.उखळकर : उच्च लेखाकर्म भाग-१ ; विद्या प्रकाशन.

रोडे, स्मार्थ, ढोन्बरे : प्रथम वर्ष जमाखर्च - खंड १ ; एस.चांद कं.लि.

### (III) PRINCIPLES OF BUSINESS MANAGEMENT

**TIME : 3 Hours**

**Marks : 70**

**Objective-** To develop the basic managerial skills among the students to face domestic as well as global business challenges.

#### **Unit I: INTRODUCTORY**

- 1.1 Business – Meaning, Nature, Scope & objectives.
- 1.2 Management Concept – Nature, Importance and Process.
- 1.3 Managerial Role & its importance.
- 1.4 Development of Management Science- F. W. Taylor, Fayol's Contributions.

#### **Unit II: PLANNING**

- 2.1 Planning- Concept & process.
- 2.2 Types of Planning.
- 2.3 Strategic planning- Meaning and Formulation.
- 2.4 Decision Making- Definition & process.

#### **Unit III: ORGANIZING**

- 3.1 Organizing- Concept & nature.
- 3.2 Authority and Responsibility.
- 3.3 Centralization & Decentralization- Concept, Advantages & Disadvantages.
- 3.4 Organization structure- Forms and contingency factors.

#### **Unit IV : DIRECTING**

- 4.1 Motivation - Meaning, Importance, Type of Motivation, Maslow theory.
- 4.2 Incentive- Concept, Financial and Non financial Incentives.
- 4.3 Moral - Meaning and importance.
- 4.4 Communication- Meaning, Verbal and Non verbal Communication, Barriers to communication.

#### **Unit V : CONTROLLING**

- 5.1 Concept and process of control.
- 5.2 Techniques of controls.
- 5.3 Effective Control Systems
- 5.4 Leadership- Concept, Theories and style.



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- \* William Pickles : Accountancy.
- \* A. Mukherjee, M. Hanif : Modern Accountancy ; Tata McGraw Hill Publishing Co. Ltd.
- \* P.C.Tulsian : Accountancy ; Tata McGraw Hill Publishing Co. Ltd.
- \* Monga, Gandhi, Kadu : Advanced Accounts ; National Publishing House.
- \* S. Chakravorti : Advanced Accounting.
- \* Fundamentals of Accounting : R.L.Gupta & V.K.Gupta, Sultanchand & Sons.
- \* Fundamentals of Accounting : T.P.Ghosh, Sultanchand & Sons.
- \* Financial Accounting : Payal Prakashan, Nagpur
- \* Financial Accounting : V.R.Mohota, Rashi publication, Arni, Distt. Yavatmal.
- \* Financial Accounting : Dr.Gajanan Patil, Dr.Shakil Sattar, Dr.Anil Bhawsar, Dr.Dattatraya Gujrathi-Das Ganu Prakashan, Nagpur
- \* Financial Accounting : Dr.Kanetkar Medha, Dr. Baheti D.R.- Shri Sainath Prakashan, Nagpur.
- \* Financial Accounting : L.N. Chopde, D.H. Choudhary, Dr. Raju, L. Rathi, Sheth Publishers Pvt. Ltd., Mumbai-31

### हिन्दी

रूपराम गुप्त, विद्यासरन गुप्त : एडवांस्ड एकाउन्टेन्सी; आगरा बुक स्टोअर्स.  
 डॉ. एस.एम.शुक्ला : अडव्हान्स अकौन्टेन्सी.  
 सक्सेना, वैश्य : उच्च लेखाकर्म  
 डॉ.एम.पी.खंडेलवाल : उच्चतक लेखाकर्म.  
 ए.एन.अग्रवाल : उच्चतर लेखाविज्ञान.  
 जे.के.अग्रवाल : बृहत लेखाकर्म.  
 गुप्ता, अग्रवाल : एडवान्सड एकाउन्ट्स; एस.चान्द.

### मराठी

डॉ. शुक्ल, डोंगरे, मोहता : लेखा तत्व आणि व्यवहार ; पिंपळापुरे अँड कं. पब्लिशर्स, नागपुर.  
 प्रा. अरविंद शेंडे, प्रा.अब्दुल बारी : वित्तीय लेखांकन भाग-१ ; अनुराधा प्रकाशन, नागपुर.  
 प्रा. अरविंद शेंडे, प्रा.अब्दुल बारी : आर्थिक लेखांकन भाग-१ ; अनुराधा प्रकाशन, नागपुर.  
 गजानन पाटील, भरत मेघे, विलास चोपडे : आर्थिक लेखांकन ; दत्त सन्स, सदर, नागपुर.  
 प्रा.भ.नी.गर्गे, प्रा.वि.द.पेंढारकर, ज.अ.पाध्ये : उच्च लेखाकर्म ; मंगेश प्रकाशन.



- 1.2 Accounting Transactions : Classification of Accounts, Rules of debit & credit, Journal & ledger, Rules regarding posting and balancing of ledger Account, Sub-division of Journal, Trial Balance.
- Unit-II** 2.1 Final Accounts of Individuals: Manufacturing Account, Trading Account, Profit and loss Account, Balance sheet with adjustments.
- 2.2 Rectification of errors : Types of errors, Rectification entries and suspense Account.
- Unit-III** 3.1 Depreciation Methods : Concepts of depreciation, Different methods of depreciation. Problem on-
- I) Straight line Method.
- II) Reducing Balance Method.
- 3.2 Accounts of Non-trading Institutions.
- Unit-IV** 4.1 Special Accounting areas : Accounts of Co-operative Societies.
- 4.2 Accounting for Agriculture farms.
- Unit-V** Insolvency Account of and individuals : Law's of insolvency- Provisions for preferential creditors, Meaning of insolvency, Procedure of insolvency, Problems on Insolvency Accounts.

#### BOOKS RECOMMENDED

- \* Anthony, R. N. and Reece, J. S. : Accounting Principles; Richard Irwin Inc.
- \* Gupta, R. L. and Radhaswamy, M : Financial Accounting; Sultan Chand and Sons. New Delhi.
- \* Monga J. R. Ahuja Girish, and Sehgal Ashok : Financial Accounting; Mayur Paper Back, Noida.
- \* Shukla, M. C., Grewal T.S., and Gupta, S. C. : Advanced Accounts ; S Chand & Co New Delhi.
- \* Compendium of Statement and Standards of Accounting ; The Institute of Chartered Accountants of India, New Delhi.
- \* Agarwala A. N., Agarwala K. N. : Higher Sciences of Accountancy ; Kitab Mahal, Allahabad. (Hindi and English)
- \* Ashok Banerjee : Financial Accounting ; Excel Books, New Delhi – 110028.
- \* N. Vinayakam, P.L.Mani, K.L.Nagarajan : Principles of Accountancy ; Eurasia Publishing House (Pvt.) Ltd., New Delhi – 110 055.
- \* R.R.Gupta : Advanced Accountancy.
- \* Jain, Narang (Kalyanipulli) : Advanced Accountancy.



Marginal Productivity theory and demand factors:  
Nature of supply of factors inputs.

5.2 B) **WAGES:**

Determination of wage rates under perfect competition and monopoly. Exploitation of Labour.

5.3 C) **RENT:**

Concept, Ricardian and Modern Theories of Rent: Quasi-Rent.

5.4 D) **INTEREST:**

Concept and Time preference, Loanable funds and Liquidity Preference Theory of Interest.

5.5 E) **PROFIT:**

Concepts and dynamic and risk bearing theory of Profit

**BOOKS RECOMMENDED:**

1. Ahuja H.L. : Business Economics : S.Chand & Co.New Delhi.
2. Business Economics : Pimpalkar, Bapat, Joshi, Orient-Longmans.
3. Koustsoyianni A Modern Micro Economics: Macmillan New Delhi.
4. अर्थशास्त्राचे सिध्दांत - प्रा.जी.एन्.झामरे, पिंपळापूर प्रकाशन.
5. व्यावसायिक अर्थशास्त्र - डॉ.रा.य.माहोरे, अंशुल पब्लिकेशन, नागपूर.
6. अर्थशास्त्राचे सिध्दांत - जोशी, सिंग, श्रीवास्तव, जयपूर.
7. आधुनिक सूक्ष्मअर्थशास्त्र - के.पी.एम्.सुंदरम्.
8. व्यावसायिक अर्थशास्त्र - प्रा.एच.आर.तिवारी, डॉ.के.के.पाटील, डॉ.बी.बी.तायवाडे आणि वाय.पी.सिंग : अद्वैत प्रकाशन, अकोला.
9. Business Economics : Dr.Sudhir Bodhankar, Dr.Medha Kanetkar, Shri Sainath Prakashan, Nagpur.
10. Business Economics : Dr. (Mrs.) Pushpa Tayade- Shree Mangesh Prakashan , Ramdaspath, Nagpur-10.
11. Business Economics (English Edition ):Dr.G.N. Zamare-Pimpalapur & Co. Publishers, Nagpur.
12. व्यावसायिक अर्थशास्त्र (मराठी आवृत्ती) :डॉ.जी.एन्.झामरे-Pimpalapur & Co. Publishers, Nagpur.

**(ii) FINANCIAL ACCOUNTING**

Time : 3 Hours

Marks : 70

**Objective:** To impart basic Accounting knowledge as applicable to business.

**Unit-I 1.1** Meaning and scope of Accounting Need, development and definition of Book keeping and Accounting, Branches of Accounting, Objective of Accounting, Accounting principles, concepts and conventions.



**Unit-II: DEMAND:**

- 2.1 Law of Demand, Elasticity of Demand :
- 2.2 Concept, Importance and Measurement of Elasticity of Demand.
- 2.3 Determinants of Elasticity of Demand.
- 2.4 Average Revenue, Marginal Revenue and Elasticity of Demand.
- 2.5 Price income and cross Elasticities.
- 2.6 Concept and Characteristics of Indifference Curve.

**Unit-III: PRODUCTION FUNCTION:**

- 3.1 Law of Variable Proportions.
- 3.2 Concept of ISO-quants.
- 3.3 Economic regions and optimum factor Combination.
- 3.4 Internal and External economics and diseconomies.

**THEORY OF COST:**

- 3.5 Short-run and long-run cost curves.
- 3.6 Traditional and Modern approaches.

**Unit-IV : MARKET STRUCTURES:**

- 4.1 Meaning & classification of Markets.  
Decisions of Business.
- 4.2 A) **Perfect Competition :**  
Meaning and Characteristics.
- 4.3 B) **Monopoly :** Determination of price under monopoly.  
Equilibrium of a firm, Comparison between competition and monopoly. Multi-plant monopoly.  
Price discrimination, Practical applications,
- 4.4 C) **Monopolistic Competition :**  
Meaning and characteristics, Price and output determination under monopolistic competition.  
Product differentiations selling cost, Comparison with perfect competition. Excess capacity under monopolistic competition.
- 4.5 D) **Oligopoly:**  
Characteristics, indeterminate pricing and output.  
Classical Models of Oligopoly; Price leadership;  
Collusive Oligopoly; Kinked demand curve.

**Unit-V: 5.1 A) FACTOR PRICING:**



**Distribution of Marks**

**Unit-I Practical English prose and verse – edited by G.E.B. COE**

- |   |          |
|---|----------|
| Q. 1) Long Answer Questions             | 10 Marks |
| (One to be attempted out of two)        |          |
| Q. 2) Short Answer Questions            | 15 Marks |
| (Any three to be attempted out of five) |          |

**Unit-II**

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|-----------------------------------|----------|
| Q. 3) Poetry section              | 20 Marks |
| Short Answer Question             |          |
| (Four to be attempted out of Six) |          |

**Unit-III**

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|-----------------------|---------|
| Q. 4) Precis Writing. | 5 Marks |
|-----------------------|---------|

**Unit-IV**

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|--|---------|
| Q. 5) Comprehension of an unseen passage | 5 Marks |
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**Unit-V**

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|---|----------|
| Q. 6) An essay of about 250 words to be attempted out of the given five Topics. | 15 Marks |
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70 Marks

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**2. COMMERCE DISCIPLINE**

**(i) BUSINESS ECONOMICS**

Time:3 Hours

Marks : 70

**Unit-I : NATURE AND SCOPE OF ECONOMICS :**

- 1.1 Definition of Economics : Adam Smith, Marshall, Robbins & J.K. Mehata.
- 1.2 Nature of Economic Law Types, Limitations and importance.
- 1.3 Micro & Macro Economics, Meaning, Merits and Demerits.
- 1.4 Managerial Economics: Concept and objectives.
- 1.5 Basic problems of an Economy.
- 1.6 Working of Price Mechanism

**Reference books:**

- \* Management Concept and Practices, by Manmohan Prasad, Himalaya Publishing House.
- \* Essentials of Management by Weihrich and Koonts. Tata McGraw Hill.
- \* Management Concept & Principles, by Manmohan Prasad, Himalaya Publication.
- \* Management by Stonel & Foceman. Prentice Hall of India.
- \* Fundamentals of Management by Robbins. Pearson Education.
- \* Management Principles and Practices, by Prasad, Lallan & Gulshan.S.Chand.
- \* व्यवसाय व्यवस्थापनाचे सिध्दांत - Prof. S.M.Kolte, Pimpalapur & Co. Publishers, Nagpur.
- \* व्यवसाय प्रबंधनाची मुलतत्वे : डॉ. आनंद दत्तात्रय भोसले - नभ प्रकाशन, शाम नगर, अमरावती.
- \* Principles of Business Management : L.N. Chopde, D.H. Choudhary, Dr. Raju L. Rathi - Sheth Publishers Pvt. Ltd. Mumbai-31

**(IV) COMPUTER FUNDAMENTALS AND OPERATING SYSTEM**

Time:3 Hours

Marks:100

**(60 Marks for theory + 40 Marks for Practical)**

**Objective:** The objectives of this course are to provide basic information of computer, Word Processing and Presentation.

**Unit-I Fundamentals of Computer :**

**Introduction:** Definition of Computer, Evolution of Computer, Characteristics of Computer, Generations of Computer, Types of Computer (By Logic and By size).

**Basic Computer Organization :** Computer Block Diagram, Input Unit, Output Unit and CPU: Memory Unit, Arithmetic Unit, Control Unit.

**Unit-II Storage : Primary Storage :** Concept of Memory, RAM: Read-Write: SRAM, DRAM; Read-Only: ROM, PROM and EPROM.

**Secondary Storage :** Concept of Secondary Storage, Secondary Storage, Devices: Magnetic Tape, Magnetic Disk, Floppy Disk, Hard disk, Compact disk, Optical Disk, Pen drive, Memory card, Data Card.

**Software :** Concept of Software, Types of Software : Application Software & System Software.

**Languages :** Concept of Computer Languages, Machine Language, Assembly Language, High Level Language, 4<sup>th</sup> Generational Languages.



## B.Com-II

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card, Credit card, Agencies services, E-Banking, Core-Banking.

- Unit-V**
- 5.1 RBI- History, Importance, Functions & Credit Control.
  - 5.2 Various Rates- Bill, Bonds, Deposit, Administrative Rate & Market determined rate, Bank Rate, Repo rate.
  - 5.3 Regulatory Authority of Money & Finance Market.
  - 5.4 Stock Exchange- Concept, Features & Role in Indian Economy.

### Books Recommended-

1. Gupta S.B. : Monetary planning of India, S.Chand, New Delhi.
2. G.N.Halm : Monetary theory.
3. K.N.Garg : Money Banking
4. R.B.I. : Bulletins
5. Report of Currency & Finance.
6. Khan M.Y : Indian Financial System, Theory & Practice, Tata McGraw Hill, New Delhi.
7. पैसा आणि वित्त : डॉ.जितेंद्र अहिरराव
8. मुद्रा आणि वित्तीय पद्धत : डॉ.जी.एन.झामरे
9. भारतीय बँकींग प्रणाली : डॉ.सुधीर बोधनकर, डॉ.मेधा कानेटकर, साईनाथ प्रकाशन, नागपुर
10. मौद्रिक अर्थशास्त्र, माधव शेळके

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### (V) INFORMATION TECHNOLOGY AND BUSINESS DATA PROCESSING

Time:3 Hours

Marks:100

(60 Marks for Theory + 40 Marks for Practical)

- Unit-I Information Technology:**  
Introduction to Information Technology, Data: Data concept, Use of Data in Computing.  
**Information :** Concepts of Information, Characteristics of Information, Uses of Information within the Organization and outside the Organization. **Data Processing :** concept of Data processing, Advantage of Data processing, Applications Data Processing in business, Uses of IT in business and various fields.
- Unit-II Database :** Introduction, Database Concept, Need of Database, Advantages and Disadvantages of Database, Basic Concept of Database Design, Data Warehouse and Data Mining.



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10. Principles and Practice of Auditing: By T.R.Bottliboi.
11. Auditing Principles, Practice & Problems - T.Prakash.
12. Auditing : A.S.Ukhalkar- Pimpalpure & Co. Publishers, Nagpur.
13. Income Tax & Auditing : Dr. Vijay Upgade, Dr. Arvind Shende- Anuradha Prakashan, Nagpur-24
14. अंकेक्षण: डॉ. अरविंद शेंडे, डॉ. वसंतराव रुपनवार, डॉ. मार्टिंड खुपसे- अनुराधा प्रकाशन, नागपूर-२४

**(iv) MONEY AND FINANCIAL SYSTEM**

**Time: 3 Hours**

**Marks:70**

**Unit-1 : MONEY.**

- 1.1 Meaning, Nature, Functions & Importance of Money.
- 1.2 Currency Chesis- Paper currency, Method of Note issue, Types of Money.  
(Commodity money, Metallic money, paper money, credit money, E-Money)
- 1.3 Supply & Value of money, Fisher's Quantity theory of money.
- 1.4 Inflation & Deflation- Causes, effects & measures.

**Unit-II MONEY MARKET.**

- 2.1 Meaning, Nature, Objectives & Features.
- 2.2 Indian Money Market- Structure & components.
- 2.3 Indian Capital Market- Meaning, Features & Components.
- 2.4 Current Trends in money & capital market, Role of SEBI in money & capital market.

**Unit-III FINANCE.**

- 3.1 Meaning, Kind's & Importance.
- 3.2 Financial system & It's role in Indian Economy.
- 3.3 Monetary Policy- Meaning, Objectives & Limitations.
- 3.4 Fiscal Policy- Meaning, Objectives & Role in Economy.

**Unit-IV INDIAN FINANCIAL SYSTEM.**

- 4.1 Brief History, Structure.
- 4.2 Commercial Bank, its function & credit creation.
- 4.3 Financial Institutions- Meaning, Main features & Role in Financial system.
- 4.4 Current Trends in Banking Services in India- (ATM, Debit



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- Unit-V :** Verification and Valuation of Assets and liabilities.  
Company Auditor: Appointment, Power, Duties, Liabilities;  
Divisible Profits and deident;  
Audit Report : Standard and Qualified Report.
- Unit-VI :** Special Audit of Banking, Insurance Companies and Educational Institutions.  
Investigation : Audit of non-profit Companies.  
a) When fraud is suspected.  
b) When a running Business is proposed.

**Notes :- Allocation of Marks for Section A : Income Tax.**

- |    |  |                 |
|----|--|-----------------|
| 1) | One long answer type Question on any one of the three Units of Section A.                                    | <b>Marks 15</b> |
| 2) | Two short answer type Question on remaining two units of Section A having two sub Questions of 5 Marks each. | <b>Marks 20</b> |

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**Total 35**

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**Allocation of Marks for Section B Auditing**

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|----|--|-----------------|
| 1) | One long answer type Question on any one of the three Units of Section B                                       | <b>Marks 15</b> |
| 2) | Two short answer type Question on remaining two Units of this Section having two sub Qestions of 5 Marks each. | <b>Marks 20</b> |

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**Total 35**

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**BOOKS RECOMMENDED :**

1. Income Tax Law and practice : Mehrotra and Goyal.
2. Income Tax Law and practice : Bhagawati Prasad.
3. A Systematic Approach to Income Tax : Gupta & Ahuja.
4. आयकर तत्त्व और व्यवहार : मेहरोत्रा और गोयल
5. अंकेक्षणायी मुलतत्वे : ए.एस्. उखळकर
6. अंकेक्षण : जे.सी.गांधी
7. अंकेक्षण : दलाल नाथ
8. अंकेक्षण : एस्.एस्.शुक्ला
9. अंकेक्षण के सिध्दांत : सुरेशचंद्र सक्सेना



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- R.K.Sawlikar, Dr.R.P.Ingole, S.B.Kishor : Basic of Computer and Statistical Techniques -Das Ganu Prakashan, Nagpur.
- Dr.Gore C.V. : Business Mathematics; Pimpalpure & Co. Publishers, Nagpur.
- Dr.Sukhadeve Varsha S. : A Text Book of Modern Approach to Statistics- Sugawa Prakashan, Pune - 30

मराठी - हिन्दी :

- सु.ना.बोधनकर : सांख्यिकी.
- लांजेवार, कट्रेकर : सांख्यिकी.
- एलहान्स : सांख्यिकी के सिद्धांत.
- नी.मा.डोंगरे : व्यापार गणित.
- शुक्ल सहाय : सांख्यिकी के सिद्धांत.
- मंगळगीरी, देशकर, देशपांडे : व्यावसायिक गणित व सांख्यिकी.
- रा.जा.गजके : व्यापार अंकगणित.
- जे.के.अग्रवाल : व्यापारिक अंकगणित.

### (iii) INCOME TAX AND AUDITING

Time: 3 Hours

Marks: 70

#### SECTION -A INCOME TAX

- Unit-I : Basic Concept: Income Tax, Agricultural Income, Casual Income, Assessment Year; Gross total Income, Total Income, Person, Tax Planning; Residence and Tax liability; Income which does not from part of total Income,
- Unit-II : Income from salaries head; Income from House Property; Profits and Gains from Business and Profession; Capital Gain.
- Unit-III : Deductions to be made from Gross Income in computing total Income; Computation of total Income of Individual, Income from other sources.

Tax Management : Assessment Procedure.

Tax Administration : Authorities, Appeals; Penalties.

#### SECTION -B AUDITING

- Unit-IV : Auditing : Meaning, Objectives and Advantages of Auditing, Types of Audit; Internal check system, Audit Programme; Audit Books, Routine checking and Vouching;



**Unit-V**

**Analysis of Bivariate Data :**

- a) Co-efficient of correlation karl Pearson's Formula. Calculation of Co-efficient of correlation in grouped and ungrouped data. Probable error.
- b) Inter Pollution - Newton's Method.

**BOOKS RECOMMENDED**

- Allen R.G.D. : Basic Mathematics ; Macmillan, New Delhi.
- Dowling, E.T. : Mathematics for Economics ; Schaum Series, McGraw Hill London.
- Loomba, Paul : Linear Programming ; Tata McGraw Hill, New Delhi.
- Vohra, N.D. : Quantitative Techniques in Management ; Tata McGraw Hill New Delhi.
- Soni, R.S. : Business Mathematics ; Pitamber Publishing House.
- Kapoor, V.K. : Business Mathematics ; Sultan Chand & Sons, Delhi.
- Holden : Mathematics for Business and Economics ; Macmillan India, New Delhi.
- Ghosh and Basu : Commercial Mathematics.
- Suranjan Saha : Elementary Business Mathematics ; Kitab Mahal, Allahabad.
- Hooda, R.P. : Statistics for Business and Economics ; Macmillan, New Delhi.
- Ya-Lun Chou : Statistical Analysis with Business and Economic Applications, Holt ; Rinehart & Winster, New York.
- Lewin and Rubin : Statistics for Management ; Prentice – Hall of India, New Delhi.
- Hoel & Jossan : Basic Statistics for Business and Economics ; John Wiley and Sons, New York.
- Elhance D.N. : Fundamentals of Statistics.
- Asthana B.N. : Applied Statistics in India.
- Shrivastava S.S. : Introduction to Statistics.
- Gupta S.P. : Statistical Methods.
- Johnson, Bhattacharya (Wiley) : Statistics – Principles and Methods.



- ए.एन.अग्रवाल : उच्चतर लेखाविज्ञान.

**मराठी :**

- नाथ, लांजेवार, भागवत, दलाल : उच्च लेखाकर्म
- लांजेवार, गुल्हाने, कडु : उच्च लेखाकर्म - भाग-२
- उखळकर : उच्च लेखाकर्म - खंड-२.
- रोडे, स्मार्त, कडु, पांडे : कंपन्यांची खाती.
- प्रा.अब्दूल बारी, डॉ.अरविंद शेंडे, प्रा.माधव हाते, डॉ.सुभाष जाधव : निगमिय लेखांकन -अनुराधा प्रकाशन, नागपूर-२४

**(ii) BUSINESS MATHEMATICS AND STATISTICS**

**Time : 3 Hours**

**Marks : 70**

**Objectives :** The objective of this course is to enable the students to have such minimum knowledge of Mathematics and to gain understanding of Statistical techniques as are applicable to business and economic situations.

**Unit-I 1.1** a) Natural Numbers, Integers, H.C.F. & L.C.M on two or more integers.

b) Linear Equation in one and two variables method with application.

**1.2** Ratio and percentage. Concept of proportion. Simple and Compound proportion, Direct and inverse proportion.

**1.3** Mathematics of Finance : Simple Interest, Compound Interest, Concept of present value and amount of a sum, Annuities, Types of annuities, Present value and amount of an annuity including the case of continuous compounding.

**Unit-II** Introduction : Statistics as a subject, Descriptive Statistics- Compared to Inferential Statistics, Types of data, Collection, Tabulation and presentation of statistical data. Index numbers. Construction of Index Number.

**Unit-III** Analysis of Univariate Data : Construction of a frequency distribution, Concept of central tendency- and their measures, Arithmetic average, Geometric average, Harmonic average and weighted average, Median and Mode.

**Unit-IV** Concept of dispersion, Absolute and Relative measures of dispersion skewness and measures.



## 2. COMMERCE DISCIPLINE

### (i) CORPORATE ACCOUNTING

**Time : 3 Hours**

**Marks : 70**

**Objective:** This course enable the students to develop awareness about corporate accounting in conformity with the provisions of Companies Act.

**Unit-I** Issue, Forfeiture and Re-issue of shares.

**Unit-II** Final Accounts of Company : Manufacturing Account, Trading Account, Profit & Loss Account, Profit & Loss Appropriation Account & Balance sheet with Adjustment.

**Unit-III** 3.1 Liquidation of Company.  
1.2 Valuation of Goodwill and shares.

**Unit-IV** 4.1 Amalgamation and Absorption of Companies.  
1.2 Profit prior to incorporation.

**Unit-V** Funds Flow Statement : Concept of Fund, What is flow of Fund, Rules of Fund flow statement, Schedule of changes in working capital, Statement of sources and Application of Fund.

#### BOOKS RECOMMENDED :

- Gupta R.L., Radhaswamy M : Company Accounts; Sultan Chand and Sons, New Delhi.
- Maheshwari S. N. : Corporate Accounting; Vikas Publishing House, New Delhi.
- Monga J. R., Ahuja, Girish, and Sehgal Ashok : Financial Accounting; Mayur Paper Back, Noida.
- Shukla M. C., Grewal T. S. and Gupta S. C. : Advanced Accounts; S. Chand & Co., New Delhi.
- Moore C. L. and Jaedicke R. K. : Managerial Accounting; South Western Publishing Co., Cincinnati, Ohio.
- R.R.Gupta : Advanced Accountancy.
- Dr.Modha Kanetkar, Dr.D.R.Baheti : Corporate Accounting -Shri Sainath Prakashan, Nagpur.

#### हिन्दी :

- गुप्ता : एडवान्स एकाउन्ट्स.
- जे.के. अग्रवाल : बृहत् लेखाकर्म.



**(IV) COMPUTER FUNDAMENTALS AND OPERATING SYSTEM**

Time:3 Hours

Marks:100

**(60 Marks for theory + 40 Marks for Practical)**

**Objective:** The objectives of this course are to provide basic information of computer, Word Processing and Presentation.

**Unit-I Fundamentals of Computer :**

**Introduction:** Definition of Computer, Evolution of Computer, Characteristics of Computer, Generations of Computer, Types of Computer (By Logic and By size).

**Basic Computer Organization :** Computer Block Diagram, Input Unit, Output Unit and CPU: Memory Unit, Arithmetic Unit, Control Unit.

**Unit-II**

**Storage : Primary Storage :** Concept of Memory, RAM: Read-Write: SRAM, DRAM; Read-Only: ROM, PROM and EPROM.

**Secondary Storage :** Concept of Secondary Storage, Secondary Storage, Devices: Magnetic Tape, Magnetic Disk, Floppy Disk, Hard disk, Compact disk, Optical Disk, Pen drive, Memory card, Data Card.

**Software :** Concept of Software, Types of Software : Application Software & System Software.

**Languages :** Concept of Computer Languages, Machine Language, Assembly Language, High Level Language, 4<sup>th</sup> Generational Languages.

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- Unit-III**      **Operating System : Concept of Operating System.**
- MS-DOS :** Introduction to MS-DOS, MS-DOS Commands : **Internal Commands :** DIR, COPY, DEL, TYPE, REN, CD, MD, RD, PROMPT, COPY CON; **External Commands :** FORMAT, DISKCOPY, X-COPY, BACK UP, RESTORE, CHKDSK, PATH, ATTRIB, EDIT.
- Window : Window XP/Vista :** Introduction to Windows, Features of Windows, Types of Windows : Application Window, Document Window & Dialog box, Desktop, Icons : My Computer, My Documents, Recycle Bin, Internet Explorer, Task Bar, Properties, Management of the Files & Folders.
- Unit-IV**      **MS Word 2003/2007/Higer :** Concept of Word processing, **Working With MS-WORD:** MS-Word Screen, Working with Menus, Creating and Saving Document, Formatting Text and Document Setup, Header & Footer, Creating tables and chart, Inserting Clip Arts, Links, Text Box, Word Arts, Drop Cap, Mail Merge, Printing a Document.
- Unit-V**      **Ms PowerPoint 2003/2007/Higer :** Concept of Presentation, MS-PowerPoint Screen, Creating, Saving and Opening presentations, Adding text, Clips & Word Art to Slides, Working with different Slide Views, Background features, Gallery, Color Layout, Slide Effects & Slide Show, Saving and Printing.

**BOOKS RECOMMENDED :**

1. Fundamentals of Computers-V Rajarman (PHI)
2. Computer Fundamentals- B.Ram (WE)
3. Introduction to IBMPC & Applications-Taxali.
4. MS-OFFICE (PHI)
5. MS-OFFICE (BPB)
6. MS-OFFICE (TMH)
7. Yeats: Systems Analysis & Design; Macmillan India, New Delhi.
8. Basics of Computer and Business Mathematics, By Dr. Rajiv Ashtikar, Dr.Santosh Sadar and Prof. Vilas Chopade: Payal Prakashan, Nagpur.
9. Computer Fundamentals & Operating System : Supriya Bhagade-Pimpalpure & Co. Pub., Nagpur.
10. संगणक मूलतत्वे आणि चलन प्रणाली- Prof. S.M. Kolte, Pimpalpure & Co. Publishers, Nagpur.



**CLASS: B.Com- III SEM-V**

**PROSE: 1 RATAN TATA**

**2 STEVE JOBS**

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Appendix - A

*B.Com. III*  
*Semester- V*  
**Compulsory English**

*Time: 2 Hours*

*Marks: 40*

Prescribed Textbook : Horizons by Board of Editors Published by Orient Blackswan.

**CONTENTS**

UNIT I : PROSE		
SR.NO	PROSE	AUTHOR
1	Ratan Tata	
2	Steve Jobs	
3	Vijay Bhatkar	
4	Black Money and the Black Economy	C. Rammanohar Reddy
UNIT II : POETRY		
1	A Red, Red Rose	Robert Burns
2	It is needless to ask the saint the caste to which he belongs	Kabir
3	Love's Philosophy	P.B. Shelly
4	The Garden	Andrew Marvell
UNIT III : BUSINESS COMMUNICATION		
Computer Technology & Recent Concepts in Business		
✓ Paperless office		
✓ Video Conferencing		
✓ E-Banking		
Communication Skills		
✓ Public Speaking (Strategies for Effective Speaking, Types of Speeches)		

**MARKING SCHEME**

UNIT I: Prose : Any THREE out of FOUR Questions (3 x 4 = 12 Marks )

UNIT II : Poetry : Any THREE out of FOUR Questions (3 x 4 = 12 Marks )

UNIT III : Business Communication :

Any TWO out of THREE Questions (2 x 4 = 8 Marks )

8 Multiple Choice Questions on Unit I & II (8 x 1 = 8 Marks)

**INTERNAL ASSESSMENT :**

Seminar Skill : 5 Marks

Home Assignment : 5 Marks



**Syllabus on  
Gender Sensitization**



internal assessment .....	20
2) Practical:	50
<b>Total: .....</b>	<b>150 Marks</b>

**ZOOLOGY Paper 4 S**  
**ADVANCED GENETICS AND ANIMAL ECOLOGY**

**UNIT I :** Concept of genes.

Mendel's laws of hereditary – Monohybrid – Laws of dominance, law of segregation. Dihybrid cross – Law of independent assortment. Interactions of genes: , Supplementary factor, complementary factor, duplicates factor, inhibitory factors, and lethal factors – dominant and recessive.

**UNIT II :** Linkage - Types of linkage, linkage group, arrangement of linked genes, and significance of linkage.

Crossing over – Mitotic and meiotic crossing over, Mechanism of crossing over, theories of crossing over – Darlington's theory, breakage and exchange theory, and copy choice theory. Types of crossing over – Single, double and multiple crossing overs. Factors affecting crossing over, Significance of crossing over.

Multiple alleles. Multiple alleles in relation to eye color in *Drosophila*. Blood group in man, Erythroblastosis foetalis

**UNIT III :** Sex determination: Autosomes and sex chromosomes, Sex determination in animals, Chromosomal Theory, Genic Balance Theory, Environmentally and hormonally controlled sex determination, Gynandromorphs.

Genetic disorders; Sickle cell anemia, , Huntington's chorea. Diabetes mellitus. Non-disjunction: Turner's syndrome, Klinefelter's syndrome, Down's syndrome. Edward's

**UNIT IV :** Genetic Screening and parental diagnosis: - Parental, Carrier, Predictive, CVS (Chorionic Villous Sampling), Amniocentesis, Gene probe and DNA analysis. Genes in Human Heredity. - Inheritance of eye color. Skin color. Recessive genes and consanguineous marriages Genetic counseling: - Risk of marriages in affected family. Birth control measures (male and female).

Kinds of twins: - Identical, Fraternal, Siamese twins. Significance of twins study

**UNIT V :** Ecology: concept and scope:

**Abiotic factors:**

**Water:** Properties, water problem in terrestrial and aquatic habitat. **Temperature:** Temperature range, Temperature tolerance, Effects of temperature on animals. Homeotherms, poikilotherms. Dormancy, hibernation, aestivation & diapause. **Light:** Spectral

distribution, Biological effects of light on aquatic and terrestrial animals: Reproduction, Metamorphosis, pigmentation, vision, photo kinesis, phototropism, photoperiodism, migration.

**Biotic factors:**

Intra specific and interspecific associations, Predation, parasitism, Antagonism, commensalisms, mutualism, competition, (Gauze's Principle).

**UNIT VI :** **Ecosystem:** Relationship between habitat and ecological niche - Autotrophic and heterotrophic producer, consumer - trophic level - energy flow in an ecosystem - food chain - food web - pyramids - Ecotypes. Homeostasis of ecosystem.

Terrestrial ecosystem: Classification and Biomes, Aquatic ecosystem: Fresh water ecosystem-Lentic and lotic ecosystem,



**BA-II SEM -IV**

**स्त्री –पुरुष तलना (Man-Woman Comparison)**

## Criterion – I- Curricular Aspects [QIM – 1.3.1]

### SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2018 - PART TWO – 153

#### विभाग ब) ललित

१)	आज्ञापत्र	रामचंद्रपंत अमात्य
२)	माझे दत्तक वडील	चि. वि. जोशी
३)	दिवस असे होते	दया पवार

#### विभाग क) कविता

१)	संतवाणी	अ) चौखामेळा ब) सोयराबाई
२)	अखेर कमाई	कुसुमाग्रज
३)	पाखरे	केशव मैश्राम
४)	जात	श्रीकांत देशमुख
५)	सात बाराची नोंद	लक्ष्मण महाडिक
६)	शांतता	सिध्दार्थ भगत

#### विभाग ड) व्यावहारिक मराठी

१)	वक्तृत्व कला	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण २२ वे	संपा. केतकी मोडक व इतर, पद्मगंधा प्रकाशन, पुणे
२)	सूत्रसंचालन	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण २३ वे	

#### बी. ए. भाग २ - मराठी (आवश्यक)

#### सत्र - ४

#### विभाग अ) वैचारिक

१)	स्त्री-पुरुष तुलना	ताराबाई शिंदे
२)	आरसा	डॉ. बाबासाहेब आंबेडकर
३)	विज्ञानयुगात भारत	जयंत नारळीकर

#### विभाग ब) ललित

१)	गाडगेबाबांच्या कीर्तनातले तत्त्वज्ञान	प्रबोधनकार के.सी. ठाकरे
२)	स्मशानातील सोने	अण्णा भाऊ साठे
३)	स्त्रीवादी चळवळीने आम्हाला आमच्या अस्तित्वाची जाणीव दिली	विद्युत भागवत

#### विभाग क) कविता

१)	संतवाणी	अ) एकनाथ ब) कान्होपात्रा
२)	सारेच दीप कसे मंदावले आता	अनिल
३)	जिवलग	शांता शेळके
४)	जागजागी	भ.मा. परसावळे
५)	पेटवू नका देश	मिर्झा रफी अहमद बेग
६)	माती	राजेश महल्ले

#### विभाग ड) व्यावहारिक मराठी

१)	माहितीपत्रक	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण ९ वे	संपा. केतकी मोडक व इतर, पद्मगंधा प्रकाशन, पुणे
२)	निर्माणपत्रिका व कार्यक्रमापत्रिका	संदर्भ ग्रंथ : 'उपयोजित मराठी' मधील प्रकरण १० वे	

## B.Com-II SEM-IV



Criterion – I- Curricular Aspects [QIM – 1.3.1]  
**PROSE 2 : FLORENCE NIGHTINGALE : LYTTON STRACHEY**

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**Unit V Formulas, Functions and Chart in Excel:**  
Introduction to Formulas, Functions and Categories of Functions.  
**Working with Common Excel Functions:** TODAY, DATEDIF, NOW, UPPER, LOWER, PROPER, CONCATENATE, AVERAGE, MAX, MIN, COUNT, COUNTBLANK, COUNTIF, SUM, SUMIF, AUTOSUM, IF  
**Chart in Excel:** Introduction, Types, Creating and formatting a Chart Displaying, Saving & Printing.

**Books Recommendation:**

- \* Microsoft Office Excel 2007 Free Text Book at BOOKBOON.COM
- \* Curtis D. Fry "Microsoft Excel 2007 Step by Step" Published by Microsoft Press
- \* MS OFFICE (BPB)
- \* Pradeep K. Sinha and Priti Sinha's "Fundamentals of Computing" BPB Publication.
- \* Alexis Leon and Mathews Leon's Fundamentals of Information Technology "Published by Leon Vikas.
- \* **Practical Based on Microsoft Excel**

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Appendix - M

**B.Com Part-II  
SEMESTER-IV  
ENGLISH (COMPULSORY)**

**Time :- 2 Hours**

**Marks :- 40**

**I) Text Prescribed -**

**Impressions**

(An Anthology of Prose and Poetry) Published by Raghav Publishers & Distributors, Nagpur.

**Unit- I :- Prose**

- |                         |   |                 |
|-------------------------|---|-----------------|
| 1) The Town Week        | - | E.V. Lucas      |
| 2) Florence Nightingale | - | Lytton Strachey |
| 3) The Gift of Magi     | - | O Henry         |
| 4) Three Hermits        | - | Leo Tolstoy     |

**Unit-II :- Poetry**

- |                     |   |                |
|---------------------|---|----------------|
| 1) On His Blindness | - | John Milton    |
| 2) Solitude         | - | Alexander Pope |
| 3) Still I Rise     | - | Maya Angelou   |
| 4) Money Madness    | - | D.H.Lawrence   |

**2) Book Prescribed :-**

**'Synergy'**

(Communication in English and Study Skills Ed.by Orient Black Swan.

Following chapters from Communication Skills are prescribed :-

- 1) Interview and Interviewing skills.
- 2) Meeting skills
- 3) Nonverbal Communication.

BA-I SEM-I

UNIT 5 : I) WOMEN PARTICIPATION IN PANCHYATRAJ OF MAHARASHTRA

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19. महाराष्ट्रातील पंचायत राजची वाटचाल : ले. डॉ. सुभाष गवई, प्रशांत विघे व प्रा. सुनिल चकवे, वेदमुद्रा प्रकाशन, अमरावती.
20. भारतीय संविधानिक तरतुदी आणि स्थानिक स्वशासन : डॉ. शांताराम चव्हाण, वेदमुद्रा प्रकाशन, अमरावती

\*\*\*\*\*

Semester-II (B.A.-I)  
Indian Constitutional Provisions and Local Self Government

Theory : 80  
Int.Ass.: 20

- Unit-I** i) Election Commission of India : Structure, Function and Powers.  
ii) Electoral Reform, Recognition of Political Parties.  
iii) Eligibility of Voter – Lok Sabha, Vidhan Sabha and Vidhan Parishad.

- Unit-II State Executive**  
i) Governor : Appointment, Powers and Role.  
ii) Chief Minister : Appointment, Role and Function  
iii) Council of Ministers : Formation, Role and Function

- Unit-III State Legislature of Maharashtra :**  
i) Legislative Assembly (Vidhan Sabha) – Structure, Powers and Function.  
Speaker of Vidhan Sabha – Powers and Function  
ii) Legislative Council (Vidhan Parishad) – Structure, Powers and Function

- Unit-IV Local Self Government of Maharashtra :**  
i) Types of Local Self Government (Urban and Rural)  
ii) Municipal Corporation - Structure and Power  
iii) Gram Panchayat – Structure and Function.  
iv) Gram Sabha - Structure and Function.

- Unit-V**  
i) Women's Participations in Panchayati Raj of Maharashtra.  
ii) Nagpur Pact for Sanyukta Maharashtra and its recommendations.  
iii) Right to Information and its Importance

Distribution of Internal Marks

- |                                    |     |          |
|------------------------------------|-----|----------|
| i) Seminar                         | ... | 10 Marks |
| ii) News Papers Cutting Collection | ... | 10 Marks |

Reference Books :

1. D.D. Basu : "An introduction to the Constitution of India : New Delhi Prentice Hall, 1994
2. Joshi, G.N. : The Constitution of India
3. PyLee, M.V. : Indian Constitution
4. D.C. Gupta : Indian Government and Politics : Vikas Publication, Bombay.
5. प्रा.बी.टी. देशमुख : भारतीय संविधान
6. डॉ.प.ल. जोशी : भारतीय संविधान
7. प्रा.भ.शृंगारपुरे : भारतीय संविधान
8. प्रा.भ.ग.घांगरेकर : भारतीय राज्यघटना, स्वरूप आणि राजकारण
9. डॉ.भा.ल. भोळे : भारतीय राज्यव्यवस्था.
10. प्रा.राम मुठाळ : भारतीय राजकीय व्यवस्था, अंशुल प्रकाशन, नागपूर.
11. प्रा.रा.ज. लोटे : भारतीय शासन आणि राजकारण, पिंपळापूरे अँड कं. पब्लीशर्स.
12. प्रा. बी.टी. देशमुख : भारतीय संविधान व स्वातंत्र्य आंदोलन.
13. भारताचे शासन आणि राजकारण : प्रा.शे.हाशम, डॉ. जोगेंद्र गवई.



**Syllabus on  
Human Values**

**ENGLISH**  
**BA- I SEM-I**  
**1. PROSE: 3 SPEECH ON INDIAN INDEPENDENCE**  
**7. MIDDLE AGE**

SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE

Official Publication of Sant Gadge Baba Amravati University

PART – TWO

Thursday, the 15<sup>th</sup> June, 2017

NOTIFICATION

No. 40/2017

Date : 15. June, 2017

**Subject :** Implementation of Syllabi of Various Courses / Subjects as per Semester and Credit Grade System in the Faculty of Humanities from the session 2017-2018 and onwards.

It is notified for general information of all concerned that, the authorities of the University has accepted of Semester & Credit Grade System syllabi of various Courses/ Subjects of B.A. Part-I Semester-I & Semester – II mentioned in column No.2 and which is to be implemented stagewise from the session 2017-2018 and onwards, with appendices as shown in column No.3 of the following table.

TABLE

Sr.No.	Course / Subjects	Appendices of the New Syllabi
1	2	3.
<b>B.A.Part-I Semester – I &amp; II</b>		
1.	English	The Syllabi prescribed for the subject Compulsory English, English Literature, Functional English & Supplementary English which is appended herewith as <b>Appendix-A</b>
2.	Marathi	The Syllabi prescribed for the subject Compulsory Marathi, Marathi Literature, which is appended herewith as <b>Appendix-B</b>
3.	Hindi	The Syllabi prescribed for the subject Compulsory Hindi, Hindi Literature, & Prayojanmulk Hindi which is appended herewith as <b>Appendix-C</b>
4.	Sanskrit	The Syllabi prescribed for the subject Compulsory Sanskrit & Sanskrit Literature, which is appended herewith as <b>Appendix-D</b>
5.	Urdu	The Syllabi prescribed for the subject Compulsory Urdu & Urdu Literature, which is appended herewith as <b>Appendix-E</b>
6.	Persian Literature	The Syllabi prescribed for the subject Persian Literature which is appended herewith as <b>Appendix-F</b>
7.	Pali & Prakrit	The Syllabi prescribed for the subject Compulsory Pali & Prakrit & Pali Literature which is appended herewith as <b>Appendix-G</b>
8.	Music	The Syllabi prescribed for the subject Indian Music which is appended herewith as <b>Appendix-H</b>

Sd/-

Registrar

Sant Gadge Baba Amravati University

SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2017 - PART TWO-36



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**VSLLABUS**  
**PRESCRIBED FOR**  
**B. A. - Part I EXAMINATION**  
**Semester I**  
**Compulsory English**

**TIME : 3 HOURS**

**MAX MARKS THEORY : 80 MARKS**

**MAX MARKS INTERNAL ASSESSMENT : 20 MARKS**

**Prescribed Textbook : *Blooming Buds* by Board of Editors & published by Orient Blackswan.**

**UNIT I**

**PROSE –**

1. Education Provides a Solid Foundation - A.P.J Abdul Kalam
2. Love Story - Maneka Gandhi
3. Speech on Indian Independence – Jawaharlal Nehru
4. Film Making - Satyajit Ray

**UNIT II**

**POETRY –**

5. In the Bazaar of Hyderabad - Sarojini Naidu
6. She Walks in Beauty - Lord Byron
7. Middle Age - Kamala Das

**UNIT III**

**GRAMMAR –**

8. Parts of Speech
9. Tenses

**UNIT IV**

**COMMUNICATION SKILLS –**

10. Unseen Passage
11. Letter Writing (Personal & Business Letters)
12. Curriculum Vitae (CV)

**UNIT V**

**MULTIPLE CHOICE QUESTIONS –**

Based on the prescribed text Unit I & II only.

**INTERNAL ASSESSMENT**

**i) Viva- Voce**

- a) Personal Interview
- b) Seminar

**ii) Assignments**

- a) Making Introduction
- b) Greeting People
- c) Talking about Family
- d) Describing People, Places & Animals
- e) Expressing Feelings
- f) Inviting, Suggesting, Accepting & Refusing

**BA-I SEM-II**  
**PROSE 4 :VALUES IN LIFE**



## Criterion – I- Curricular Aspects [QIM – 1.3.1]

(2)

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**SYLLABUS  
PRESCRIBED FOR  
B. A. – Part I EXAMINATION  
Semester II  
Compulsory English**

**TIME : 3 HOURS**

**MAX MARKS THEORY : 80 MARKS**

**MAX MARKS INTERNAL ASSESTMENT : 20 MARKS**

**Prescribed Textbook : Blooming Buds by Board of Editors & published by Orient Blackswan.**

**UNIT I**

**PROSE –**

1. Appro JRD - Sudha Murthy
2. Packing - Jerome K. Jerome
3. How I became a Public Speaker – G. B. Shaw
4. Values in Life - Rudyard Kipling

**UNIT II**

**POETRY –**

5. Money Madness - D.H Lawrence
6. No men are foreign - James Kirkup
7. Another's sorrow - William Blake

**UNIT III**

**GRAMMAR –**

8. Subject, Verb, Agreement
9. Verbs : Forms of to be, do, have and modal auxiliaries

**UNIT IV**

**COMMUNICATION SKILLS –**

10. Story building
11. E-Communication : E-Mail, Fax
12. Notices / Agenda / Minutes

**UNIT V**

**MULTIPLE CHOICE QUESTIONS –**

Based on the prescribed text Unit I & II only.

**F) Internal Assessment**

**i) Viva- Voce**

- a) Reading Skills (Reading aloud – Individual of a passage of about 100 words from the prescribed text)
- b) Group Discussion

**ii) Assignments**

- a) Asking for & Giving Information
- b) Giving Directions
- c) Making Request
- d) Making Offers
- e) Getting & Giving Permissions
- f) Talking about Past Events

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### BA-I SEM-II

Criterion – I- Curricular Aspects [QIM – 1.3.1]  
**POETRY 5 MONEY MADNESS**

SYLLABUS  
PRESCRIBED FOR  
B. A. – Part I EXAMINATION  
Semester II  
Compulsory English

TIME : 3 HOURS

MAX MARKS THEORY : 80 MARKS

MAX MARKS INTERNAL ASSESTMENT : 20 MARKS

Prescribed Textbook : Blooming Buds by Board of Editors & published by Orient Blackswan.

UNIT I

PROSE –

1. Appro JRD - Sudha Murthy
2. Packing - Jerome K. Jerome
3. How I became a Public Speaker – G. B. Shaw
4. Values in Life - Rudyard Kipling

UNIT II

POETRY –

5. Money Madness - D.H Lawrence
6. No men are foreign - James Kirkup
7. Another's sorrow - William Blake

UNIT III

GRAMMAR –

8. Subject, Verb, Agreement
9. Verbs : Forms of to be, do, have and modal auxiliaries

UNIT IV

COMMUNICATION SKILLS –

- 10 . Story building
- 11 . E-Communication : E-Mail, Fax
- 12 . Notices / Agenda / Minutes

UNIT V

MULTIPLE CHOICE QUESTIONS –

Based on the prescribed text Unit I & II only.

F) Internal Assessment

i) Viva- Voce

- a) Reading Skills (Reading aloud – Individual of a passage of about 100 words from the prescribed text)

b) Group Discussion

ii) Assignments

- a) Asking for & Giving Information
- b) Giving Directions
- c) Making Request
- d) Making Offers
- e) Getting & Giving Permissions
- f) Talking about Past Events



**B A- I SEM-II PROSE 4: VALUES IN LIFE**

--9--

SYLLABUS  
PRESCRIBED FOR  
B. A. – Part I EXAMINATION  
Semester II  
Compulsory English

TIME : 3 HOURS

MAX MARKS THEORY : 80 MARKS  
MAX MARKS INTERNAL ASSESTMENT : 20 MARKS

Prescribed Textbook : Blooming Buds by Board of Editors & published by Orient Blackswan.

**UNIT I**

**PROSE –**

1. Appro JRD - Sudha Murthy
2. Packing - Jerome K. Jerome
3. How I became a Public Speaker – G. B. Shaw
4. Values in Life - Rudyard Kipling

**UNIT II**

**POETRY –**

5. Money Madness - D.H Lawrence
6. No men are foreign - James Kirkup
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**UNIT III**

**GRAMMAR –**

8. Subject, Verb, Agreement
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**UNIT IV**

**COMMUNICATION SKILLS –**

- 10 . Story building
- 11 . E-Communication : E-Mail, Fax
- 12 . Notices / Agenda / Minutes

**UNIT V**

**MULTIPLE CHOICE QUESTIONS –**

Based on the prescribed text Unit I & II only.

**F) Internal Assessment**

**i) Viva- Voce**

- a) Reading Skills (Reading aloud – Individual of a passage of about 100 words from the prescribed text)
- b) Group Discussion

**ii) Assignments**

- a) Asking for & Giving Information
- b) Giving Directions
- c) Making Request
- d) Making Offers
- e) Getting & Giving Permissions
- f) Talking about Past Events

**B. A. II SEM III**

**3. PROSE: THE HAPPY PRINCE**

**HUMAN VALUES**

SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2018 - PART TWO - 139

Appendix-A

**SYLLABUS  
PRESCRIBED FOR  
B.A – PART II EXAMINATION  
SEMESTER III  
COMPULSORY ENGLISH**

**TIME : 3 HOURS**

**MAX MARKS THEORY : 80 MARKS**

**MAX MARKS INTERNAL ASSESSTMENT : 20 MARKS**

**Prescribed Textbook : Blossoming Flowers by Board of Editors, Published by Orient Blackswan.**

**UNIT I**

**PROSE –**

1. India's Message to the World – Swami Vivekanand
2. The Pleasure of Ignorance – Robert Lynd
3. The Happy Prince – Oscar Wilde
4. The Three Questions – Leo Tolstoy

**UNIT II**

**POETRY –**

5. Sonnet 116 – William Shakespeare
6. Dirge – James Shirley
7. Leisure – W H Davies
8. A Baby Asleep After Pain – D.H Lawrence

**UNIT III**

**GRAMMAR :**

**9. Clauses :**

- ✓ Main Clause
- ✓ Subordinate Clause (Noun Clause , Adverb Clause , Adjective Clause)

**10. Types of Sentences :**

- ✓ Assertive/ Affirmative Sentences
- ✓ Exclamatory Sentences
- ✓ Negative Sentences
- ✓ Interrogative Sentences
- ✓ Simple Sentences
- ✓ Compound Sentences
- ✓ Complex Sentences
- ✓ Compound Complex Sentences

**UNIT IV**

**COMMUNICATION SKILLS :**

**11. Telephone Conversation**

- ✓ Answering the Telephone and Asking for Someone
- ✓ Taking and Leaving Messages
- ✓ Making Enquiries on the Phone

**12. Interpersonal Conversation**

- ✓ Getting People's Attention and Interrupting
- ✓ Making Requests and Responding to Them
- ✓ Asking for Directions and Giving Directions

**UNIT V**

**MULTIPLE CHOICE QUESTIONS**

Based on prescribed text Unit I & II only

**Internal Assessment :**

**Viva- Voce**

**A) Personal Interview**

**B) Seminar - Presentation (Based on prescribed text : Prose & Poetry)**



**CLASS/SEM**  
**B. A. III SEM VI PROSE 1. QUALITY HUMAN VALUES**

**SANT GADGE BABA AMRAVATI UNIVERSITY GAZETTE - 2019 - PART TWO - 183**

**UNIT III (16 Marks)**

- C) POETRY:** Prescribed Text Sands of Time by Board of Editors & published by Orient Blackswan  
i) The students shall have to answer TWO out of THREE questions in Two or Three sentences of 3 marks each. = 6 Marks  
ii) The students shall have to answer TWO out of THREE questions in about 100 words of 5 marks each = 10 Marks

**UNIT IV (16 Marks)**

**WRITING SKILLS**

1. Précis Writing : i) The students shall have to write a précis of the given paragraph with suitable title for 08 marks
2. Developing a Thought: i) The students shall have to develop a thought, choosing one of the two in about 250 words for 08 marks

**UNIT V (16 Marks)**

**E) Multiple Choice Questions (MCQ)**

Based on Unit I, II & III: The students shall have to attempt multiple choice questions= 16 Marks

**F) Internal Assessment**

**i) Viva- Voce = 20 Marks**

- a) Personal Interview = 10Marks
- b) Seminar - Presentation = 10 Marks

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**SYLLABUS  
PRESCRIBED FOR  
BA – PART III EXAMINATION  
SEMESTER VI  
COMPULSORY ENGLISH**

**TIME : 3 HOURS**

**MAXIMUM MARKS THEORY : 80 MARKS  
MAXIMU MARKS INTERNAL ASSESSTMENT: 20 MARKS**

**Prescribed Textbook: Sands of Time by Board of Editors, Published by Orient Blackswan.**

**UNIT I**

**SHORT STORIES:**

1. Quality – John Galsworthy
2. Miss Brill – Catherine Mansfield

**UNIT II**

**ESSAYS:**

1. My Financial Career -Stephen Leacock
2. Socrates and the Schoolmaster – FL Brayne

**UNIT III**

**POETRY:**

1. The Solitary Reaper- William Wordsworth
2. Stay Calm -Grenville Kleiser

**UNIT IV**

**WRITING SKILLS:**

1. Report Writing : i) The students shall have to write a Report on the given topic in about 250 words for 08 marks
2. Essay : i) The students shall have to write an essay, choosing from the four given topics in about 250 words for 08 marks

**UNIT V**

**MULTIPLE CHOICE QUESTIONS**

Based on Prescribed Text : Unit I, II & III

**Internal Assessment:**

**Viva- Voce**

**A) Personal Interview**

**B) Seminar - Presentation (Based on Prescribed Text : Short Stories, Essay & Poetry)**

**POLITICAL SCIENCE**  
**CLASS/SEM B. A. I SEM I**  
**UNIT 1 II) PREAMBLE – NATURE AND IMPORTANCE**

**HUMAN RIGHTS**

-78-

(H)

**Syllabi for B.A. Part-I**  
**Semester-I**  
**Subject : Political Science**  
**(Implemented From 2017-2018 Session)**  
**Indian Constitutional Provisions and Local Self Government**

Marks : Theory – 80  
In Ass – 20

**Unit-I**

- i) Salient features of the Indian Constitution.
- ✓ ii) Preamble – Nature and Importance.
- ✓ iii) Fundamental Rights – Types and Importance.

**Unit-II**

- ✓ i) Directive Principles of State Policy – Nature and Importance
- ii) Fundamental Duties.
- iii) Methods to acquire Citizenship.

**Unit-III**

- i) President of India : Election Process, Powers and Function.
- ii) Vice President : Role and Function.
- iii) Prime Minister – Appointment, Role and Function.

**Unit-IV**

- i) Parliament : Lok Sabha and Rajya Sabha – Structure and Powers
- ii) Speaker of Lok Sabha - Powers & Function.

**Unit-V**

- i) Structure of Indian Judiciary. Types of Court, Characteristics of Indian Judiciary
- ii) Supreme Court of India – Structure, Powers and Function
- iii) High Court - Structure, Powers and Function.

**Distribution of Internal Marks**

i) Seminar	...	10 Marks
ii) News Papers Cutting Collection	...	10 Marks

**Reference Books :**

1. D.D. Basu : "An introduction to the Constitution of India : New Delhi Prentice Hall, 1994
2. Joshi, G.N. : The Constitution of India
3. PyLee, M.V. : Indian Constitution
4. D.C. Gupta : Indian Government and Politics : Vikas Publication, Bombay.
5. प्रा.बी.टी. देशमुख : भारतीय संविधान
6. डॉ.प.ल. जोशी : भारतीय संविधान
7. प्रा.भ.शृंगारपुरे : भारतीय संविधान
8. प्रा.भ.ग.घांगरेकर : भारतीय राज्यघटना, स्वरूप आणि राजकारण
9. डॉ.भा.ल. भोळे : भारतीय राज्यव्यवस्था.
10. प्रा.राम मुळाळ : भारतीय राजकीय व्यवस्था, अंशुल प्रकाशन, नागपूर.
11. प्रा.रा.ज. लोटे : भारतीय शासन आणि राजकारण, पिंपळापूर अॅन्ड कं. पब्लिशर्स.
12. प्रा. बी.टी. देशमुख : भारतीय संविधान व स्वातंत्र्य आंदोलन.
13. भारताचे शासन आणि राजकारण : प्रा.शे.हाशम, डॉ. जोगेद्र गवई.
14. भारतीय शासन आणि राजकारण : प्रा.डॉ. अल्का देशमुख
15. भारतीय राजकारणाची संवैधानिक मिमांसा : ले. डॉ. वामन गवई.
16. भारतीय संविधान व शासन व्यवस्था : लेखक - डॉ. शांताराम चव्हाण
17. भारतीय संविधानात्मक तरतुदी आणि वास्तव : लेखक - डॉ. सुभाष गवई
18. भारतीय राज्यव्यवस्था : ले. डॉ. शांताराम चव्हाण व डॉ. सुभाष गवई, वेदमुद्रा प्रकाशन, अमरावती



**Syllabus on  
Environment and Sustainability**

B.Sc. Part-II (2014-15)  
(Semester-III & IV)

Prospectus No. 2015122

**संत गाडगेबाबा अमरावती विद्यापीठ**  
**SANT GADGE BABA AMRAVATI UNIVERSITY**

**विज्ञान विद्याशाखा**  
(FACULTY OF SCIENCE)

**अभ्यासक्रमिका**  
विज्ञान स्नातक भाग-२  
सत्र-३ व ४, परीक्षा

**PROSPECTUS** Continued for Semester-III  
OF Winter-2013  
B.Sc. Part-II Semester-IV Summer 2020  
(As it is)

Semester-III Examination Winter-2014, and  
Continued for Semester-IV Examination Summer-2015  
Semester-III Winter 2020,  
Semester-IV Summer 2021  
(As it is)

Continued for Semester-III  
Winter-2017  
Semester-IV- Summer-2018  
(along with notification Nos.  
83/2017


Continued for Semester-III Winter-2018  
Semester-IV - Summer-2019  
(Along with Notification Nos. 38/2017  
4/2018)

Continued for Semester-III-Winter 2015  
Semester-IV- Summer-2016  
2014 (Along with Dir. No.5 of 2015 & Notf.  
No.52 of 2015)

Visit us at [www.sgbau.ac.in](http://www.sgbau.ac.in)

Contd. for Semester-III  
Winter-2016  
Semester-IV Summer-2017  
(Along with Notf. No.37 of 2016)  
Notf. No.58 of 2016

(Price-Rs. 34/-)





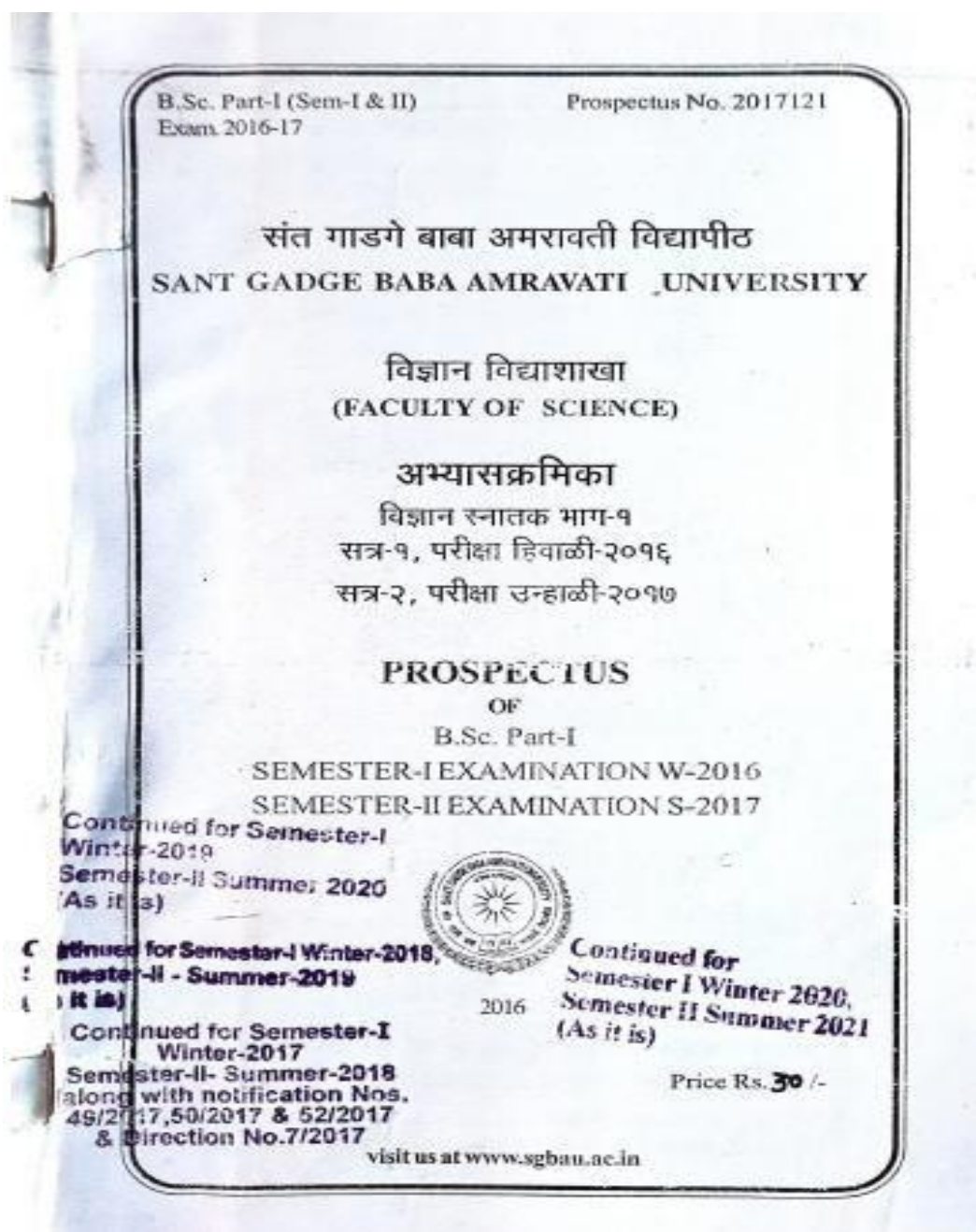
## BOTANY

CLASS/SEM B. SC. F. Y. SEM

### (I) UNIT 1

#### 1.3 DIVERSITY OF PLANTS WITH RESPECT TO HABITAT NUTRITION & ECOLOGICAL SYSTEM

#### ENVIRONMENT



### 13. BOTANY

There shall be following paper and practical for B. Sc. Part – I Semester one examination. The syllabus is based on six theory periods and six practical periods per week (Total 75 – 80 theory sessions and 25 practical sessions per complete semester). There shall be one compulsory paper of 3 hours duration, in theory as stated below and practical examination extending for 4 hours. Every examinee shall offer the following paper of 100 marks (out of which 80 marks will be for written examination and 20 marks for internal assessment) and practical examination of 50 marks. Candidates are required to pass separately in theory and practical examination.

1.	Paper – 1	Marks
a.	Theory	80
b.	Internal Assessment	20
2.	Practical	50
<b>Total</b>		<b>150 Marks</b>

### 1S – BOTANY

#### Diversity & Applications of Microbes and Cryptogams

#### UNIT-I : Plant Diversity (15)

- 1.1 Cyanobacteria and its impact on origin of life
- 1.2 Introduction to Plant Kingdom: Cryptogams
- 1.3 Diversity of plants with respect to habitat, form, nutrition and ecological status
- 1.4 General Account of Viruses and structure of TMV and HIV
- 1.5 Bacteria: structure, Nutrition and reproduction
- 1.6 Role of microbes in Agriculture, Medicine and Industries

#### UNIT-II: Algae (15)

- 2.1. Classification according to F. E. Fritsch and G. M. Smith up to classes
- 2.2. General characters of algae with reference to Habitat, Thallus organization, Pigmentation, Reserve food and Reproduction
- 2.3. General characters of following classes with special reference to examples mentioned –
  - 2.3.1. Chlorophyta - Oedogonium
  - 2.3.2. Charophyta – Chara (Thallus structure and reproduction)
  - 2.3.3. Phaeophyta – Sargassum (Thallus structure and reproduction)
  - 2.3.4. Rhodophyta – Batrachospermum



**UNIT-III : Fungi (15)**

- 3.1. Classification according to Ainsworth (1973)
- 3.2. General characteristics of following classes with special reference to examples mentioned –
  - 3.2.1. Mastigomycotina : Albugo (Cystopus)
  - 3.2.2. Ascomycotina : Aspergillus
  - 3.2.3. Basidiomycotina : Puccinia graminis-tritici
  - 3.2.4. Deuteromycotina : General characters
- 3.3 Lichen-Types & Economic importance

**Unit-IV : Bryophyte (15)**

- 4.1. Classification according to G. M. Smith
- 4.2. General characters, thallus organization and life cycle of–
  - 1.2.1. Hepaticopsida – Marchantia
  - 1.2.2. Bryopsida – Funaria
- 4.3. Evolution of sporophyte in bryophytes
- 4.4. Affinities of bryophytes with algae and pteridophytes
- 4.5. Brief Account on some Indian Bryologist.

**Unit-V : Pteridophyte (15)**

- 5.1. Pteridophytes as First Vascular Plants.
- 5.2. Classification according to G. M. Smith
- 5.3. General characters of the following classes with special reference to examples mentioned –
  - 5.3.1. Sphenopsida – Equisetum
  - 5.3.2. Filicopsida – Marsilea
- 5.4. Stele types in pteridophytes
- 5.5. Heterospory and Seed Habit in Pteridophytes

**Unit-VI : Application of Microbes Cryptogams (15)**

- 6.1. Economic Importance of Algae with special reference to Food, Industries, Agriculture and Harmful aspects
- 6.2. Mycorrhiza – Types and Application
- 6.3. Role of Fungi in Industries, Medicine, Food & Agriculture
- 6.4. Plant Diseases –
  - 6.4.1. Viral – TMV
  - 6.4.2. Bacteria – Black arm of cotton (Xanthomonos malvacearum)
  - 6.4.3. Fungal – Tikka disease of groundnut (Cercospora sps.)
- 6.5. Economical and Ecological Importance of Bryophytes



## BOTANY

### CLASS/SEM B. SC. S. Y. SEM (III)

#### UNIT 1 CONCEPT OF BIODIVERSITY ENVIRONMENT ENVIRNMENT

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### 7. BOTANY

#### 3S- BOTANY

#### ANGIOSPERM SYSTEMATICS, ANATOMY & EMBRYOLOGY

##### UNIT I: Angiosperm Systematics and Biodiversity.

- 1.1 Angiosperms: Origin and Evolution (Pteridospermean and Bennittitalean Theory)
- 1.2 Botanical Nomenclature: Principles of rules, Taxonomic Ranks, Type concept, Valid publication.
- 1.3 Herbarium – Concept & significance, Royal Botanical Garden, Kolkata.
- 1.4 Concept of biodiversity, Ex situ and In situ conservation
- 1.5 Concept & importance of Biodiversity.

##### UNIT II: Angiosperm Systematics

- 2.1 Systems of Classification: Bentham and Hooker's System, Engler and Prantle's system.
- 2.2 Systematic studies & economic importance of following Families  
Dicotyledons (Polypetalae) : Malvaceae, Brassicaceae, Leguminosae, Apiaceae,

##### UNIT III: Angiosperm Systematics

- 3.1 Systematic studies & economic importance of following Families  
Dicotyledons (Gamopetalae): Asteraceae, Asclepiadaceae, Apocynaceae, Solanaceae, Verbenaceae, Lamiaceae.
- 3.2 Dicotyledons ( Monoclamydeae): Euphorbiaceae.
- 3.3 Monocotyledons: Liliaceae, Poaceae.

##### UNIT IV: Anatomy

- 4.1 Types of Tissues:  
Meristematic – Types of meristems  
Permanent – Simple and complex.
- 4.2 Characteristics of growth rings, Sapwood and heartwood.
- 4.3 Anatomy of root: Primary structure in dicot and monocot root, normal secondary growth in dicot root.

##### UNIT V: Anatomy

- 5.1 Anatomy of stem: Primary structure in monocot and dicot



## BOTANY

### CLASS/SEM B. SC. T. Y. SEM (V)

#### UNIT 05: ECOLOGY & ENVIRONMENT

#### ENVIRONMENT

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22. Dynamic Earth - Skinner Potter - Pub. John, Wiley.
23. Text Book of Physical Geology - G.B. Mahapatra - Pub. C.B.S., New Delhi.
24. Dynamic Earth – Patwardhan A.M., E.E.E Publications, New Delhi.
25. Physical Geology – A. Holmes, Orient Longman Publications.
26. Concepts in Geology - Chakraborty, Kulkarni, Pub. Scientific Publication, Pune.
27. Dynamic Earth - Wiley, John Wiley and Sons, New York.
28. Radhakrishnan N. General Geology, V.V.P. Pub, Vellore.
29. Text Book of Engineering Geology - Parbin Singh, Katson Publishing, Ludhiana.

#### B.Sc. Final Year, Semester-V

##### 7: BOTANY

The examination in Botany of fifth Semester shall comprise of one theory paper, internal assessment and practical examination. Theory Paper will be of 3 Hrs. duration and carry 80 marks. The internal assessment will carry 20 marks. The practical examination will be of 4 hours duration and carry 50 marks.

The following syllabi is prescribed on the basis of six lectures per week and 6 practical periods per batch per week. Each theory paper has been divided into 6 units. There shall be one question in every unit with internal choice for each of 12 marks & one compulsory question covering all the syllabus of Semester-V (8 marks).

##### 5S - BOTANY

##### PLANT PHYSIOLOGY AND ECOLOGY

##### Unit - I: Plant Water Relations

- 1.1 Importance of water to plant life.  
Imbibition, Diffusion, Osmosis, Plasmolysis.
- 1.2 Active and passive Absorption of water.
- 1.3 Ascent of sap - Root Pressure and Transpiration Pull Theory.
- 1.4 Transpiration - Types of transpiration, Stomatal movements, Mechanism of transpiration (Starch) sugar hypothesis), Significance. Antitranspirant, Guttation.
- 1.5 Mineral uptake - Active uptake - Carrier Concept, Passive uptake - Ion Exchange.



**Unit - II: Metabolism-**

- 2.1 Photosynthesis - Introduction, Role of Light, Photosynthetic Apparatus and Pigments, Two Pigment Systems, Photophosphorylation, C3 and C4 cycle, CAM Pathway.
- 2.2 Respiration - Introduction, Mitochondria as a Respiratory centre, Types of Respiration - Aerobic and Anaerobic, Mechanism of aerobic respiration- Glycolysis, Krebs cycle, Electron transport system and Chemiosmotic ATP generation, Respiratory Quotient.

**Unit - III: Metabolism and growth**

- 3.1 Nitrogen Metabolism- Sources of nitrogen, Symbiotic nitrogen fixation, Role of Nitrate reductase.
- 3.2 Growth - Phases of growth, Growth curve, Physiological role of growth hormones ( Auxins, Gibberellins, Cytokinins, Abscissic acid, and Ethylene).
- 3.3 Physiology of Senescence and Abscission.

**Unit – IV: Plant responses**

- 4.1 Photoperiodism - Concept of Florigen, Role of Phytochrome,
- 4.2 Vernalization- Concept and Significance.
- 4.3 Plant movement- Tropic (Phototropic and Geotropic) and Nastic (Epinasty, Hyponasty and Seismonasty)
- 4.4 Stress physiology- Concept, Types of stress, Water and Salinity stress.

**Unit – V: Ecology and Environment:**

- 5.1 Concept of environment, Concept and scope of ecology.
- 5.2 Ecological factors- Climatic- Light, Temperature and Water.
- 5.3 Atmosphere and its composition.
- 5.4 Edaphic factor- Process of soil formation, soil profile, soil biota and their role.
- 5.5 Ecological Adaptations - Morphological and Anatomical adaptation in Hydrophytes, and Xerophytes.

**Unit – VI: Ecosystem:**

- 6.1 Population Ecology- Natality and Mortality, Community characteristics – Frequency, Density and Abundance
- 6.2 Ecological Succession - Hydrosere and Xerosere
- 6.3 Ecosystem – Definition, Structure and Function,



Food chain, Food web, Energy flow model (Single channel model)

6.4 Types of Ecosystem- Pond ecosystem, Desert ecosystem.

#### LABORATORY EXERCISE :

##### Plant Physiology: Major experiment (Any Seven)

1. To study the effect of temperature and organic solvent on permeability of plasma membrane.
2. To study osmotic pressure of cell sap by plasmolytic method.
3. To determine water potential of plant tissue.
4. To determine the path of water (ascent of sap)
5. To determine the rate of transpiration by Ganongs photometer.
6. To determine rate of photosynthesis under varying quality of light and CO<sub>2</sub> concentration.
7. To study the rate of photosynthesis in terrestrial plants with the help of Ganongs Photosynthometer.
8. Separation of chloroplast pigments by paper chromatography/solvent extraction method.
9. Separation of amino acids by paper chromatography method.
10. To determine R.Q. using different substrates.
11. To determine the rate of respiration by Ganongs respirometer.
12. To study antagonism of salts.
13. To study phenomenon of adsorption.
14. To study effect of IAA and Gibberellins on seed germination.
15. Test for secondary metabolites- Alkaloid, Phenolics, Tannin, Flavonoids and Lignin
16. To study Endo and Exo-osmosis by egg membrane osmoscope

##### Plant Physiology: Minor experiment- (Any Three)

1. To demonstrate fermentation.
2. To demonstrate exo and endosmosis
3. To demonstrate transpiration by Bell jar.
4. To demonstrate light is necessary for photosynthesis
5. To demonstrate anaerobic respiration in germinating seeds.
6. To demonstrate the evolution of CO<sub>2</sub> in respiration.
7. To demonstrate the phenomenon of nastic movement with help of *Mimosa pudica* / or *Biophytum sensitivum*.

##### Ecology: Major experiment (Any Three)

1. Study of morphological and anatomical adaptations in hydrophytes – *Hydrilla*, *Eichhornia*, *Typha*, *Vallisneria* and *Nymphaea* (any two)

**MICROBIOLOGY**

**CLASS/SEM B. SC. T. Y. SEM (V)**

**ENVIRONMENTAL MICROBIOLOGY & BIOINSTRUMENTATION  
ENVIRONMENT**

B.Sc. Final (Sem-V & VI)  
Exam. 2015-16

Prospectus No. 2016123

**संत गाडगेबाबा अमरावती विद्यापीठ**  
**SANT GADGE BABA AMRAVATI UNIVERSITY**

**विज्ञान विद्याशाखा**  
**(FACULTY OF SCIENCE)**

**अभ्यासक्रमिका**  
विज्ञान स्नातक अन्त्य परिक्षा  
सत्र ५- हिवाळी - २०१५  
सत्र ६ - उन्हाळी - २०१६

**PROSPECTUS  
OF**  
The Examination for the Bachelor of Science  
Semester-V, Winter- 2015, and  
Semester-VI, Summer-2016  
& Onwards

Continued for  
Semester V Winter 2020,  
Semester VI Summer-2021  
(As it is)

Continued for Semester-V  
Winter-2019  
Semester-VI Summer 2020  
(Along with notification No.56/2019)

Continued for Semester-V  
Winter-2017  
Semester-VI- Summer-2018  
(along with notification Nos.  
28/2017, 54/2017 &  
Direction No.15/2017

Contd. for Semester-V  
Winter-2016  
Semester-VI Summer-2017  
(Along with Nottl. No.57 of 2016)

2015  
at [www.sgbau.ac.in](http://www.sgbau.ac.in)

Continued for Semester-V Winter-2018, (Price-Rs.30/-)  
Semester-VI - Summer-2019  
(As it is)



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**MISCELLANEOUS:-**

1.	Propipettes	Any make	Able to hold any pipettes from 0.1 ml to 10 ml capacity Rubber or Plastic.	5 Nos.
2.	Test tube Stands	Tarson	To hold 12 Tubes	20 Nos.
3.	Burette stands	---	Metal rod and base with tarson clamp.	20 Nos.
4.	Rubber Crock		To fit in conical flasks of all capacity.	20 each
5.	Porcelain Glazed tiles		6x6"	20 Nos.
6.	Mortar and Pestal	---	6" diameter	1 Nos.

**B.SC. FINAL (SEMESTER-V)  
17 : MICROBIOLOGY**

The examination shall comprise of two theory papers, one in each semester and one practical in each Semester. Each theory paper will be of 3 hours duration and carry 80 marks. The internal assessment will carry 20 marks. The following syllabi is prescribed on the basis of six lectures per week and 6 practical periods per batch per week. Each theory paper have been divided into 6 units. There shall be one question on each unit, will internal choice and for each of 12 marks and one compulsory question covering all the syllabus of semester V(8 marks).

**5S MICROBIOLOGY**

**(Environmental Microbiology and Bioinstrumentation)**

**Unit-I : Microbial Associations and Air Microbiology**

- A. Microbial Associations :** Definition and examples of positive(Mutualism, Commensalism, Synergism), negative (Antagonism, Competition, Parasitism ) and neutral association.



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**B. Air Microbiology**

- a) The atmosphere and its layers.
- b) Different types of microorganisms in air.
- c) Techniques for microbiological analysis of air:
  - i) Solid impingement devices
  - ii) Liquid impingement devices.
- d) Airborne diseases : Etiology, symptoms and prevention.
- e) Control of microorganisms in air.

**Unit-II : Microbiology of Soil.**

- a) Microorganisms in soil.
- b) Rhizosphere.
- c) Decomposition of plant and animal residues in soil.
- d) Definition, formation, function and microbiology of humus and compost.
- e) Biological Nitrogen fixation : Type of nitrogen fixing microorganisms, factors affecting and mechanism of symbiotic and non-symbiotic nitrogen fixation. Process of nodulation, nitrogenase complex, recombinant DNA and nitrogen fixation, legume inoculants.
- f) Cycles of elements in nature :
  - i) Carbon cycle : CO<sub>2</sub> fixation, organic carbon degradation.
  - ii) Nitrogen cycle : Proteolysis, amino acid degradation, Nitrification, Denitrification, Degradation of nucleic acids.
  - iii) Sulphur cycle
  - iv) Phosphorus cycle.
  - v) Biofertilizers, biological pest control.

**Unit III : Water Microbiology**

- a) Planktons : Definition, types, factors affecting growth of planktons, methods of enumeration, beneficial and harmful activities of planktons.



- b) Control of plankton problems
- c) Eutrophication and its control.

**Unit IV : Assessment of Water Quality and Treatment**

Bacteriological analysis of water:

- i) Significance of bacteriological analysis of water.
- ii) Collection and handling of water sample from various sources.
- iii) Indicators of excretal pollution.
- iv) Multiple tube dilution technique, MPN.
- v) IMViC classification of coliform.
- vi) Membrane filter technique for coliform and faecal Streptococci.
- vii) ICMR and WHO Bacteriological standards of drinking water.

**Unit V : A) Water Treatment**

- a) Self purification of water : Various zones and factors responsible for self purification.
- b) Treatment of water : Aeration, Coagulation, Flocculation, Sedimentation and Filtration.
- c) Slow and Rapid sand filters : Construction, mechanism of filtration, differences.
- d) Methods of chlorination : Plain, super chlorination, ammoniachlorine treatment, Break-point chlorination

**B) Waste Water Treatment**

- a) Aims of sewage treatment, composition of sewage.
- b) Municipal sewage treatment plant.
- c) Preliminary treatment (sieving and Grit chamber)
- d) Primary treatment (sedimentation)
- e) Secondary treatment (Aerobic)
  - i) Trickling filter
  - ii) Activated sludge process
  - iii) Oxidation pond
- f) Anaerobic sludge digestion



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- g) Domestic sewage treatment by septic tank and Imhoff tank.
- h) Concept of COD,BOD.
- i) Outline of bio-gas production

**VI : Bio-Instrumentation**

- a) Spectroscopy- Definition, Principle, types (UV&IR) & its applications.
- b) Electrophoresis- Definition, Principle, types (Paper&Gel) & its applications.
- c) Chromatography- Definition, Principle, types (Paper&TLC) & its applications.
- d) Isotopic Tracer Techniques - Definition, Principle & applications.

**Microbiology Practicals.**

1. Bacteriological analysis of water and Waste Water.
  - a) Standard plate Count.
  - b) Multiple tube dilution technique (MPN for Coliform)
    - i) Presumptive test ii) Confirmatory test
    - iii) Completed test.
  - c) IMViC test for coliform
  - d) Multiple tube dilution technique for faecal strepto cocci.
  - e) Membrane filter technique for coliforms & faecal streptococci.
  - f) BOD estimation.
  - g) Isolation of Bacteriophage from Sewage.
  - h) Determination of Chlorine demand and residual chlorine.
2. Study of Soil Microbiology
  - a) Enumeration of Soil microorganisms.
  - b) Isolation of Azotobacter from Soil.
  - c) Isolation of Rhizobium from Soil



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- d) Isolation of Antibiotic producers from soil
3. Effect of Ultra-violet/Filtration on micro-organism present in water
  4. Separation of amino acids and sugars by paper chromatography.

**Distribution of marks for Microbiology practical Examination:**

1. Major Experiment	- 15 marks
2. Minor Experiment	- 10 Marks
3. Viva Voce	- 10 marks
4. Spotting	- 10 marks
5. Laboratory Journals	- 05 Marks

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<b>Total</b>	<b>- 50 marks</b>
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**List of Reference Books for 5S Microbiology:**

1. Introduction to Soil Microbiology : Alexander Martin
2. Soil Microbiology : Subbaroa N.S.
3. Introduction to environmental Microbiology: Mitchell, Ralph
4. Sewage & Waste treatment : Hammer
5. Water Pollution : Zajic J.E.
6. Water Pollution Microbiology : Mitchell R.
7. Air Pollution : Perlins H.L.
8. Aquatic Microbiology : Stainer & Shewan
9. Introduction to Waste Water Treatment processes: Ramalhr R.S.

**B.SC. FINAL (SEMESTER-VI)  
6 S. MICROBIOLOGY**

The examination shall comprise of two theory papers, one in each semester and one practical in each Semester. Each theory paper will be of 3 hours duration and carry 80 marks. The internal assessment will carry 20 marks. The following syllabi is prescribed on the basis of six lectures per week and 6 practical periods per batch per week. Each theory paper have been divided into 6 units. There shall be one question on each unit, will internal choice and for each of 12 marks and one compulsory question covering all the syllabus of semester VI(8 marks).



## ZOOLOGY

### CLASS/SEM B. SC. S. Y. SEM (IV)

#### UNIT 05 ECOLOGY

#### UNIT 06 ECOSYSTEM ENVIRONMENT

#### ENVIRONMENT

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**E) Histological Slides :- Amphioxus, Frog, Rat**  
**Slides :**

**Amphioxus :** T.S, Oral hood, Pharynx, Tail

**Frog :-** T.S. lung, Stomach, Kidney, T.S. Intestine,

**Rat :-** T.S. Liver, Pancreas, Ovary, Testes, Pituitary,  
Thyroid, Adrenal

**DISTRIBUTION OF MARKS FOR  
PRACTICAL EXAMINATION.**

1. Dissection: -	10
2. Permanent stained micro preparation.	05
3. Spotting. (Specimens, Slides, bones, fossil)	10
4. Practical on evolution -	10
5. Class record	05
6. Viva - Voce	05
7. Submission of study tour report.	05

**Total Marks: 50**

#### BSc.II Semester IV

#### ZOOLOGY

There shall be the following paper and practical for B.Sc. Part-II Semester IV examination. The syllabus is based on 6 theory periods and six practical periods per week (Total 75-80 theory sessions and 25 practical sessions) during the complete semester. There shall be one compulsory theory paper of 3 hours duration the semester, as stated below and a practical examination extending for four hours. Every examinee shall offer the following paper of 100 marks (80 for written examination and 20 marks for internal assessment) and a practical examination of 50 marks. Candidates are required to pass separately in theory and practical examination.



**Semester IV**

<b>D Paper-I:</b>	<b>Marks Allotted</b>
<b>Advanced Genetics and Animal Ecology.</b>	
Written examination.....	80
Internal assessment .....	20
<b>2) Practical:</b>	50
<b>Total: .....</b>	<b>150 Marks</b>

**ZOOLOGY Paper 4 S**  
**ADVANCED GENETICS AND ANIMAL ECOLOGY**

**UNIT I : Concept of genes.**

Mendel's laws of hereditary – Monohybrid – Laws of dominance, law of segregation. Dihybrid cross – Law of independent assortment. Interactions of genes: , Supplementary factor, complementary factor, duplicates factor, inhibitory factors, and lethal factors – dominant and recessive.

**UNIT II : Linkage - Types of linkage, linkage group, arrangement of linked genes, and significance of linkage.**

Crossing over – Mitotic and meiotic crossing over, Mechanism of crossing over, theories of crossing over – Darlington's theory, breakage and exchange theory, and copy choice theory. Types of crossing over – Single, double and multiple crossing overs. Factors affecting crossing over, Significance of crossing over.

Multiple alleles. Multiple alleles in relation to eye color in Drosophila. Blood group in man, Erythroblastosis foetalis

**UNIT III : Sex determination: Autosomes and sex chromosomes, Sex determination in animals, Chromosomal Theory. Genic Balance Theory. Environmentally and hormonally controlled sex determination, Gynandromorphs.**

Genetic disorders; Sickle cell anemia, , Huntington's chorea. Diabetes mellitus. Non-disjunction: Turner's syndrome, Klinefelter's syndrome, Down's syndrome. Edward's



Syndrome, Biochemical genetics: Cystic fibrosis, Phenylketonuria, Albinism, Alkaptonuria, Goiters, cretinism. Sex linked genetic disorders and their inheritance in man; Hemophilia and color blindness.

**UNIT IV : Genetic Screening and parental diagnosis:** - Parental, Carrier, Predictive, CVS (Chorionic Villous Sampling), Amniocentesis, Gene probe and DNA analysis. Genes in Human Heredity: - Inheritance of eye color. Skin color. Recessive genes and consanguineous marriages Genetic counseling: - Risk of marriages in affected family. Birth control measures (male and female).

Kinds of twins: - Identical, Fraternal, Siamese twins. Significance of twins study

**UNIT V : Ecology: concept and scope:**

**Abiotic factors:**

**Water:** Properties, water problem in terrestrial and aquatic habitat. **Temperature:** Temperature range, Temperature tolerance, Effects of temperature on animals. Homeotherms, poikilotherms. Dormancy, hibernation, aestivation & diapause. **Light:** Spectral

distribution, Biological effects of light on aquatic and terrestrial animals: Reproduction, Metamorphosis, pigmentation, vision, photokinesis, phototropism, photoperiodism, migration.

**Biotic factors:**

Intra specific and interspecific associations, Predation, parasitism, Antagonism, commensalisms, mutualism, competition, (Gause's Principle).

**UNIT VI : Ecosystem: Relationship between habitat and ecological niche** - Autotrophic and heterotrophic producer, consumer - trophic level - energy flow in an ecosystem - food chain - food web - pyramids - Ecotypes. Homeostasis of ecosystem.

Terrestrial ecosystem: Classification and Biomes, Aquatic ecosystem: Fresh water ecosystem-Lentic and lotic ecosystem,



Marine ecosystem: Characteristics, salinity, temperature - pressure, zonation and stratification Estuarine ecology: Characteristics types, fauna and their adaptations.

**REFERENCE BOOKS:**

1. Cell Biology, Genetics, Molecular Biology, Evolution & Ecology – P.S.Verma & V.K.Agrawal.
2. Principles of Genetics – S.K.Jain
3. Genetics – P.K.Gupta
4. Applied Genetics – C.Pmmanuol.
5. Genetics: M.W.Strickberger, New York.
6. Principles of Genetics: Sinnott, Dunn and Dobzansky.
7. Principles of Genetics: Edidon Gardner.
8. Genetics. Verma, P.S. and V.K. Agarwal.. S.Chand & co. New Delhi
9. Gene VI .Lewin, B. 1998. Wiley Eastern Ltd., New Delhi.
10. Human Genetics. Rothwell, N.V.1979. Prentice Hall of India, New Delhi

**Practical:-**

Two practical per week of 3 periods duration. Examination shall be of 5 Hrs. duration and of 50 marks.

**A) Genetic experiments:**

1. Recording of Mendelian traits in man.
2. Detection of monohybrid and dihybrid cross with the help of plastic beads.
3. Culturing *Drosophila* using standard methods .*Drosophila* – male and female identification, Mutant forms (from pictures)
4. Demonstration of bar bodies.
5. Preparation of human Karyotypes from Xerox pictures.
6. Photo slides for, Turner's syndrome, Klinefelter's syndrome, Down's syndrome
7. Detection of syndrome from chromosome spread picture.
8. Study of following human genetic traits and application of Hardy-Weinberg Principle to them – Baldness, length of index and ring Finger, attached and free earlobes, rolling of tongue, PTC taste. Other notable traits.



**B) Ecology**

1. Use of pH meter for estimation of pH in soil samples, b. Use of pH meter for estimation of pH in water samples
2. Estimation of Dissolved oxygen, salinity, pH, free CO<sub>2</sub>, carbonates and bicarbonates, calcium in water samples.
3. Adaptations of aquatic and terrestrial animals based on a study of museum specimens. Such as rocky, sandy, muddy shore animals, flying and burrowing animals.
4. Study of natural ecosystem and field report of the visit.
5. Field collection methods;
6. Identification of common animals - Soil invertebrate diversity, diversity of birds and mammals in parks / botanical gardens, threats to local biodiversity.
7. Construction of a food web diagram based on a field visit.
8. Mounting of plankton.
9. Qualitative analysis of fresh water plankton

**C) General:-**

1. Visit to a National park or sanctuary, and submission of report.

**DISTRIBUTION OF MARKS FOR  
PRACTICALEXAMINATION.**

1. Ecological: Estimations -/Analysis	10
2. Spotting. (2Spot from Sec.A & 3 Spot from Section B of 2 Marks each)	10
3. Micro preparation.	05
4. Genetic experiment -	10
5. Class record	05
6. Viva - Voce	05
7. Submission of study tour report.	05

**Total Marks : 50**



## PHYSICS

CLASS/SEM B. SC. S. Y. SEM

(III)

UNIT VI: ATMOSPHERE & GEOPHYSICS

ENVIRONMENT

2. PHYSICS	
3SPHY	
Unit I	<b>: Mathematical background and Electrostatics (12)</b> Gradient, divergence and curl of a vector fields and their physical significance, line surface and volume integral. Gauss divergence theorem, Stocks theorem. Work done on charge in electrostatic field, flux of electric field, force on moving charge, Lorentz force equation and definition of B. Ampere's force law, Ampere's Law and its applications.
Unit II	<b>: Magnetostatics and Maxwell's Equations (12)</b> Faraday's Law, Integral and differential form of faraday's law, displacement current and Maxwell's Equation, wave Equation satisfied by E and B. Plane electromagnetic wave in vacuum, Poynting vector and Poynting theorem.
Unit-III	<b>: Solid State Electronics Devices-I – (12)</b> Physics of semiconductors : Introduction to semiconductors ; Charge carriers & electrical conduction through semiconductors ; Doping, extrinsic semiconductors ; Fermi level & energy level diagrams ; Drift current in

semiconductor, mobility, conductivity; Hall effect, Hall coefficient, Semiconductor diode & its biasing, LED, Varactor diode.

**Unit-IV : Solid State Electronics Devices-II – (12)**

Introduction to BJT; working of BJT; modes of operation; Current gains  $\alpha$  and  $\beta$ , their relation; CB & CE characteristics; JFET- construction & working, characteristics of FET; Basic concept of Difference amplifier, IC-OP AMP, electrical parameters of OP AMP, inverting & noninverting modes; OP AMP as adder, subtractor, differentiator & integrator.

**Unit: V : Special Theory of Relativity (12)**

Postulates of Special Theory of Relativity, Lorentz transformations, Length contraction, Time dilation, relativistic addition of velocities, relativity of mass, Einstein's Mass - energy relation, Numericals.

**Unit: VI : Atmosphere and Geophysics (12)**

Structure of earth – The crust, mantle, core.

Part of the earth – As a planet; The Atmosphere, The lithosphere, The Hydrosphere Composition of Atmosphere

Earthquakes – Causes, terminologies associated with earthquakes. Type of earthquakes scale of intensity, recording of earthquakes.

Radiation in the atmosphere, Propagation of energy through vacuum, Intensity of radiation, Scattering, absorption and reflection of solar radiation by the atmosphere. Moisture and clouds: mechanism that produces clouds, Cloud produced by mixing and by cooling.

**Practical :** The distribution of marks for practical examination will be as follows:

Record Book	10 marks
Viva-voce	10 marks
Experiment	20 marks
Assignment	10 marks
<b>Total</b>	<b>50 marks</b>



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Plane diffraction grating; construction and elementary theory, determination of wavelength of monochromatic light by using grating. Resolution of images, Rayleigh's criteria for resolution, R. P. of grating.

**Unit III : Polarization (12)**

Concept of polarization, optic axis, double refraction, polarization by double refraction, phase retardation plate :- Quarter wave plate, half wave plate, (Nicol prism-production and analysis of polarized light). Theory of production of elliptically and circularly polarized light, production and detection of elliptically and circularly polarized light. Half shade polarimeter, blue of the sky.

**Unit IV : Laser (12)**

Introduction to Maser, Absorption, spontaneous and stimulated emission, population inversion, pumping characteristics of laser beam. Main components of laser system, three level and four level laser system. Ruby laser, He-Ne laser, semiconductor laser, application of laser. Holography-principle.

**Unit V : Fiber optics (12)**

introduction of fiber optics, total internal reflection, structure and classification of optical fiber. Propagation of light wave in an optical fiber, Acceptance angle and

numerical aperture, dispersion, fiber losses, fiber optic communication. Advantages and Disadvantages of optic fibers, application of fiber optics.

**Unit VI : Renewable Energy Sources (12)**

**Introduction** to various renewable energy sources – Solar energy, Wind energy, ocean energy- Waves & tides, geothermal energy, Hybrid Systems, Hydrogen energy systems, Fuel cells.

**Solar energy** - Solar radiations on earth - availability and seasonal variations, Solar constant, Spectral distribution, Measurement of solar radiation and sun shine.



**Solar Energy Storage :-** Methods of storage, properties of storage materials. Principle of Solar Thermal Applications, Solar water heater, Solar concentrating collectors - Types , applications.

**Solar Photovoltaic systems --** Operating principle, Photovoltaic cell concepts , power of a solar cell and solar PV panel ; Applications.

**Practical :** The distribution of marks for practical examination will be as follows:

Record Book	10 marks
Viva-voce	10 marks
Experiment	20 marks
Assignment	10 marks
<b>Total</b>	<b>50 marks</b>

- A student will have to perform at least ten experiments per semester.
- The semester examination will be of Four Hour duration and student will have to perform one experiment in the semester examination.
- In assignment, every student should be asked to submit the detailed report on one of experiments he or she has performed. The detailed report should include the theoretical background of the experiment..

**Evaluation of the student during the semester:**

The teacher should explain, discuss and demonstrate one experiment per turn in the first twelve turns of the semester. At the same time in every turn; a teacher will have to conduct a test in the first period of the turn, based on the experiment; he or she has

explained in the previous turn. The test is to be carried out with the interest to make the student aware of the basics of the experiments. This will enhance the viva voce competence of the student. A record of these tests is to be maintained in the department duly signed by the teacher in-charge and head of the department. The record is to be maintained in the following format. Each assignment should be of at least 15 marks. Find the average and assign it in the end Semester practical examination.



## Activities Conducted for the address cross cutting issues relevant to Environment and Sustainability, Gender Sensitization, Human Values and Professional Ethics

### BOTANY ECOFRIENDLY RAKHI CELEBRATION ENVIRONMENT



Eco-friendly  
Rakshabandhan

**Eco-friendly Rakshabandhan celebrated on 22/08/21**

शेतकऱ्यांच्या हक्काचं विचारपीठ.....

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RNI Reg No6 MAHMAR/2015/63437

# दैनिक किसान सभा

मानद संपादक : गुलाबराव खेडेकर  
संपादक: संजयकुमार खेडेकर

kisansabha2015@gmail.com

कार्यकारी संपादक: गजानन खेडेकर

गुरुवार ६ मे २०२१ पृष्ठे : ४ किंमत २ रुपये

## श्री शिवाजी महाविद्यालयात ऑनलाईन राज्यस्तरीय निबंध स्पर्धा संपन्न

**चिखली/प्रतिनीधी:** स्थानिक श्री शिवाजी महाविद्यालयात दरवर्षी २२ एप्रिल रोजी जागतिक वसुंधरा दिन साजरा करण्यात येतो. यावर्षी वनस्पतीशास्त्र विभागातर्फे राज्यस्तरीय निबंध स्पर्धा आयोजित करण्यात आली. पंचमहाभूते हा आपल्या संस्कृतीचा पाया आहे आणि पृथ्वी यापैकी एक आहे.आज ग्लोबलायझेशनच्या काळात आपल्याकडून कळत नकळत पृथ्वीला दिनाशकरी अन्ध्या काही गोष्टी केल्या जातात. पृथ्वीचा समतोल राखण्यासाठी आपल्याला अधिक सजग राहून आपल्याच जीवन शैलीत सकारात्मक बदल घडवून आणण्याची वेळ आली आहे. त्यासाठीच जागतिक वसुंधरा दिनाच्या माध्यमातून समाजात

अधिक जनजागृती निर्माण करण्यासाठी राज्यस्तरीय निबंध स्पर्धेचे आयोजन करण्यात आले. या स्पर्धेसाठी युसस्संघर्षन काळाची गरज, जलप्रदूषण, वायुप्रदूषण, जलपुनर्भरण, असे वेगवेगळे विषय देण्यात आले. या विषयावरील निबंध दिनांक २२ ते ३० एप्रिल यादरम्यान ऑनलाईन लिंकद्वारे बोलविण्यात आले. यामध्ये पुणे, नाशिक, अमरावती, बुलडाणा जिल्ह्यातील ४८ निबंध प्राप्त झाले. त्यात कु. आरती चंद्रशेखर मिटकरी बी एड प्रथम वर्ष भाऊसाहेब पाटील कॉलेज बीड यांना प्रथम क्रमांक रु ७०० रोख बक्षीस प्राप्त झाले. द्वितीय क्रमांक रणधविर राजेंद्र साळवे वर्ग ११वा श्री शिवाजी विज्ञान व कला महाविद्यालय चिखली याला रु ५०० रोख बक्षीस प्राप्त झाले.

तृतीय क्रमांक कु. आचल सुरेशराव बंसले महात्मा फुले महाविद्यालय वरुड यांना रु ३०० रोख बक्षीस प्राप्त झाले. कु. सानवी नारखेडे वर्ग ९वा सरस्वती झंझी शाळा नाशिक हिला प्रोत्साहन पर रुपये २०० बक्षीस प्राप्त झाले. या स्पर्धेसाठी प्रा.डॉ.गणेश माल्टे मराठी विभाप्रमुख, प्रा. डॉ. इम्टिअज जुबलकर झंझी विभाग, प्रा. योगिनी सुरडकर पर्यवेक्षक यांनी परीक्षक म्हणून काम पाहिले. या स्पर्धेसाठी प्राचार्य डॉ. अनिल गारोडे यांचे मार्गदर्शन लाभले. प्रा. डॉ. वनिता पोच्छी स्पर्धा समन्वयक, प्रा.मुकुंद कोलते, प्रा. दिलीप गावंडे, प्रा. डॉ. अंकित काळे यांनी आयोजन सचिव म्हणून काम केले.

**On the occasion of Earth Day online Essay Competition was organized**

On 22 April 21 Botany Department organized State Level Essay Competition

Winners are



**First Winner:** Ms. Arti Chandrashekhar Mitkari. Bhausahab BEd College. Beed

**Second Winner:** Randhvir Rajendra Salve Shri Shivaji Science And Arts College, Chikhli

**Third Winner:** Anchal Sureshrao Bansale, MF College, Warud

**Consolation Prize:** Sanvi Narkhede Class-9 th Sarswati English School, Nasik.





Shri Shivaji Education Society, Amravati's  
**Shri Shivaji Science & Arts College**  
**Chikhli, Dist. Buldana**  
NAAC Reaccredited with B++ Grade (CGPA-2.82)  
We Educate, Inspire and Empower  
**Department of Chemistry**  
Cordially invite you to join  
**ONLINE 6 DAYS CERTIFICATE COURSE**  
On  
**Soil and Water Analysis**  
16 September – 21 September 2021  
Time: 12.00 to 5.00 PM



Chemistry Department organized a add on course on “Soil & water analysis”










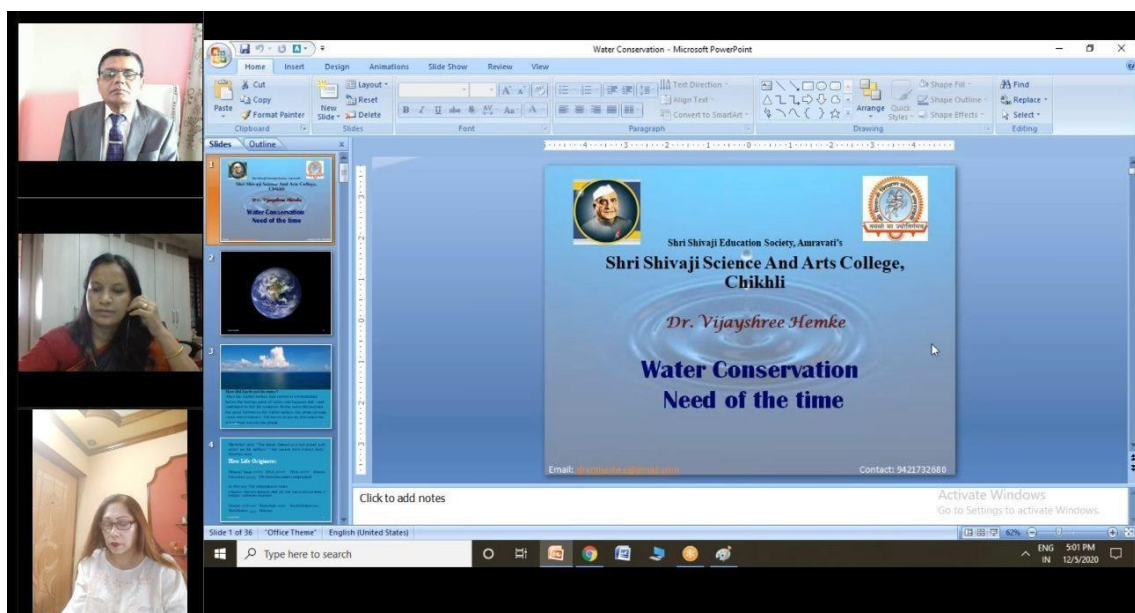
**NSS Department developed Oxygen Park in the campus**



**Tulsi Plants in Oxygen Park**



Date	Resource Person	Title of Speech	05:00 pm
1	Dr. Aruna Chaudhari, University Law College, Rajasthan	A social awareness for Child Labour prevention	
2	Dr. Namrata Girish Mahajan, Moolji Jaitha College Jalgaon.	Ornamental fish opportunity for sustainable development.	
3	Dr. Reeta Dwivedi, MIER College of Education Jammu, J&K.	Challenging Gender Inequality: Role of Teacher, School & Society	
4	Mrs. Neetu Sharma Guru Nanak College of Arts, Science Commerce, Mumbai.	Effect of climate change on human life	
5	Dr. Vijayshree Milind Hemke, Shri Shivaji S&C College, Chikhli.	Water conservation: Need of time	
6	Dr. Megha K. Juvekar, Nirmala Memorial Foundation A&C College, Mumbai.	NSS and Social Development	
7	Prof. Ritu Kashyap, Balbharati's M.J.P. College of Commerce, Mumbai.	Social media and today's youth	

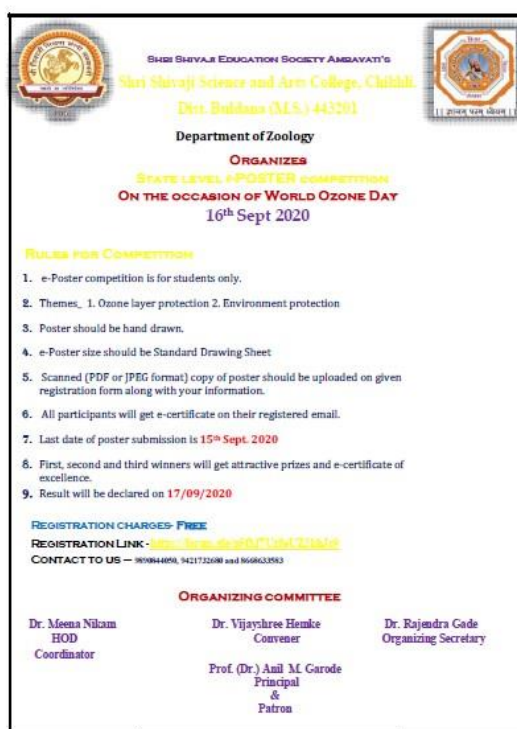


Dr. Vijayshree Hemke delivered guest Lecture (GoToMeeting App) on Water Conservation: Need of Time. This event is hosted by NSS Department, Shri Kumarswami Mahavidyalaya, Ausa Di: Latur M.S. on The occasion of Golden Jubilee of the college on 05th December, 2020



To raise awareness of Ozone Layer wrote Newspaper Article on


“ Save Ozone Layer” by Dr. V. M. Hemke on 16/09/2020



Ozone Day Celebration by Department of Zoology

Brochure of Ozone Day Celebration by organizing competitions (Online)






SHRI SHIVAJI EDUCATION SOCIETY AMRAVATI'S  
SHRI SHIVAJI SCIENCE AND ARTS COLLEGE, CHIKHLI  
DIST. BULDANA (M.S.) 443201

DEPARTMENT OF ZOOLOGY, BOTANY AND MICROBIOLOGY

ORGANIZES  
NATIONAL WEBINAR  
ON 28/07/2020 ON 10:45 A.M.



Registration charges- Free  
Registration Link- <https://forms.gle/45WuQJGjrvpZcac8>  
Link for Telegram group -  
<https://t.me/joinchat/SDdXhmsdD27b0Nxo2WYCW>

SCHEDULE OF WEBINAR

Time	Program/Topic	Resource Person
<b>Sessions-I</b>		
10.45 AM	Welcome Address	Dr. V U Pochhi IQAC Coordinator
10.50 AM	Inaugural Address	Dr. A M Garode Principal Shri Shivaji Science And Arts College, Chikhli.
10.55 AM	Introduction of Resource Person	Dr. V M Hemke Convener
11.00 AM	Resource Person-I Topic-Bird flowers and Flower Birds Ornithophily)	Dr. Raju Kasambe Assistant Director-Education Bombay Natural History Society Mumbai.
12:00 Noon	Vote of Thanks	Dr. M T Nikam HOD Zoology Department
<b>Sessions -II</b>		
12.05 AM	Introduction of Resource Person	Dr. V M Hemke Convener
12.10 PM	Resource Person-II Topic is- 'Yes! We are Healthy!'	Dr. Satish Kale Joint Replacement Surgeon, Lokmanya Hospitals, Pune.
1:10 PM	Vote of Thanks	Prof. S N Mendhe Microbiology Department

The webinar will be conducted on Zoom app

- ❖ All participants are requested to kindly download zoom app in your PC/Mobile.
- ❖ Kindly join the webinar before 10 minutes by clicking on given link in telegram group.
- ❖ E-certificate will be provided to the participants after successful completion of webinar.
- ❖ Feedback link will be share after completion of the webinar

Organizing committee

Prof. Anil Garode- Principal, SSSAC Chikhli	Dr. V M Hemke (Dept. of Zoology) -Convener
Dr. V U Pochhi- IQAC Coordinator & HOD Botany	Mr. D L Gavande(Botany) Organizing Secretary
Dr. M T Nikam-HOD Zoology-Convener	Mr. M D Kolte (Botany)-Organizing Secretary
Mr. S N Mendhe- Dept. of Microbiology Organizing Secretary	Dr. R B Gade Dept. of Zoology Organizing Secretary

For More Details Contact to:

Dr. V. M. Hemke. Convener 9421732680	Mr. D. L. Gavande Organizing Secretary 9011138879	Mr. M. D. Kolte Organizing Secretary 8888154009
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## Bird flowers and flower birds

(Ornithophily)



**Dr Raju Kasambe**  
Assistant Director – Education  
BNHS, Mumbai



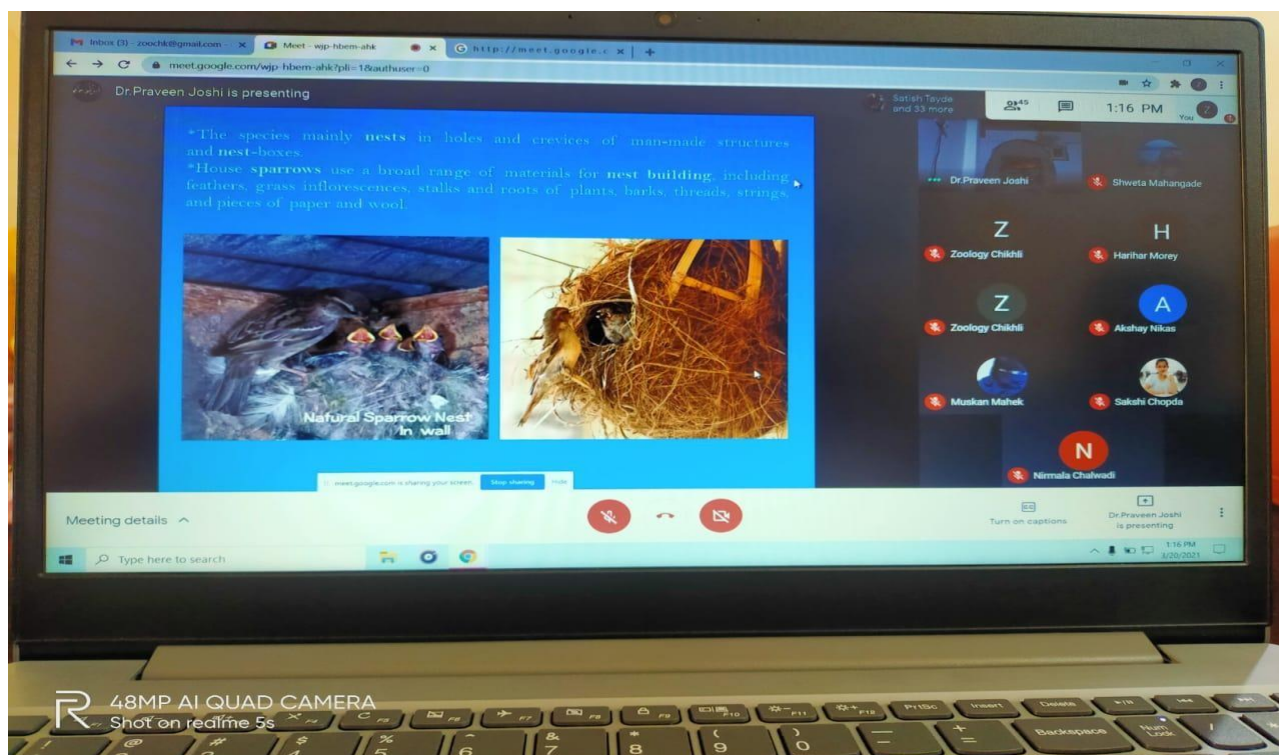
Organizes National Webinar on 1) Bird Flower And Flower Bird and  
Resource person: Dr. Raju Kasambe



2) On “Yes, We are healthy!” to raise awareness regarding Covid-19 on 28/07/2020

Resource person is Dr. Satish Kale

Joint Replacement Surgeon, Lokmanya Hospitals Pune.





# श्री शिवाजी महाविद्यालयात जागतिक चिमणी दिवस साजरा

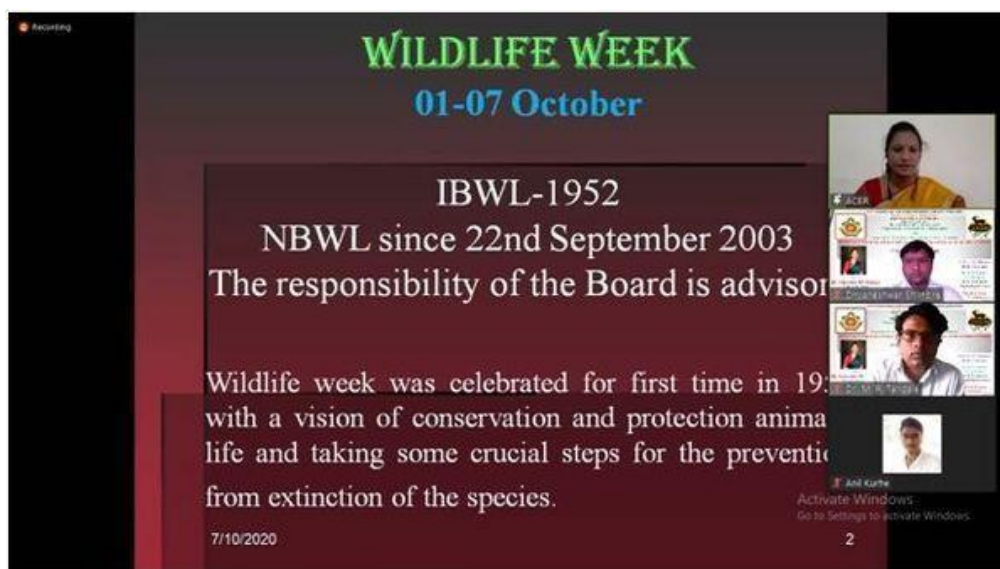


**चिखली, २१ मार्च (गुड इन्डिनिंग सिटी) :** येथील श्री शिवाजी महाविद्यालयामध्ये २० मार्च २०२१ रोजी जागतिक चिमणी दिनाचे आयोजन करण्यात आले. या निमित्ताने पक्षीतज्ञ प्रा.डॉ.प्रवीण जोशी, अमोलकचंद महाविद्यालय, यवतमाळ यांचे आभासी पद्धतीने व्याख्यान आयोजित करण्यात आले होते.

व्याख्यानाचा विषय, जागतिक चिमणी दिनाचे आयोजन- काळाची गरज हा होता. कार्यक्रमाच्या अध्यक्षस्थानी महाविद्यालयाचे प्राचार्य डॉ.अनिल गारोडे होते. आपल्या अध्यक्षीय भाषणातून बोलताना त्यांनी मानवी जीवनासाठी पक्ष्यांचे अविभाज्य महत्व विषद केले. कार्यक्रमाचे प्रास्ताविक प्राणीशास्त्र विभागप्रमुख प्रा.डॉ.मीना निकम यांनी केले. आपल्या प्रास्ताविकात बोलताना डॉ. निकम यांनी चिमणी व काही पक्षांच्या प्रजाती वेगाने नष्ट होत आहेत याची जाण विद्यार्थ्यांमध्ये व्हावी तसेच पक्ष्यांच्या संवर्धनासाठी अशा प्रकारचे उपक्रम

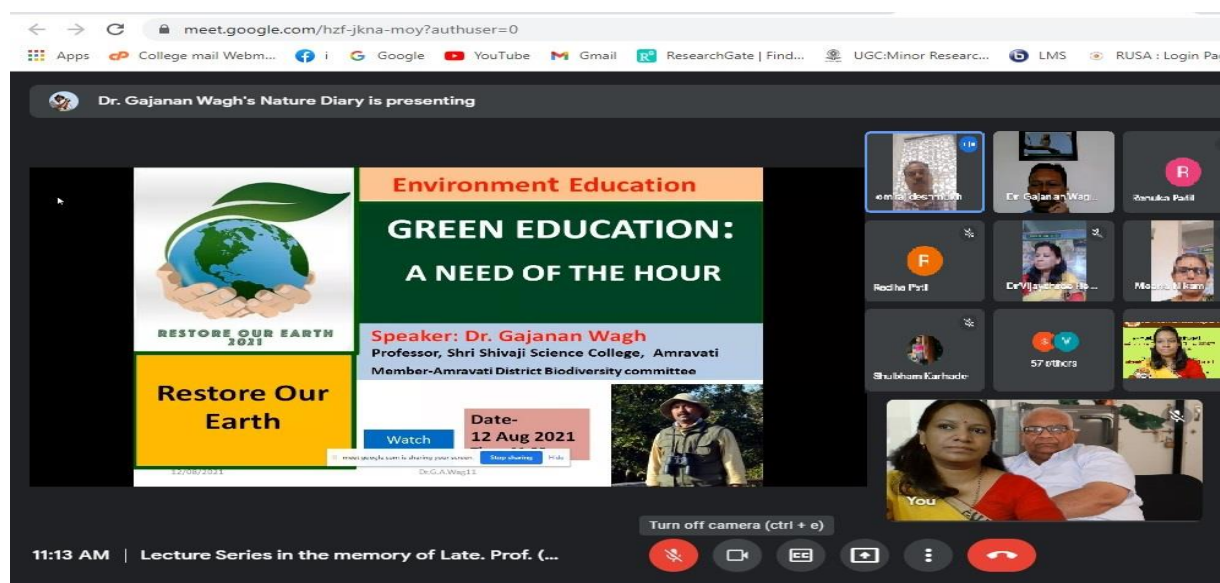
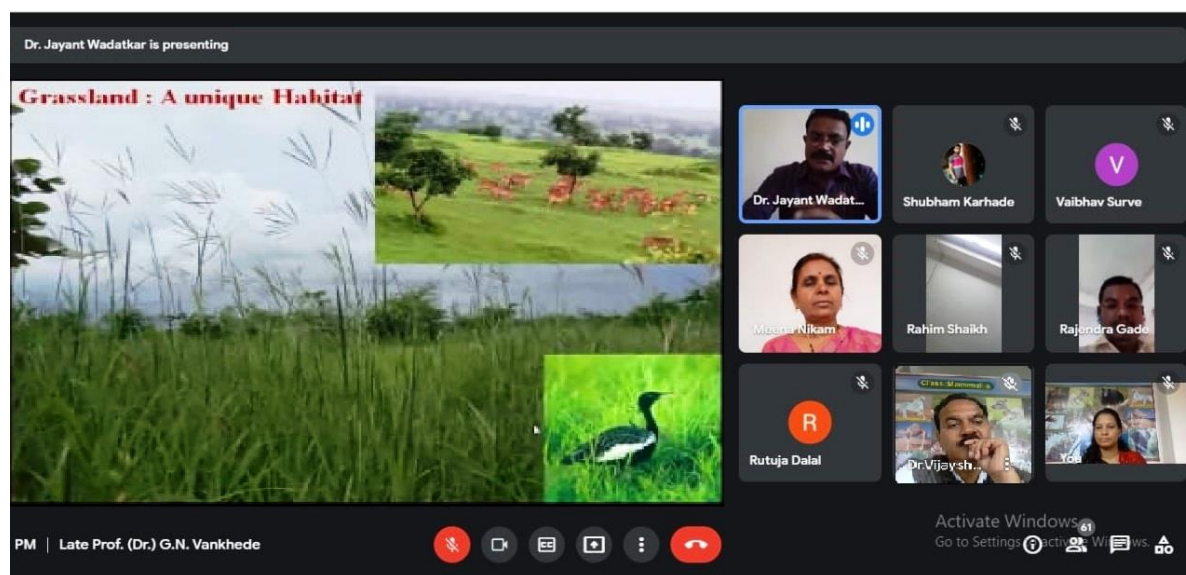
राबविणे गरजेचे असल्याचे स्पष्ट केले. आपल्या उद्घाटनपर भाषणात महाविद्यालयाच्या खट-उ समन्वयक प्रा.डॉ. वनिता पोच्छी यांनी कार्यक्रमाचे उद्घाटन करून शुभेच्छा दिल्या. आपल्या व्याख्यानात बोलताना प्रा.डॉ.प्रवीण जोशी यांनी जागतिक चिमणी दिनाचे महत्व तसेच दुर्मिळ होत जाणाऱ्या पक्ष्यांच्या प्रजातीकडे लक्ष वेधले आणि पक्षी संवर्धनासाठी विद्यार्थ्यांची महत्वाची भूमिका विषद केली. प्रमुख वक्ते प्रा. डॉ. प्रवीण जोशी यांनी पक्षीतज्ञ म्हणून केलेले कार्य व त्यांचा परिचय प्रा.डॉ.विजयश्री हेमके यांनी करून दिला. तसेच प्रा.डॉ.विजयश्री हेमके यांनी कार्यक्रमाचे आभारप्रदर्शनही केले. या कार्यक्रमाला विद्यापीठ स्तरावर विद्यार्थ्यांचा भरघोस प्रतिसाद लाभला. सदर कार्यक्रमाच्या यशस्वीतेसाठी विश्वनाथ सावळे व रहीम शेख यांनी परिश्रम घेतले. कार्यक्रमासाठी प्रा.डॉ.गणेश धोरात, प्रा.विलीप गावंडे, प्रा.मुकुंद कोलते व प्रा.डॉ. सोनाली गायकवाड यांनी तंत्र सहाय्य केले.

Department of Zoology organized a Guest Lecture on “World Sparrow Day” of Prof. Dr. Praveen Joshi Amolakchand Mahavidyalaya, Yevatmal on 20<sup>th</sup> March 2020



Dr. Vijayshree Hemke delivered guest Lecture (Zoom App) on “Celebration of Wildlife Week”  
This event is hosted by Zoology Department, Shri Vyanktesh Mahavidyalaya, D. Raja on The occasion of Wildlife Week on 7th Oct 2020





Department of Zoology organized a Five Lectures series on, “Environment Education” on 12, 17, 27 August, 18 and 21 Sept 2021. Online Mode.

## Criterion – I- Curricular Aspects [QIM – 1.3.1]



**Lecture Series in the memory of**  
**Late Prof.(Dr.) G N Vankhede**  
**Theme: Environment Education**



Form/ Group	G-form link
Registration link	<a href="https://forms.gle/Ey9IeHAnPvbpwLA17">https://forms.gle/Ey9IeHAnPvbpwLA17</a>
WhatsApp group link	<a href="https://chat.whatsapp.com/CiHsPrCfZx65xBNFbPB1I4">https://chat.whatsapp.com/CiHsPrCfZx65xBNFbPB1I4</a>

**Our Valuable Participants**

Lecture	Date	Google meet link	participants
I st	12 Aug 2021	<a href="https://meet.google.com/hzf-jkna-moy">https://meet.google.com/hzf-jkna-moy</a>	72
II nd	17 Aug 2021	<a href="https://meet.google.com/vmj-pbaa-unb">https://meet.google.com/vmj-pbaa-unb</a>	61
III rd	27 Aug 2021	<a href="https://meet.google.com/gzq-jnir-gog">https://meet.google.com/gzq-jnir-gog</a>	74
IV th	18 Sept 2021	<a href="https://meet.google.com/bro-qpti-jix">https://meet.google.com/bro-qpti-jix</a>	41
V th	21 Sept 2021	<a href="https://meet.google.com/ffb-dbnj-yvc">https://meet.google.com/ffb-dbnj-yvc</a>	46

**Shri Shivaji Science And Arts College, Chikhli Dist. Buldana**

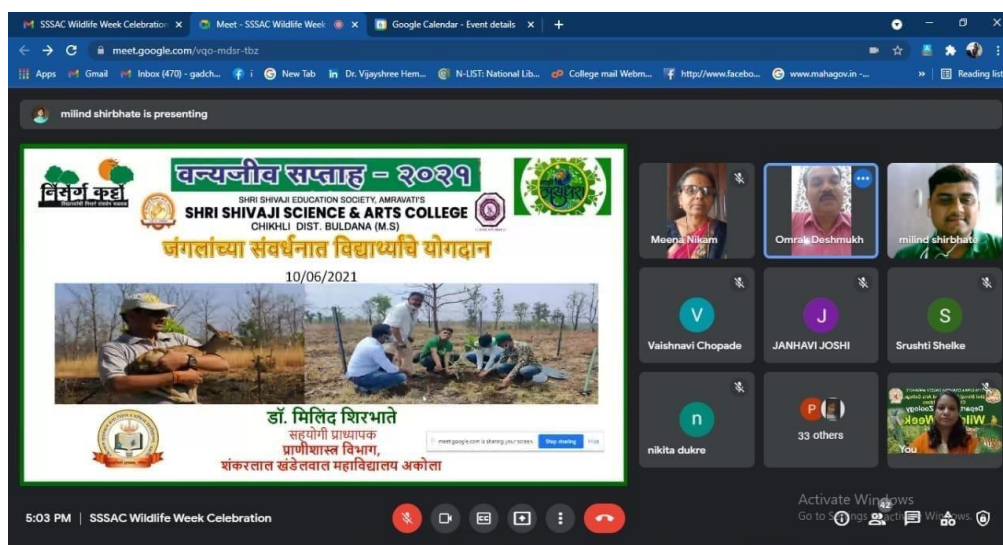


Five Eminent Naturalist was the Resource person for Guest Lectures

Sr. No	Name of Resource Person	Designation	Date
1	Dr. Gajanan A. Wagh	Professor in Zoology	12/08/2021
2	Dr. Jayant Wadatkar	SGBAU, Amravati	17/08/2021
3	Dr. Manjusha Wath	Professor in Botany. GVISH, Amravati	27/08/2021
4	Dr. Shrikant Warhekar	Well known Naturalist	18/09/2021
5	Shri. Kiran More	Livestock Supervisor, Govt. of MS	21/09/2021



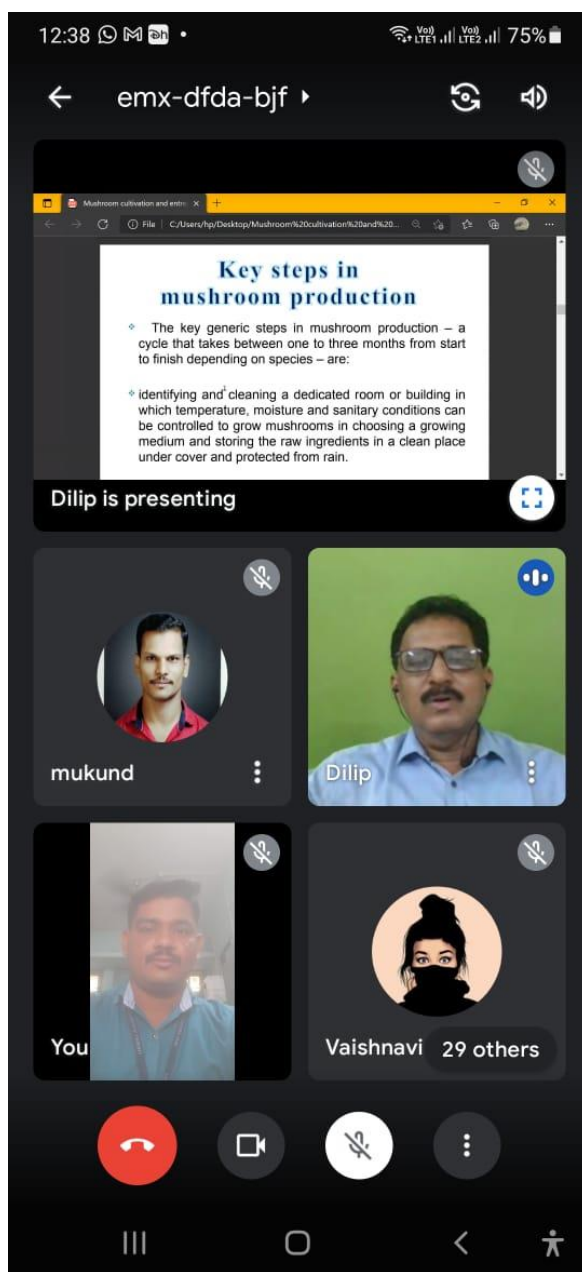
## Criterion – I- Curricular Aspects [QIM – 1.3.1]



Wildlife Week (02-08 Oct) celebrated by organizing Guest Lectures

- Topics
- 1) Role of Students & Teachers in conservation of Jungle on 06/10/2021  
Resource Person was Dr.Milind Shirbhate Asso. Prof. S. K. College, Akola.
  - 2) Deforestation & Human-Animal Conflict on 08/10/2021  
Resource Person was Shri. Kishor Padol Range Forest Officer, Khamgaon

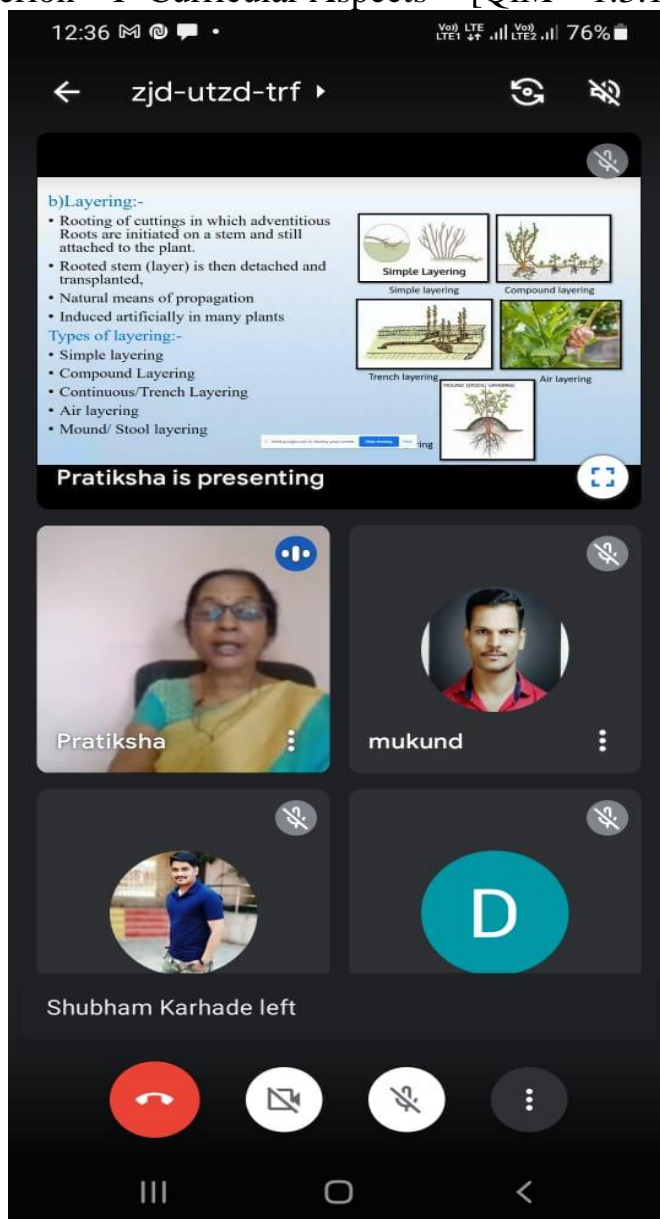
## Criterion – I- Curricular Aspects [QIM – 1.3.1]



A workshop is organized by Botany Department on Mashroom Cultivation on 23/09/2021

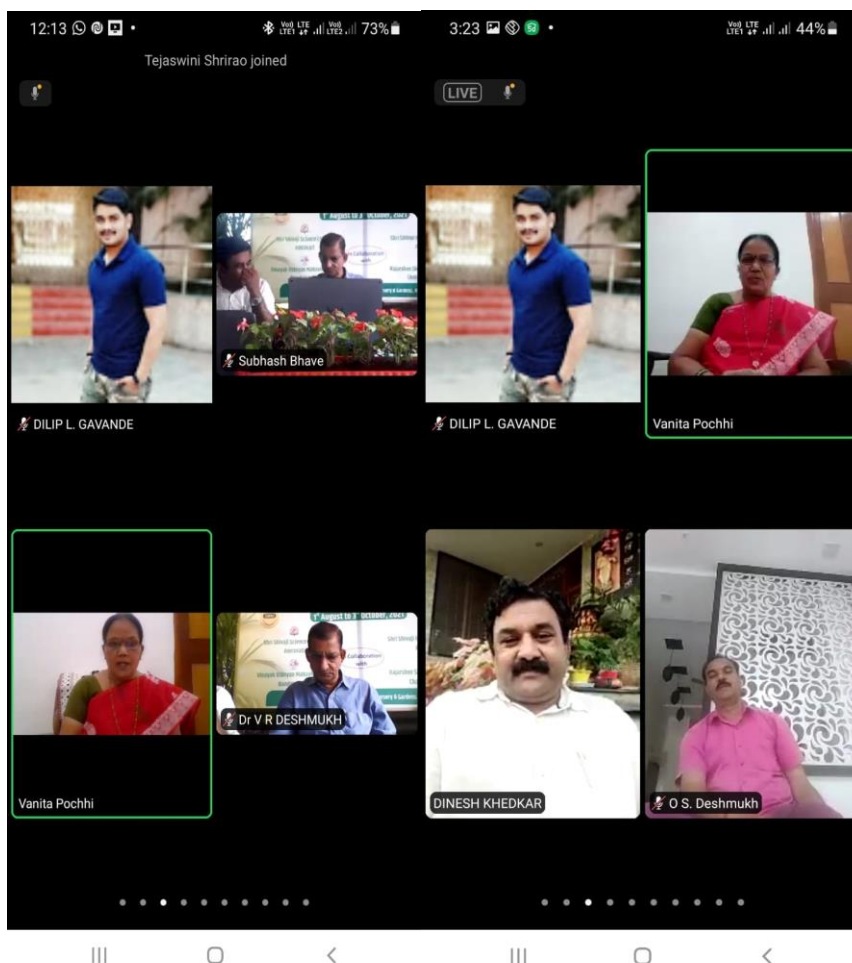


## Criterion – I- Curricular Aspects [QIM – 1.3.1]

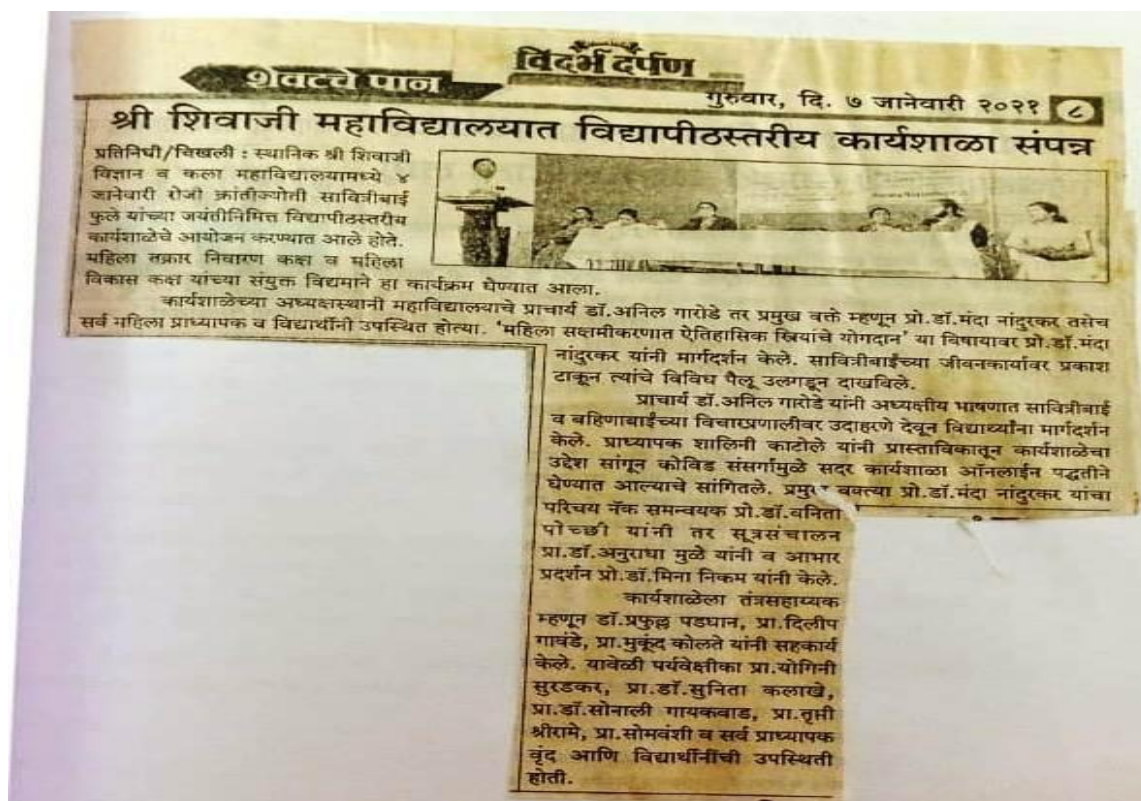


A lecture series organized by Botany Department on Nursery Management and Plant Propagation

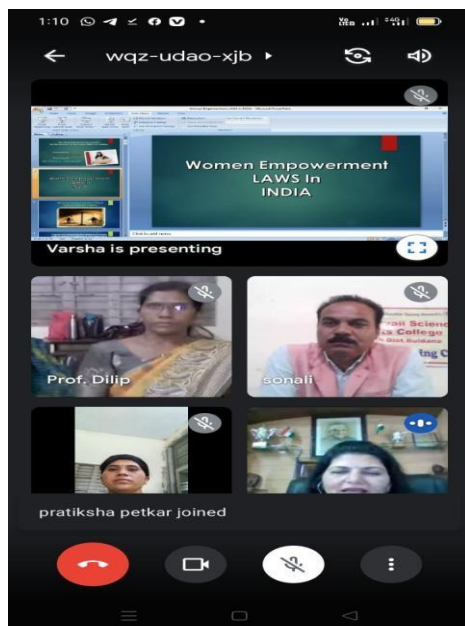
**Criterion – I- Curricular Aspects [QIM – 1.3.1]**  
**Department of Botany organized Guest Lectures on Garden Revitalizing Ideal Necessities**  
**Activity under MoU on dated 01/08/2021**

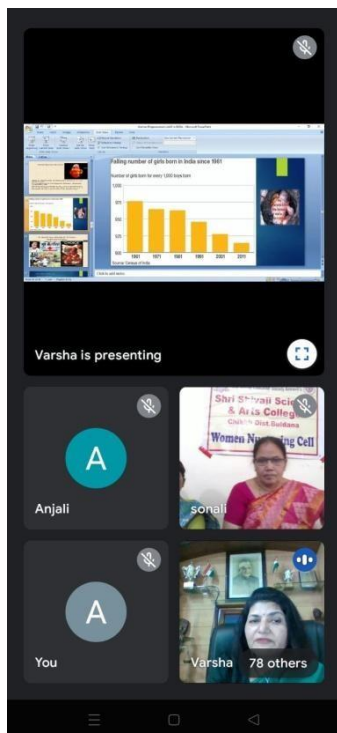






ICC Cell of the College And Women Development Cell organized a Workshop on “Contribution of historic Great Women in Women Empowerment” on 4th Jan 2021





## देशोन्नती

### महिला - सांस्कृतिक

## श्री शिवाजी महाविद्यालयात महिला सक्षमीकरण आणि भारतीय कायदे या विषयावर कार्यशाळा

**चिखली** - स्थानिक श्री शिवाजी महाविद्यालयात 'women Nurturing cell & IQAC' यांच्या संयुक्त विद्यमाने 'महिला सक्षमीकरण आणि भारतीय कायदे' या विषयावर कार्यशाळा संपन्न आयोजित करण्यात आली.

कार्यशाळेच्या अध्यक्षस्थानी महाविद्यालयाचे प्राचार्य डॉ. ओमराज देशमुख होते. त्यांनी आपल्या अभ्यसीय माषणातून जागृती जगातील महिलांना विविध क्षेत्रात जसे सामाजिक, धार्मिक विधि, शैक्षणिक, आर्थिक व सांस्कृतिक निर्बाध घेण्यास त्यांना दुष्यम स्थान दिले जाते. महिलांना सक्षम करूनच आमण समाज आणि राष्ट्राला बलवान करू शकतो.

कार्यशाळेचे प्रमुख वक्ते प्राचार्य डॉ. वर्षा देशमुख, डॉ. पंजाबराव देशमुख विधि महाविद्यालय, अमरावती यांनी या कार्यशाळेला मार्गदर्शन करताना भारतीय राज्यघटनेतील महिलांना मिळालेले

आवाहन केले. डॉ. वनिता पोथरी यांनी IQAC समन्वयक यांनी आपल्या स्वागतपर माषणातून महाविद्यालयाच्या महिला कक्षाच्या आणि IQAC वतीने महिला सक्षमीकरणासाठी विविध उपक्रमांचे आयोजन केले जाते. डॉ. मिना निक्कम यांनी आपल्या श्रस्तान्त्रिक भाषणातून कार्यशाळेचा हेत स्पष्ट केला. डॉ. अनुराधा मुळे यांनी कार्यशाळेच्या प्रमुख वक्ते प्राचार्य डॉ. वर्षा देशमुख यांचा परिचय करून दिला.

कार्यक्रमाचे संवादन डॉ. सुनिता कलठाचे यांनी केले तर आभार प्रदर्शन डॉ. पल्लवी मल्लो यांनी केले. तंत्रसहाय्यक म्हणून डॉ. सोनाली गायकवाड, प्रा. दिलीप गावडे व डॉ. धनंजय भोयर कान पहिले कार्यक्रमाच्या यज्ञस्थीततेसाठी प्रा. शालिनी काटोले यांनी प्रवृत्त केले. या कार्यशाळेमध्ये २१० महिला, विद्यार्थी व विद्यार्थीनींनी सहभाग घेतला. ही कार्यशाळा आभासी पद्धतीने घेण्यात आली. (वा.प्र.)

Women Empowerment and Laws workshop organized on 21/07/21 by Women Nurturing Cell & IQAC of the College.



अंबेडकर यांच्या स्मारकाला वाचन करण्यात आले.

## श्री शिवाजी विज्ञान व कला महाविद्यालया- मध्ये फिटनेस शिबिराचे उद्घाटन

चिखली प्रति.: स्थानिक श्री शिवाजी विज्ञान व कला महाविद्यालयामध्ये महिला विकास कक्ष ,आय .क्यू.ए.सी.सेल व शारीरिक शिक्षण विभागातर्फे फिटनेस शिबिराचे उद्घाटन झाले असून 25 ते 30 नोव्हेंबर या दरम्यान महिला व विद्यार्थिनी साठी या शिबिराचे आयोजन करण्यात आले आहे. आजच्या धावपळीच्या प्रचंड ताणतणावाच्या परिस्थितीमध्ये आपले शारीरिक, मानसिक, सामाजिक



स्वास्थ्य बिघडत चालले आहे. सोबतच चुकीची जीवनशैली व खानपान यामुळे आपली रोगप्रतिकार शक्ती कमी झाली आहे. आपले आरोग्य स्वस्थ ठेवण्यासाठी ,निरोगी ठेवण्यासाठी आयुष्याचा मूलमंत्र देणारे पाच दिवसीय फिटनेस शिबिराचे आयोजन केले आहे. वेटलेस कोच सी .वंदना राजपूत, सी. सुजाता मराठे ,सी. कांचन डेग व प्राचार्य डॉ. ओमराज एस. देशमुख यांच्या अध्यक्षतेत या शिबिराचे उद्घाटन झाले या शिबिराचे आयोजक डॉ.अनुराधा रा. मुळे (समन्वयक ,महिला विकास कक्ष) डॉ. वनिता पोच्छी (समन्वयक ,आय क्यू ए सी सेल), प्रा. सचिन कोकोडे (शारीरिक शिक्षण विभाग) यांनी विशेष परिश्रम घेतले. तसेच प्रा. योगिनी सुरडकर, प्रा. शालिनी काटोले ,डॉ.मीना निकम, डॉ.सुनिता कलाखे ,डॉ.मुक्ती जायव ,डॉ. पल्लवी नल्ले ,डॉ.सोनाली गायकवाड ,डॉ.पुष्पा दहिकर,प्रा. तृप्ती श्रीरामे ,कु. खिल्लारे व विद्यार्थिनींनी उत्स्फूर्त प्रतिसाद दिला.

Fitness camp organized for Female Students & Staff on 25/11/2021 by Women Nurturing Cell of the College.



Savitribaii Fule (First Lady Teacher of Maharashtra) birth Anniversary celebrated on 03/01/2022

By Internal Complaint Committee And Women Nurturing Cell.



NCC students actively participated in Swachhha Bharat Abhiyan on 27/12/21





Department of Economics organized online guest Lecture on Celebration of World Population Day (Human Values) on 11 July 2021. Resource person was Dr. R. Y. Mahore

## COMPUTER CRYPTOCURRENCY PROFESSIONAL ETHICS

### GeoTag Photo on National Level Workshop on Big Data



### Convener Address by Dr. A.B.Kadam

मंगळवार ३० मार्च २०२१ पृष्ठे : ४

## श्री शिवाजी विज्ञान व कला महाविद्यालयामध्ये Cryptocurrency या विषयावर राष्ट्रीय कार्यशाळा

**चिखली/प्रतिनिधी:** स्थानिक श्री शिवाजी विज्ञान व कला महाविद्यालय चिखली येथे दि. २६/०३/२०२१ शुक्रवारी Cryptocurrency या विषयावर राष्ट्रीय कार्यशाळा घेण्यात आली. या कार्यशाळेला मार्गदर्शक म्हणून एन. डी. ए., खडकवासला, पुणे येथील प्रो. चित्रा देसाई यांनी मार्गदर्शन केले. कार्यशाळेचे अध्यक्षस्थानी प्राचार्य डॉ. अनिल एम. गारोडे होते. कार्यशाळेच्या उद्घाटक IQAC Coordinator प्रो. वनिता पोचरी उपस्थित होत्या. या कार्यशाळेसाठी १९७ लोकांनी सहभाग घेतला. त्यात महाराष्ट्रासोबतच भारताच्या इतर राज्यातील लोकांनी सुद्धा सहभाग नोंदविला. प्रो. चित्रा देसाई मॅडम यांनी मार्गदर्शनामध्ये modern cryptography, डिजिटल Signature, Blockchain, यांचे महत्त्व सांगून त्याच बरोबर Bitcoin चे महत्त्व सांगताना त्या म्हणाल्या की, क्रिप्टो करन्सी म्हणजे आभासी चलन. चलनी नोटांना पर्याय असणारी एक डिजिटल वा व्हर्चुअल करन्सी. म्हणजे हे चलन भारतीय रुपया, अमेरिकन डॉलर वा ब्रिटिश पाउंडासारखं नसतं. कोणत्याही देशाचं सरकार वा बँक हे चलन यक्षापतङ्ग नाही. क्रिप्टोकरन्सीसाठी ब्लॉकचेन हे तंत्रज्ञान वापरलं जातं. ब्लॉकचेन म्हणजे सोप्या भाषेत Chain of Blocks किंवा रेकॉर्ड्सची लिस्ट. परिणामी हे व्यवहार अतिशय सुरक्षित होतात आणि ही यंत्रणा हॅक करणं शक्य नसतं. पण जमेची बाजू म्हणजे डिजिटल करन्सी असल्याने फसवलं जाण्याची शक्यता उरत नाही. बिटकॉइन, लाईटकॉइन, रिपल, इथेरियम आणि झेड वॅश नावाच्या काही क्रिप्टोकरन्सीज प्रसिद्ध आहेत. बिटकॉइन ही एक प्रकारची क्रिप्टोकरन्सी आहे. बिटकॉइन हे रुपया, डॉलर किंवा इतर कुठल्याही चलनाप्रमाणे एक चलन असतं. फक्त ते ऑनलाईन असतं आणि एका कम्प्युटर कोडद्वारे एनक्रिप्टेड म्हणजे लॉक केलेलं असतं. जशा आपल्याला बँकमधून नोटा मिळतात तसंच इथंही ऑनलाईन साईट्सवर हे चलन तुम्हाला तुमच्याकडच्या पैशातून खरेदी करता येतं.

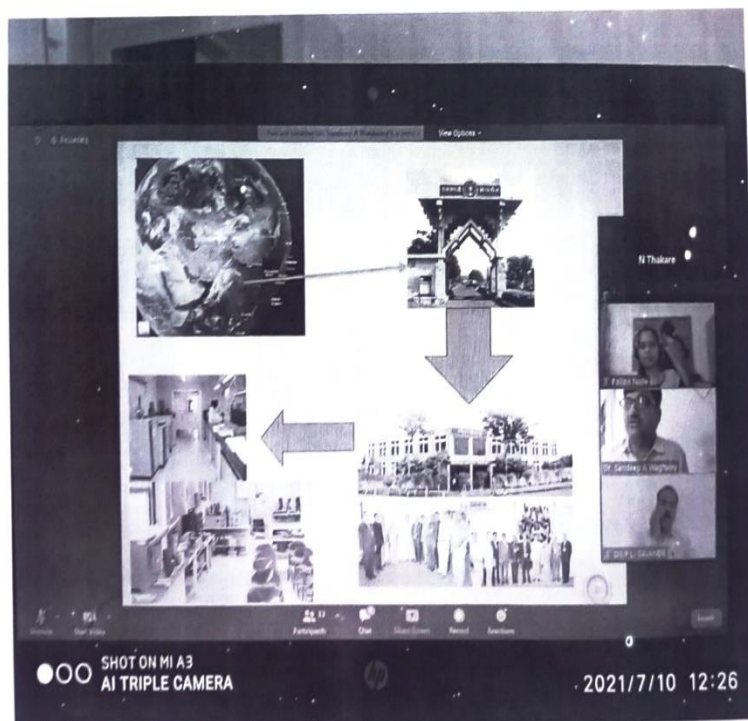
संगणक विभागाचे प्रमुख डॉ. अविनाश कदम हे कार्यशाळेचे संयोजक होते. कार्यशाळेच्या समन्वयक डॉ. मुक्ती जाधव ह्या होत्या. तांत्रिक सचिव डॉ. सोनाली गायकवाड यांनी आभार प्रदर्शन केले. प्रा. दिलीप गावंडे, श्री. सचिन चव्हाण, श्री. राहुल भटकर यांनी मोलाचे सहकार्य केले.





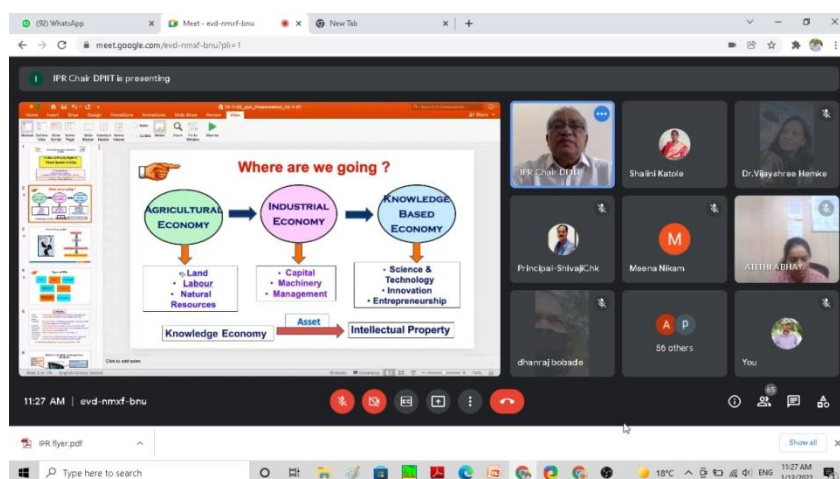
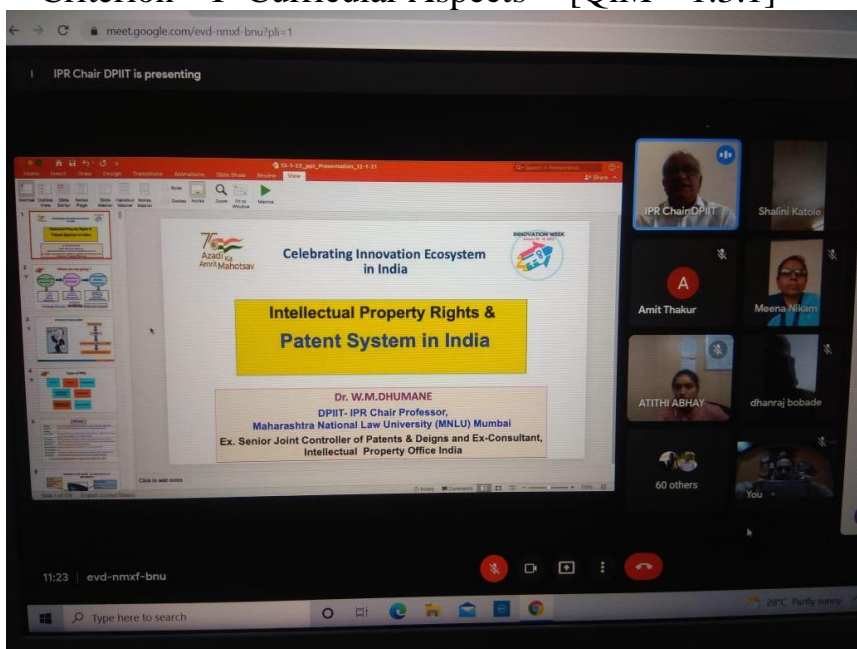
**Department of Political Science organized program on “Human Rights”**

**Department of Political Science also celebrated, Constitution Day, Voters Awareness Programs, National Voters’ Day and Established student body for Election Literacy**





## Criterion – I- Curricular Aspects [QIM – 1.3.1]



**Workshops on IPR organized regularly for students to teach Professional Ethics**



*As Deshmukh*  
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