



**DEOLA EDUCATION SOCIETY'S  
KARMVEER RAMRAOJI AHER ARTS, SCIENCE AND  
COMMERCE COLLEGE, DEOLA DIST. NASHIK**

**Program Outcomes of the Institution**

The graduate program provides the students advanced knowledge in the field of their concerned discipline also enables the students to acquire the basic skills required for carrying out curricular as well as extracurricular activities such as research, post graduation, recruitment in jobs etc. The program also provides them with adequate knowledge and skill to enhance their proficiency in the subject concerned. Similarly after completion of the program students can confidently prepare for post graduation, civil services and some other competitive examinations of their choice.

The specific outcomes are as follows:

**B. A.**

1. The students acquire knowledge in the field of social sciences, literature and humanities which make them sensitive and sensible enough.
2. The B.A. graduates will be acquainted with the social, economical, historical, geographical, political, ideological and philosophical tradition and thinking.
3. The program also empowers the graduates to appear for various competitive examinations or choose the post graduate programme of their choice.
4. The B. A. program enables the students to acquire the knowledge with human values framing the base to deal with various problems in life with courage and humanity.
5. The students will be ignited enough to think and act over for the solution of various issues prevailed in the human life to make this world better than ever.
6. Programme provides the base to be the responsible citizen.

**M. A.**

1. The students acquire in depth knowledge in the field of social sciences, literature and humanities which make them sensitive and sensible enough to solve the issues related with mankind.

2. The postgraduates will be acquainted with the social, economical, historical, geographical, political, ideological and philosophical tradition and thinking of their respective subjects.

3. The program also empowers the post-graduates to appear for various competitive examinations or choose the any post graduate or research programme of their choice.

4. The M. A. program enables the students to acquire the knowledge with human values framing the base to deal with various problems in life with courage and humanity.

5. The students will be ignited enough through the knowledge of the special PG programme to think and act over for the solution of various issues prevailed in the human life to make this world better than ever.

6. Through the PG programme the students will come to know about research in their respective subject. It may also provide the information to the students for collection of Data, enquiry, primary and secondary methods of collection of data, classification and tabulation of data. Students get knowledge of various research methods and can realize the importance of research to find solutions of a specific issue.

### **B. Com.**

1. The B. Com. Graduates would be able to acquire basic and fundamental knowledge and skills for doing business and commercial activities of their choice.

2. The program also empowers the graduates to appear for various competitive exams or choose a profession of their choice such as CA, CS, ICWA, MBA, M.Com etc.

3. The program enables the students to acquire the accounting knowledge, management principles, retail trading, banking and insurance transactions, business economics and financial management.

4. The students also acquire knowledge in the field of management accounting, corporate accounting, statistical and mathematical techniques and knowledge relating to corporate law and business laws.

5. The students become capable of doing a business of their choice or choosing a profession or can become employees having basic knowledge and skill required for such activities.

### **B. Sc.**

1. The B. Sc. Programme develops scientific temperament and attitude among the science graduates.

2. The qualities of a science – observation, precision, analytical mind, logical thinking, clarity of thought and expression, systematic approach, qualitative and quantitative decision making are enlarged.
3. The program also empowers the graduates to appear for various competitive examinations or choose the post graduate programme of their choice.
4. This programme train the learners to extract information, formulate and solve problems in a systematic and logical manner.
5. This programme enables the learners to perform the jobs in diverse fields such as science, engineering, industries, survey, education, banking, development-planning, business, public service, self business etc. efficiently.

### **Department of English**

English Literature Programme Outcome- To develop intellectual, personal and professional abilities through effective communicative skills; ensuring high standard of behavioral attitude through literary subjects and shaping the students socially responsible citizens. Programme Specific Outcome has a successful completion of the Programme in the Academic sphere. The students will be accurate both in oral and written communication as they will be strong in Grammar and its usage. They can express a thorough command of English and its linguistic structures. They can apply critical frameworks to analyze the linguistic, cultural and historical background of texts written in English. They will be familiar with the conventions of diverse textual genres including fiction, non-fiction, poetry, autobiography, biography, Journal, film, plays, editorials etc.

The students are acquiring a sound comprehension of literary, societal, cultural, biographical and historical background of the greatest writings in British Literature. New Literatures can provide adequate information on colonization. The English Language can trace out the history of English Language and varied components of linguistic structures of the language. Grammar can be utilized for Communication to gain knowledge on fundamental principles of English grammar including parts of speech, sentence types, sentence analysis, simple, compound, complex sentences, subject-verb agreement, pronoun usage, punctuation, capitalization etc.

Through the programme of Indian Writing in English the students can learn the literary, societal, cultural, biographical and historical background of the greatest English writings penned by Indian Authors. Indian Literature in English Translation used to know the basic principles in translation, issues faced by translators and the popularity gained through target language.

## **Marathi Department**

The Marathi department is established in 1978, when the KRA college Deola has been established. The department is well-known in all over in Maharashtra. The aim of the department is to develop the attitude of literary forms especially Marathi poetry and short stories. It develops reading, writing and communications skills among the students. It works in the area of developing attitude regarding literary forms like Marathi autobiographies and novels. It also develops the attitude about literary forms like Marathi drama and Lalit Gadya. It gives knowledge about the history of Medieval Marathi literature and supplies information about literary forms and theories. It also gives information about history of Modern Marathi literature. It also aims at developing attitude towards Marathi Linguistic theories and grammar.

### The specific outcomes of Marathi

The specific outcomes are as follows:

1. Understanding the interrelation between literature and society.
2. Explaining the nature of language and literature.
3. Obtaining the skills of literary criticism.
4. Imbuing the essay writing skills.
5. Illustrating the nature of literary forms like one-act-play, travelogue, novel and short story.
6. Introduction of the contemporary literary works.
7. Acquiring the skill of translation.
8. Explanation of the need and significance of editing.
9. Understanding the nature and features of poetry.
10. Creating the skill of critical appreciation of a poem.
11. Getting acquainted with modern linguistics.
12. Understanding origin, nature and function of language.
13. Getting information about phonetics.
14. Enhancing the interest in Marathi language.

## **Hindi Department**

The Hindi Department established in August 1998. It has been started as a general level subject. The subject Hindi enjoys the status of national language of India. It is heard and watched through the Hindi serials all over India in every household. Hindi language is essential for communication on the national level. It also important language for many job recruitment. Hindi Language is very important in the field of translation.

The specific outcomes of Hindi:

On completion of B.A Students are able to:

1. To understand the basic concept and subject of Hindi & its origin
2. To make aware the importance of Hindi subject.
3. To understand various aspect of Hindi literature with a process to rich method and giving new mode and direction.
4. To make attempt in different area and theory such as vocabulary and vice versa.
6. To know about Hindi literature its roots, cause, perspectives and methods.
7. Elaborating and understanding its philosophical methods of Hindi Literature.
8. Evaluating the concept of Hindi from past to present and making the society more closely through literature
9. Availing the job opportunities in translation, transformation and media.
10. Increasing the critical attitude about literature studies.
11. Create an interest in literature

# Name of the Department: Economics

## Criteria II. Program Objectives/ Outcomes

### Programs offered: Non-Restructuring

#### B.A.Economics

Sr. No.	Programme	Course Objectives		Programme Specific Outcome
1	<b>B. A. Economics</b>	1. To provide in depth knowledge of socio-economic aspects.		1. After completion of program, students will be able to have in-depth knowledge of basic concepts in Economics.
		2. To familiarize with current and recent developments in Economics		2. A good academic background to be able to seek admission for masters degree in Economics
		3. To enrich knowledge through problem solving, hands-on activities projects.		3. An academic background to be able to crack the baning and administrative examinations
		4. To provide a broad and comprehensive knowledge in micro and macro Economics, Public Economics, Indian Economy and Agricultural Economics.		
		5.To develop analytical abilities towards real world problems		
Sr.No	Class	Course	Course Objectives	Course Outcomes
1	F.Y.B.A.	Indian Economy - Problems and Prospects	1. The course intends to make students aware about the Developing Economy, Theory of Demographic Transition. 2. The course intends to make students aware about the Poverty and Unemployment, Place of Agriculture in Indian economy, Role of Industrialization, Meaning and Classification of Labour Meaning. 3. The course intends to make students aware about the Concept, Need and Objectives Salient Features of Economy of Maharashtra	1. After completion of program, students will be able to have in-depth knowledge of the Developing Economy, Theory of Demographic Transition. 2. Students will be get acquainted with the the basic concept of the Poverty and Unemployment, Place of Agriculture in Indian economy, Role of Industrialization, Meaning and Classification of Labour Meaning. 3. After completion of program, students will be able to have in-depth knowledge of the Concept, Need and Objectives Salient Features of Economy of Maharashtra
2	F.Y. B.Com.	Business Economics (Micro)	1. To expose Students of Commerce to basic micro economic concepts and inculcate an analytical approach to the subject matter. 2. To stimulate the student interest by showing the relevance and use of various economic theories. 3. To apply economic reasoning to problems of business.	1. Students will be get acquainted with the basic micro economic concepts and inculcate an analytical approach to the subject matter. 2. Students will be acquaint the basic concepts of the relevance and use of various economic theories. 3. After completion of program, students will be able to have in-depth knowledge of economic reasoning to problems of business.
3	S.Y.B.Com	Business Economics (Macro)	1. The objective of the course is to familiarize the students the basic concept of Macro Economics and application. 2. To study the behavior of the economy as a whole. 3. To study the relationship among broad aggregates. 4. To apply economic reasoning to problems of the economy.	1. Students will be get acquainted with the the basic concept of Macro Economics and application. 2. After completion of program, students will be able to have in-depth knowledge of behavior of the economy as a whole. 3. Students will be acquaint the basic concepts of the relationship among broad aggregates. 4. Students will be familiar with the apply economic reasoning to problems of the economy.
4	S.Y.B.A..	G-2: Modern Banking	1. To create the awareness among the students of Modern Banking System. 2. Banking constitutes important components towards understanding of economics. 3. Clear understanding of the operations of banking their interaction with the rest of the economy is essential to realize how monetary forces operate through a multitude of channels- market, non-market, institutions and among others, the state.	1. Students will be get awared with the Modern Banking System. 2. Students will be familiar with Banking constitutes important components towards understanding of economics. 3. After completion of program, students will be able to have in-depth knowledge of Clear understanding of the operations of banking their interaction with the rest of the economy is essential to realize how monetary forces operate through a multitude of channels- market, non-market, institutions and among others, the state.

5	S.Y.B.A.	S-1: Micro Economics	<p>1. As a foundation course, in this paper, student is expected to understand the behavior of an economic agent, namely, a consumer, a producer, a factor owner and the price fluctuation in a market.</p> <p>2. The chapter incorporated in this paper deal with the nature and scope of economics, the theory of consumer behavior, analysis of production function and equilibrium of a producer, the price formation in different markets structures and the equilibrium of a firm and industry.</p> <p>3. In addition, the principles of factor pricing and commodity pricing as also the problems of investment and welfare economics have been included.</p>	<p>1. As a foundation course, in this paper, student is expected to understand the behavior of an economic agent, namely, a consumer, a producer, a factor owner and the price fluctuation in a market. 2. The chapter incorporated in this paper deal with the nature and scope of economics, the theory of consumer behavior, analysis of production function and equilibrium of a producer, the price formation in different markets structures and the equilibrium of a firm and industry. 3. In addition, the principles of factor pricing and commodity pricing as also the problems of investment and welfare economics have been included.</p>
6	S.Y.B.A.	S-2: Macro Economics	<p>1. On account of the growing influence and involvement of the State in economic fields, macro-economics has become a major area of economic analysis in terms of theoretical, empirical as well as policy making issues.</p> <p>2. Macro economics has an extensive, substantive as well as methodological content. It deals with the functioning of the economy as a whole, the objective of the course is to familiarize the students the basic concept of Macro as well as methodological contents.</p> <p>3. It deals with the functioning of the economy as a whole, including how the economy's total output of goods and services and employment of resources is determined and what causes these totals to fluctuate.</p> <p>4. The paper entitled Macroeconomics is designed to make an undergraduate student aware of the basic theoretical framework underlying the field of Macro-economics.</p>	<p>1. After completion of program, students will be able to have in-depth knowledge of on account of the growing influence and involvement of the State in economic fields, macro-economics has become a major area of economic analysis in terms of theoretical, empirical as well as policy making issues.</p> <p>2. Students will be familiar with Macro economics has an extensive, substantive as well as methodological content. It deals with the functioning of the economy as a whole, the objective of the course is to familiarize the students the basic concept of Macro as well as methodological contents.</p> <p>3. Students will be get acquainted with the functioning of the economy as a whole, including how the economy's total output of goods and services and employment of resources is determined and what causes these totals to fluctuate.</p> <p>4. Student get awared of the basic theoretical framework underlying the field of Macro-economics.</p>
7	T.Y.B.A.	G-3: Economic Development and Planning	<p>1. The Study of Economic Development has gained importance because of stained interest of the developing countries in uplifting their economic conditions by restructuring their economics to acquire greater diversity, efficiency and equity in Consonance with their priorities. While few success stories can be counted, many have grappled with chronic problems of narrow economic base, inefficiency and low standard of living. 2. For this and other reasons, their have been many approaches to economic development. 3. In recent times, besides hard core economic prescriptions to development, concern hitherto relegated to background, like education, health, sanitation and infrastructural development, have found place of pride in explaining the preference of various economies incorporated in this paper are devoted to the theories of economic development, approaches to economic development, social and institutional aspects of development, constraints on development process, macro economic policies, roll of foreign capital and economic planning etc. in developing countries.</p>	<p>1. Students will be familiar with Economic Development has gained importance because of stained interest of the developing countries in uplifting their economic conditions by restructuring their economics to acquire greater diversity, efficiency and equity in Consonance with their priorities. While few success stories can be counted, many have grappled with chronic problems of narrow economicbase, inefficiency and low standard of living. 2. Students will be acquaint the basic concepts of this and other reasons, their have been many approaches to economic development. 3. After completion of program, students will be able to have in-depth knowledge of, recent times, besides hard core economic prescriptions to development, concern hitherto relegated to background, like education, health, sanitation and infrastructural development, have found place of pride in explaining the preference of various economies incorporated in this paper are devoted to the theories of economic development, approaches to economic development, social and institutional aspects of development, constraints on development process, macro economic policies, roll of foreign capital and economic planning etc. in developing countries.</p>

8	T.Y.B.A.	S-3: International Economics	1. This course provides the students a thorough understanding and deep knowledge about the basic principles that tend to govern the free flow of trade in goods and services at the global level. 2. The contents of the Paper spread over various modules, lay stress both on theory and applied nature of the subject that have registered rapid changes during the last decade. 3. Besides this, the contents prepare the students to know the impact of free trade and tariffs on the different sectors of the economy as well as at the macro level. 4. The students would also be well trained about the rationale of recent changes in the export import policies of India. 5. This paper has become relatively more relevant from the policy point of view under the present waves of globalization and liberalization both in the North and in the South.	1. Students will be get acquainted with the understanding and deep knowledge about the basic principles that tend to govern the free flow of trade in goods and services at the global level. 2. After completion of program, students will be able to have in-depth knowledge of the contents of the Paper spread over various modules, lay stress both on theory and applied nature of the subject that have registered rapid changes during the last decade. 3. Students will be get acquainted with the contents prepare the students to know the impact of free trade and tariffs on the different sectors of the economy as well as at the macro level. 4. Students will be get acquainted with the rationale of recent changes in the export import policies of India. 5. Students will be get acquainted with the policy point of view under the present waves of globalization and liberalization both in the North and in the South.
9	T.Y.B.A.	S-4: Public Finance	1. Role and functions of the Government in an economy has been changing with the Passas of time. 2. The term 'Public Finance' has traditionally been applied to the package of those policies and operations which involve the use of tax and expenditure measures while budgetary policy is an important part to understand the basic problems of use of resources, distribution of Income, etc. 3. There are vast array of fiscal institutions -tax systems, expenditure programs budgetary procedures, stabilization instruments, debt issues, levels of government, etc., which Raise a spectrum of issues arising from the operation of these institutions. 4. Further, the existence of externalities, concern for adjustment in the distribution of income and wealth, etc. require political processes for their solution in a manner which combines individual freedom and justice.	1. After completion of program, students will be able to have in-depth knowledge of Role and functions of the Government in an economy has been changing with the Passas of time. 2. Students will be acquaint the basic concepts of The term 'Public Finance' has traditionally been applied to the package of those policies and operations which involve the use of tax and expenditure measures while budgetary policy is an important part to understand the basic problems of use of resources, distribution of Income, etc. 3. Students will be acquaint the basic concepts of vast array of fiscal institutions -tax systems, expenditure programs budgetary procedures, stabilization instruments, debt issues, levels of government, etc., which Raise a spectrum of issues arising from the operation of these institutions. 4. Students will be acquaint the basic concepts of the existence of externalities, concern for adjustment in the distribution of income and wealth, etc. require political processes for their solution in a manner which combines individual freedom and justice.
10	FYBCOM	BANKING &FINANCE	3. To make the students aware of banking business and practices.	
			4. To give thorough knowledge of banking operations.	

## Department of History

The program is designed to help the student to know the freedom struggle of modern India. It aims at enabling the students to understand the process of rise of modern India. The course intends to provide an understanding of the social, economical, religious concepts in History. The



program also studies the development of concepts of nation – state background of political history. The purpose of this program is to enable the students the past heritage of the nation as well.

1. To impart the students information of freedom fighters struggle for independence of county.
2. TO try to eradicate communal conflict and establish social justice.
3. To give information of social reformer and saints contribution and national leaders.
4. To give knowledge and information of world revolutions and its impact on the society.

Why students preferred history program for their study

1. Students wants to know about their forefathers.
2. Students must know about worlds development of democracy from kingship to recent system of democracy
3. To understand evolution of mankind.
4. Program is beneficial for the various competitive examinations.

## **Department of Geography**

### **Program Specific Outcomes**

**On completion of the B.A (Geography), students are able to:**

**1) Govt Department:** A geographer can avail job opportunities in government departments (like planning and developmental commissions, forestry, environmental, and disaster management departments etc), travel agencies, manufacturing firms, text book and map publishers, media agencies, etc.

**2) Surveyor:** Many others with a degree in geography also opt to work as a surveyor.

**3) GPS Surveyors:** In recent days even the fields of GIS as well as Remote Sensing are providing job opportunities to people with the educational background in geography and related specializations.

- 5) **GIS and Remote Sensing Fields:** Geography as a career provides multiple job options.
- 6) **Government employer:** Central government agencies employ geographers for mapping, intelligence work and remote sensing interpretation. State and local governments employ geographers on planning and development commissions.
- 8) **Urban and regional planner:** Concerned with planning, housing and Development projects with respect to their location and utilization of available land-space.
- 9) **GIS specialist:** City governments, county agencies and other government agencies and private groups are often in need of experienced GIS professionals.
- 10) **Climatologist:** Agencies viz. National Weather Service, news media, the Weather Channel and other government entities occasionally need climatologist.
- 11) **Transportation manager:** The regional transit authorities or shipping, logistics and transportation companies requires in transportation geography
- 12) **Government officer:** Geographical Survey of India/State and Central government provides job opportunities.
- 13) It is learn that in the MPSC/UPSC and other competitive examinations.
- 14) Digitizers in GIS company tides.

## **Department of Political Science**

We are a theoretically innovative department that encourages methodological and intellectual pluralism. The Department of Political Science **offers graduation** to students interested in learning about the political world around them, and to students seeking career options in government and related fields.

The study of Government and Politics gives our students broad training in political science and is especially useful in preparation for the further study . This subject also accommodates students wishing to enter public service or who are interested in public administration or law school. Those wishing to enter public service or are interested in the study of public administration at the post- graduate level greatly benefited from the subject. With the help of Political Science programs, students analyze the fundamental theories and philosophies of government, economy, and civil society; and apply them to contemporary political systems. They can compare and contrast complex political issues and events within the context of the diverse political systems around the world. Students are prepared to enter positions within the government at the federal, state, and local levels or within the private sector as government relations specialists, public

policy mangers, and contractors. The subject enables students to start or advance career in political science.

## Course outcomes of Political Science:

### Indian government And Politics (F.Y.B.A.)

To understand the philosophy of Indian constitution . • To identify the causes, impact of British colonial rule. • To appreciate the various phases of Indian national movement. • To create value in young youth regarding the patriotism. • To understand the various Government of Indian acts their provision and reforms. • To know the salient features in making of Indian constitution • To appreciate the socio-economic political factors which lead to the freedom struggle. • To understand the constitutional orderings and institutional arrangement. • To appreciate the fundamental rights and duties and the directive principle of state policy • To evaluate the evolution, functioning and consequences of political parties in India. • To identify how electoral rules and procedure in India effect election outcomes.

### Political Theory And Concepts (S.Y.B.A.)

To understand the nature and scope of political theory . • To understand the significance of political theory. • To acquaint with the theories, approaches, concepts and principles of political theory. • To appreciate the procedure of different theoretical ideas in political theory. • To Interpret and assess information regarding a variety of political theory. • To understand the various traditional and modern theories of political science. • To evaluate the theories of origin of the state. • To comprehend the sources of political information's.

### Political Ideologies (T.Y.B.A.)

The study of political ideologies gives the student a window through which to view complex political phenomena. This course examines the origins and impact of ideologies on the development of societies. Major ideologies such as nationalism, liberalism, conservatism, anarchism, Marxist theory, socialism, applied Marxism, fascism, Nazism, feminism, environmentalism and Third World ideologies are covered.

- To examines the origin and impact if ideologies.
- To search the role of ideologies in policy making/law making.
- Student get the idea, 'How ideologies force to act ones as political actor'.

## Outcomes of Commerce.

SR. NO.	Particulars	Description
---------	-------------	-------------

1		Programme Outcomes	The Programme B.Com. provides trained manpower for industrial, Banking, Insurance, Finance, Transport, Warehousing and government sector to meet the manpower requirements. The B.Com. Graduates will get hands on experience in various aspects acquires skill regarding marketing, selling and administrative abilities of corporate sectors.
2		Programme Specific Outcomes	The students should acquire the knowledge, skills and attitudes during the B.Com. Course. By completing the B.Com. Course they can become Account Clerk, Accountant, Manager, Financial Manager, Teacher, Entrepreneur, and also able to higher education such as C.A., C.S., I.C.W.A, etc.
3		<b>Course Outcomes</b>	
	I	Financial Accounting	On Successful completion of this course the students are able to know the various accounting concepts, accounting procedures, methods and techniques. The students are also acquaint them regarding practical approach, accounts writing by using software package.
	II	Consumer Protection and Business Ethics	Students are able to acquaint regarding consumer and consumer movements, create awareness among students about consumer rights, duties and mechanism for redressal, role of united nations about protection of consumers, various laws relating to consumer protection and business ethics in various functional areas.
	III	Business Mathematics & Statistics	In practical mathematics, the student has the correct guidance on the level of quantity and numerology. There was also cooperative cooperation in the commerce branch
	IV	Organization Skill Development	Students of Commerce are required to have complete information about the office. Information about management of the office is available properly through this subject.
	IV	Business Communication	After completion of the course the students able to understand new trends in business communication also develop business communication skills through application and exercise.
	V	Corporate Accounting	To enables the students to be aware on the corporate accounting in conformity with the provisions of Indian Companies Act and Indian Accounting Standards. To enable the students to develop skills for Computerized Accounting and Accounting Standards.
	VI	Elements of Company Law	After successful completion of the course students acquires knowledge regarding Fundamentals of Company Law, Provisions of the New Company Act of 2013 and duties and responsibilities of key managerial personnel.

	VII	Advanced Accounting	After successful completion of the course students acquires knowledge regarding accounting procedures, methods and techniques and also able to know accounting procedure of banking companies, Co-operative societies and General Insurance by using Software Package.
	VII I	Business Regulatory Framework	After successfully completion the course the students acquaint regarding concepts, terms and provisions of Mercantile Law, crate awareness among students regarding various laws affecting business and trade.
	IX	Auditing and Taxation	After successfully completion the course the students acquaint regarding concept Principles of Auditing, Audit Process, Tax Audit and Audit of Computerized System. The students also get knowledge about Audit Report, Computation of Taxable Income and Filing of Income Tax Returns.
	X	Marketing Management (F.Y.B.Com) Paper I, II, III	This Principles of Marketing Syllabus Resource & Lesson Plans course is a fully developed resource to help you organize and teach the principles of marketing.
	XI	Business Administration Paper I, II, III	Employees get all the information in this business in business administration. Students get full information from employee joining to retiring staff

## COURSE OUTCOMES IN CHEMSITRY

### F.Y. B. Sc. Chemistry (w. e. f- 2013- 2014)

1. To provide in-depth knowledge of scientific and technological aspects of Chemistry.
2. To familiarize with current and recent developments in Chemistry.
3. To enrich knowledge through programmes such as industrial visits, projects etc.
4. To train students in skills related to Chemistry for academic and industrial requirement.
5. To create foundation for research and development in Chemistry.
6. To develop analytical abilities for independent thinking.
7. To help students build-up a progressive and successful career in Chemistry.

### S.Y. B. Sc. Chemistry (w. e. f- 2014- 2015)

1. To introduce concept of kinetics at undergraduate level.
2. To impart basic knowledge of photochemistry and its applications
3. To understand Nernst Distribution Law and its applications

4. To introduce basics of analytical chemistry
5. To understand errors and its interpretation
6. To study the theory underlying Inorganic Qualitative analysis
7. To disseminate knowledge of qualitative & quantitative analysis of organic compounds
8. To identify chiral center in the given organic compounds.
9. To draw the structure of boat and chair configuration of cyclohexane.
10. To define and classify heterocyclic compounds.
11. To study principles and process of metallurgy
12. To study metallurgy of Aluminum and Iron
13. To conceptualize phenomenon of free energy and equilibrium.
14. To distinguish behavior of liquid phase solutions.
15. To provide basic knowledge essential for volumetric analysis
16. To learn and equip with non instrumental volumetric techniques
17. Student should understand: the Concept of different reagents used in the one type of conversion.
18. Student should know the different bimolecular.
19. To study the metal carbonyl complexes and their uses in the homogenous catalysis.
20. To study different solvents and to know the different theories of acids and bases.
21. To know toxic chemical in the environment.
22. To equip students to correlate theoretical and experimental knowledge.
23. To verify theoretical principles experimentally.

**T.Y. B. Sc. Chemistry (w. e. f- 2015- 2016)**

- 1 To provide in-depth knowledge of Chemical Kinetics, Electrolytic Conductance, Investigation of molecular structure, Phase Rule, Electrochemical Cells, Crystal Structure, Quantum Chemistry, Nuclear Chemistry and technological as well as practical aspects of physical Chemistry.
- 2 To provide basic knowledge essential to Molecular Orbital Theory, Coordination Chemistry, Metals Semiconductors and Superconductors, Homogeneous. Heterogeneous Catalysis, Bioinorganic Chemistry and technological as well as practical aspects of Inorganic Chemistry.
- 3 To provide basic and in-depth knowledge of Electrophilic, Nucleophilic substitution, Elimination, Rearrangement, Stereochemistry, spectroscopic methods in structure determinations as well as practical aspects of organic Chemistry.
- 4 Student should understand the Principles, basics and in-depth knowledge of Gravimetric, Polarographic, Thermal methods of analysis, Spectrophotometry, Atomic Absorption, Flame Emission Spectroscopy, Chromatography, Electrophoresis, Nephelometry and Turbidimetric analysis techniques.
- 5 The students are expected to learn modern approach to chemical industry, Agro, food, starch, cement, Petrochemical, glass industries, polymer, soap, detergent, cosmetics, dyes, paints, pharmaceutical industries.

- 6 To provide in-depth knowledge of biochemistry, molecular biology and Environmental chemistry aspects.

## **DEPARTMENT OF BOTANY**

### **B.SC. BOTANY**

#### **OUTCOMES**

**1. To increase knowledge of basic natural sciences:**

Basic science knowledge is important for any further study and research. Students are known about different types of lower plants such as Algae, Fungi, Bryophyte and

2. Pteridophytes that indicates the evolution in plants. Students will be able to apply the scientific method to questions in biology by formulating testable hypotheses, gathering data that address these hypothesis, and analyzing those data to assess the degree to which their scientific work supports their hypotheses.

**2. To aware about scientific knowledge:** Students will be able to apply the scientific method to questions in biology by formulating testable hypotheses, gathering data that address these hypotheses, and analyzing those data to assess the degree to which their scientific work supports their hypotheses. Experiments are based on scientific techniques. Industrial product production requires basic skills and knowledge which is useful for welfare of society and career of Students.

**3. To study modern technique:** This is an era of Biotechnology, in which different microbial origin biotechnological product used daily for normal survival of human beings. Cell biology and genetics, provide knowledge about tools & technique of recombinant DNA technology plant tissue culture and their importance and applied in different scientific practices.

**4. Basic sciences and advanced biotechnological techniques:** In Food Industries, Pharmaceutical Industries, Wine Industries, Fiber Industry, Fodder Industry, Leather Industry, Agriculture Industry, Plant Tissue Culture Industry, Mushroom Industry, Biofuel Industry, Biopesticide Industry, Biofertilizer Industry, Vermi culture Industry, Fruit Processing Industry, Horticulture Industry etc. mainly based on biotechnological techniques.

**Practical skills:** Students getting idea about how to perform the experiments of different Botany subject. He learns many things like imagination, innovation, procedure, applications, interpretation of results, plant part sectioning, staining and many other laboratory techniques. Student easily identification of plant, classification, uses of plants. Student learns many physiological, pathological, genetical, ecological phenomenon.

**5. Critical thinking:** Curriculum is modified for the betterment of the students; enhance the ability and thinking power.

**6. Environment and sustainability:** Healthy environment is necessary for normal and healthy life. Due to industrialization and automotive vehicles environment get imbalanced. Today's environment is polluted by different mechanisms. Conservation practices are need to sustainable development.

**7. Enhance life skills:** By learning Science, increase in reading, writing, thinking ability and planning of work Increases our knowledge, curiosity by the use of internet and other resources.

**8. Processing goods according to need:** Know Industrial expectations, need of the Society; one can produce the product of best quality. The students are making aware about use of plants in the various Industries and their products.

**9. Successful career in Botany:** Botany is a fundamental basic natural science. By learning and applying basic techniques to start up a business. In other fields like Forestry, Plant Nursery, Plant Tissue Culture, Plant Research Institutes. Also good career is available in Agriculture sector.

**10. Effective communication:** Field visits and study tours leads to improve our Communication skills in English language. So we can able to write effectively reports, presentations and explanation. Individual work is effectively done in a team and as a member.

**11. To help to farmers:** Agriculture is a backbone of our country. Botany learners can help the farmers in response of Diseases Control, Plant Yield, Biopesticide, Hybrid Seed Production, Use of Biofertilizers etc. Botany Department has organized two days state level Seminar on "Role of Biofertilizers in Modern Agriculture" on 16<sup>th</sup> and 17<sup>th</sup> Jan. 2015. In this seminar eminent resource persons shared their experiences and views with the farmers.

**12. Research:** Skillful experimental study is useful for sustainable development, conservation of environment, reduce pollution, Agricultural problems and many burning issues related to Agriculture.



**13 Socio economical challenges:** Increasing population and unemployment is the main barrier of development of India. To establish small scale Industries like Food Industries, Pharmaceutical Industry, Wine Industry, Fiber Industry, Fodder Industry, Leather Industry, Agriculture Industry, Plant Tissue Culture Industry, Mushroom Industry, Biofuel Industry, Biopesticide Industry, Biofertilizer Industry, Vermi culture Industry, Fruit Processing Industry, Horticulture Industry are economical empowering the unemployed youth.

### **COURSES OUTCOMES:**

<b>Sr No</b>	<b>Class/ Program</b>	<b>Course Name/ Title</b>	<b>Outcomes</b>
1	F. Y. B. Sc.	<b>Term- I Paper- I Plant Diversity</b>	<ol style="list-style-type: none"> <li>1. To give information about lower plants and their life cycle. student are able to know about Non vascular plants and vascular plants</li> <li>2. Understand diversity among algae, fungi, bryophytes, Pteridophytes, Gymnosperms and Angiosperms.</li> <li>3. Know the biodiversity, morphology, life cycles patterns and their economic importance.</li> <li>4. Students have to play important role for conservation of flora and fauna</li> </ol>
		<b>Term- II Paper- I Morphology and Anatomy</b>	<ol style="list-style-type: none"> <li>1. Understand the habit of the angiosperm plant body.</li> <li>2. Know the vegetative characteristics of the plant (Root, Stem, Leaves, Inflorescence, Flower, Fruits)</li> <li>3. Learn about the reproductive characteristics of the plant.</li> <li>4. Understand the plant morphology</li> <li>5. To know internal organization of different tissues in monocot and Dicot plants.</li> <li>6. To describe Anatomical &amp; Physiological characters related to study of plant.</li> <li>7. The knowledge of basic science are the pillars of life science.</li> </ol>
		<b>Term- I &amp; II Paper- II  Industrial Botany</b>	<ol style="list-style-type: none"> <li>1. Use of plant in different Industries like Food Industries, Pharmaceutical Industry, Wine Industry, Fiber Industry, Fodder Industry, Leather Industry, Agriculture Industry, Plant Tissue Culture Industry, Mushroom Industry, Biofuel Industry, Biopesticide Industry, Biofertilizer Industry, Vermi culture Industry, Fruit Processing Industry, Horticulture Industry</li> <li>2. Industrial mycology: Application of fungi in bakery,</li> </ol>

			brewing industry.
		<b>Practical Paper-III</b>	<p>Students understand practically,</p> <ol style="list-style-type: none"> <li>1. Morphology of Leaf and its modification.</li> <li>2. Morphology of root and stem with its modification.</li> <li>3. Study of Flower morphology , Inflorescence and its types of Inflorescence.</li> <li>4. Study fruit Morphology and types.</li> <li>5. Anatomy of Root, Stem and Leaf of Monocot and Dicot</li> <li>6. Study of diversity of Algae, Fungi, Bryophytes, Pteridophytes and Gymnosperms w. r. t systematic position and Morphology, reproduction and Economic importance.</li> <li>7. Study of life cycle of Spirogyra, <i>Cystopus</i>, <i>Riccia</i>, <i>Nephrolepis</i> and <i>Cycas</i> etc.</li> <li>8. Plant resources in Industries, Artificial plant propagations</li> <li>9. Tissue culture, Mushroom cultivation, Biopesticide, Biofertilizers etc.</li> </ol>
2.	S. Y. B. Sc. Term I	<b>BO:211: 81411 Taxonomy of angiosperms and Plant ecology</b>	<p>Understand the diversity of angiosperms.</p> <ol style="list-style-type: none"> <li>1. Understand classification, taxonomic literature, resources of data for Systematics, Binomial nomenclature.</li> <li>2. The comparative account among the families of angiosperms.</li> <li>3. Use computer in the study of Taxonomy</li> <li>4. Ecological grouping of plants.</li> </ol>
	S. Y. B. Sc. Term I	<b>BO:212: 81421 Plant Physiology</b>	<ol style="list-style-type: none"> <li>1. Know importance and scope of Plant Physiology, Plant water relation, absorption of water, ascent of sap, Transpiration phenomenon etc.</li> <li>3. Plant growth and plant growth regulators, nitrogen metabolism.</li> <li>4. Seed dormancy, Physiology of flowering etc</li> </ol>
	S. Y. B. Sc. Term II	<b>BO:221:81412 Plant Anatomy and Embryology</b>	<ol style="list-style-type: none"> <li>1. Students understand the scope &amp; importance of Plant Anatomy and Embryology.</li> <li>2. Know various tissue systems.</li> <li>3. Understand the normal and anomalous secondary growth in plants and their causes (<i>Bignonia</i>, <i>Raphanus</i> and <i>Dracaena</i>)</li> <li>4. Performs the techniques in Plant anatomy.</li> <li>5. Understand structure and development in microsporangium and Megasporangium.</li> <li>6. Understand microsporogenesis and Megasporogenesis.</li> <li>7. Understand male and female gametophytes and Know</li> </ol>

			fertilization, endosperm types and embryogeny.
S. Y. B. Sc. Term II	<b>BO:222:81422</b> <b>Plant</b> <b>Biotechnology</b>		<ol style="list-style-type: none"> <li>1. Understand scope and application of biotechnology</li> <li>2. Enzyme used in fermentation technology in the industries.</li> <li>3. Production and application of single cell protein <i>Spirulina</i> and yeast</li> <li>4. Methods of phytoremediation for environmental sustainability.</li> <li>4. Learn the advanced techniques in genetic engineering.</li> <li>5. Methods of gene transfer, applications and crop improvement through genetic engineering</li> </ol>
	<b>BO:332: 81432</b> <b>Practical Paper</b>		<p>Students understand practically</p> <ol style="list-style-type: none"> <li>1. Plant families representing different groups of Angiosperms w. r. t systematic position, morphological characters, floral formula and floral diagram.</li> <li>2. Know the ecological adaptations like hydrophytes and xerophytes</li> <li>3. Know the vegetation by list count quadrat method.</li> <li>4. Handling the taxonomic tools and ecological instruments.</li> <li>5. Determine WHC, pH, DPD and transpiration rate</li> <li>6. Study of normal secondary growth in stem of Dicots and Monocots.</li> <li>6. Study of epidermal tissue system and mechanical tissue systems.</li> <li>7. Study of normal secondary growth in the Stem of <i>Annona</i>.</li> <li>8. Study of anomalous secondary growth in the Stems of <i>Bignonia</i> and <i>Dracaena</i>.</li> <li>9. Tetrasporangiate anther and types of ovules.</li> <li>10. Student perform biotechnological experiments i.e. Citric Acid titration and SCP</li> <li>10. Demonstration of fermentation,</li> </ol>
T.Y. B.Sc. Botany Sem III	<b>BO 331: 91413</b> <b>Cryptogamic</b> <b>Botany</b>		<ol style="list-style-type: none"> <li>1. Understand the diversity Know the systematic position, morphology and structure, Understand the life cycle pattern of among <ul style="list-style-type: none"> <li>• Algae (<i>Nostoc</i>, <i>Chara</i>, <i>Sargassum</i> and <i>Batrachospermum</i>)</li> <li>• Fungi(<i>Rhizopus</i>, <i>Sacchromyces</i>, <i>Puccinia</i> and <i>Cercospora</i>)</li> <li>• Bryophytes (<i>Marchantia</i>, <i>Anthoceros</i> and <i>Polytrichum</i>)</li> <li>• Pteridophytes (<i>Psilotum</i>, <i>Selaginella</i> and <i>Marsilea</i>).</li> </ul> </li> <li>2. Understand the economic importance of Algae, Fungi,</li> </ol>

			<p>Bryophytes and Pteridophytes. Lower plants are also used as non conventional food sources.</p>
T.Y. B.Sc. Botany Sem III	<b>BO: 332: 91423</b> <b>Cell and Molecular Biology</b>	<p>Gain knowledge about Cell Science of Cell biology gives knowledge about cell organelles, importance their function.</p> <ol style="list-style-type: none"> <li>1. prokaryotic and eukaryotic cell</li> <li>2. Understand component of cell is cell, wall Plasma membrane and Cytoplasmic matrix.</li> <li>3. Cell organelles w.r.t. ultra structure, chemical composition and functions <ul style="list-style-type: none"> <li>• Endoplasmic reticulum</li> <li>• Golgi Complex</li> <li>• Lysosomes</li> <li>• Mitochondrion</li> <li>• Plastids</li> <li>• Ribosome's</li> <li>• Micro bodies</li> </ul> </li> <li>4. Learn the scope and importance of molecular biology.</li> <li>5. Understand the biochemical nature of nucleic acids, their role in living systems, experimental evidences to prove DNA as a genetic material. (Watson &amp; Crick Model)</li> <li>6. Understand the process of DNA replication, DNA damage synthesis of proteins.</li> <li>7. Know the concept of gene organization, Transcription, Translation and role of genetic code in polypeptide formation.</li> <li>8. Gene action and regulation</li> </ol>	
T.Y. B.Sc. Botany Sem III	<b>BO: 333:91433</b> <b>Genetics and Evolution</b>	<ol style="list-style-type: none"> <li>1. Understand the Science of Heredity, Mendelism, laws of heredity</li> <li>2. Interaction of gene</li> <li>3. Study of multiple alleles, linkage and crossing over</li> <li>4. Cytoplasmic inheritance</li> <li>5. Sex linked inheritance</li> <li>6. Euploidy, aneuploidy and chromosomal aberrations.</li> <li>7. Realize the role of genes in evolution of species and theories.</li> <li>8. Know the population genetics.</li> <li>9. New varieties must be developed to show resistance to change in climatic conditions.</li> </ol>	
T.Y. B.Sc.	<b>BO:334: 91443</b> <b>Spermatophyta and</b>	<ol style="list-style-type: none"> <li>1. Understand the diversity of angiosperms.</li> <li>2. Know the origin and classification systems</li> <li>3. Understand distinguishing features and the</li> </ol>	

	Botany Sem III	<b>Palaeobotany</b>	comparative account among the families of angiosperms. 4. Know the scope of Paleobotany, types of fossils and geological time scale 5. Understand the various fossil genera representing different fossil groups.
	T.Y. B.Sc. Botany Sem III	<b>BO: 335: 91453 HORTICULTURE AND FLORICULTURE</b>	1. To understand scope , importance & disciplines of horticulture. 2. To familiar with horticultural zone of Maharashtra & India. 3. To understand different horticultural practices & methods. 4. To understand production technology, harvesting and preservation techniques of fruits, vegetables, Ornamentals, floriculture. 5. Knowledge of horticulture and floriculture is useful for development of small scale industries for the youth
	T.Y. B.Sc. Botany Sem III	<b>BO: 336 : 91463 COMPUTATIONAL BOTANY</b>	1. Understand the techniques of statistics to biological data 2. Collection, Sampling, representation of data and its advantages 3. Measures the mean, mode, median, dispersion methods, correlation and regression of biological data. 4. Probabilities and its theories. 5. Determine test of significance. 6. Seed testing methods, vegetation data and satellite data
	T.Y. B.Sc. Botany Sem IV	<b>BO: 341:91414 Plant Physiology and Biochemistry</b>	1. Know scope and importance of plant Physiology. 2. Understand the process of Photosynthesis in higher plants with particular emphasis on light and dark reactions, C <sub>3</sub> , C <sub>4</sub> , CAM pathways. 3. Understand the respiration in higher plants with particular emphasis on Aerobic and Anaerobic Respiration. 4. To understand the Stress Physiology 5. Understand the current status of Biochemistry. 6. Understand the importance of Bio-molecules 6. Recognize the impact of Biochemistry on socioeconomic aspects of life and Industrial application of Biochemistry
	T.Y. B.Sc. Botany Sem IV	<b>BO: 342: 91424 PLANT ECOLOGY AND BIODIVERSITY</b>	1. Know the scope and importance of the ecology, to Provide knowledge about environmental factors and natural resources and their importance in sustainable development. 2. Understand plant communities and ecological

		<b>Y</b>	<p>adaptations in plants and environmental impact assessment.</p> <ol style="list-style-type: none"> <li>Learn about loss and conservation of biodiversity,</li> <li>Discover botanical regions of India and vegetation types of Maharashtra.</li> <li>Understand Bioremediation, Global warming and climate change.</li> <li>Knowledge is useful for conservation of natural resources.</li> </ol>
T.Y. B.Sc. Botany Sem IV	<b>BO: 343: 91434</b> <b>Plant Pathology</b>		<ol style="list-style-type: none"> <li>Understand the scope and importance of Plant Pathology. To give knowledge about plant disease, p. growth, plant metabolism, and structure between different groups of plant.</li> <li>Mechanism of disease development and defense mechanism</li> <li>Know the diseases caused by fungal, bacterial, mycoplasma, viral pathogens</li> <li>control measures of plant diseases</li> </ol>
T.Y. B.Sc. Botany Sem IV	<b>BO:344: 91444</b> <b>Medicinal and Economic Botany</b>		<ol style="list-style-type: none"> <li>Know about origin, history herbal treatment systems</li> <li>Understand about Ayurvedic, Siddha, Unani, Tibi and Chinese system w. r. t. principles, formulations and plant used.</li> <li>preparation of drug and adulteration of drugs</li> <li>Understand medicinally important drug plants</li> <li>Know about ethno botany.</li> </ol>
T.Y. B.Sc. Botany Sem IV	<b>BO:345: 91454</b> <b>Plant Biotechnology</b>		<ol style="list-style-type: none"> <li>Understand the biotechnology scope, significance and achievement.</li> <li>fundamentals of totipotency in plant tissue culture techniques.</li> <li>Know the transgenic technology for the improvement of quality and quantity of plant and there by product.</li> <li>Understand the advantages of in vitro propagation in various areas.</li> <li>Realize the application and importance of plant tissue culture and transgenic plants.</li> <li>Known the working of NCBI and data retrieval tools.</li> </ol>
T.Y. B.Sc. Botany Sem IV	<b>BO:346: 91464</b> <b>Plant Breeding and Seed Technology</b>		<ol style="list-style-type: none"> <li>Understand the science of plant breeding.</li> <li>To study the different techniques of production of new superior crop varieties.</li> <li>Know the seed production, seed certification, seed processing, seed packaging, seed Marketing and seed purity analysis</li> </ol>
Annual Pattern	<b>BO:347: 91474</b> <b>practical paper I</b>		<p>Students understand practically</p> <ol style="list-style-type: none"> <li>The range of thallus structure reproductive structure The life cycle pattern in Algae, Fungi, Bryophytes and Pteridophytes</li> </ol>

			<ol style="list-style-type: none"> <li>2. Preparation of fixative and stains</li> <li>3. The Mitosis and Meiosis techniques.</li> <li>4. Study of polytene chromosome from Chironomus larvae.</li> <li>5. Isolation of DNA from Cauliflower plant material.</li> <li>6. Separation of photosynthetic pigment by paper chromatography method.</li> <li>7. Demonstration experiments</li> <li>8. Learn the laboratory techniques of preparation of MS medium</li> <li>9. In vitro callus induction by using maize embryo.</li> <li>10. Student know the importance of applications of Biofertilizers.</li> <li>11. Study of transgenic plants Bt cotton, Bt tomato Bt brinjal</li> </ol>
Annual Pattern	<b>BO:348: 91484 practical paper II</b>	<ol style="list-style-type: none"> <li>1. Student understand induction of tetraploidy in onion root tips in vitro condition</li> <li>2. Students Estimation of frequency of PTC taste sensitivity in their family, earlobe and rolling tongue</li> <li>3. Study the problems on gene mapping using three points test cross.</li> <li>4. Study of Gymnosperms Pinus and Gnetum w r t morphology, anatomy (root, stem and leaf), male and female cone.</li> <li>5. Study of eight plant families representing different groups of angiosperms w. r. t. systematic position, morphological characters, floral formula and floral diagram.</li> <li>6. Identification of plant with help of floras</li> <li>7. Student prepare artificial key on the basis of vegetative and reproductive characters.</li> <li>8. Student studies the fossils types.</li> <li>9. Study of plant vegetation by list quadrat method.</li> <li>10. Student knows the hybridization technique practically.</li> <li>11. Induction of polyploidy in <i>Allium cepa</i> by colchicines treatment</li> <li>12. Understand the seed moisture test and sampling equipment photographs.</li> </ol>	
Annual Pattern	<b>BO:349: 91494 practical paper III</b>	<ol style="list-style-type: none"> <li>1. Student understand the phenology of fruit, vegetable and flowering crops</li> <li>2. Student handled garden tools like sprayer, duster, pruning knife, sprinkler etc.</li> <li>3. Student do practically filling of garden pots for plantation.</li> <li>4. Know the techniques of propogation like cutting,</li> </ol>	

			layering, budding and grafting. 5. Learn the technique of pruning 6. Student understands the cut flower preservation methods. 7. Methods of dry flower making. 8. Student learn statistical analysis of biological data <ul style="list-style-type: none"> <li>• Mean, mode, median, variance and standard deviation methods</li> <li>• Graphical methods</li> <li>• Student 't' test and <math>X^2</math> test</li> <li>• Correlation</li> </ul> 9. Determine seed germination indices 10 Analysis of satellite data collected on biomass 11. Student prepares PDA culture medium. 12. Student understand Koch's postulates, pure culture techniques, 13. Student study the fungal, bacterial, viral diseases of crop plants 14. Student studies the fungicides and microbial pesticides. 15. Study of six drug yielding plants w. r. t. macroscopic, microscopic and applications. 16. Student performs Ayurvedic formulations. 17. Know the qualitative test for secondary metabolites. 18. Calibration of microscope and measurement of stomatal index and vein islet number.
--	--	--	--

## Department of Physics

### 1. Programme Outcomes

#### 1.1 Knowledge Outcomes

Graduate student should possess fundamental knowledge of physics, including basic concepts and principles in

- a) Classical mechanics, electrodynamics, quantum mechanics and thermodynamics.
- b) Mathematical (analytic and numerical) methods and experimental methods for physics.

Graduates should be able to transfer and apply the acquired concepts and principles to study different branches of physics.

#### 1.2 Skills Outcomes

Graduates should have acquired the following professional skills to deal with representative



physics problems and situations at the undergraduate level:

- a) Identifying the key factors and applying appropriate principles and assumptions in the formulation of physics problems.
- b) Applying appropriate analytical and approximation methods.
- c) Applying general experimental and measurement skills with prescribed procedures.
- d) Analysing experimental data and their level of uncertainty, and relating the experimental results with theoretical expectations.
- e) Applying appropriate scientific programming skills.
- f) Reporting the solutions to physics problems, experimental or project studies either orally or in written format.

Graduates should be able to integrate and apply these skills to study different branches of physics.

### **1.3 Attitude/Value Outcomes**

Graduates should have developed some positive attitudes and values, including the following:

- a) Appreciation of physics principles and theories, and the beauties of physics.
- b) Awareness of the impact of physics in social, economical, and environmental issues.
- c) Willingness to take up responsibility in study and work.
- d) Confidence in his/her capabilities.
- e) Motivation for life-long learning.

### **Programme Specific outcomes**

1. Students are expected to acquire a core knowledge in physics, including the major premises of classical mechanics, quantum mechanics, electromagnetic theory, electronics, optics, special theory of relativity and modern physics.
2. Students are also expected to develop a written and oral communication skills in communicating physics-related topics.
3. Students should learn how to design and conduct an experiment (or series of experiments) demonstrating their understanding of the scientific method and processes. Not only that they are expected to have an understanding of the analytical methods required to interpret and analyze results and draw conclusions as supported by their data.
4. Students will develop the proficiency in the acquisition of data using a variety of laboratory

- instruments and in the analysis and interpretation of such data.
5. Students will learn the applications of numerical techniques for modeling physical systems for which analytical methods are inappropriate or of limited utility.
  6. Students will realize and develop an understanding of the impact of physics and science on society.
  - 7..Apply conceptual understanding of the physics to general real-world situations.
  8. Describe the methodology of science and the relationship between observation and theory.
  9. Learn to minimize contributing variables and recognize the limitations of equipment.
  10. Discover of physics concepts in other disciplines such as mathematics, computer science, engineering, and chemistry.
  11. Develop the following experimental tools: Numerically model simple physical systems using Euler's method, curve fitting, and error analysis.
  12. Analyze physical problems and develop correct solutions using natural laws.

### **OUTCOMES OF ZOOLOGY DEPARTMENT**

Department of zoology taking efforts for the welfare of the students and their overall development by providing the facilities of ICT like LCD projectors, internet, computer etc. The department has well experienced staff which directly benefits the students to develop their career. Hence the department has achieved many success academic stories such as:

1. Results: Major students completed their B.Sc with distinction throughout the five years.
2. Major zoology subject's results are 100% with significant increase in the rank.
3. Department has started Poultry Businesses training programmer in association with Swapnil Agro and Poultry as a 30 hours certificate course for 30 students. As per the requirement of the students these course is started to identify local need of the society. These facilities has provided free off cost to all the students from 2017-18.
4. The department organized one day State level workshop for the farmers, teachers and students. The workshop was organized on Poultry disease and Management on 30.12.2015. The department has provided Mementos and certificate of Poultry to the dignitaries, farmers, students and teachers to attract over the Agro base business.
5. The department organizes academic tours as per the norms of the syllabus. Student visits to water treatment plant, bird sanctuary, National park, water purification plant, sea shores, government hospitals, pathology laboratory. These tours are arranged to bridge gap between the students, teachers and society to bring closer to solve the social problems to achieve national integrity.
6. Every year for the first year and second year B.Sc students the department allots project works. The department gives them different task which is concern with the surrounding

of the village. So the students become motivated and interested in collecting the data of their surroundings such as type of birds, fish, insects, pests, snakes etc. These projects give them the way of understanding and natural biodiversity.

## **Department of Mathematics**

### **Course Outcomes of B.Sc Mathematics:-**

- Students will demonstrate the ability to solve financial math problems.
- Students will demonstrate the ability to solve exponential growth and decay problems.
- Students will demonstrate the ability to solve basic problems in probability and statistics.
- Students will demonstrate the ability to think critically, research, and reason. (Ethical Leadership)
- Students will recognize and differentiate among diverse cultures through the history of mathematics.
- Students will engage in activities directly benefitting the broader community.
- Students will demonstrate an understanding of the common body of knowledge in mathematics.
- Students will demonstrate the ability to apply analytical and theoretical skills to model and solve mathematical problems.
- Students will demonstrate the ability to analyze data and draw appropriate statistical conclusions.
- Students will demonstrate the ability to effectively utilize a variety of teaching techniques and classroom strategies to positively influence student learning.
- Students will acquire problem-solving skills in a broad range of mathematics.
- Students will be able to produce and judge the validity of rigorous mathematical arguments.
- Students will be able to communicate mathematical ideas and arguments, both written and orally.
- Students will be prepared to use mathematics in their careers
- The ability to communicate and interact effectively with different audiences.
- Students will be able to solve arithmetic, algebraic, geometric, equations, functions, and problems using appropriate technology.
- Students will be able to represent mathematical information numerically, symbolically, graphically, verbally, and visually using appropriate technology.

- **Programme Outcomes:-**

At the end of B. Sc Mathematics Programme, Students

- Acquires the ability to understand & analyze the problems.
- Develops the skill to think critically on abstract concepts of Mathematics.
- Analyses the situation, make a Mathematical problem & find it's solution.

- Formulates & develops Mathematical arguments in logical manner.
- Provides a systematic understanding of the concepts & theories of Mathematical & computing their application in the real world.
- Enhances Logical Reasoning Skills, Arithmetic Skills, Aptitude Skills, Communication Skills, Self Confidence for better employability.

#### **Programme Specific Outcomes:-**

- Distinguish between Partial & ordinary differential equation.
- Understand the concept of limit of a function, use it to prove properties of continuous functions & the derivative of a function.
- Ability to work within vector space s & to distill vector space properties.
- Ability to compute Eigen values & Eigenvectors.
- Ability to manipulate linear transformations & to distill mapping properties.
- Calculate a definite integral using an appropriate numerical method & find roots of functions.
- Derive numerical methods for various mathematical operations & tasks, such as interpolation, differentiation, integration.
- Ability to solve the problems using Newton forward & Newton backward formula.
- Ability to solve differential equations of first order using graphical, numerical & analytical methods.
- Familiarize characteristic roots & characteristic vectors.
- Ability to compute the area & volume by applying the techniques of double & triple integrals.

### **Physical Education and Sports**

The department of physical education and sports was established in 1978. The department provides excellence sports facilities and well equipped gymkhana, fitness zone for the all round development of the students. Gymnasium houses, modern equipment like Double bar, Single bar, Weighing machine, Elliptical cycle, Power lifting and weight lifting sets, recumbent bike cycle, Multipurpose bench, Single Station exercise machine, Gym mirrors and weight plates etc. In fitness zone the director of physical education of the college regularly trains the students in various indoor and outdoor games such as Handball, Cricket, Kho-Kho, Ball badminton, Chess, Archery, Gymnastics, Table tennis, Weight Lifting, Long jump, High Jump, Mallakhamb, Wrestling, Judo and Karate etc.

#### **Specific Outcomes**

All the sportsmen who are enrolled in the department are well trained by the director of physical education. They are getting good education in the department so that they are recruited in the army as well as in the Maharashtra Police Academy. In the recent years Kunal Suryawanshi, Dipak Patil and Sandhya Nikam are recruited as PSI (Police Sub Inspector) In the Maharashtra police. Sunita Dhondge, Nikita Pawar, Sunil Jadhav, Kalyani Bachhav, Shital Pawar and Sonali Borse are recruited in the police department as police constables. On the other hand Manish Deore, the national champion in badminton, has passed SET exam in the Physical Education and Sports and recruited in the Manmad college as a Director of Physical Education. Rajendra Kadam, the well known wrestling and Judo player has passed SET exam of the University of Pune and now He is Director of Physical Education in junior college at Pune. Many players are recruited in the Army, Navy and some others are appointed as game teachers and so on.

