



**“Sheel, Sharir, Adhyayan” Aundh  
Shikshan Mandal, Aundh**

**RAJA SHRIPATRAO BHAGAWANTRAO  
MAHAVIDYALAYA, AUNDH (SATARA)**

# ***Outcome Based Education DESIGN***

**INTERNAL QUALITY ASSURANCE CELL**

**POLICY DOCUMENT OF ATTAINMENT OF PROGRAM OUTCOME, COURSE  
OUTCOME, PROGRAM SPECIFIC OUTCOME**

### **1. Course- Program outcome Matrix:**

The Program Outcomes are developed through the curriculum (curricular/co-curricular-extra-curricular activities). The program outcomes are attained through the course implementation. As an educator, one must know, “to which POs his/her course in contributing?”. So that one can design the learning experiences, select teaching method and design the tool for assessment. Hence, establishing the Course-PO matrix is essential step in the OBE. The course-program outcomes matrix indicates the co-relation between the courses and program outcomes. The CO-PO matrix is the map of list of courses contributing to the development of respective POs.

### **2. Course Outcomes (for all courses):**

The course outcomes are the statement that describes the knowledge & abilities developed in the student by the end of course (subject) teaching. The focus is on development of abilities rather than mere content. There can be 5 to 7 course outcomes of any course. These are to be written in the specific terms and not in general. The list of Course Outcomes is the part of Annexure-C attached herewith.

### **3. Set Target levels for Attainment of Course Outcomes:**

The course outcome attainment is assessed in order to track the graduates' performance w.r.t target level of performance. The CO-PO attainment is the tool used for continuous improvement in the graduates' abilities through appropriate learning & teaching strategies. In order to assess students' performance with respect to abilities (at the end of course teaching/by the end of program) the course outcome attainment are measured/calculated. In order to calculate the program outcome attainment, the course outcome attainment is calculated. Prior to that, the course-program outcome mapping is done.

### **4. Set Target level for Attainment of Program Outcomes:**

The program outcome attainment is assessed in order to track the graduates' performance w.r.t target level of performance. The CO-PO attainment is the tool used for continuous improvement in the graduates' abilities through appropriate learning & teaching strategies. In order to assess students' performance with respect to abilities (at the end of course teaching/by the end of program) the course outcome attainment and program outcome attainment is measured/calculated. The program outcome attainment is governed by curricular, co-curricular and extra-curricular activities including the stakeholders' participation. The direct method and indirect method is adopted to calculate the PO attainment. The direct method implies the attainment by course outcomes contributing to respective program outcomes. And indirect method is the satisfaction/feed-back survey of stakeholders. In order to calculate the program outcome attainment, the course outcome attainment is calculated. Prior to that, the course-program outcome mapping is done.

The set target level is the set benchmark to ensure the continuous improvements in the learners/ graduates' performance.

## **5. Course Attainment Levels:**

- a. CO attainment is defined/set at three levels;
- b. The CO attainment is based on end term examination assessment and internal assessment;
- c. The Co attainment is defined at three levels in ascending order-  
The following are the defined CO attainment level for Master of International Business and Diploma in Business Management.
  - i. e.g. For end term and internal examination;
  - ii. Level-1: 40% students scored more than class average
  - iii. Level-2: 50% students score more than class average;
  - iv. Level-3: 60% students score more than class average.

**For B.A., B.SC. & M.A. the level-1, 2 and 3 are 30%, 40% and 50 % respectively.**

- d. The target level is set (e.g. Level-2). It indicates that, the current target is level-2; 50% students score more than class average. The CO attainment is measured and the results are obtained. Based on the results of attainment, the corrective measures/remedial action are taken.
- e. CO Attainment= 80% (Attainment level in end term examination) + 20% (Attainment level in internal examination).

## **6. Program attainment Level:**

- a. PO attainment is defined at five levels in ascending order;
- b. The PO attainment is based on the average attainment level of corresponding courses (Direct Method) and feed-back survey (Indirect method);
- c. The PO attainment levels are defined / set as stated below;
  - i. Level-1: Greater than 0.5 and less than 1.0 (0.5>1)- Poor
  - ii. Level-2: 1.0>1.5-Average
  - iii. Level-3: 1.5>2.0-Good
  - iv. Level-4: 2.0>2.5-Very Good
  - v. Level-5: 2.5>3.0 -Excellent
- d. The PO attainment target level is set/defined (say, Level-4). It implies that, the department is aiming at minimum level-4 (very good) in the performance of abilities by the graduates. Based upon the results of attainment, the remedial measures are taken;
- e. PO Attainment= 80% (Average attainment level by direct method) + 20% (Average attainment level by indirect method).

## 7. The Results of CO Attainment:

The Results of CO attainment are provided in Annexure-B

### COURSE CODE/TITLE: M.A

e.g. For end term and internal examination;

- i. Level-1: 30% students scored more than class average
- ii. Level-2: 40% students score more than class average;
- iii. Level-3: 50% students score more than class

Sr.No.		university Marks (80%)	Internal Marks (20%)	Total	% Marks
1	189	1419	68	1487	61.96
2	190	1429	71	1500	62.50
3	40	541	65	606	50.50
4	41	651	67	718	59.83
5	42	678	65	743	61.92
6	43	646	69	715	59.58
7	44	599	49	648	54.00
8	45	669	65	734	61.17
9	46	662	69	731	60.92
10	47	758	71	829	69.08
		8052	659		601.46

total no. of student = 10

Total Marks =8711

Average Percentage =60.15%

Above 60.15% Students =10/6=1.67

For end term and internal examination

Level-1 : 30 % students score more than class average

Level-2 : 40 % students score more than class average

Level-3 : 50 % students score more than class average

Average marks in external examination

Percentage of students score more than 60.15% is  $6/10*100= 60$  i.e. level 3

Average marks in internal examination =65.9%

Percentage of students score more than 65.9 is  $6/10*100=60$  % i.e. level 3

A (CO) M.A. 412=80%(3)+20%(3)

:=2.4+0.6

: =3.0

Hence, attainment level is 2 and set target level is 2, therefore CO is fully attained.

Master in Arts			
course code	CO attainment value	Attainment Target Level	Fully attained/not attained
412	3	2	Fully attained

❖ B.Sc:

Sr.No.	total mark	Sr.No.	Marks	Sr.No.	total mark	Sr.No.	Marks
1	1769	16	1619	31	1557	46	1525
2	1518	17	1370	32	1647	47	1453
3	1576	18	1260	33	2001	48	1373
4	1516	19	1438	34	1492	49	1425
5	1486	20	1587	35	1723	50	1393
6	1809	21	1397	36	1781	51	1302
7	1416	22	1746	37	1648	52	1376
8	1577	23	1548	38	1788	53	1317
9	1310	24	1762	39	1457	54	1431
10	1482	25	1482	40	1782	55	1372
11	1584	26	1750	41	1786	56	1335
12	1424	27	1454	42	1409	57	1616
13	1562	28	1644	43	1555	58	1261
14	1447	29	1773	44	1802	59	1611
15	1556	30	1779	45	1473	60	1648
	23032		23609		24901	61	1580
							23018

total no. of student = 61

Total Marks =94560

Average Percentage =62.00%

Above 62.00% Students =61/30=2.03

course code B.Sc.

286

For end term and internal examination

Level-1 : 30 % students score more than class average

Level-2 : 40 % students score more than class average

Level-3 : 50 % students score more than class average

Average marks in external examination

Percentage of students score more than 62.00% is  $30/61*100=49.18\%$  i.e. level 2

Average marks in internal examination =19

Percentage of students score more than 19 is  $59/61*100=96.72\%$  i.e. level 3

A (CO) B.Sc. 286=80%(2)+20%(3)

:=1.6+0.6

: =2.6

Hence, attainment level is 2 and set target level is 2, therefore CO is fully attained.

Bachelor in Science			
course code	CO attainment value	Attainment Target Level	Fully attained/not attained
286	2.6	2	Fully attained

Sr.No.	Total mark	Sr.No.	Marks	Sr.No.	Total mark	Sr.No.	Total Marks
1	784	21	776	41	1265	61	1067
2	942	22	821	42	1080	62	947
3	884	23	948	43	1080	63	857
4	837	24	1035	44	1083	64	1163
5	874	25	1000	45	1220	65	1148
6	680	26	911	46	1196	66	979
7	976	27	779	47	1153	67	991
8	1153	28	898	48	1021	68	878
9	822	29	1068	49	1025	69	915
10	867	30	1081	50	1162	70	1033
11	869	31	1084	51	1209	71	973
12	919	32	1053	52	1007	72	907
13	883	33	1146	53	1190	73	889
14	917	34	1154	54	1282	74	908
15	947	35	1001	55	1112	75	909
16	805	36	1031	56	1095	76	0
17	774	37	1037	57	833	77	0
18	816	38	1040	58	957	78	0
19	831	39	1033	59	1074	79	0
20	1031	40	968	60	1019	80	0
	17611		19864		22063		14564

total no. of student = 75

Total MARKS =94560

Average Percentage =54.89%

Above 54.89% Students =61/30=2.03

course code

B.A. 388

For end term and internal examination

Level-1 : 30 % students score more than class average

Level-2 : 40 % students score more than class average

Level-3 : 50 % students score more than class average

Average marks in external examination

Percentage of students score more than 54.89% is  $41/75 \times 100 = 54.66\%$  i.e. level 3

Average marks in internal examination =17

Percentage of students score more than 17 is  $28/75 \times 100 = 37.33\%$  i.e. level 1

A (CO) B.A.

$$388=80\%(3)+20\%(1)$$

$$:=2.4+0.2$$

$$:=2.6$$

Hence, attainment level is 2 and set target level is 2, therefore CO is fully attained.

<b>Bachelor in Arts</b>			
course code	CO attainment value	Attainment Target Level	Fully attained/not attained
388	2.6	2	Fully attained

## **Annexure - I**

### **BACHELOR OF SCIENCE (B. Sc.)**

#### **PROGRAM OUTCOMES:**

Students taking admission to this program of B.Sc. are expected to get equipped with following outcomes:

- a. Explaining the basic scientific principles and methods.
- b. Inculcating scientific thinking and awareness among the student.
- c. Ability to communicate with others in regional language and in English.
- d. Ability to handle the unexpected situation by critically analyzing the problem.
- e. Understanding the issues related to nature and environmental contexts and sustainable development.

### **B.Sc. (CHEMISTRY)**

#### **Program Specific Outcomes**

1. Proficiency in Chemistry concepts.
2. Ability to apply Chemistry knowledge to analyze Chemical phenomenon.
3. Laboratory skills to inculcate experimentation.
4. Use of ICT/ software.
5. Critical thinking and independent work.
6. Prepare students for higher education.
7. General competence and analytical skills on advanced level.
8. Use of Chemistry for ethical problems.
9. Prepare students as man force for industry.
10. Prepare students for entrepreneurs.

### **COURSE OUTCOMES:B. SC.- I**

#### **Paper I: Physical**

#### **chemistry.**

By the end of this Course students should be able to know about:

1. The students will understand concept of distribution law, thermodynamics, chemical kinetics, gaseous state and nuclear chemistry.
2. The students will identify order and molecularity of a chemical reaction.
3. The student will explain the velocity and productivity of reactions.
4. The student will explain the advantages and disadvantages of nuclear reactions theoretically.



## **Paper II: Inorganic Chemistry**

By the end of this Course students should be able to know about:

1. The student will understand the ionic solid and their crystal structure.
2. The student will understand the nature, applications of element of p block elements.
3. The student will get the knowledge of separations of metals from mixture.
4. The student able to group the chemical compounds aromatic and non-aromatic category.
5. The student will get the knowledge acids and bases their applications in day to day life.
6. The student will aware about the Nobel gases

## **Paper III: Organic Chemistry**

By the end of this Course students should be able to know about:

1. The students will able to discuss the concept of stereochemistry.
2. The students will able to discuss the optically active or inactive compounds.
3. The students will able to discuss Fundamentals of organic reactions and mechanisms.
4. The student will explain brief idea of types of chemical reactions and reactive intermediates.
5. The students will discuss the reagents in organic synthesis.
6. The student will get the knowledge of aromatic and non aromatic compounds.

## **Paper IV: Industrial Chemistry**

By the end of this Course students should be able to know about:

1. The students will able to discuss the Scope and basic concept of industrial chemistry.
2. The students will explain the cause of pollutions and their control measures.
3. The student will explain applications of some important methods of industrial processes.
4. The student will get the knowledge of Petrochemical industry.

5. The student will get the knowledge Fertilizer analysis.

### **Course Outcomes: B.Sc. II Paper**

#### **V: Organic Chemistry**

By the end of this Course students should be able to know about:

1. The students will able to classify Polynuclear hydrocarbons
2. The students will able to discuss stereo chemical aspect with respect to the stereo specific and stereo selective reactions with their mechanism.
3. The students will understand importance of stereochemistry in the processes of industries.
4. The students are able to understand importance of heterocyclic compounds and their classifications.
5. The students will understand the concept and need of green chemistry.

#### **Paper VI: Analytical Chemistry**

By the end of this Course students should be able to know about:

1. The students will able to understand the concept of analytical chemistry.
2. The students will able to understand the inorganic qualitative and quantitative methods of analysis.
3. Students will understand basics of titrations methods.
4. The students will able to discuss mechanism Gravimetric analysis.
5. The students will able to discuss about fertilizer analytical methods.

#### **Paper VII: Physical Chemistry**

By the end of this Course students should be able to know about:

1. To provide the students with detailed knowledge of Electrochemistry.
2. To provide a good knowledge of physical properties of liquids.
3. To know practical and theoretical knowledge electrochemical processes and instrumentations.

## **Paper VIII: Inorganic Chemistry**

By the end of this Course students should be able to know about:

1. The student will get knowledge of chemistry of elements of 1row transition series.
2. The student will understand the nature, applications of f - block elements.
3. The student will get the knowledge of coordination compounds and their applications.
4. The student able to understand the concept and applicability of Non Aqueous solvents.
5. The student will get the knowledge chelation and applications in day today life.
6. The student will aware about the term catalysis and their importance in synthetic chemistry.

## **Course Outcomes: B.Sc.**

### **III Paper IX: Physical**

#### **Chemistry**

By the end of this Course students should be able to know about:

1. Students will able to understand concepts and applications of quantum mechanics.
2. Students will able to understand the term spectroscopy.
3. Students will know photochemistry, photochemical reactions and their applicability in day today life.
4. Students will able to understand definition and scope solutions.
5. Students will able to understand the electromotive force and their uses.

## **Paper X: Inorganic Chemistry**

By the end of this Course students should be able to know about:

1. Students will be able to understand Hard and Soft acids and Bases (HSAB)
2. Students will be able to understand metal ligand bonding in transition metal complexes and their applications in industrial work.
3. Students will be able to understand polymer preparations and their recycle procedures.
4. Students will be able to understand the Organometallic chemistry.
5. Students will be able to understand the concept of metal semiconductor and superconductor and its uses.

### **Paper XI: Organic chemistry**

By the end of this Course students should be able to know about:

1. The students will be able to understand the physical methods of analysis.
2. The students will be able to discuss the data analysis and deductions of the structure of unknown organic compounds.
3. The students will understand importance of spectroscopy in the manufacturing processes of industries. It has wide applications in Research and developments section of various industries.
4. The students are able to understand importance data analysis and the confirmation of structure of unknown organic compounds.
5. The students will understand the concept and need of spectroscopy in chemical industry.

### **Paper XII: Industrial Chemistry**

By the end of this Course students should be able to know about:

1. The students will be able to understand the concept of Industrial chemistry.
2. The students will be able to understand the manufacturing of heavy chemical processes and their applications.
3. Students will understand basics of corrosion and passivity.
4. The students will be able to discuss mechanism sugar industry.
5. The students will be able to discuss about soaps and detergents manufacturing process and mechanism.

### **Paper XIII: Physical Chemistry**

By the end of this Course students should be able to know about:

1. Students will able to understand concepts and applications of phase rule.
2. Students will able to understand the term solid state chemistry, synthetic applications.
3. Students will know surface chemistry

### **PaperXIV: Inorganic Chemistry**

By the end of this Course students should be able to know about:

1. Students will able to understand inorganic reaction mechanism.
2. Students will able to understand thermodynamic and chemical kinetic aspect of metal complexes.
3. Students will able to understand iron and steel and their production technique.
4. Students will able to understand the concept bioinorganic chemistry.

### **Paper XV: Organic chemistry**

By the end of this Course students should be able to know about:

1. Students will able to understand concepts and applications of name reactions.
2. Students will able to understand the term reagents and synthetic applications.
3. Students will know electrophilic addition reactions and their applicability in day today life.
4. Students will able to understand definition and scope Natural Products.
5. Students will able to understand the Pharmaceutical products and their uses.

## **Paper XVI: Analytical Chemistry**

By the end of this Course students should be able to know about:

1. The students will be able to understand the concept of analytical chemistry.
2. The students will be able to understand the procedure of potentiometric titration and their application.
3. Students will understand basics of colorimetry and spectrophotometry.

## **B.Sc. (Botany )**

### **Programme Specific Outcomes**

1. The student will graduate with proficiency in the subject of his choice.
2. The student will be eligible to continue higher studies in his subject.
3. The student will be eligible to pursue higher studies abroad.
4. The student will be eligible to appear for the exams for jobs in government organizations.
5. The student will graduate with proficiency in Plant Sciences.
6. The student will be eligible to continue higher studies in Botany both in India and abroad.
7. The student will be able to understand the plant diversity around him or her and will be in a position to create career opportunity in the field of plant sciences.
8. The student will be eligible to appear for the exams for jobs in government organizations like UPSC, MPSC, IFS, Banking sector etc.
9. The student will prove useful in the knowledge, development and management of plants in the Western Ghats.
10. The student will be able to be a part of a skilled workforce to match the requirements of the society especially for dealing with the biodiversity and environment related problems in the society.

## **Course Outcomes: B.Sc. I**

### **Paper I: Viruses, bacteria, Algae And Fungi.**

By the end of this Course students should be able to know about:

1. Understand the diversity among Viruses, Bacteria, Algae and Fungi.

2. Create interest in bio-industries
3. Know the systematic, morphology and structure, of Bacteria, Viruses and Algae.
4. Developing skill of identification algae, fungi, bacterias and viruses.
5. Understand the useful and harmful importance of Bacteria, Viruses and Algae

### **Paper II: Biodiversity of archegoniate.**

By the end of this Course students should be able to know about:

1. Understand the diversity among archegoniates salient features of each group with reference to example
2. Understand the morphological diversity of Bryophytes, Pteridophytes and gymnosperms.
3. Understand the economic importance of gymnosperms .

### **Paper III: Plant Ecology**

By the end of this Course students should be able to know about:

1. Student know about ecological terms, ecosystem community, ecological groups of plants and their adaptations, phytogeography.

### **Paper IV: Plant Taxonomy**

By the end of this Course students should be able to know about:

1. Student becomes familiar with basic science Plant taxonomy includes nomenclature, classification and herbarium techniques.
2. Student know about advanced plant group angiosperms with reference to some families.

### **Course Outcomes: B.Sc. II**

#### **Paper V: Algae, fungi, Bryophytes and industrial applications.**

By the end of this Course students should be able to know about:

1. Students becomes familiar with non vascular plants with classical examples of each.

2. Learn the industrial applications of various plants and plant products such as biofertilisers, mushroom cultivation techniques.
- 3.

### **Paper VI: Plant physiology ecology and horticulture.**

By the end of this Course students should be able to know about:

1. Know importance and scope of plant physiology.
2. Understand the plants and plant cells in relation to physiological process growth, know about role of phytohormones in plants.
3. Students becomes familiar with scope and branches of horticulture, methods of propagation of horticulture plant.

### **Paper VII: Pteridophytes, Gymnosperms, angiosperms and plant anatomy.**

By the end of this Course students should be able to know about:

1. Students become familiar with vascular plants with classical examples of each.
2. Students understand the anatomy of angiosperms.

### **Paper VIII: Cytogenetics and utilization of plant resources.**

By the end of this Course students should be able to know about:

1. Understand structure of cell, cell organelles, genetical process such as phenomenon of linkage and recombination.
2. Students becomes familiar with different plant resources, some medicinal plants with classical examples.

## **Course Outcomes: B.Sc. III**

### **Paper IX: Biology of non vascular plants.**

By the end of this Course students should be able to know about:



1. Students become familiar with non vascular plants with classical examples of each.
2. To know the geological time scale, process of carbon dating, application of paleobotany in oil and coal exploration.
- 3.

**Paper X: Genetics and analytical techniques in plant science.**

By the end of this Course students should be able to know about:

1. Understood chromosome structure, number, mutation and population genetics.
2. To know extra chromosomal inheritance in plastid and mitochondria.
3. Students become familiar with analytical techniques in plant sciences.

**Paper XI: Fundamentals of plant physiology and ecology.**

By the end of this Course students should be able to know about:

1. To understand plant life processes mineral nutrition, nitrogen metabolism  
Photosynthesis and respiration.
2. To understand the concept of population ecology and biogeochemical cycles.

**Paper XII: Plant biochemistry.**

By the end of this Course students should be able to know about:

1. To understand the biochemistry of carbohydrate, lipid, protein and nucleic acid.
2. Understood biochemical processes and their significance in plants.

**Paper XIII: Biology of vascular plants.**

By the end of this Course students should be able to know about:

1. Students become familiar with vascular plants and their significance.
2. Understood modern taxonomy in relation to phylogeny, anatomy and cyto-taxonomy in plants.

**Paper XIV: Microbiology and plant pathology.**

By the end of this Course students should be able to know about:

1. Students become familiar with methods used in microbiology for isolation, culture methods, staining methods and their industrial applications.
2. To understand structure of different microbes and their genetics.
3. To become familiar with plant diseases.

#### **Paper XV: Plant breeding biostatistics ethnobotany and horticulture.**

By the end of this Course students should be able to know about:

1. To understand by using modern plant breeding techniques.
2. Students become familiar with role ethno botany in modern medicine.
3. To understand applications of biostatistics in plant sciences.
4. Students becomes familiar with horticulture techniques such as gardening, ornamental plants and nursery management.

#### **Paper XVI: Molecular biology and biotechnology.**

By the end of this Course students should be able to know about:

1. To understand DNA structure, replication and gene action
2. Students become familiar with Dna recombinant technology, finger printing, Pcr technique and construction of genomic library.
3. Students become familiar with gene transfer methods and tissue culture techniques.

#### **B.Sc. (Physics)**

##### **Program Specific Outcomes**

1. Identifying and describing physical systems with their professional knowledge.
2. Developing their scientific attitude, ability and techniques to tackle problems either theoretical or experimental in nature.
3. Knowledge of general physics like sound, wave, friction, forces and laws of motion and use of mathematics.
4. Information of electrical current, circuits, construction and their use.
5. Learning about concepts of nuclear physics and nuclear energies and importance of their use for mankind.
6. Knowing about the light and its importance in life, its characteristics, properties and use in various instruments

## **Course Outcomes: B.Sc. I Paper**

### **I : Mechanics -I**

By the end of this Course students should be able to know about:

1. Different types of motions in nature.
2. Difference between translational motion and rotational motion.
3. Different laws of motions.
4. Differential equations and their applications.

### **Paper II : Mechanics -II**

By the end of this Course students should be able to know about:

1. Oscillations and waves and their properties.
2. Use of waves in general life.
3. Various elastic constants and properties of elasticity.
4. Surface tension and their applications.
5. Applications of GPS and Satellite.

### **Paper III : Electricity And Magnetism -I**

By the end of this Course students should be able to know about:

1. Scalar vector and their mathematical Applications.
2. Dielectric phenomenon.
3. Difference between polar and non-polar molecules.
4. Various types of Condenser and calculation of capacity.

### **Paper IV : Electricity And Magnetism -II**

By the end of this Course students should be able to know about:

1. What is the origin of magnetic property of material?
2. Complex number and their application in solving problems in Ac circuits.
3. BiotSavarts law and its applications.
4. Maxwell's equations and electromagnetic waves propagation in vacuum and isotropic dielectric medium

### **Paper V : Thermal Physics and Statistical Mechanics -I**

By the end of this Course students should be able to know about:

1. General information of various types of gases and theories related to it.
2. Thermal properties of gases and various laws related in thermodynamics.
3. Transport phenomena in gases.
4. Concept of heat and temperature and different types of thermometer.

### **Paper VI : Waves and Optics -I**

By the end of this Course students should be able to know about:

1. Use of Cathode ray oscilloscope in oscillations.
2. Linearity and superposition principles
3. Coupled oscillatory system.
4. Oscillations and waves and their properties.
5. Viscosity of liquid and its mathematical theory related with it.

### **Paper VII: Thermal Physics and Statistical Mechanics -II**

By the end of this Course students should be able to know about:

1. Study of thermodynamic and different thermodynamically relations
2. Study of theory of radiations.
3. Study of classical and quantum statistics
4. Thermodynamic probability and probability distribution.
5. LASERS and applications in various fields.

### **Paper VIII: Waves and Optics -II**

By the end of this Course students should be able to know about:

1. Lenses and various cardinal points.
2. Formation of Images by Newton's formula.
3. Properties of light like interference, diffraction and polarization with theory and experiments.
4. Resolving power of different optical instruments

### **Paper IX: Mathematical and Statistical Physics**

By the end of this Course students should be able to know about:

1. Study of different coordinate systems.
2. Differential equations and their applications.
3. Experimental study of Black body radiation spectrum.
4. Basic concepts in statistical physics and MB, BE, FD statistic.

### **Paper X: Quantum Mechanics**

By the end of this Course students should be able to know about:

1. Interpretation of wave function and Schrodinger's wave equation
2. Quantum mechanical treatment of particle in a rigid box.
3. Schrodinger's equation for hydrogen atom
4. Significance of quantum numbers.
5. Various operators in quantum mechanics.

### **Paper XI: Classical Mechanics**

By the end of this Course students should be able to know about:

1. Study of mechanics of particle and system of particle.
2. Coriolis force and effect of Coriolis force in nature
3. Applications of Lagrange's equations
4. Study of techniques of calculus of variation
5. Motion of rigid body in space

### **Paper XII: Atomic and Molecular Spectra, Astronomy and Astrophysics**

By the end of this Course students should be able to know about:

1. Doublet fine structure and electron spin orbit interaction
2. Effect of magnetic field on atomic spectra
3. Study the Raman effect and its classical theory.
4. Study of origin of solar system.
5. Evidences of geological activities.

### **Paper XIII: Nuclear and Particle Physics**

By the end of this Course students should be able to know about:

1. Need of accelerators and principal, construction and working conditions of accelerators.
2. Study of principal, construction and working conditions of nuclear detector.
3. Study of nucleus and its properties.
4. Origin of cosmic rays and its types.

### **Paper XIV: Energy Studies and Material Science**

By the end of this Course students should be able to know about:

1. Classification of energy resources and their alternatives.
2. Solar energy from satellite power station.
3. Study of impurities in solid and defect in solids.
4. Study of super conductivity.
5. Introduction of nano science and nano technology

### **Paper XV: Electrodynamics and Electromagnetic Waves**

By the end of this Course students should be able to know about:

1. Study of electrostatics and motion of charge particle.
2. Electromagnetic inductions and their applications.
3. Maxwell's equations and their physical significance.
4. Study of skin depth conservation of energy in electromagnetic fields.

### **Paper XVI: Solid State Physics**

By the end of this Course students should be able to know about:

1. Study of crystalline and non-crystalline solids.
2. Study of X ray diffraction method.
3. Elastic vibrations of diatomic and mono atomic lattice
4. Solid state devices and their applications.
5. Study of metal semiconductors and insulator.

## **B.Sc. (STATISTICS)**

### **Program Specific Outcomes**

1. The main objective of this program is to acquaint students with some basic concepts in Statistics.
2. Developing the knowledge of application of statistics in various fields of real life.
3. Developing the ability to apply various statistical tools to research problem.
4. Learning about how to collect, present, analyze and interpret the data.
5. Ability to build statistical knowledge and analyze the data by using Statistical softwares.
6. Application of various distributions to real life situation.

### **Course Outcomes: B.Sc. I Paper I:**

#### **Descriptive Statistics–I**

By the end of this Course students should be able to know about:

1. Acquaintance with some basic concepts in statistics.
2. Making familiar with some elementary statistical methods of analysis of data viz. Measures of Central Tendency, Dispersion, Moments, Skewness, and Kurtosis and to interpret them.
3. To compute various measures of central tendencies, dispersion, moments, skewness, kurtosis and to interpret them.
4. Analysis of data pertaining to attributes and to interpret the results.

#### **Paper II : Elementary Probability Theory**

By the end of this Course students should be able to know about:

1. Acquainting with some basic concepts of probability.
2. To distinguish between random and non-random experiment.
3. To find the probabilities of various events.
4. To understand the concept of conditional probability and independence of events.
5. Ability to distinguish between univariate and bivariate probability distribution.

#### **Paper III : Descriptive Statistics – II**

By the end of this Course students should be able to know about:

1. To understand the concept of correlation and computation of correlation coefficient.
2. Interpreting the value of correlation coefficient and its use in regression analysis.
3. Understanding the concept of multivariate distributions.
4. Application of correlation and regression theory in various fields viz. Agriculture, Business, Medical Science, Industry etc.
5. To compute various index numbers.

#### **Paper IV: Discrete Probability Distributions**

By the end of this Course students should be able to know about:

1. To apply discrete probability distribution in different situations.
2. Distinguish between discrete variable and study their distributions.
3. Understanding some standard discrete probability distributions with real life situations.
4. Understanding concept of bivariate distribution and computation of related probabilities.

#### **Course Outcomes: B.Sc. II**

##### **Paper-V: Continuous Probability Distributions-I**

By the end of this Course students should be able to know about:

1. To apply continuous univariate and bivariate probability distribution in different situations.
2. Distinguish between univariate and bivariate variable and study their distributions.
3. Transformations of continuous univariate and bivariate random variables.
4. Study of Uniform and Exponential Distribution probability distributions with real life situations.

#### **Paper VI: Bivariate Discrete Distributions and Multiple Regression Analysis**

By the end of this Course students should be able to know about:

1. To apply Bivariate discrete probability distribution in different situations.



2. To apply bivariate discrete probability distribution in different situations.
3. Study and analysis of multiple linear regression.
4. Study and analysis of Multiple and Partial Correlation.

### **Paper-VII: Continuous Probability Distributions-II**

By the end of this Course students should be able to know about:

1. To apply continuous probability distribution in different situations.
2. Study of Gamma distributions with real life situations.
3. Study of Beta distribution of first kind and second kind distributions with real life situations.
4. Study of Normal probability distributions with real life situations.
5. Study of Exact Sampling Distributions (Chi-square, t & F) with real life situations.

### **Paper VIII: Statistical Methods**

By the end of this Course students should be able to know about:

1. Study of the Index Numbers and its applications.
2. To understand the concept of Time Series and its applications.
3. To understand the concept of Tests of Hypothesis and its real life applications.
4. To understand the concept of Statistical Quality Control (SQC) and its applications.

## **B. Sc. (ZOOLOGY)**

### **Program Specific Outcomes**

1. Improving the knowledge about criteria for animal classification.
2. Study of salient features of chordates and non-chordates.
3. Improving the knowledge of animals about their special adaptations and evolutionary relationship.
4. Scientific study of their nature of habitant with environment.
5. Improving information about external morphology and anatomy of animals including human being.

### **Course Outcomes B.Sc.I.**

#### **Paper I: Animal Diversity I**

By the end of this Course students should be able to know about:

1. Understanding the arrangement of organism or groups of organism in distinct categories in accordance with particular & well established plan.
2. Explanation of unity in diversity of organism.
3. Studying specific & scientific names to organism.
4. Collecting information about useful and harmful animals, helps in understanding the nature of habitat.

### **Paper II: Animal Physiology**

By the end of this Course students should be able to know about:

1. Understanding the structure and function of cell & cell organelles.
2. To study animal tissue to improve knowledge about genetic information. it study how organism evolve from a single cell division, get knowledge about unicellular & multi-cellular organisms.
3. Understanding normal function of cell, organ or tissue.

### **Paper IV: Genetics**

By the end of this Course students should be able to know about:

1. Study of structure function, molecular organization, growth, reproduction and genetics of cell.
2. Study of Mendelian and Post Mendelian genetics .
3. Study of Linkage and Crossing Over.
4. Study of Mutations.
5. Understanding evolutionary history of certain animals, study their sericulture which is one of the longest agro industries & silk is used in the manufacture of woven materials.

## **B.Sc. II**

### **Paper V: Animal Diversity II**

By the end of this Course students should be able to know about:

1. Understanding the arrangement of organism or groups of organism in distinct categories in accordance with particular & well established plan.
2. Understanding General features and Classification up to orders; Venomous and non-venomous snakes, Biting mechanism in snakes.

3. Study General features and Classification up to orders; Osmoregulation in Fishes.

### **Paper VI: Biological Chemistry**

By the end of this Course students should be able to know about:

1. Study of chemistry within living organisms.
2. Perceiving the chemical components & chemical structure in organisms.
3. Study how body functioning with the help of chemical molecules & elements.

### **Paper VII: Reproductive Biology**

By the end of this Course students should be able to know about: 1.Study

outline and histology of female and male reproductive system

2. Functional anatomy of female and male reproduction.
3. Understand infertility in male and female: causes, diagnosis and management; Assisted
4. Reproductive Technology: sex selection, sperm banks, frozen embryos, invitro fertilization, ET, EFT.

### **Paper VIII: APPLIED ZOOLOGY**

By the end of this Course students should be able to know about:

1. Improving proper knowledge about Transmission, Prevention and control of diseases Tuberculosis, typhoid..
2. Understanding Insects of Economic Importance.
3. Study the principles of poultry breeding, Management of breeding stock and broilers, Processing and preservation of eggs.

### **B. Sc. (MATHEMATICS)**

#### **Program Specific Outcomes**

1. Apply critical thinking and communication skills to solve applied problems.
2. Use knowledge skills necessary for immediate employment or acceptance into a graduate program.
3. Maintain a core of mathematical and technical knowledge that is adoptable to changing technologies and provides a solid foundation for future learning.
4. Apply mathematical concepts and principles to perform computation.
5. Create use and analyze graphical representation of mathematical

relationships .

## **Course Outcomes B.Sc.I.**

### **Paper I: Differential Calculus.**

By the end of this Course students should be able to know about:

1. The student learns to find the  $n^{\text{th}}$  derivative of product of two functions.
2. The student learns the notion of partial differentiation and the importance of Euler's theorem on homogeneous function.
3. The student learns the method of finding extreme values of a function by Lagrange's method of undetermined multipliers.
4. The student learns the notion of hyperbolic functions and their properties function.

### **Paper II: Calculus**

By the end of this Course students should be able to know about:

1. The student learns the Mean Value Theorems.
2. The student learns L'Hospital's rule and the indeterminate forms.
3. The student learns the series expansions by using Taylor's and Maclaurin's theorems.
4. The student learns the notion of continuity.

### **Paper III: Differential Equations-I**

By the end of this Course students should be able to know about:

1. The student learns exact differential equations , condition for exactness, integrating factors (I.F.), linear differential equations and Bernoulli's equation.
2. The student learns differential equation of first order but not of first degree, Clairaut's equation,
3. The student learns to find general solution of

$$f(D)y=0$$

$$\text{and } f(D)y=X$$

4. The student learns homogeneous linear equation.

#### **Paper IV: Differential Equations-II**

By the end of this Course students should be able to know about:

1. The student learns second order linear differential equations.
2. The student learns simultaneous linear differential equations.
3. The student learns partial differential equations.
4. The student learns first order partial differential equations.

#### **B.Sc.II.**

#### **Paper V: Differential Calculus**

By the end of this Course students should be able to know about:

1. Define epsilon delta definition of Limit and continuity of function of one variable.
2. State and prove basic properties of Limit and continuity of function.
3. Prove some important theorems on continuity.
4. Explain differentiability using concept of limit.
5. Define Jacobian and solve examples on it.
6. Find maxima and minima of function of two variables.
7. Solve examples based on Lagrange's undetermined multipliers of three variables.
8. Find error and approximations.
9. Define basic concepts Gradient, Divergence and Curl and solve examples on it.

#### **Paper VI: Differential Equations**

By the end of this Course students should be able to

know about: 1. Find solution of homogeneous linear equations of

higher order.

2. Compute all solutions of second order linear diff. equations using various methods.
3. Compute solutions of ordinary simultaneous diff. equations.
4. Give Geometrical interpretation of ordinary simultaneous diff.

equations. 5.Solve Total Diff.equation.

6.Explain Geometrical interpretation of Total diff. equation.

### **Paper VII: Integral Calculus**

By the end of this Course students should be able to know about:

1. Define Gamma and Beta function.
2. State properties of Gamma and Betafunction.
3. Evaluate integral using Gamma and Beta function.
4. State and use Duplication formula.
5. Derive relation between Gamma and Beta function.
6. Evaluate double integral and triple integral over the given region.
7. Apply change of order method to find double integral.
8. Find Fourier series expansion for given function.
- 9.Find Cosine and Sine series expansion for given function.
10. Find integral with its limit as constant.
11. Find integral using Leibnit's Rule .
12. Find error function.

## **B. A. (English)**

### **Program Specific Outcomes**

A student, who has taken admission into program of B.A with English as Specific subject of study is expected to achieve following outcomes.

1. Basic knowledge of English as Language is essential to understand English literature.
2. Students get basic Knowledge language and grammar when they acquire their degree.
3. Knowledge of English language helps them to think critically while studying English literature. They are able to relate pleasure of literature and real life.
4. Department of English conducted Certificate course in Communication Skill.

## **I. Program Outcome of Bachelor of Arts (B.A.)**

Student seeking admission for B.A. programme is expected to imbue with following quality which help them in their future life to achieve the expected goals.

- a. Realization of human values.
- b. Sense of social service.
- c. Responsible and dutiful citizen.
- d. Critical temper
- e. Creative ability.

## **II Programmes Specific Outcomes (PSO's)**

### **Course Outcomes**

#### **B.A.I (English for Communication)**

By the end of this Course students should be able to know about:

1. The students admitted for English course acquire spoken and written communication skills.
2. These skills help them to prepare their resume, letter of and business letters.
3. Writing skills help those students to work as a free lance writer for news paper.
4. With the help of spoken skills, they are also able to express their experience and daily routine.
5. The students are taught interview techniques so as to face interview in the future.

### **B. A. I (English Optional)**

By the end of this Course students should be able to know about:

1. To introduce short story and its forms
2. To introduce Types of Short Stories
3. To introduce Historical development of short story and novel
4. To develop literary Competence in the students

### **B.A.II (Paper III & V) Modern English Literature**

By the end of this Course students should be able to know about:

1. Introduction to modern poetry
2. To introduce the playwright and his contribution to the field of drama
3. To appreciate poetry in English as well as drama as literature
4. To introduce modern British and American poets
5. To understand features of the play

### **B. A. II Paper IV & VI (Indian English Literature)**

By the end of this Course students should be able to know about:

1. To introduce Indian English literature
2. To create awareness about the Appreciation of the Novel
3. To Create awareness about appreciation of Indian English poems
4. To enjoy Indian English Literature

### **B. A. III (English for Communication)**

By the end of this Course students should be able to know about:

1. To equip students with Spoken and Written Modern English
2. To understand English for Journalism
3. To understand the technique of Group Discussion
4. To understand Technique of Interview
5. To Create Awareness for avoiding Errors in written English



**B.A.III (Special English) Paper VII & Paper XII (CO) (Literary Criticism and Critical Appreciation)**

By the end of this Course students should be able to know about:

1. To introduce the major trends in literary criticism
2. To familiarize critical concepts
3. To make students aware of original contributions to literary Criticism
4. To train students to write critical appreciation

**B.A.III (Special English) Paper VIII & Paper XIII (CO) (Understanding Poetry)**

By the end of this Course students should be able to know about:

1. Enjoyment of literature through prescribed syllabus
2. To understand function of literature by studying literary form, poetry
3. Critical analysis of various types of lyrics
4. To study poetry in various historical periods.
5. To develop the human mind emotionally.

**B. A. III Paper X & XV (Understanding Novel)**

By the end of this Course students should be able to know about:

1. To create awareness about form of Novel
2. To create awareness about Types of novel
3. To create awareness about Literary Terms
4. To create awareness and enhance interest about learning Indian as well as British novels

**B. A. III Paper XI & XVI (The Structure and Function of Modern English)**

By the end of this Course students should be able to know about:

1. To Introduce Phonetic Symbols
2. To create awareness about English grammar deeply
3. To create awareness about discourse Analysis
4. To create awareness about English grammar deep

**B. A. Part III Paper-IX & XIV****(Understanding Drama)**

By the end of this Course students should be able to know about:

1. The syllabus helps the student to understand Indian as well as Western Literature.
2. Student enjoyed drama as a literary form and drama as a performing art.
3. The Literature developed overall and comprehensive thinking ability among the students.
4. The syllabus helped student to understand various shades of human nature.
5. The syllabus helped the students to develop decision making ability and also helped to understand relation between literary exposure of human life and reality.

**English B. Sc. Part I Paper-English for Communication**

By the end of this Course students should be able to know about:

1. Students are acquainted and equipped with communication skills.
2. Human values are inculcated among the students through poems and prose.
3. Language competence is improved among the students.
4. Students are aware Indian culture and literature with the help of prose.
5. The syllabus helped the students in preparing data and its presentation as well as telephonic communication, narration and description of the event or incident.

**B. Sc. Part III (English for Communication)**

By the end of this Course students should be able to know about:

1. Students are prepared in avoiding common errors in written English.
2. Students are also prepared in interacting in a group discussion, writing official reports and letters and organizing paragraphs.
3. The syllabus makes student aware about eminent personalities and their contribution in the development of India.
4. The syllabus also makes the students aware about diverse Indian culture and literature.

- Students are prepared in communication skills including vocabulary and writing and speaking skills.

## B. A. (Marathi)

### Program Specific Outcomes

ejkBhfoHkkx

- ckrehnkjEg.kwurlspCykWxys[kd ;kaP;kek/;ekrwulkekthduSrhdrkvU;k;kfo:/n vkoktmBo.ks] loZ /keZleHkko o lfg".kwrk ;kaps :to.kwdlektke/;s dj.ks 2- ltZuf<sup>o</sup>kyi.ksdFkkdforkdknacjh] ukVd ;kaP;kekQZrlkekthdcka/khydhti.ksrslpcWadkiksLVvkWQhl] ljdkjhvkWQhl] clLFkkud b- lkoZtuhd fBdk.kh vKtukaukenrdj.ks-
- tckenkj o drZO;n{k ukxjhdEg.kwuo`Rri=krys[kfyg.ks] Hkk"K.kke/kwuHkkjrK;k le`/n iaijspkizpkjdj.ks-
- lqKukxjhdEg.kwulkfgR;kphleh{kkdj.ksR;kryxq.knks'knk[ko.ksrslpR ;kphlektkojb"Vvfu"Vijh.kkekaphtk.kho d:u ns.ks-
- uO;kdFkk] dfork] dknacjh ;kaphfuehZrhdj.ks- tkfgjkrh ] fp=iVo ukVdlafgrkfuekZ.k dj.ks-

### Course Outcomes

- Ckh- ,-Hkkx 1 vko';d ejkBh**
  - O;DrheRofodklkrhyHkk"kspssegRoLi"Vdj.ks
  - fofo/k dk;ZdekP;kla;kstukurHkk"khddkS`kY;kpkokijdj.ks
  - FkksjO;DrheRokP;kthouphj=kphfpfdRlkdj.ks
- Ckh- ,-Hkkx 1 ,sPNhdejkBh**
  - dFkkys[kudj.ks o dFkkapsleh{k.kdj.ks 2- fp=iVkp;kdFkkapsys[kudj.ks
  - dFkk o dknacjhps :ikarjiVdFksrdj.ks-
- Ckh- ,-Hkkx 2 isij 3 o 5**
  - ,srhgklhdO;DrhojfygysY;klkfgR;kps ,srhgklhd o okM%e;hufpfdRlkdj.ks-
  - ejkBhHkk"ksrhyetdqjpkbrjHkk"ksr o brjHkk"ksrhyetdqjpkpejkBhHkk"ksrvuqokndj.ks- 3- tkfgjkr o ckrehpkvuqokndj.ks
- Ckh- ,-Hkkx 2 isij 4 o 6**
  - o`Rri=krhyckrE;kapslaiknudj.ks
  - fu;rdkyhdsxkSjoxzaFk ;kaphjpukdj.ks- 3- larkP;klkekthddk;kZpkijhp; d:u ns.ks-
- Ckh- ,-Hkkx 3 isij 7 o 12**
  - vyadkjo`Rrs o Nankpkokij d:u Hkk"kspslkSan;Z ok<fo.ks- 2- dFkkdohrkys[kuke/;s Hkk"kspkvpwdokijdj.ks-
  - lkfgR;kP;kHkk"khdokijkpsLo:IkLi"Vdj.ks

**6-Ckh- ,-Hkkx 3 isij 8 o 13**

- 1- Hkk"ksP;klkaLd`frd olkekthdmRiRrhpkvUo;kFkZyko.ks 2- fofo/k  
cksyhHkk"kspkokijys[kuke;/s o O;ogkjkrdj.ks-
- 3- izek.kHkk"kse;/s ys[kudj.ks-

**7-Ckh- ,-Hkkx 3 isij 9 o 14**

- 1- larkP;klkekthddk;kZpkijhp; d:u ns.ks-
- 2- laLd`r] vjchQkjlhHkk"kkapkejkBhojhyizHkkoLi"Vdj.ks
- 3- yskddFkkyksdxhrkrwuyksdlaLd`rh o ijaijspkokjlk 'kks/k.ks-

**8- Ckh- ,-Hkkx 3 isij 10 o 15**

- 1- vkdk`kok.kh] o`Rri= o nwjn`kZu ;kaP;klkBhckrehladyu]laiknudj.ks 2-dFkk]  
dforkys[kudj.ks
- 3- ukVd] fp=iV ;kaP;klafgrspsys[kudj.ks

**9-Ckh- ,-Hkkx 3 isij 10 o 16**

- 1- `ksrdjthoukP;klkekthdleL;kapsLo:Ikakph ekaM.kh dj.ks- 2-  
vkfnoklhaps thou] laLd`rhijaijk ;kaph ekaM.kh dj.ks-
- 3- nyhrkaP;k thou] laLd`rhijaijk ;kaph ekaM.kh dj.ks-

**ejkBhfoHkkx**

**Department of History**

**Program Specific Outcomes**

On completion of the BA with History special, students will be able to

1. Understand the basic themes, concepts, chronology and the Scope of Indian History.
2. Acquaint with range of issues related to Indian History that span distinct eras.
3. Understand the history of countries other than India with comparative approach.
4. Think and argue historically and critically in writing and discussion.
5. Prepare for various types of Competitive Examinations
6. Critically recognize the Social, Political, Economic and Cultural aspects of History.

## **B.A.I HISTORY (from June 2018)**

### **Paper I: Rise of the Maratha Power (1600-1707)**

By the end of this Course students should be able to know about:

1. Students understand history from 1600 to 1707 was an important epoch in the history of Marathas. Chhatrapati Shivaji Maharaj established the Maratha state.
2. Introduce students to the history of the rise of Maratha power with main emphasis on life and work of Chhatrapati Shivaji Maharaj.
3. The course is also expected to apprise the students with the sacrifices made by Maratha leaders and people to protect freedom and sovereignty of the region)
4. Students able to give historical speech on Maratha power

### **Paper II: Polity, Society and Economy under the Marathas (1600- 1707)**

By the end of this Course students should be able to know about:

1. Students understand history from 1600 to 1707 was a period of rapid change in the history of Marathas.
2. Students understand the social, political and religious policy of Chhatrapati Shivaji Maharaj.
3. The course is designed to acquaint the students with the political, socio- economic and religious life of the people during the 1600- 1707 period.
4. It will educate the students about the policy and contribution of Chhatrapati Shivaji Maharaj.

### **Paper III- History of Modern Maharashtra (1900 To 1960)**

By the end of this Course students should be able to know about:

1. Understand the beginnings and growth of nationalist consciousness in Maharashtra
2. Explain the contribution of Maharashtra to the national movement
3. Give an account of various movements of the peasants, workers, women and backward classes
4. Know the background and events which led to the formation of separate state of Maharashtra.

#### **Paper IV: History of India (1757-1857)**

By the end of this Course students should be able to know about:

1. Acquaint himself with significant events leading to establishment of the rule of East India Company
2. Know the colonial policy adopted by the company to consolidate its rule in India
3. Understand the structural changes initiated by colonial rule in Indian economy.
4. Explain the various revolts against rule of the East India Company

#### **Paper V: History Of Modern Maharashtra (1960 To 2000)**

By the end of this Course students should be able to know about:

1. Acquaint himself with the contribution of eminent leaders of Maharashtra
2. Know about the economic transformation of Maharashtra
3. Understand the salient features of changes in society
4. Explain the growth of education

#### **Paper VI: History of Freedom Struggle (1858-1947)**

By the end of this Course students should be able to know about:

1. Understand the events which lead to the growth of nationalism in India
2. Acquaint himself with major events of the freedom struggle under the leadership of Mahatma Gandhi
3. Explain the contribution of Revolutionaries, Left Movement and Indian National Army
4. Know the concept of Communalism and the causes and effects of the partition of India

## **IDS Paper I: Social Reforms in India**

By the end of this Course students should be able to know about:

1. Understand the salient features of prominent socio-religious reform movements
2. Explain the thought and work of Mahatma Phule for radical transformation of Indian society
3. Know the measures taken by Rajashri Shah Maharaj for emancipation of lower classes and women
4. Understand the thoughts of Ambedkar on the annihilation of the caste system and untouchability in India
5. Know how the Indian constitution embodies the values of social justice and equality

## **IDS Paper- II: Social Reforms In Maharashtra**

By the end of this Course students should be able to know about:

1. Know about the beginnings of social reforms in Maharashtra by the Paramhansa Mandali and Prarthana Samaj.
2. Understand the contribution of women reformers
3. Explain the contribution of Social reformers in the fight for social justice
4. Explain the role played by educational reforms in transformation of society.

## **History of Ancient india Paper VII**

**Sem- V**

By the end of this Course students should be able to know about:

- 1 ) To create Awareness about Archaeological history in the students.
- 2) To introduce Different pre historic cultures among the students.
- 3) to introduce Vedic literature in the students.
- 4) To create awareness among student about prehistoric civilization.

## **History of Mughal india paper– VIII**

**sem -V**

By the end of this Course students should be able to know about:

- 1) To raise Awareness about Historiography and its approaches in the students.
- 2) To study polity in the period of Akbar Chand Bibi Ibrahim Adilshah , Allauddin Khilaji, Krishnadevrai Aurangzeb and their relations in religion .
- 3) To create awareness about trade and commerce among students .

### **India Since Independence part- paper –IX**

By the end of this Course students should be able to know about:

- 1) To study deeply about about political part congress .
- 2) To study other political parties in short IP ,ID,BJP.
- 3) To promote students knowledge about Agriculture in the period of 1947-1991.
- 4) To Impart knowledge about Industry and Trade , Import , Export , Heavy Industris.

### **History of the Marathas (1707-1818) paper–X**

By the end of this Course students should be able to know about:

- 1)To study political condition Chh. Shahu and third war of panipat.
- 2) To create Awarness ab out the political conditionsin the period Mahadevrao savai Madhavrao and Bajirao II.
- 3)To study socio –Economics conditions in the period of Pashwas.
- 4) To raise Curiosity of students about culture Visual Arts and Architect.

### **Introdution to Historiography - paper –XI**

By the end of this Course students should be able to know about:

- 1) To study meanings , Nature and kinds of History.
- 2) To study classification and Important of Histrorical sources.
- 3) To guide process of writing History.
- 4) To create Awarness about Tools of History among students.

### **History of Ancient Indiasem- vI paper – XII**

By the end of this Course students should be able to know about:

- 1) To study Jainism Buddhism and Expansion of settlements and Urbanization .
- 2) To study of mauryan Empire and Ashokas.
- 3) To Introduce the age of Guptas and culture progress.
- 4) To study Harshavardhnas Administration and religious policy.



### **History of Mughal India paper – XIII sem – VI**

By the end of this Course students should be able to know about:

- 1) To Impart Knowledge about Urban centers.
- 2) To study cultural Development, language, literature and Art .
- 3) To create Awareness about Patterns and policy in Maharashtra and Rajasthan.
- 4) To study deeply Religion and culture of Sufis and saint tradition.

### **India Since Independence part –II paper –XIV**

By the end of this Course students should be able to know about:

- 1) To study Foreign policy .
- 2) To study the problems like students unrest Terrorism, Naxalism , Maoism.
- 3) To create Awareness about the Environment Women and Depressed class movement .
- 4) To Understand concept merit Demerits of LPG since' 1992.

### **Modern Maharashtra - 1960 – 2000 Paper - XV**

By the end of this Course students should be able to know about:

- 1) To study Formation of Maharashtra state.
- 2) To create Awareness about Economy India.
- 3) To study social movements in India .
- 4) To give Knowledge about the cultural Life in India.

### **Applications of History Paper - XVI**

By the end of this Course students should be able to know about:

- 1) To study of museums deeply Ref. chh Shivaji Maharaj.
- 2) To study Historical tourism in Maharashtra : Ajintha, Verul

, Daulatabad , Raigad, Ellora.

- 3) To give Knowledge about preservation and conservation of Documents paintings and movements.
- 4) To create Awareness among the students about careers in History.

## **B. A. (Economics)**

### **Programme Specific Outcomes**

1. Understanding how different degrees of competition in a market affect pricing and output.
2. Understanding the efficiency and equity implications of market interference, including government policy.
3. Developing research knowledge in economics.
4. Developing the skill of data collection & use of sampling techniques in research.
5. Developing the knowledge about theories of economic growth & Development and issues of economic planning.
6. Creating awareness about changing macro-economic policies and theories.

## **B.A. PART I**

### **Paper-I: INDIAN ECONOMY - I**

By the end of this Course students should be able to know about:

1. Intends to acquaint the students with various dimensions of, as also the challenges, confronting the Indian economy.
2. It endeavors to provide useful insights to the students about the present economic standing and composition of the Indian economy, the major sectors and their relative importance in the Indian economy and the major challenges faced by it.
3. Introduce the students to the Indian economy.
4. Develop an understanding of challenges facing the Indian economy.

5. Acquaint the students with Structure of the Indian economy and Changes Taking Place therein.

### **Paper-II: INDIAN ECONOMY - I**

By the end of this Course students should be able to know about:

1. Acquaint the students with various dimensions of, as also the challenges, confronting the Indian economy.
2. It endeavors to provide useful insights to the students about the present economic standing and composition of the Indian economy, the major sectors and their relative importance in the Indian economy and the major challenges faced by it.
3. Acquaint the students with the policies and performance of major sectors in Indian Economy.
4. Explain the economic reforms introduced in India since 1991.

### **B.A. PART II**

### **Paper-III: PRINCIPLES OF CO-OPERATION COURSE – I GE**

By the end of this Course students should be able to know about:

1. Generating awareness about the working of co-operatives in Rural and Urban area.
2. Understanding the concept, nature and structure of cooperation
3. Understanding the organization of Capitalism and Socialism.
4. Increase knowledge regarding cooperative audit.

### **Paper No– IV: MONEY AND BANKING**

By the end of this Course students should be able to know about:

1. Generate the awareness among the students and Job Prospects in Banks and Financial Sector.

2. Clear understanding of the operation of banks and financial institutions to the students with practical inputs.
3. Understanding the function, structure and process of Reserve Bank of India.
4. Improve knowledge of Banking and Finance.

#### **Paper-V: BANKS AND FINANCIAL MARKETS**

By the end of this Course students should be able to know about:

1. Generating awareness about the working of co-operatives in Rural and Urban area.
2. Understanding the cooperative credit structure in India.
3. Understanding the function and importance of financial system in India.
4. Improve knowledge of Banking and Finance.

#### **Paper-III: MACRO ECONOMICS -I**

By the end of this Course students should be able to know about:

1. Introduce the basic primary and analytically important concepts, theories and policies in the working of the economy to the learners.
2. Able students to apply various concepts in the process of policy making, planning of measures to ensure and achieve the fundamental objectives of macroeconomic policy.
3. Understanding the various concept of National Income.
4. Understanding the various theories regarding output and employment.

#### **Paper-IV: MACRO ECONOMICS –II**

By the end of this Course students should be able to know about:

1. Introduce the basic primary and analytically important concepts, theories and policies in the working of the economy to the learners.
2. Understand the basic theoretical framework underling in the field of macro economics.
3. Understanding the various concept of Inflation and Trade Cycles.
4. Understanding the aspects of public finance and public expenditure.

## **B. A. – III ECONOMICS**

### **Paper No- VII: MICRO ECONOMICS**

By the end of this Course students should be able to know about:

1. Understand the economic behaviour of individual firms and markets.
2. Understand the decision making of consumer.
3. Understand the nature of revenue and cost of production.
4. Students get knowledge with the various aspects of a consumer behaviour and demand analysis, production theory and behaviour of revenue and cost.

### **Paper- VIII: RESEARCH METHODOLOGY IN ECONOMICS (Part -I)**

By the end of this Course students should be able to know about:

1. Students of Economics should know the basic concept and methodology of research.
2. Get acquaint with the research in Economics
3. Understand the various aspects of Research in Economics
4. Improve the logical thinking power.

### **Paper No- IX: HISTORY OF ECONOMIC THOUGHTS.(PART -I)**

By the end of this Course students should be able to know about:

1. The student should know the contribution of Economic thoughts.
2. Able to know the concepts by classical, neo-classical and modern economists.
3. Understand the development of economic thoughts.
4. Understand the economic thoughts of Classical, Nationalist and Socialist Thinkers.

### **Paper No-X: ECONOMICS OF DEVELOPMENT**

By the end of this Course students should be able to know about:

1. The students to know about the concept of economic development.
2. The students also know about the theories of Growth and Development, sectoral aspects of development, domestic macro policies etc.

3. Students know the concept and aspects of economic Development.
4. Understand the theories of economic growth & Development.

### **Paper No – XI: INTERNATIONAL ECONOMICS (Part-I)**

By the end of this Course students should be able to knowabout:

1. Understanding of the basic principles that tend to govern the free flow of trade in goods and services at the global level.
2. The students are to know the impact of free trade and protective trade on the different sectors of the economy as well as at the macro level.
3. The students would also be well trained about the rationale of recent changes in the export-import policies of India.
4. Student has become relatively more relevant from the policy point of view under the present global scenario.

### **Paper- XII: MARKET AND PRICING**

By the end of this Course students should be able to know about:

1. Analysis the economic behaviour of individual firms and markets.
2. Understand the equilibrium of firm in various markets. It also deals with factor pricing.
3. Understand the market structure.
4. Understand pricing in different markets.
5. Understand the factor pricing.

### **Compulsory Paper- XIII: RESEARCH METHODOLOGY IN ECONOMICS (PART-II)**

By the end of this Course students should be able to know about:

1. Students of Economics should know the basic concepts and methodology of research and report writing.
2. Understand the sampling techniques as a method of data collection.
3. Understand the various aspects of data processing and analysis.
4. Increase statistical as well as graphical skill and techniques.

### **Paper No-XIV: HISTORY OF ECONOMIC THOUGHTS (PART-II )**

By the end of this Course students should be able to know about:

1. This paper analyzes the Neo–classical and Indian economic thoughts.
2. The students should able to know the contributions of Indian economic thinkers and Neo-classical
3. Understand the economic concepts and theories of Neo-classical and Indian thinkers.
4. Understand the development of Indian economic thoughts.

**Paper No. XV: ECONOMICS OF PLANNING**

By the end of this Course students should be able to know about:

1. The students to know about the concept of economic planning.
2. The students also know about issues in development planning and economic planning in India.
3. Understand the concept and issues of economic planning.
4. Students know the about Indian economic planning.

**Paper No. –XVI: INTERNATIONAL ECONOMICS (Part-II)**

By the end of this Course students should be able to know about:

1. Understanding knowledge about the basic principles that tend to govern the free flow of trade in goods and services at the global level.
2. The students to know the impact of free trade and protective trade on the different sectors of the economy as well as at the macro level.
3. The students would also be well trained about the rationale of recent changes in the export-import policies of India.
4. Increase knowledge regarding International Institutions.

## **B.A. (GEOGRAPHY)**

### **Program Specific Outcomes**

1. Serve as a Geographer
2. Work as a teacher in schools and high schools
3. Serve as conservator in forest, Soil, Agri, Departments.
4. Work in disaster and water resources management.
5. Serve in forest department as forest conservator.
6. Serve in cartographer in map making divisions of Government.
7. Work in NGOs.
8. Can Prepare for Competitive exams.

### **Course Outcomes**

#### **B.A. I**

#### **Paper I: Physical Geography**

By the end of this Course students should be able to know about:

1. Understand the effect of rotation of revolution the Earth
2. Know the internal structure of the earth  
know the importance of longitudes & latitudes International Date line and Standard time
3. Understand interior structure of the earth
4. Understand Theory regarding of Origin of Continents and oceans
5. Study the formation of Rocks
6. Understand the work of internal and external forces and their associated landforms.
7. Understand the importance of Atmosphere
8. Understand the composition of atmosphere



## **Paper II: Human Geography**

By the end of this Course students should be able to know about:

1. Understand the relationship of man and environment
2. Studies of races of man kinds.
3. Understand the modes of life of Eskimo, pigmy, Gonad , Bhil And Nagas.
4. Importance of Right to Information Acts.

## **B.A. II**

### **Paper III: Soil Geography**

By the end of this Course students should be able to know about:

1. Importance of soil in food Production.
2. To study the soil forming process.
3. To understand Chemical and physical properties of soil.
4. Know soil types of India.
5. Understand food Security and soil quality.

### **Paper IV: Resource Geography**

By the end of this Course students should be able to know about:

- 1 To study the importance of Resource
- 2 To study the types of resources
- 3 Understand the degradation of resources
- 4 Know the conservation of natural resources

### **Paper V: Agricultural Geography**

By the end of this Course students should be able to know about:

1. Examining the introduction to agriculture, nature, scope, significance and development of agriculture geography, approaches to study.
2. Understand the fundamental concept, land use, crops, agricultural production and envelopment and study the determinants of agricultural activities, physical determinants, and socio-economic determinants.
3. To understand the agricultural system its meaning and concept, whittlesey's classification of agricultural system, types of agricultural, study of the following types of agricultural in respect of area, salient features and their problems.
4. Understand the agricultural regionalization and modes in agricultural geography and their classification of agricultural models and some theories.  
Understand the agricultural statistics & land use survey techniques and agrarian revolution, meaning & merit and demerit of green revolution and white revolution

#### **Paper VI: Oceanography**

By the end of this Course students should be able to know about:

1. Understand importance of ocean.
2. Knowledge about effect of ocean Currents.
3. Understand human impacts on Ocean.
4. Study about types of tides.

#### **B.A.III**

#### **Paper VII: Physical Geography of India**

By the end of this Course students should be able to know about:

1. Knowledge about basic geographical Personality of India.
2. Understand the variability of Physiography, climate in India.
3. Study of problems of soil erosion and their conservation methods.
4. Acquire knowledge of forests in India.

### **Paper VIII: Economic Geography of India**

By the end of this Course students should be able to know about:

1. Get knowledge about problem and prospect about agriculture, trade and transport.
2. Aware the student about need of conservation and Protection of natural resource

### **Paper IX: Economic Geography**

By the end of this Course students should be able to know about:

1. Study the Human Economic Activities
2. Explain the Weber theory Rostov modal
3. Understand the mineral and power resources
4. Study of the distribution of engineering, cotton sugar Industries in India
5. Study Of India's foreign tread

### **Paper X: Urban Geography**

By the end of this Course students should be able to know about:

1. Study the urban planning
2. Study the urbanization process
3. Get knowledge about problems of urban area.
4. Study the fundamental factors of urbanization

### **Paper XI: Research Methodology**

By the end of this Course students should be able to know about:

1. Examining the introduction of research, motivation in research, types of research, significance of research, research process and criteria of good research.
2. To understand the research problems, selecting research problems, literature review and to study the hypothesis, its types, sources, formation of hypothesis and utility of hypothesis in scientific research.
3. To understand the research design, need, features, basic principal and developing of research plan, and sampling design and its basic types, steps, characteristics of sampling design.
4. Study about type's data and methods of data collection and study the processing and analysis of data using different statistical methods.
5. Understand the interpretation and report writing, techniques, precaution of interpretation, layout of research report, types of reports and oral presentation mechanics of writing a research report.

### **Political Geography**

By the end of this Course students should be able to know about:

1. Understand the history of Political Geography.
2. Get knowledge about Evolution of states & nations.
3. Get knowledge of Geopolitical theories.
4. Investigate Problems and disputes in India

## **Course Outcomes of M.A./MSc. (Geography)**

### **Principles of Geomorphology**

On completion of the course, students are able to:

1. Understand the nature, scope and significance of geomorphology and fundamental concepts in subject.
2. To examining the Origin and Evolution of the earth primary relief features by different theories in subject.
3. Understand about Exogenous Processes considering weathering and mass wasting and nature and types of the slope.
4. Evaluate the fundamental Model of Davisian Cycle of Erosion to learn the function of river and its landforms development process.
5. Understand formation, process and development of Fluvial and Karst Landforms
6. To recognize and understand the formation, process and development of Glacial and Aeolian Landforms in geomorphology.

### **Principles of Climatology**

On completion of the course, students are able to:

1. Understand the introduction to Climatology considering weather & climate, role of climate in human life, aims, nature, scope, and some other sub division of the course.
2. Understand the Atmosphere and their process and function, origin, composition, structure of Atmosphere.
3. To examining the Insolation and Heat Budget and its factors effects and their relations to other some elements.
4. Understand the concept of temperature and factors, horizontal, vertical and inversion of temperature
5. Identify the Atmospheric pressure and winds humidity and concept of precipitation and its types.
6. To compare the Airmasses and Fronts, atmospheric disturbances and its relation of local to global
7. Understand the climatic classification based of nature and variability in climatic variations by Koppen's and Thornwaites climatologist.

## **Economic Geography**

On completion of the course, students are able to:

1. Students Understand about the Nature and Scope of Economic Geography, approaches and recent trends of economics in the field of geography
2. Understand about the basic Economic Processes- Production, Exchange, Consumption and its applications
3. Understand the fundamental theories in subject.
4. Review, understand and apply the modes of economics development by various models
5. Compare the economic environment and economic development in the world
6. Understand the economies scale, transportation and communication and nature and role of international trade.

## **Population Geography**

On completion of the course, students are able to:

1. Understand the Nature and Scope of Population Geography and their evolution, significance and approaches for the study.
2. Understand the Sources of Population Data and History of World Population and some factors responsible for world population and data sources for study.
3. To understand the fundamental Concepts Related to Population such as density, over, optimum & under population, fertility, mortality and population for future perspectives.
4. To review and understand the subject matter with the help of Theories of Population
5. Understand the Population Movement, Migration and some causes, consequences and its effects.

## **Social and Cultural Geography**

On completion of the course, students are able to:

1. Understand the nature, scope, and concept, relationship between culture and social environment, and right of information act.
2. To examining the cultural complex and traits of culture and its concepts.
3. Evolution to civilization and various cultural development and cultural system according to religion, language and geography, and global cultural changes.

4. To study the origin and growth of culture and agriculture and its basic concepts.
5. Understand the concept of space and social process and present status.

### **Agricultural Geography**

On completion of the course, students are able to:

1. Examining the introduction to agriculture, nature, scope, significance and development of agriculture geography, approaches to study.
2. Understand the fundamental concept, land use, crops, agricultural production and envelopment and study the determinants of agricultural activities, physical determinants, and socio-economic determinants.
3. To understand the agricultural system its meaning and concept, whittlesey's classification of agricultural system, types of agricultural, study of the following types of agricultural in respect of area, salient features and their problems.
4. Understand the agricultural regionalization and modes in agricultural geography and their classification of agricultural models and some theories.
5. Understand the agricultural statistics & land use survey techniques and agrarian revolution, meaning & merit and demerit of green revolution and white revolution.

### **Research Methodology**

On completion of the course, students are able to:

1. Examining the introduction of research, motivation in research, types of research, significance of research, research process and criteria of good research.
2. To understand the research problems, selecting research problems, literature review and to study the hypothesis, its types, sources, formation of hypothesis and utility of hypothesis in scientific research.

### **Environmental Geography**

On completion of the course, students are able to:

1. Understand the fundamental concept related to environment, meaning, structure, types, component, geography and environment, man's interaction with environment
2. To study about the nature, scope, basic concept, interdisciplinary science, and study methods.
3. Understand the types, functions and component of ecosystem and biodiversity, its types, conservation methods, and preservation of ecosystem.

4. To understand the environmental global problems such as deforestation, desertification, depletion of ozone, global warming, La-nina and El neon.
5. Understand the role of environmental legislation laws and acts for environment protection and conservation.
6. Study the environmental planning and management for future and also understand the climatic changes and its effect on environment and human being.

### **Geographical Thoughts**

On completion of the course, students are able to:

1. Students understand the pre history of geographical Ideas in different duration form Greeks, roman's, Arab and impact of explorations & discoveries.
2. Understand the modern geographical thoughts and contribution of eminent geographers.
3. To learn about the beginning of modern geography, fundamental concepts and models in geography.
4. Examining the sciences of geography and Geography in the Second Half of the 20th Century and its trends in geographical thoughts
5. Compare between the fundamental concepts in geography these are General Geography v/s Regional Geography, Physical Geography v/s Human Geography, and Determinism Geography v/s Possibilist.

To understand the present status and application of modern techniques and its uses in climatology, geomorphology, economics geography, and population geography

### **Cartographic Techniques with the Help of GIS &**

#### **Excursion Report**

On completion of the course, students are able to:

1. Understand the introductory part of GIS software, its tool, functions, data import, scale factors, and basics of digitization
2. Use this software for prepare the various types of maps in geography with the help of cartographic Techniques of GIS software.
3. Applied this software and cartographic techniques for analysis and study in rural settlement geography and urban settlement for planning and development.



4. Understand the cartographic techniques and its tools, functions, applied in agriculture geography and physical geography for assessment and visualization purpose.
5. Help with these techniques, tool, methods, procedures; analysis potential and cartographic technique etc. prepare the project report considering all types of data related to geography of any selected study area or village.

## Program Specific Outcomes

**On completion of the M.A./M.Sc (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. **Cartographer:** Many people choose to work as a cartographer who is a person with extensive knowledge about maps and is involved in making maps, charts, globes, and models of Earth and other planets.
3. **Surveyor:** Many others with a degree in geography also opt to work as a surveyor.
4. **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 specialisations.
5. **GIS and Remote Sensing Fields:** Geography as a career provides multiple job options.
6. **Drafter:** He/she associate closely with engineers and architectures. It involves planning, housing and development projects in terms of their location and utilization.
7. **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.