



S. M. Dnyandeo Mohekar Mahavidyalaya, Kalamnuri
Internal Quality Assurance Cell

PROGRAMME OUTCOMES (COs)
COURSE OUTCOMES (COs)



S.M. Dnyandeo Mohekar Mahavidyalaya Kalam

Department of Chemistry
Programme Specific Outcome

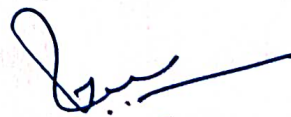
After successful completion of B.Sc. student would able to:

1. Understand the basic properties of atoms, molecules etc.
2. Gain knowledge of the structure and properties of inorganic and organic molecules.
3. Understand all physical phenomena related to chemical thermodynamics and kinetics.
4. Understand the structure of atoms and molecules based on quantum mechanics.
5. Gain knowledge of the reactivity, stability and reaction mechanisms of organic molecules.
6. Gain a basic knowledge of all the elements represented in the periodic table and their important real world applications.
7. Understand electronic configuration, orbital diagrams and quantum numbers. For an electron in the ground state.
8. Gain knowledge of the use of all biomolecules and bioorganic molecules in the body of animals and plants.
9. Gain knowledge of IR, UV and NMR spectroscopic techniques for assigning unknown organic molecules.
10. Understand common laboratory techniques including pH meter, conductometer, acid-base titration, organic and inorganic qualitative and quantitative analysis, organic and inorganic estimation.



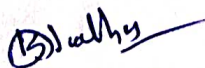
Head

Department of Chemistry



Principal

S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam



I Q A C

Coordinator

S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam



Course Outcomes

COs: Chemistry

Class	Course/Paper
B.A. F.Y. Chemistry Paper I	Inorganic Chemistry

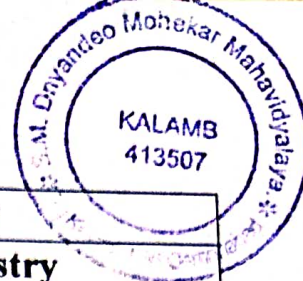
Course Outcomes

- To study the basics of atomic structure - Atomic orbitals, Quantum numbers, Bohr's theory, Heisenberg uncertainty, Aufbau and Pauli exclusion principles, Hund's multiplicity rule.
- To understand some periodic properties - atomic and ionic radii, ionization energy, electron affinity and electro negativity with reference to trends in periodic table and application in predicting chemical behaviour.
- To study the properties of s- and p-block elements.

Class	Course/Paper
B.A. F.Y. Chemistry Paper II	Organic Chemistry

Course Outcomes

- To understand the basic concepts in organic chemistry- structure and bonding, reactions, reagents and mechanisms of organic reactions.
- To study the concept of isomerism and stereochemistry.
- To understand the properties, preparation methods and reactions of alkanes, alkenes and alkyl and aryl halides.
- To study the concept of aromaticity.



Class	Course/Paper
B.A. F.Y. Chemistry Paper IV	Physical Chemistry

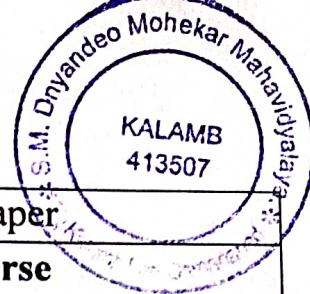
Course Outcomes

- To study the basic mathematical concepts - logarithmic relations, curve sketching, linear graphs and calculation of slopes, differentiation of functions simple mathematical functions, maxima and minima, partial differentiation.
- To understand kinetic theory of gases, kinetic gas equation, and gas laws, Critical Phenomena: PV isotherms of real gases.
- To study chemical kinetics: Factors influencing the rate of reaction, rate law and characteristics of simple chemical reactions. Catalysis: Definition, types, and characteristics, Enzyme catalysis.
- To understand basics of liquid, solid and colloidal state.

Class	Course/Paper
B.A. F.Y. Chemistry Paper V	Inorganic Chemistry-II

Course Outcomes

- To understand chemistry of the noble gases.
- To understand types of bonds, Theories of bonding - VBT, VSEPR, MOT with formation and shapes of molecules.
- To understand the basic concepts of nuclear chemistry - isotopes, isobars mass, binding energy, packing fraction N/Z ratio, Radio activity, properties of fundamental particles, artificial transmutation. Applications with respect to trans-uranic elements, carbon dating.
- To study theory of volumetric analysis - Types of titrations, volumetric apparatus, calibration of pipette and burette, indicators used in pH - titrations, oxidizing agents used in titrations. Theory of internal, external and self-indicators for redox titration.



Class	Course/Paper
B.A. F.Y. Chemistry Paper III+VI	Lab Course

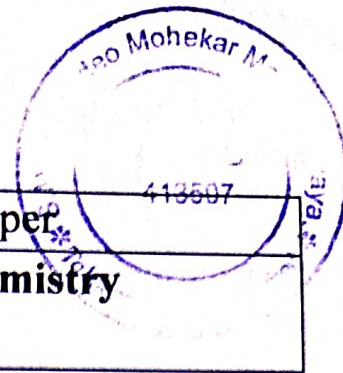
Course Outcomes

- To know how to prepare and standardize the solutions by volumetric analysis.
- To know how to identify the acidic and basic radicals from the inorganic binary mixture.
- To study how to determine the viscosity and surface tension of given liquids.
- To study the specific reaction rate, effect of acid strength, equivalent weight determination and Lambert Beer's Law verification.
- To understand how to identify the given organic compound qualitatively.
- To study organic estimations.

Class	Course/Paper
B.A. S.Y. Chemistry Paper VII	Organic Chemistry

Course Outcomes

- To understand the basic functional group transformations, aromatic electrophilic substitution reactions, nucleophilic additions.
- To understand structure, reactivity, preparation methods and chemical reactions of different types of organic compounds - alcohols, Phenols, aldehydes & ketones, amines and carboxylic acids.
- To study the named reactions- Pinacol-Pinacolone rearrangement, Fries rearrangement, Claisen rearrangement, Gatterman synthesis and Reimer Tiemann reaction, Baeyer-Villegier oxidation, Benzoin, Aldol Knoenenagel condensations, Mannich reactions. Hoffmann bromamide reaction, Gattermann Koch synthesis, Hell-Volhard-Zelinsky reaction. Regents in organic chemistry – LiAlH_4 , LTA, PTC.



Class	Course/Paper
B.A. S.Y. Chemistry Paper VIII	Physical Chemistry

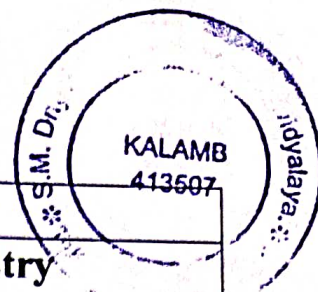
Course Outcomes

- To understand the basic concepts in thermodynamics.
- To understand the laws of thermodynamics, heat capacity, expansion of ideal gases for reversible process, Hess's law.
- To study Carnot cycle, concept of entropy, Gibbs and Helmholtz Functions, Criteria for thermodynamic equilibrium and spontaneity, their advantage over entropy change. Variation ΔA with P, V and T.
- To understand equilibrium constant and free energy - law of mass action, Le Chatelier's principle, Reaction isotherm and reaction isochore, Clapeyron equation, Clausius-Clapeyron equation.

Class	Course/Paper
B.A. S.Y. Chemistry Paper X	Inorganic Chemistry

Course Outcomes

- To familiarize students with transition elements, lanthanides and actinides.
- To understand concepts and theories in coordination compounds - Werner's co-ordination theory, EAN rule, VBT, isomerism, chelates.
- To understand the concepts of acids and bases - Arrhenius, Bronsted-Lawry, Lux-Flood, Solvent System and Lewis Concept of Acids and Bases
- To study the types and characteristics of solvents, chemical reaction in non-aqueous solvents.



Class	Course/Paper
B.A. S.Y. Chemistry Paper XI	Physical Chemistry

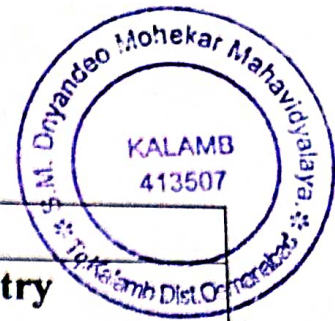
Course Outcomes

- To study the basic terms and laws in phase equilibrium and their applications.
- To understand different systems- Water, Pb-Ag, Mg-Zn, FeCl₃-H₂O, phenol-water, trimethyl amine - water, nicotine- water system, acetone-dry ice.
- To understand the concept of ideal behaviour and deviations.
- To understand the concept of conductivity and its types, Kohlrausch's law, Arrhenius Theory, Ostwald's dilution law, Transport number and its determination, Conductometric titrations.
- To familiarize with types of reversible electrodes, Electro-chemical series, Electrolytic and galvanic cells, types of cells, Thermodynamic quantities of cell reactions, Concepts - pH, pKa and their determination, Buffers- types, and mechanism of action. Corrosion: Concept, types and electrochemical theory.

Class	Course/Paper
B.A. S.Y. Chemistry Paper IX+XII	Lab Course III+IV

Course Outcomes

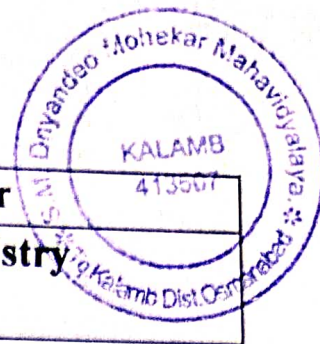
- To study the determination of critical solution temperature, solubility, heat of neutralization, partition coefficient and equilibrium constant.
- To study the molecular mass and kinetics of iodination of acetone.
- To understand the estimation of various metals by gravimetric and complexometric titrations.
- To understand the uses of various instruments like conductometer, pH-meter, colorimeter, polarimeter, refractometer etc.



Class	Course/Paper
B.A. T.Y. Chemistry Paper XIII	Physical Chemistry

Course Outcomes

- To understand concepts in Quantum Mechanics - Black body radiation, Planck's radiation law, photoelectric effect, Bohr's modes of hydrogen atom, Compton Effect. De Broglie Hypothesis, Heisenberg's uncertainty principle, Hamiltonian operator, Schrödinger wave equation postulates of quantum mechanics. Schrödinger wave equation for H-atom.
- To study the basics of spectroscopy - Electromagnetic radiation, regions of the spectrum, Born-Oppenheimer approximation, Rotational Spectrum, energy levels of a rigid rotor, selection rule, rotational spectra, determination of bond length.
- To understand photochemistry - Photochemical processes, laws of photochemistry, Grothus-Draper law, Stark-Einstein law, Jablonski diagram, qualitative description of fluorescence, phosphorescence, non-radiative processes, quantum yield and photosensitized reactions.
- To study some physical properties and their relation with the assignment of molecular structure- Optical activity, dipole moment, magnetic property.
- To introduce nano-materials - Properties, methods of synthesis and applications.
- To enable students to solve numerical problems.



Class	Course/Paper
B.A. T.Y. Chemistry Paper XIV	Organic Chemistry

Course Outcomes

- To introduce learners to organic spectroscopy - ^1H NMR, shielding and deshielding effect, chemical shifts, interpretation of PMR spectra of simple organic molecules, combined problems on UV, IR and PMR spectroscopic techniques.
- To familiarize students with organometallic compounds - Structure, methods of synthesis and their applications of Grignard reagents, Organozinc and organolithium compounds.
- To understand active methylene compounds, formation of enolates, Claisen condensation, Acidity of alpha hydrogen and its synthetic applications.
- To introduce fats, oils and detergents - Saponification value, iodine value, and acid value. Detergents preparation of sodium alkyl sulphonate, alkyl benzene sulphonate, and amide sulphonate, cleansing action of detergent.

Class	Course/Paper
B.A. T.Y. Chemistry Paper XV	Lab Course - V

Course Outcomes

- To know how to identify the nature of binary organic compounds, their methods of separation and identification of individual organic compound qualitatively.
- To analyze the binary inorganic mixture for semi-micro analysis.
- To study the separation and volumetric estimation of metal ions.
- To study the separation and gravimetric estimation of metal ions.



Class	Course/Paper
B.A. T.Y. Chemistry Paper XVI	Inorganic Chemistry

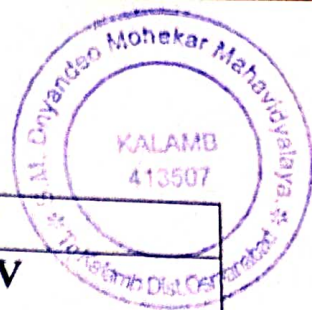
Course Outcomes

- To understand nature of metal-ligand bonding in transition metal complexes - crystal field theory with respect to octahedral, tetrahedral and square planer complex.
- To familiarize with electronic spectra of transition metal complexes.
- To introduce organo metallic compounds - classification, nomenclature, synthesis and reactions.
- To study the roles and biological functions of metals in biological systems.
- To introduce chromatography - types, classification and applications.

Class	Course/Paper
B.A. T.Y. Chemistry Paper XVII	Organic Chemistry

Course Outcomes

- To study the heterocyclic compounds in details, their aromatic characters and importance in medicinal chemistry, structure elucidation, synthesis and properties of five and six member heterocyclic compounds using molecular orbital theory.
- To study carbohydrate chemistry and its importance.
- To understand synthesis and properties of some polymers, polymerization reactions.
- To understand constitution, classification, synthesis, properties and applications of some drugs.
- To know constitution, classification, synthesis and properties of some dyes.



Class	Course/Paper
B.A. T.Y. Chemistry Paper XVIII	Lab Course - V

Course Outcomes

- To study the organic estimations of carbonyl group, vitamin C, ascorbic acid, saponification value of oil.
- To prepare some organic compounds and check their purity by TLC
- To determine the strength of acid using conductometer
- To determine empirical formula of ferric -5-sulphosalicylate
- To determine the amount of Fe^{2+} in the given solution potentiometrically
- To determine the interfacial tension, the standard free energy change ΔG_0 and equilibrium constant.
- To study the effect of addition of an electrolyte NaCl / KCl on the solubility of benzoic acid at room temperature.

Head
Department of Chemistry

Principal
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam

I Q A C
Coordinator
S.M.Dnyandeo Mohekar
Mahavidyalaya, Kalamb

S.M. Dnyandeo Mohekar Mahavidyalaya Kalamb



Department of Botany
Programme Specific Outcome

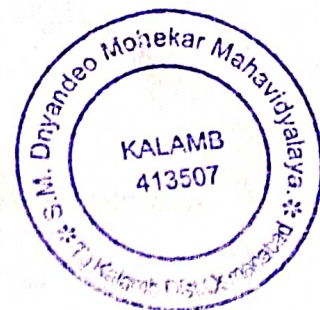
After completing B. Sc in Botany Subject

1. Students get knowledge of Plant diversity
2. They understand different types of ecosystems and effect of human activities on ecosystem
3. Students get knowledge of getting information through internet
4. Students acquire laboratory skills
5. Students get knowledge of morphology, anatomy, physiology, pathology and genetics of plant
6. Students get knowledge of modern techniques in plant pathology study
7. Students identify plants and their medicinal values to mankind.
8. Students identify plants diseases of crop plants.

Amra
MS. A.R. Mulchekar
Head Dept. of Botany.

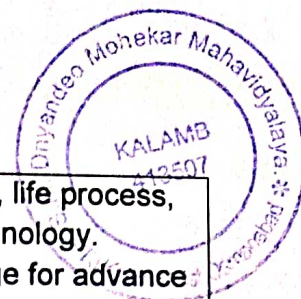
(S) Ash
I Q A C
Coordinator
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalamb

[Signature]
Principal
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalamb



COURSE OUTCOME
COs: Botany

Sr. No.	Class	Course/Paper	Course Outcomes
1	B. Sc. FY	Paper-I Diversity of Cryptogams-I	<ol style="list-style-type: none"> 1. Introduction about basic plant groups like Algae and Fungi. 2. To equip the learners with all life science fundamental practical skills. 3. To aware learners about the economic and medicinal value of cryptogrammic plants.
2	B. Sc. FY	Paper-II Morphology of Angiosperms	<ol style="list-style-type: none"> 1. To introduce to basic structure of plants. 2. To develop practical knowledge of Angiosperm plants. 3. Know morphology of reproductive organs.
3	B. Sc. FY	Paper-III Diversity of Cryptogams-II	<ol style="list-style-type: none"> 1. To understand categories of plants with morphological features of Bryophytes and Pteridophytes. 2. To analyze the peculiar characteristic features of plant groups in relation with its internal characteristics. 3. To aware learners about economic and medicinal value of cryptogrammic plants.
4	B. Sc. FY	Paper-IV Histology, Anatomy and Embryology	<ol style="list-style-type: none"> 1. To understand internal structure of plant parts. 2. To apply theoretical knowledge in wood industry, forensic science. 3. To understand the development of seed and seed certification.
5	B. Sc. SY	Paper-VII Taxonomy of Angiosperm	<ol style="list-style-type: none"> 1. To familiarize with basic terminology, plant systematic and its different classification. 2. To identify angiosperm plants and their use.
6	B. Sc. SY	Paper-VIII Plant Ecology	<ol style="list-style-type: none"> 1. Understanding of anatomical characterization of plants. 2. Study of eco-friendly conservation and sustainable utilization. 3. Students cop up with the ecosystem mechanism, analyzing plants ecosystem. 4. Understanding of ecological adaptations.
7	B. Sc. SY	Paper-XI Gymnosperms and Utilization of plants	<ol style="list-style-type: none"> 1. To make aware of economic and medicinal value of Gymnosperms and Angiosperms. 2. To understand important terminology in industrially and economically important higher plant species.



8	B. Sc. SY	Paper-XII Plant Physiology	<ol style="list-style-type: none">1. To understand plant physiology, life process, plant genetics and plant biotechnology.2. To use the theoretical knowledge for advance study in plant sciences.
9	B. Sc. TY	Paper-XV Cell and Molecular Biology	<ol style="list-style-type: none">1. To create innovative approaches to aware the students in basic terminology of plant cells.2. To understand cell at molecular level.3. To apply theoretical understanding to the development of humankind.
10	B. Sc. TY	Paper-XVI Diversity of Angiosperms-I	<ol style="list-style-type: none">1. To create awareness about the plant resources.2. To classify plants on the basis of morphological aspects.3. To participate in laboratory experiments for understanding the basic principles of life sciences and helpful for gaining primary information
11	B. Sc. TY	Paper-XIX Genetics and Biotechnology	<ol style="list-style-type: none">1. To study basic terms in Mendelian and non-Mendelian genetics.2. To focus on biotechnological importance for improvement and satisfaction of all needs of human kind.3. To understand plant biotechnology and its application in agriculture, horticulture, medicinal and industrial crops.
12	B. Sc. TY	Paper-XX Diversity of Angiosperms-II	<ol style="list-style-type: none">1. To study eco-friendly conservation and sustainable utilization of plants.2. To understand flora.
13	B. Sc. TY	Biology and Diversity of Bryophytes, Pteridophytes and Gymnosperms	<ol style="list-style-type: none">1. To create the foundation of all plant life cycles of cryptogrammic plant species and it correlate with experimental techniques.2. To understand characteristics of non-flowering primitive plants.3. To aware the students about economic and medicinal values of cryptogrammic and gymnosperm plant.
14	B. Sc. TY	Ecology and Conservation	<ol style="list-style-type: none">1. To understand plant kingdom system and its ecology.2. To distribute various biomes content for future higher environmental studies.

Anura
MS. A. R. Mulchekar
Head, Dept. of Botany.

D. S. Kulkarni
I Q A C
Coordinator
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam.

S. M. Dnyandeo Mohekar
Principal
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam


S.M. Dnyandeo Mohekar Mahavidyalaya Kalam



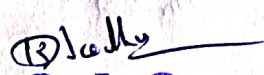
Department of Zoology
Programme Specific Outcome

After completing B. Sc in Zoology Subject

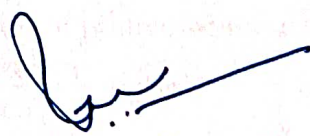
1. To understand concepts in all discipline of Zoology.
2. Understand the evolution, history of phylum.
3. Create an awareness of the impact of Zoology on the environment society, and development outside the scientific community.
4. To study and understand the classification of whole phyla includes in Non chordates with the help of charts/models/pictures.
5. To inculcate the scientific temperament in the students and outside the scientific community.
6. Use modern techniques, decent equipment's and Zoology software's
7. Gain the knowledge of Zoology through theory and practical's.
8. Study and understand the DNA Recombinant technology.
9. Understand the testing of hypothesis.
10. Use modern Zoological tools, Models, Charts and Equipment's.
11. Know structure-activity relationship.
12. Understand good laboratory practices and safety.
13. Develop research oriented skills.
14. Make aware and handle the sophisticated instruments/equipment's


Head

Department of Zoology
S.M. Dnyandeo Mohekar Mahavidyalaya
Kalam, Dist. Jalgaon


IQAC
Coordinator

S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam


Principal
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam

COURSE OUTCOMES


COs: ZOOLOGY



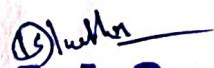
Sr. No.	Class	Course/Paper	Course Outcomes
1	B.Sc. I	ZOL-101 Protozoa to Annelida	<ol style="list-style-type: none">1. To create awareness about fundamentals of invertebrate animals.2. To understand the nature, classification of phylum system anatomy and development.3. To equip students with life science fundamental practical skills.
	B.Sc. I	ZOL-102 Cell biology I	<ol style="list-style-type: none">1. To understand structure and functions of cell organelles in animal cells.2. To study cell structure and the process of cell division.
	B.Sc. I	ZOL -201 Arthropoda to Echinodermata And Protochordata	<ol style="list-style-type: none">1. To introduce learners to higher invertebrates, morphological features, evolutionary development and connecting links and adaptations.2. To analyze peculiar characteristics of animal groups in relation with internal characteristics.
	B.Sc. I	ZOL -202 Genetics-I	<ol style="list-style-type: none">1. To understand important terminology in genetics, laws, & its applications.2. To observe and calculate probabilities in cross, heredity and variations in genetics.
	B.Sc. II	ZOL -301 Vertebrate Zoology	<ol style="list-style-type: none">1. To familiarize students with basic terminology and animal systematics.2. To understand classification, anatomy and development of vertebrates.3. To understand classification, morphological structures, identification of specimens and anatomy of some vertebrate animals.4. To understand embryological process of development.
	B.Sc. II	ZOL -302 Genetics-II	<ol style="list-style-type: none">1. To create awareness of mechanism of protein synthesis, DNA fingerprinting, recombinant DNA technology and rDNA.2. To understand mechanism of protein synthesis and solve problems in genetics.
	B.Sc. II	ZOL -401 Animal physiology	<ol style="list-style-type: none">1. To study animal processes.2. To understand life processes through experiments.
	B.Sc. II	ZOL -402 Biochemistry & Endocrinology	<ol style="list-style-type: none">1. To focus on biochemical processes - metabolism and catabolism process.2. To inculcate advance study in biochemical reactions, principle, functioning and & uses of instruments.
	B.Sc. III	ZOL -501	<ol style="list-style-type: none">1. To study basic terms and subject applications



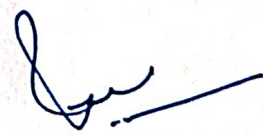
		Ecology	<p>in life sciences.</p> <ol style="list-style-type: none">2. To understand basic information of types of ecosystems, role of living things in ecosystems and basic ecological concepts.3. To analyze biotic, abiotic factors and animal interactions.
B.Sc. III	ZOL -502 Fishery Science-I		<ol style="list-style-type: none">1. To understand the concept of blue revolution.2. To understand the status of fresh water fisheries.3. To understand the fresh water capture fisheries and the effect of aquatic pollution on fisheries.4. To understand the rearing and reservoir fisheries and its management.5. To understand the brackish water and marine water fisheries.6. To understand the application of remote sensing technique in fisheries.
B.Sc. III	ZOL -601 Evolution		<ol style="list-style-type: none">1. To study basic terms and subject applications in life sciences.2. To participate in laboratory experiments for understanding the basic principles of evolution through models and helpful for gaining primary information.
B.Sc. III	ZOL -602 Fishery Science-II		<ol style="list-style-type: none">1. To understand the museum specimen and study of fresh water and brackish water fishes.2. To understand the museum specimen and study of marine water fishes.3. To know how to determine the Alkalinity, Salinity, DO, Hardness of water.4. To prepare project report on Fish farm.


Head

Department of Zoology
S.M. Dnyandeo Mohekar Mahavidyalaya
Kalam, Dist. Osri anabau


IQAC
Coordinator

S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalamb



Principal
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam

S.M. Dnyandeo Mohekar Mahavidyalaya Kalam



Department of Fishery Science

Programme Specific Outcome

1. The students will acquire through knowledge of Fishery Science.
2. The subject will enable the student to engage in business related with fish, such as fish culture, its export and import business.
3. The students will gain knowledge of aquaculture.
4. The students will be able to understand the process of hybridization and develop the research attitude towards fishery and aquaculture.
5. The study will open opportunities for students such as post of Instructor, Research Assistant, Biochemist Biologist, Technicians etc.
6. The subject also gives access to the service sector in the fisheries department of state and central government.
7. The subject has a wide scope of self employment after owing degree you can also open your own enterprise.
8. The subject also enables the student to become an aqua culturist farm Managers, exporters, traders, breeders and modern fishermen's etc.



I Q A C

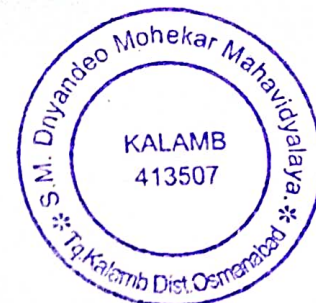
Coordinator

S.M.Dnyandeo Mohekar
Mahavidyalaya, Kalam



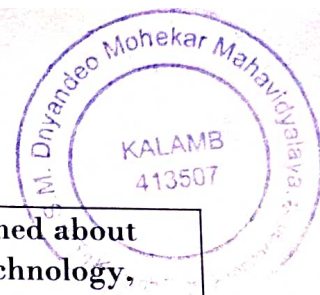
Principal

S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam



COURSE OUTCOMES
COs: FISHERY SCIENCE

Sr. No.	Class	Course/Paper	Course Outcomes
1	B.Sc. I	Paper I Morphology And Taxonomy	<ol style="list-style-type: none"> 1. From this paper student learned about fins and locomotion in fishes, median and paired fins, epidermis and exo- skeletons. 2. They learned about broad outline of classification of fishes.
2	B.Sc. I	Paper II Anatomy & Physiology	<ol style="list-style-type: none"> 1. Students learned about axial skeletons, digestive system in Fish, physiology of supination, learn about heart arterial and venous system in fishes. 2. They learned about reproductive system and nervous system in fishes.
3	B.Sc. I	Paper IV Fish Ecology and Adaptation	<ol style="list-style-type: none"> 1. Students learned about Ecology of fresh water, marine water and brackish water, Water pollution, migration in fishes, adaptation of Fishes to environment
4	B.Sc. I	Paper V Fish Pathology and Parasitology	<ol style="list-style-type: none"> 1. Students learned about inflammation immune response, pathological charges etc. They learned about different type of disease in fishes, symptoms and curative treatment.
5	B.Sc. II	Paper VII Capture fisheries	<ol style="list-style-type: none"> 1. From this paper students learned about Inland, Marine and brackish water resources, fish fauna, gears used, boats used in India.
6	B.Sc. II	Paper VIII Culture fisheries - I	<ol style="list-style-type: none"> 1. From this paper student learned about history of aquaculture, purpose importance and advantages of aquaculture 2. They learned about different types of culture and management system in fish culture.
7	B.Sc. II	Paper XI Fish Technology And Population Dynamics	<ol style="list-style-type: none"> 1. From this topic students learned about different types of fishing crafts fishing gear, processing methods of fishes, fish population etc.
8	B.Sc. II	Paper XII Culture fisheries – II and aqua. management	<ol style="list-style-type: none"> 1. From this topic student learned about Mari culture and different types of culture system of fishes. They also learned about aquarium management.
9	B.Sc. III	Paper XV Fish Economics	<ol style="list-style-type: none"> 1. From this chapter students learned about different types of technology of economics, function of economic system. 2. They also learned about Demand end and supply of fishes, marketing of fishes etc.



10	B.Sc. III	Paper XVI Modern trends in Fishery science	1. From this chapter students learned about principals of fish genetics, biotechnology, hybridization, chromosomal engineering etc.
11	B.Sc. III	Paper XIX Fish Statistics, Management and Extension	1. Students learned about statistics, management and extension system in fishery science
12	B.Sc. III	Paper XX Modern trends in Fishery Science – II	1. From this topic student learned about immunology in fishes, microbiology, contamination, preservation and spoilage of fish and other sea foods. 2. They also learned about application of remote sensing technology in fisheries.


I Q A C
Coordinator
S.M.Dnyandeo Mohekar
Mahavidyalaya, Kalam


Principal
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam


S.M. Dnyandeo Mohekar Mahavidyalaya Kalam



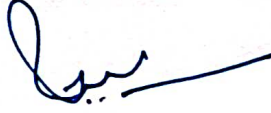
Department of Electronics Programme Specific Outcome

After the completion of the B.Sc. Electronics, the students are able to:

1. To understand Network theorems and semiconductor devices
2. To understand basics of number systems, binary, octal, hexadecimal etc.
3. To understand types of biasing techniques of transistor.
4. To understand the basics of 8086 microprocessor.
5. To understand the types of modulation techniques.
6. To understand the concept of electronic sensors.
7. Difference between microprocessor and microcontroller and their applications


Head
Dept. of Electronics
S. M. D. M. Mahavidyalaya
Kalam, Dist. Osmanabad.


I Q A C
Coordinator
S.M.Dnyandeo Mohekar
Mahavidyalaya, Kalam


Principal
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam

S.M. Dnyandeo Mohekar Mahavidyalaya Kalam



Department of Physics

Programme Specific Outcome

After the completion of the B.Sc. Physics, the students are able to:

1. Gain knowledge in core areas of physics such as mechanics, optics, electricity and magnetism, heat and thermodynamics as well as advanced areas such as electrodynamics, electronics, solid state physics, quantum mechanics and nuclear physics.
2. Learn the basic mathematical tools needed to understand the various branches of physics. They are trained to apply these techniques through numerical exercises.
3. Develop scientific temper and focus on developing practical skills, mathematics and get results.
4. They are given practical training in well-equipped and equipped laboratories for practical verification of the physical principles learned during class lectures.
5. Eligible for the further post-graduate studies, in physics, electronics, instrumentation, computer applications etc. They can apply for different integrated PhD courses in IITs and NITs. They may appear for competitive examinations like JAM, JEST etc.
6. They may also apply for various trainee jobs with substantial salary packages

Head,

Department Of Physics

S. M. Dnyandeo Mohekar Mahavidyalaya
Kalam Dist Osmanabad

IQAC
Coordinator

S.M.Dnyandeo Mohekar
Mahavidyalaya, Kalam

Principal

S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam



COs: Physics

F. Y. B. Sc. Physics 101- Paper No I:

Mechanics, properties of matter & sound:

1. To introduce the students to the basic concepts of mechanics.
2. Deep understanding of Newton's Laws of Gravitation and their applications.
3. To fully understand the concepts of viscosity and elasticity.
4. To understand the phenomenon of surface tension and its applications.
5. To understand ultrasonic and acoustic concepts effectively.
6. To enable the students to solve numerical problems.

F. Y. B. Sc. Physics 101 Paper No II:

Heat and Thermodynamics

1. Understanding thermal conductivity concepts and applications.
2. To understand the concept of real gases and changing phenomena.
3. To enable students to understand the laws of thermodynamics and thermodynamic processes.
4. To study the concept of entropy in depth.
5. To study heat engines and their efficiency.
6. To enable students to solve numerical problems.

F. Y. B. Sc. Physics 104- Paper No IV:

Geometrical and Physical Optics

1. Knowledge of the principle concepts of optical optics.
2. Having a thorough knowledge of the main points of the optical system.
3. Fully understanding the resolution of the intervention.
4. To enable the student to summarize the phenomena of diffraction and polarization.
5. Able to solve the stuck problem.

F. Y. B. Sc. Physics 105- Paper No V:

Electricity and Magnetism

1. To understand the basic concepts and laws of electrostatics.
2. To study the basic concepts and laws in dielectrics.
3. To acquire knowledge of basic concepts and laws of magnetism.
4. To understand the basic concepts of transient current.
5. To enable students to solve numerical problems related to the topics covered.

S. Y. B. Sc. Physics 201- Paper No VII:

Mathematical, Statistical Physics and Relativity

1. To introduce students to mathematical methods used in physics.
2. To introduce the students to vector algebra.



3. Introduction to differential equations.
4. To introduce the students to partial differential equations.
5. To introduce the students to classical and quantum statistics.
6. To understand the concepts of special relativity theory.
7. Using mathematical methods to solve physics problems.

S. Y. B. Sc. Physics 202- Paper No VIII:

Modern and Nuclear Physics

1. To introduce the students to the basic properties of nucleus.
2. To have a thorough understanding of radioactivity and its applications.
3. To introduce students to nuclear forces and elementary particles.
4. To understand the construction and working of various particle accelerators and detectors.
5. Understanding of photoelectric effect.
6. To study various photoelectric cells.
7. To enable students to solve numerical problems.

S. Y. B. Sc. Physics 205- Paper No XI:

General Electronics

1. To introduce the students to basic electronic components.
2. Understanding Semiconductors.
3. In-depth knowledge of semiconductor devices.
4. To introduce the students to transistor circuits and their characteristics.
5. Understanding of oscillators and multi vibrators.
6. To understand the process of modulation and demodulation.
7. To solve numerical problems.

S. Y. B. Sc. Physics 206- Paper No XII:

Solid state Physics

1. To introduce the students to the basic concepts of the structure of solids.
2. To introduce the students to the system of characterisation.
3. In-depth knowledge of bonding and band theory of solid substances.
4. Better understanding of transport properties.
5. To enable students to solve numerical problems.

T. Y. B. Sc. Physics 301- Paper No XV:

Classical and Quantum Mechanics

1. Understanding the mechanics of systems of particles.
2. To understand the D'Albert theory, Lagrange equation and its applications.
3. To introduce students to the historical background of quantum mechanics.
4. To understand the wave function and its physical interpretation.
5. To introduce students to time dependent and time independent Schrödinger equations and their applications.



6. To introduce students to various operators used in quantum mechanics.
7. To enable students to solve numerical problems.

T. Y. B. Sc. Physics 302- Paper No XVI:

Electrodynamics

1. To introduce students to various differential operators to study Gauss Law.
2. Faraday's Law, Lenz's Law etc. To introduce students to basic concepts and equations related to different time zones like
3. Write an expression to represent the vector for electromagnetic waves.
4. To be able to write wave equation.
5. To solve numerical problems.

T. Y. B. Sc. Physics 305- Paper No XIX:

Atomic, Molecular Physics and LASER

1. To introduce students to the conceptual development of the atomic model.
2. To deeply understand one and two valence electron systems.
3. To understand Zeeman Effect, Paschan back effect, Stark effect etc.
4. Understanding Molecular Raman Spectroscopy.
5. In-depth introduction to lasers.
6. To introduce the students to different types of lasers.
7. To understand the construction and working of different types of lasers.
8. To know the various applications of laser.
9. To enable the students to solve numerical problems.

T. Y. B. Sc. Physics 306- Paper No XX:

Non-conventional Energy sources and Optical Fibers

1. To introduce students to different types of renewable energy sources.
2. To introduce students to the use of solar energy.
3. To introduce the students to the applications of biomass energy.
4. To introduce students to wind mechanics.
5. To create awareness among students about energy conservation.
6. To introduce optical fiber to the students.
7. To introduce the students to the applications of optical fiber.
8. To enable students to solve numerical problems.

Department Of Physics
S. M. Dnyandeo Mohekar Mahavidyalaya
Kalam Dist Osmanabad

I Q A C
Coordinator
S.M.Dnyandeo Mohekar
Mahavidyalaya, Kalam

Principal
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam

COURSE OUTCOMES

COs: Electronics



B.Sc. I ELE 101 [Network theorems and semiconductor devices]

1. To understand electronic passive and active components.
2. To understand basics of P-N junction diodes and their types.
3. To understand basics of transistor JFETS and their working.
4. To understand basics of power supplies using semiconductor diodes and IC's.

B.Sc. I ELE 102 [Digital Electronics – I]

1. To understand basics of number systems, binary, octal, hexadecimal etc.
2. To understand basics of logic gates and their working symbols
3. To understand basics of Boolean algebra and theorems.
4. To understand basics of combinational logic circuits and their applications.

B.Sc. I ELE 201 [Amplifiers]

1. To understand types of biasing techniques of transistor.
2. To understand 2- port technique of analysis of transistor amplifier.
3. To understand feedback technique of study of transistor amplifier.
4. To understand the types of power amplifiers and their working.

B.Sc. I ELE 201 [Digital Electronics - II]

1. To understand the basics of flip-flops, their types and working.
2. To understand the working of counters their types and uses.
3. To understand the basics of shift registers, types and applications.
4. To understand the types of memories used to store data, their working.
5. To understand the types of converters used to transfer the digital data in analog form.

B.Sc. II ELE 301 [Linear Integrated Circuits]

1. To understand the working of OP-AMP integrated amplifier system.
2. To understand the applications of OP-AMP.
3. To learn and understand the working of oscillators used in electronic generators.
4. To understand the working of timer IC 555 and its applications.

B.Sc. II ELE 302 [8086 Microprocessor]

1. To understand the basics of 8086 microprocessor.
2. To enable learners to understand the instruction Set of 80806 microprocessor.
3. To enable learners to understand the assembly language programming.

B.Sc. II ELE 401 [Communication Electronics]

1. To understand the types of modulation techniques.
2. To understand the pulse modulation techniques.
3. To understand the different ways of modulation and detection.
4. To understand the digital communication techniques.



B.Sc. II ELE 402 [8086 Microprocessor Interfacing]

1. To understand the interfacing of memories and I/O.
2. To understand the programming using IC 8255.
3. To understand the communication interface using IC 8251.
4. To understand the programmable interval timer IC 8253.

B.Sc. III ELE 501 [Power Electronics]

1. To familiarize with the power components and their characteristics.
2. To understand the concept of electronic sensors.
3. To understand the knowledge of different types of electronic sensors.
4. To apply sensors for detection of an object.
5. To get an idea of industrial motors and power requirements.
6. To understand the concept of industrial motor speed control and methods.

B.Sc. III ELE 502 [Microcontroller –I]

A learner of this course will be able to understand

1. Embedded systems.
2. Difference between microprocessor and microcontroller
3. Fundamentals of microcontroller
4. Basics of microcontroller hardware specific to 8051 microcontroller
5. Microcontroller instructions
6. Applications of microcontroller.

B.Sc. III ELE 601 [Programmable Logic Controller]

Students will be able to understand

1. Industrial controls
2. Relay logic concept
3. Ladder logic concept
4. Basics of PLC system
5. PLC instructions
6. Development of ladder logic for specific industrial control system.


B.Sc. III ELE 602 [Microcontroller – II]

After completing the course, students will learn and understand.....

1. Microcontroller internal blocks.
2. Timer and counter block and their programming.
3. Serial communication and its programming.
4. Interrupt and its programming.
5. Programming to LCD, ADC and DAC to microcontroller.
6. Application of microcontroller in various domains.

Head,
Dept. of Electronics
S. M. D. M. Mahavidyalaya
Kalam, Dist. Osmanabad.


IQAC
Coordinator
S.M.Dnyandeo Mohekar
Mahavidyalaya, Kalam


Principal
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam


S.M. Dnyandeo Mohekar Mahavidyalaya Kalam



Department of Mathematics Programme Specific Outcome

1. Demonstrate and understand the common body of knowledge in Mathematics and demonstrate the ability to apply analytical and theoretical skill model and to solve the mathematical problem.
2. Provide a systematic understanding of the concepts and theories of mathematics and its application in the real world to an advance level and enhance carrier prospects in a huge array of field.
3. Perform Computations in higher mathematics.
4. Read and understand medial level proofed.
5. Right & understand basic proof.
6. Develop & mention problem solving skills


IQAC
Coordinator
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam

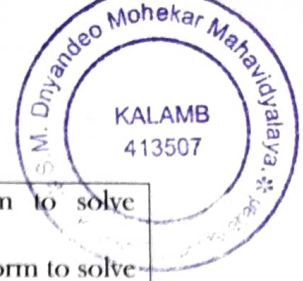

Principal
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam

COURSE OUTCOMES

COs: MATHEMATICS



Sr. No.	Course/Paper	Course Outcomes
1	Differential Equations	<ol style="list-style-type: none">1. To understand homogeneous and separable first order differential equations.2. To understand the exact differential equations.3. To understand homogenous linear equations with constant coefficient and variable coefficients.4. To find the solution of non-homogenous first order differential equations.5. To find the solution of Bernoulli's equation.
2	Geometry	<ol style="list-style-type: none">1. To understand geometrical terminology for plane, right line, sphere, cylinder and cone.2. To know the geometrical results to find center and radius of the circle.3. Students will be able to find equation of lines and planes in space.4. Student will be able to find angle between two planes and length of perpendicular from a given point to a given line.5. Students will be able to identify parallel and perpendicular lines.
3	Differential and Integral Calculus	<ol style="list-style-type: none">1. To develop the concepts of limit, function, continuity, discontinuity and derivative.2. Students become familiar with hyperbolic functions, inverse hyperbolic functions, derivatives, and higher order differentiation.3. Students understand the consequences of Rolle's Theorem and mean value theorem for differentiable function.4. Students understand definite integrals as the limit of a sum.5. Student will be able to understand the concept of divergence, curl, gradient and it's applications.
4	Number Theory	<ol style="list-style-type: none">1. Students will be able to find quotient and remainders from integer division.2. Students apply Euclid's algorithm and backward substitutions.3. Students understand the concept of congruence, residue classes and least residue.4. Student will know the concepts - addition and multiplication of integers modulo.5. Students will be able to solve linear congruence.
5	Numerical Methods.	<ol style="list-style-type: none">1. Student becomes familiar with numerical solutions of nonlinear equations in a single variable.2. Students will know the concepts - numerical interpolation and approximation of functions.3. Student can solve first order initial value problem using Euler's method.4. Student can solve first order initial value problem using a second order Runge- Kutta Method.5. Students will be able to find numerical solution of ordinary differential equations.
6	Integral Transform and Partial differential	<ol style="list-style-type: none">1. Students understand the concept of beta and gamma functions and their applications.



	Equations	<ol style="list-style-type: none">2. Students are able use to Laplace transform to solve ordinary and partial differential equations.3. Students can apply properties of Laplace transform to solve examples.4. Students will know the difference between linear and nonlinear partial differential equations.5. Student will be able to solve the linear and nonlinear partial differential equation by various methods like Lagrange's, Charpit's, Jacobi's, Monge's method.
7	Mechanics (I & II)	<ol style="list-style-type: none">1. Students understand the concepts - particle, rigid body, force, equilibrium etc.2. Students can find the components of velocity & acceleration in a given direction.3. Students follow the concepts momentum, angular momentum, work, energy and points functions in mechanics.4. Students will know the concept of projectile and motion of projectile.5. Students will know differential and pedal equations of central orbits and their applications.
8	Abstract Algebra (I & II)	<ol style="list-style-type: none">1. Students will understand the number systems and algebraic structures.2. Students will understand the concept of ring and special types of rings.3. Students can identify the difference between homomorphism and isomorphism of a group.4. Students will know and apply the concepts of linear dependence and linear independence of vectors.5. Students will be able to give the examples of inner product space.
9	Ordinary Differential Equations (I & II)	<ol style="list-style-type: none">1. Students will know the difference between equation and differential equation.2. Students will be able to find the solution of linear differential equation of first and second order.3. Students will understand the initial value problem and its solutions.4. Students will be able to understand the concept Wronskian of solution.5. Students can find singular point and regular singular points of the differential equation.
10	Real Analysis (I & II)	<ol style="list-style-type: none">1. Students become familiar with terminology sets, elements, operations on sets, functions, operations on functions.2. Students can define & recognize basic properties of field of real numbers.3. Students can understand the concept of series of real numbers, convergence and Divergence.4. Students can understand metric space, continuous function on metric space and difference between open sets and closed sets.5. Students will be able define Riemann integral, Fourier series and their applications.


IQAC
Coordinator
Dnyandeo Mohekar
Mahavidyalaya, Kalamb


Principal
Dnyandeo Mohekar
Mahavidyalaya, Kalam

S.M. Dnyandeo Mohekar Mahavidyalaya Kalam



Department of Computer Science

Specific Program Outcomes

After completing the course, learning will be able

1. To explain adequately the functioning of computer components.
2. To familiarize with basic concepts of digital electronics.
3. To understand structures, functions and history of operating systems.
4. To familiarize with protection and security mechanisms.
5. To understand a programming language.
6. To create user defined functions for specific task in C language.
7. Students will be able to use linear and non-linear data structures.
8. Understanding the database system basic concepts, architecture, features, purpose, and advantage of DBMS.
9. To understand the structure and model of programming language VB .Net
10. Understand the concept of networking models, protocols and functionality of each layer.
11. To identify intellectual property right issues in cyberspace and design strategies to protect intellectual property.

Department of Computer
Science

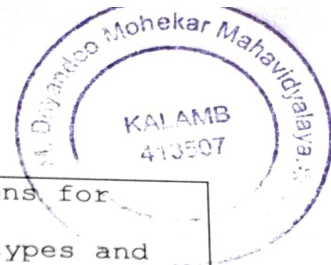
I Q A C
Coordinator
S.M.Dnyandeo Mohekar
Mahavidyalaya, Kalam

Principal
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam



COURSE OUTCOMES

Sr. No.	Course Code	Course/Paper	Course Outcomes (COs)
1	CS01	Computer Fundamental	12. To make the students familiar with computer environment. 13. To familiarize with the basics of Operating System and business communication tools 14. To identify parts of a computer system. 15. To explain adequately the functioning of computer components. 16. To understand problem solving using computers. 17. To design an algorithmic solution for a given problem.
2	CS02	Digital Electronics:	1. To familiarize with basic concepts of digital electronics. 2. To learn number systems and their representation. 3. To understand the basic logic gates, Boolean algebra and K-maps. 4. To study arithmetic circuits, combinational circuits and sequential circuits. 5. Study comparative aspects of logic families.
3	CS04	Operating System	1. To understand structures, functions and history of operating systems. 2. To understand designs and issues associated with operating systems. 3. To understand process management concepts including scheduling, synchronization, and deadlocks. 4. To familiarize learners with multi-threading. 5. To study master concepts of memory management including virtual memory. 6. To understand master system resources sharing among the users. 7. To understand issues related with system interface, implementation, disk management. 8. To familiarize with protection and security mechanisms.
	CS05	Programming in C	1. To understand a programming language. 2. To apply problem solving techniques. 3. To enable learners to write programs in C-programming and to solve problems. 4. To read, understand and trace the execution of programs written in C language. 5. To write the C code for a given algorithm. 6. To implement programs with arrays and functions.
	CS07	Advance C-Programming	After completing the course, learning will be able



			<ol style="list-style-type: none"> 1. To create user defined functions for specific task in C language. 2. To understand the functions, types and working in C programming. 3. To understand use of user defined data types such as structures & unions. 4. Students will be able to deal with memory using pointers. 5. To understand library functions and storage classes in C language. 6. To learn pre-processor directives and operators in C language. 7. To study files stored on computer memory using file handling.
6	CS08	Data Structure	<ol style="list-style-type: none"> 1. Student will be able to choose appropriate data structure as applied to specified problem definition. 2. Student will be able to handle operations like searching, insertion, deletion and traversing mechanism on various data structures. 3. Students will be able to apply concepts learned in various domains like DBMS, compiler construction etc. 4. Students will be able to use linear and non-linear data structures like stacks, queues, linked list etc.
7	CS011	Programming in CPP	<p>To understand basic object oriented concepts & issues involved in effective class design.</p> <p>To write C++ programs involving the use object oriented concepts such as information hiding, constructors, destructors, inheritance etc.</p>
8	CS012 -	DBMS Using SQL	<ol style="list-style-type: none"> 1. Understanding the database system basic concepts, architecture, features, purpose, and advantage of DBMS. 2. Learning about the component of a DBMS. 3. Learning about data modeling & design. 4. Learning about entity-relationship and data model. 5. Understanding the basics of relational model, normalization, relational algebra. 6. Introduction to oracle. 7. Student will able to deal with database system using SQL to manipulate data. 8. Understanding of physical storage of data. 9. Learning architecture of database system. 10. Learning about transaction processing and concurrency control.
9	CS015	Software Engineering	<ol style="list-style-type: none"> 1. To manage selection and initiation of individual projects and of portfolios of projects in enterprise. 2. To conduct project planning activities that accurately forecast project costs, timelines, and quality.



			<p>3. To implement processes for successful resource, communication, risk and change management. To demonstrate effective project execution and control techniques that result in successful projects.</p> <p>4. To conduct project closure activities and obtain formal project acceptance.</p> <p>5. To demonstrate a strong working knowledge of ethics and professional responsibility.</p> <p>6. To demonstrate effective organizational leadership and change skills for managing projects, project teams, and stakeholders.</p>
10	CS016	VB .Net	<p>1. To understand the structure and model of programming language VB .Net</p> <p>2. To use the programming language VB.Net for programming technologies.</p> <p>3. To develop software in VB .Net.</p> <p>4. To evaluate user requirements for software functionality required to decide whether the programming language VB .Net can meet user requirements.</p> <p>5. To solve the given problem by applying technologies using implementation of VB.Net programming language.</p> <p>6. To choose an engineering approach for solving problems.</p>
11	CS019	Data Communication and Networking	<p>Students will be able to....</p> <p>1. Understand types of networks, technologies and application of networks.</p> <p>2. Understand types of addresses and data communication.</p> <p>3. Understand the concept of networking models, protocols and functionality of each layer.</p> <p>4. Learn basic networking hardware and tools.</p> <p>5. Understand wired and wireless networks, its types, functionality of layer.</p>
12	CS020	Ethics and Cyber Law	<p>1. To describe laws governing cyberspace and analyze the role of internet governance in framing policies for internet security.</p> <p>2. To discuss different types of cybercrimes and analyze legal frameworks of different countries to deal with these cybercrimes.</p> <p>3. To explain the importance of jurisdictional boundaries and identify the measures to overcome cross jurisdictional cyber-crimes.</p> <p>4. To illustrate the importance of ethics in legal profession and determine the appropriate ethical and legal behavior according to legal frameworks.</p> <p>5. To identify intellectual property right issues in cyberspace and design strategies to protect intellectual property.</p>

Department of Computer Science

I Q A C
Coordinator

S.M.Dnyandeo Mohekar
Mahavidyalaya, Kalam

Principal
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam

Department of Dairy Science
PROGRAMME OUTCOMES (POs)



On completion of this programme are expected to learn the following

1. An aspect of farming in livestock management.
2. Role of dairy in national economy.
3. Sanitary and hygienic practices in dairy farm & plant.
4. Establishment of dairy farm.
5. Study of various diseases & disorders in livestock.
6. Study milk processing, dairy engineering, dairy chemistry and dairy microbiology.
7. Study of nutrients & their nutritional importance.
8. Classification of feeds & fodder.
9. Anatomy of digestive system in ruminants.
10. Desiccated milk products.
11. Heat and acid coagulated milk products.
12. Fat rich Indian dairy products.
13. Animal reproduction practices in dairy farm.
14. Breeding practices in dairy farm.
15. Manufacturing technology of Ice-cream and frozen desserts.
16. Fat rich dairy products and their manufacture at industrial level.
17. Production of condensed and dried milks.
18. Food safety and quality assurance.

COURSE OUTCOME

COs : DAIRY SCIENCE & TECHNOLOGY



Sr. No.	Class	Course/Paper	Course Outcome
1	B.Sc. I	Paper-I Dairy Farm Management	After the studying English as one of the Subjects the students will be able: <ol style="list-style-type: none">1. To understand the role of livestock in national economy.2. To know the concepts of management and management practices in dairy farming.3. To understand the management of cattle, buffalo, sheep and goat.4. To know the poultry management.
2	B.Sc. I	Paper-II Market Milk Industry	After completion, the students will be able to ... <ol style="list-style-type: none">1. Understand the dairy developments in India.2. Understands the milk chemistry and constituents and physic-chemical properties of milk.3. Understand the concepts of microbiology of milk.4. Understand the anatomy and physiology of mammary gland.
3	B.Sc. I	Paper-IV Livestock Healthy and Hygiene	After completion, the students will be able to... <ol style="list-style-type: none">1. Know how to identify healthy and sick animals2. Know the study of major diseases.3. Understand the parasitic diseases.4. Understand the diseases of lactating cow and carve.5. Know the first aid measures and disposal of carcass.
4	B.Sc. I	Paper-V Dairy Processing & Engineering	<ol style="list-style-type: none">1. To carry good dairy processing practices from milk collection to pasteurization to sterilization.2. To understand the concept of special milks.3. To understand he cleaning & sanitation processes.4. Students will be able to understand dairy plant layout and cold storages.
5	B.Sc. II	Paper- VII Animal nutrition	After completion, the students will be able to... <ol style="list-style-type: none">1. To know the study of nutrients and their importance.2. Classify feeds and fodder.3. Understand the anatomy of digestive system in ruminants.
6	B.Sc. II	Paper- VIII	After completion, the students will be able to understand... <ol style="list-style-type: none">1. Indian dairy products and its comparison with western dairy products.2. The manufacture of desiccated milk products.3. The heat and acid coagulated milk products.4. The methods of manufacture of fat rich Indian dairy products.

7	B.Sc. II	Paper – XI Fodder Production & Feed Processing	After completion, the students can be... <ol style="list-style-type: none"> 1. Able to know the cultivation of important fodder crops and conservation of green fodders. 2. Understand the processing of inferior quality roughages. 3. Understand the agro-industrial by products and unconventional feeds. 4. They also understand the measures of energy value and protein value of feeding stuff.
8	B.Sc. II	Paper- XII Cheese & Fermented Milk Products	After completion of course, the students can be... <ol style="list-style-type: none"> 1. Understand the starter culture. 2. Study the cheese, its history, current status and scope in dairy industry 3. Able to understand the technology of manufacture of cheese varieties. 4. Understand the composition, nutritive value and preparation of fermented milk products.
9	B.Sc. III	Paper- XV Animal Reproduction & Artificial Insemination	After completion of course, the students can be able to understand ... <ol style="list-style-type: none"> 1. The reproductive system of cattle. 2. Oestrus cycle, ovulation, fertilization & implantation. 3. Gestation and pregnancy diagnosis. 4. Parturition, artificial insemination and bio-techniques in animal reproduction.
10	B.Sc. III	Paper- XVI	After completion of course, the students can be able to understand ... <ol style="list-style-type: none"> 1. History, development and status of ice-cream industry. 2. Manufacture of ice-cream, their physico-chemical properties, defects, their causes and prevention. 3. Manufacture of indigenous frozen desserts, fat rich dairy products, etc.
11	B.Sc. III	Paper- XIX Genetics & animal breeding	After completion of course, the students can be able to understand the following concepts... <ol style="list-style-type: none"> 1. Genetics, its terminology, cell division, mutation, variation, sex chromosome, linkage, gene and their functions. 2. Animal breeding – fertility and sterility, selection of traits and systems of animal breeding.
12	B.Sc. III	Paper- XIX Condensed, dried milks & by-products	After completion of course, the students can be able to understand the following concepts... <ol style="list-style-type: none"> 1. Condensed and evaporated milks. 2. Dried milks and by-products. 3. Food safety and quality assurance.


I Q A C
Coordinator
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalamb

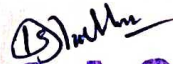

Principal
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalamb



Program Specific Outcomes of B.Sc. Horticulture

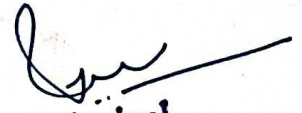
After completing B.Sc. Horticulture student get theoretical and practical knowledge of Horticulture subject

- ✓ They can start their own self-employment business such as Horticulture, farming, Hi Tech Greenhouse farming
- ✓ Nursery, Mushroom and Apiculture, Processing of fruits and vegetables gardening and landscaping etc.
- ✓ They have opportunities at various agriculture-oriented companies such as processing, fertilizer company., seed industry, processing industry, import and export of agriculture products, pesticide company etc.
- ✓ They also can start their consultancy to agricultural farmers
- ✓ They can help to their farmers
- ✓ They can develop their own land by utilizing subject knowledge and increase their agriculture-oriented income
- ✓ They learn modern techniques of farming
- ✓ They get knowledge of plant, equipment's, pest, and diseases etc.
- ✓ They can start their agri- clinics and business management
- ✓ They get laboratory hands on experience and skills



IQAC
Coordinator

S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalamb



Principal

S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam



Course Outcome of B.Sc. Horticulture

Paper No	Course Code	Course Title	Course Outcome
I	HORT-111	Elements of Horticulture	<ol style="list-style-type: none">1. Student get knowledge of Importance, scope branches of Horticulture,2. They learn about basics of Horticulture. Propagation Techniques like grafting, budding, layering, tissue culture etc.3. They can start nursery business and small-scale horticulture.
II	HORT - 112	Vegetable Growing-I	<p>Student can learn</p> <ol style="list-style-type: none">1. Complete knowledge of Vegetable Growing its importance, scope, classification, nursery management and cultivation techniques of Indian and exotic vegetables.2. They learn about various types of farming and cropping pattern.3. They learn about the Hi Tech-Nursery management Practices and transplanting. Mulching and vegetable carving
III	HORT - 121	Practical based on I and II	<ol style="list-style-type: none">1. Student get acquainted with various tools, equipment's for gardening, learn about potting, repotting etc., and it's caring.2. The learn about grafting budding, tissue culture and other propagation techniques. Mulching and vegetable carving , mushroom production.
IV	HORT - 211	Ornamental Horticulture	<ol style="list-style-type: none">1. Learn about various classifications of ornamental plants, Principles of garden designs, garden types, garden features, elements, cultivation technology of cut and loose flowers greenhouse cultivation and management practices, Terrarium, Bonsai Culture. Flower arrangement, dry decoration
V	HORT - 212	Vegetable Growing-II	<ol style="list-style-type: none">1. Student can learn cultivation/ Raising of fruit, root, stem, pod, bean, cucurbitaceous, cole, perennial, bulb, tuber, rhizome, leafy and exotic vegetables.2. They learn about mushroom production techniques and export management practices
VI	HORT - 221	Practical based on IV and V	<ol style="list-style-type: none">1. They get hands on experience and theoretical knowledge of Introduction and identification of ornamental crops and its importance, Layout of garden: - Formal and informal Exhibition of cut flowers, Floral

			<p>arraignment, Garlands & Bouquets. Collection & Identification of insects, pests. Preparation and maintenance of lawn. Preparation of terrarium. Raising of seed, its Transplanting, Irrigation layout, Pruning, Mulching, Harvesting and grading, Packing stocking and bundling of leafy vegetables</p> <p>2. Study of growing vegetable from planting to harvest.</p>
VII	HORT - 311	Principles and Technology of Fruit gardening	<p>Student can learn</p> <ol style="list-style-type: none"> 1. Fruit Gardening- Definition, Importance, and scope. 2. Soil and climatic requirement for fruit crops. Climatic zones of Maharashtra/ India. 3. Methods and Systems of planting material., after care of plating, fencing, role of wind brakes and shelter belts. 4. Orchard management practices, Clean cultivation, crop rotation, intercropping, 5. Multistoried Role of mulching its merits and demerits Inter cultivation operations in fruit crops, Irrigation-water requirement of fruit crops. 6. Methods of irrigation- Ring of basin furrow sprinkler and drip irrigation, Rain gun irrigation. 7. Role of plant growth regulators on fruit crops (Its types) Insect pests and diseases management
VIII	HORT - 312	Orchard Management of Fruit Crops	<p>Student can learn</p> <ol style="list-style-type: none"> 1. Nutritional requirements of fruit crops of and manures in fruit gardening, 2. Fruit Gardening, soil and climatic management 3. Role of essential nutrients- Macro-micro nutrients. 4. Basic principles of Manures, types of manures, Methods of preparation of manures, FYM, Compost, Urban compost, Vermi compost, green manuring, and its role in fruit crops. 5. Principles and methods of application of fertilizers and Bio-fertilizers.. 6. Training and Pruning- Special Horticultural practices for inducing Fruiting in fruit crops
IX	HORT - 321	Practical based on VII	<p>Student can learn</p> <ol style="list-style-type: none"> 1. Layout of system of planting. 2. Digging and filling of pits for fruit tree plantation. 3. Selection of planting material and transplanting of fruit crops. 4. Study of flowering and fruiting habits in fruit trees. 5. Intercultural operations in fruit crops. 6. Identification, collection of important pest and disease of fruit crops. Method of control of pest and disease in fruit crops. 7. Preparation and application of plant growth


			<p>regulators</p> <ol style="list-style-type: none"> 8. Preparation of Bordeaux Mixture and pest. 9. Irrigation layout 10. Visit to commercial orchard.
X	HORT - 322	Practical based on VIII	<p>Student can learn</p> <ol style="list-style-type: none"> 1. Methods of preparation of FYM, Compos, Green manure, vermicompost, 2. Methods of application of Fertilizers, bio-Fertilizers, Liquid fertilizers, Bio-gas and bio stories 3. Special horticultural practices, Bahar treatment, Notching in Fig, Ringing in Mango, Girdling in grape, Bending in Guava, Root proving in citrus, training, and pruning,
XI	HORT - 411	Cultivation Technology of fruit Crops	<p>Student can learn</p> <ol style="list-style-type: none"> 1. Methods of cultivation of various fruit crops like Mango, Banana, Citrus, Guava, etc.
XII	HORT - 412	Production Technology of Plantation, Spices, Condiments and medicinal and aromatic plants	<p>Student can learn</p> <ol style="list-style-type: none"> 1. Scope and importance of spices and condiments, plantation crops, medicinal and aromatic plants. 2. Study of important cultivation technology of crops like Ginger, Turmeric, Pepper, Cardamom, Cumin, etc.
XIII	HORT - 421	Practical based on XI	<p>Student can learn</p> <ol style="list-style-type: none"> 1. Identification of fruit crops and their varieties. 2. Role of Root stocks used in fallowing crops. 3. Mango malformation. 4. Paclobutrazol treatment for alternate bearing of mango 5. Banana plantation by rhizome/suckers 6. Bahar treatment in pomegranate 7. Plant protection in grape, pomegranate, Ber. 8. Papain extraction from papaya. 9. Visit to various commercial fruit orchard.
XIV	HORT - 422	Practical based on XII	<p>Student can learn</p> <ol style="list-style-type: none"> 1. Storage of ginger rhizomes 2. Processing of turmeric- Curing, Polishing, and coloring. 3. Production of Coconut nursery Seedlings. 4. Training, trailing and lowering of betel vines . 5. Training and pruning in coffee. 6. Preparation of Value-Added Products of Coconut 7. Drying of stevia plant leaves. 8. Lancing and latex collection of opium crop 9. Distillation of citronella, Lemon grass and geranium.

XV	HORT - 511	Post-Harvest Management of Fruits and Vegetables	<p>Student can learn</p> <ol style="list-style-type: none"> 1. Importance and Scope, Futures status of post-harvest management of fruits and Vegetables. 2. Future status of post-harvest management of fruits and Vegetables. 3. Nutritional value of fruits and Vegetables in human diets. 4. Ripening factors responsible for ripening, pre-harvest & post-harvest factors Climacteric and non-climacteric types of fruits and Vegetables. 5. Methods of grading and packaging, storage , Post-harvest disease and pest management , pre-cooling, Transportation, 6. Marketing and Export of fruits and vegetables.
XVI	HORT - 512	Mushroom Culture and Apiculture	<ol style="list-style-type: none"> 1. Introduction, Scope and Importance, Nutritional Importance, Classification and types, Morphology of Mushroom 2. Preparation of Culture Media and Spawns. 3. Cultivation of Oyster, white button, and Paddy straw mushroom. 4. Types of honey bee, Castes of honey bee, Bee keeping accessories, 5. how to acquire and hive bees, Management of Apiculture: 6. Economics of bee keeping
XVII	HORT - 521	Practical based on XV	<p>Student can learn</p> <ol style="list-style-type: none"> 1. Maturity Signs and Harvesting of Fruits and Vegetables 2. Identification of Different equipment's used in Processing of Fruits and Vegetables 3. Pre-cooling, Grading, Packaging and Storage of Fruits and Vegetables 4. Identification of Post-Harvest diseases and pests of Fruits and Vegetables.) 5. Determination of Total Soluble Solid (TSS), Acids (Citric and Acetic Acid), Vitamin C (Ascorbic Acid) by titration, Pigments, Vitamin A (beta – Carotenes), Reducing and Total Sugars from Fruits. dry ashing. 6. Estimation of starch from potato and sweet potato. 7. Preparation of gums from cluster beans.
XVIII	HORT - 522	Practical based on XVI	<p>Student can learn</p> <ol style="list-style-type: none"> 1. Introduction, Classification of Mushrooms. 2. Preparation of culture media. master and commercial spawns 3. Cultivation of oyster, white button and paddy straw mushroom 4. Different method of composting techniques. 5. Types of honey bee, Castes of honey bee, 6. Bee keeping tools and accessories

			<p>7. Pests and diseases of honey bees, 8. Harvesting and processing of bee products 9. Visit to Mushroom culture/ Apiculture 10. Project preparation of mushroom/apiculture</p>
XIX	HORT - 611	Preservation of Fruits and Vegetables	<p>Student can learn</p> <ol style="list-style-type: none"> 1. History, Importance and scope, Principles of preservation of fruits and vegetables. 2. Methods of preservation, 3. Study of containers for packaging of preserved products, 4. Quality control standards, ISI, food laws, sanitation etc. 5. Testing of preserved products. 6. Packaging, Transportation, and Exportation of preserved products.
XX	HORT - 612	Horticulture Business Management	<ol style="list-style-type: none"> 1. Role of Agencies and Business Management Factors such as NABARD, RBI, ICAR, IARI etc. 2. Concept of Enter pruner/Business and Role Meaning, process of Entrepreneurship Development Programme, 3. Motivation and Motivating factors Project Report formulations etc.
XXI	HORT - 621	Practical based on XIX	<ol style="list-style-type: none"> 1. Student can learn and of practical knowledge of Canning, Drying and Dehydration, Juice, Jam, Jelly and marmalade, pickles, preserve and candy raisin , vinegar, beverages, juice Ready to serve (RTS), nectar, Fruit juice powder, fruit juice concentration, wafers, chips, flour, chutney from fruits and Vegetables
XXII	HORT- 622	Practical based on XX	<p>Student can learn</p> <ol style="list-style-type: none"> 1. Steps in formulating a project proposal. 2. Case study of successful entrepreneurs, successful progressive farmers, Women enter pruner, 3. SWOT analysis, 4. Cost of cultivation, production, and bear even analysis. 5. Certification procedure of organic products. 6. Phytosanitary certification of export-oriented products. 7. Field visit to successful Agri – enterprise. 8. Visit to Agri clinics and Agri business center 9. Visit to commercial, cooperative bank, NABARD etc. 10. Studies of local market survey based on enterprise. 11. Preparation of project report for enterprise or processing unit 12. Preparation of project report for greenhouse. 13. Presentation of Project report


I Q A C
Coordinator

S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalamb


Principal
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam

S. M. Dnyandeo Mohekar Mahavidyalaya Kalamb
Department of Herbal Technology

COURSE OUTCOMES



M.Sc. HT – I year Paper- HT-101 Introduction to Herbs

1. Understand the ex-situ and in-situ conservation of medicinal plants
2. To know the systematic methods of cultivation and post harvest technology of medicinal plants.
3. To understand the factors influencing the production of crude drugs.
4. To know the pest and weed control, disease management.
5. To study the medicinal plant parts.
6. To understand the concept of crude drugs and its classification.
7. To understand the classification and nomenclature of plants.

M.Sc. HT – I year Paper- HT-102 Herbal Processing

1. To understand how to analyse the particle size.
2. Screen analysis- differential, cumulative analysis, screening and their types, vibrating screen and its operations, variables in screening operations.
3. To understand methods of handling the solids.
4. To understand the filtration methods, its principle, types, construction, working advantages and disadvantages.
5. To know the concept of sedimentation.

M.Sc. HT – I year Paper- HT-103 Isolation and Separation Techniques

1. To understand the general techniques of isolation and separation like solvent extraction, distillation, etc.
2. To understand the theoretical principle, instrumentation and applications of chromatography, column chromatography, gas and ion exchange chromatography, HPLC technique

M.Sc. HT – I year Paper- HT-104 Phytochemistry

1. To understand the occurrence, chemistry, isolation and chemical tests of natural products.
2. To know the biogenesis of the natural products.
3. To elucidate the structure of the phyto-constituents.
4. To know some phyto-pharmaceuticals of therapeutic classes.

M.Sc. HT – I year Paper- HT-201 Herbal Products

After completion of the course, students will be able to..

1. Know the precautions, advantages, disadvantages and classification of Churn, Kwath, Vati, Ksheera Paka, Tablets.
2. To understand the Indian systems of medicine.

3. To aware of the scope and history of pharmacy, pharmacopoeia, pharmacognosy and pharmacodynamics.
4. To know the various types of instruments in pharmaceuticals, internal and external applicants.

M.Sc. HT – I year Paper- HT-202 Herbal Post Harvest Technology

After completion of the course, students will be able to..

1. To understand the post harvest technology, its principal, history, priorities and strategy, steps, components, transport etc.
2. To know the concept of herbal drying and dryers.
3. To get the herbal packaging and handling theory in details.

M.Sc. HT – I year Paper- HT-203 Herbal Biotechnology

After completion of the course, students will be able to..

1. To understand the genetics and molecular biology.
2. To know the concept of plant breeding and hybridization for quality improvement of herbal crops.
3. To know the mutation breeding.
4. To understand the concept of tissue culture for crop improvement.
5. To know the germplasm conservation and organogenesis.

M.Sc. HT – I year Paper- HT-204 Analytical Techniques

After completion of the course, students will be able to..

1. Understand principal, theory, instrumentation of UV visible, IR, $^1\text{H-NMR}$ and $^{13}\text{C-NMR}$ and mass spectroscopic techniques.

M.Sc. HT – II year Paper- HT-301 Herbal Trade and IPR

After completion of the course, students will be able to..

1. Understand cultivation practices, collection, harvesting, drying, dressing, packing, preservation and forwarding of crude drugs.
2. To detect the adulterants with reference to anatomical features.
3. To know the concept and types of entrepreneur, factors promoting to it, role and functions, meaning and importance, development of entrepreneurship in India.
4. To understand the export and import policies with reference to herbal products and drugs.
5. To know the concept of IPR and patenting to solve legal issues in registering herbal products/drugs.

M.Sc. HT – II year Paper- HT-302 Herbal Beverages

After completion of the course, students will be able to..

1. Understand scope, types and importance of herbal beverages.
2. To know non-alcoholic beverages derived from tea, coffee and cocoa, fruit juices etc.

3. To know the process of fermentation.
4. To understand the industrial fermentation for alcohol production, preparation of ethanol from molasses, barley, starch, grapes etc.
5. To know the chemical composition, types of wines, distilled beverages and effects of alcohol on human body.

M.Sc. HT – II year Paper- HT- 303 Herbal Business Management

After completion of the course, students will be able to..

1. Understand the field and farm management.
2. Know the farm financial management.
3. To know the principles, functions, strategy and business goals of organization.
4. To enhance the skills in communication networks in organization.
5. Aware about herbal marketing. Marketing practices and their challenges.
6. To develop the policy and prospects of exports and imports of herbal products.

M.Sc. HT – I year Paper- HT-304 Pharmacognosy

After completion of the course, students will be able to..

1. Understand the history of medicinal and aromatic plants and their importance and its demand supply.
2. To know the drugs containing carbohydrates, glycosides, tannins, lipids, volatile oil, resins and resin combinations, and alkaloids.


I Q A C
Coordinator
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam


Principal
S.M. Dnyandeo Mohekar
Mahavidyalaya, Kalam