



AHMEDNAGAR JILHA MARATHA VIDYA PRASARAK SAMAJ'S

SHRI MULIKADEVI MAHAVIDYALAYA, NIGHOJ

TAL.PARNER, DIST.AHMEDNAGAR

Department of Chemistry

Programs offered: B.Sc. Chemistry (Credit Pattern)

Sr. No.	Program	Program Objective	Program Specific Objectives
01	B.Sc. Chemistry	<p>1.To understand the fundamentals, principles , mathematical concepts included in chemistry and recent research development in chemistry.</p> <p>2. Students are well prepared for a detailed study and understanding the knowledge with chemistry experiments.</p> <p>3. To understand the different types of chemical reactions.</p> <p>4. To understand the fundamentals, principles, mathematical concepts and recent developments in the subject area.</p>	<p>1. Students are familiarized with basic concept in chemistry</p> <p>2. Development in both Chemistry Experiments and handling instruments.</p> <p>3. Students are observed that what changes in chemical reaction takes place.</p> <p>4. To inspire and boost interest of the students towards chemistry as the main subject.</p>

Courses offered

Sr. No.	Course	Course Outcomes
01	F.Y.B.Sc. Chemistry I (71310) Physical And Inorganic Chemistry	a) To understand the fundamentals, principles, mathematical concepts and recent developments in the subject area.
02	F.Y.B.Sc. Chemistry II (71320) Organic and Inorganic Chemistry	a) To understand Chemical Reactions and mechanisms. b) To learn periodic table and chemical bonding.
03	F.Y.B.Sc. Chemistry III (71330) Chemistry Practical	a) To acquire skills of handling various tools, instrumentation techniques for chemical analysis
04	Sem I S.Y.B.Sc. Chemistry I (81311)Physical and Analytical Chemistry.	a)To learn the basic concepts related to kinetics and Physical Chemistry b)To impart basic knowledge of photochemistry and its applications understand Nernst Distribution Law and its applications c)To introduce basics of analytical chemistry d) To understand errors and its interpretation e) To disseminate knowledge of qualitative & quantitative analysis of organic and Inorganic compounds
05	S.Y.B.Sc. Chemistry II (81321)Organic and Inorganic Chemistry	a)To understand stereochemistry of Organic Compounds. b)To understand different type of Organic reactions. c) To study principles and process of metallurgy.

06	SEMESTER – II S.Y.B.Sc. Chemistry I(81312) (Physical and Analytical Chemistry)	a) To conceptualize phenomenon of free energy and equilibria. b) To distinguish the behavior of liquid phase solutions. c) To provide basic knowledge essential for volumetric analysis.
07	S.Y.B.Sc. Chemistry II(81322) (Organic and Inorganic Chemistry)	a) To understand different type of Name reactions, Rearrangement Reactions and rules for Product formations.
08	S.Y.B.Sc. Chemistry III(81332) Chemistry Practical	a) To correlate theoretical and experimental knowledge b) Acquired skills of handling various tools, instrumentation techniques for chemical analysis.
09	T.Y.B.Sc. Sem III Chemistry I (91313) Physical Chemistry	a) To learn the basic concepts related to kinetics and chemical and electroChemistry. b)To understand the Meaning and Types of equilibrium such as true or static, metastable and Unstable equilibrium.
10	T.Y.B.Sc.(91323) Chemistry II Inorganic Chemistry	a)To know the Molecular Orbital Theory, VBT, CFT etc. b) Know the meaning of various terms involved in coordination chemistry.
11	T.Y.B.Sc.(91333) Chemistry III Organic Chemistry	a)To know the basics of organic reactions b)To study the different organic reagents. c) To learn the stereochemistry of disubstituted cyclohexane .

12	T.Y.B.Sc. (91343) Chemistry IV Analytical Chemistry	a) Principles of Spectrophotometric analysis and properties of electromagnetic radiations. b) Colorimetry and polarography as an analytical tool.
13	T.Y.B.Sc. (91353) Chemistry V Industrial Chemistry	a) To know the Importance of chemical industries , Various insecticides, Pesticides & Fungicides . b) To know the principals involved in manufacturing process c) To know the Nutritive aspects of food constituents, Food preservation and Food additives d) Various operations involved in the manufacture and compositions e) Properties and uses of special glasses.
14	T.Y.B.Sc. (913E3) Chemistry VI Agriculture Chemistry	a) To know the role of agriculture chemistry and its potential b) Understand basic concept of soil, properties of soil & its classification on the basis of pH. c) Know the different plant nutrients, Their functions and deficiency symptoms.
15	T.Y.B.Sc. Sem IV Chemistry I (91314) Physical Chemistry	a) To know the basics Electrochemical cell with specific examples. b) To know the basics of crystal structure and quantum chemistry.
16	Chemistry II (91324) Inorganic Chemistry	a) Students should know the meaning of term f-block elements, Inner transition elements, lanthanides, actinides. b) The meaning of metal & semiconductor. c) Students should know the homogeneous catalyst and heterogeneous catalysis.
17	Chemistry III (91334) Organic Chemistry	a) Definition and formation of Intermediates. b) To know the Retro synthetic analysis and applications.

18	Chemistry IV (91344) Analytical Chemistry	a) To know Solvent Extraction b) Separation mechanism involved in GSC and GLC c) Separation mechanism involved in adsorption and partition HPLC.
19	Chemistry V (91354) Organic Chemistry	a) Students should know Polymer chemistry. b) The students are expected to learn Importance of sugar industry and Fermentation Industry. c) Students should know about different types of soap detergents and Cosmetics products .
20	Chemistry VI (913E4) Dairy Chemistry	a) Knowing importance of the subject from the point of rural economy. b) Knowing the composition of milk, its food & nutritive value. c) Understanding the Microbiology of the milk. d) Understanding various preservation and adulterants, various milk proteins and their role for the human body. e) Knowing various milk products, their composition, manufacture and uses .
21	Chemistry Practical I (91374)	a) To correlate theoretical and experimental knowledge.
22	Chemistry Practical II (91384)	a) To equip students to correlate theoretical and experimental knowledge.
23	Chemistry Practical III (91394)	a) Acquired skills of handling various tools, instrumentation techniques for chemical analysis .

Courses offered (CBCS 2019 Pattern)

Sr. No.	Course	Course Outcomes
01	F.Y.B.Sc. Chemistry I (CH-101) Physical Chemistry	a) To understand the fundamentals, principles, mathematical and theoretical concepts and recent developments as well as basic knowledge in the subject area.
02	F.Y.B.Sc. Chemistry II (CH-201) Inorganic Chemistry	a) To Understand Hybridisation concepts in inorganic chemistry. b) To learn periodic table and chemical bonding. c) To learn basic knowledge of sigma, pi, delta bonding in inorganic.
03	F.Y.B.Sc. Chemistry I(CH-102) Organic Chemistry	a) To learn general organic reactions b) basic hint of the pathway of reaction mechanism c) To learn basic knowledge of stereochemistry.
04	F.Y.B.Sc. Chemistry II (CH-202) Analytical Chemistry.	a)To introduce basics of analytical chemistry b)To understand errors and its interpretation c) To disseminate knowledge of qualitative & quantitative analysis.
05	F.Y.B.Sc. Chemistry I(CH-103) Chemistry Practical	a)To understand MSDS data sheet. b) Well known about Instrument Handling.

06	F.Y.B.Sc. Chemistry I(CH-203) Chemistry Practical	a) To understand Experiments related to Chemical kinetics b) Calculation regarding Experimental and Theoretical yield.
07	S.Y.B.Sc. Chemistry I(CH-301) Physical and Analytical Chemistry	a) To conceptualize phenomenon of free energy and equilibria. b) To distinguish behavior of liquid phase solutions. c) To provide basic knowledge essential for volumetric analysis.
08	S.Y.B.Sc. Chemistry II(CH-302) Inorganic and Organic Chemistry	a) To understand different type of Name reactions Rearrangements and rule. b) Knowledge regarding Molecular Orbital Theory. c) General Metallurgy Concepts.
09	S.Y.B.Sc. Chemistry III (CH-303) Chemistry Practical	a) To correlate theoretical and experimental knowledge b) Acquired skills of handling various tools, instrumentation techniques for chemical analysis c) Graphical knowledge about performed experiments.
10	S.Y.B.Sc. Chemistry I(CH-401) Physical and Analytical Chemistry	a) To learn the basic concepts related to kinetics and chemical and Electrochemistry. b) To understand the Meaning and Types of equilibrium such as true or static, metastable and Unstable equilibrium.
11	S.Y.B.Sc. Chemistry II(CH-402) Inorganic and Organic Chemistry	a) To know the Molecular Orbital Theory, VBT, CFT etc. b) Knowledge regarding reaction mechanism. c) Know the meaning of various terms involved in coordination chemistry. d) Knowledge Of Structural isomers , functional isomers ,Positional Isomers. e)) To learn the stereochemistry of disubstituted cyclohexane

12	S.Y.B.Sc. Chemistry III (CH-403) Chemistry Practical	a) Complete Qualitative and Quantitative analysis of organic and inorganic Compounds. b) To learn various tests regarding Some specific chemical groups.
13	T.Y.B.Sc. (CH-501) Physical Chemistry-I	a) Principles of Spectrophotometric analysis and properties of electromagnetic radiations. b) To know the basics Electrochemical cell with specific examples. c) To know the basics crystal structure of Solid state and quantum chemistry.
14	T.Y.B.Sc. (CH-502) Analytical Chemistry-I	a) To know Solvent Extraction b) Separation mechanism involved in GSC and GLC c) Separation mechanism involved in adsorption and partition HPLC
15	T.Y.B.Sc. (CH-503) Physical Chemistry Practical -I	a) To understand Experiments related to Chemical kinetics and instrument Calibration method. b) Calculation regarding Experimental and Theoretical yield.
16	T.Y.B.Sc. (CH-504) Inorganic Chemistry -I	a) Students should know the meaning of terms f-block elements, Inner transition elements, lanthanides, actinides. b) The meaning of metal & semiconductor.
17	T.Y.B.Sc. (CH-505) Industrial Chemistry	a) Industrial Visit can be arranged. b) The students are expected to learn Importance of sugar industry and Fermentation Industry. c) Students should know about different types of soap detergents and Cosmetics products.

18	T.Y.B.Sc. (CH-506) Inorganic Chemistrypractical -I	a)Complete Qualitative and Quantitative analysis of organic and inorganic Compounds. b)To learn various tests regarding Some specific chemical groups.
19	T.Y.B.Sc. (CH-507) Organic Chemistry - I	a)Student should know the homogeneous catalyst and heterogeneous catalysis. b) To know the Retro synthetic analysis and applications. C) To study the intermediates.
20	T.Y.B.Sc. (CH-508) Chemistry of Biomolecules	a) Structures of Carbohydrates, Glucose, Nucleis acids. b) Study of Killani Fischer Synthesis.
21	T.Y.B.Sc. (CH-509) Organic Chemistrypractical -I	a)Complete Qualitative and Quantitative analysis of organic Compounds. b) To learn various tests regarding Some specific chemical groups. c)Roles of Reagents can be known.
22	T.Y.B.Sc. (CH-510) SEC-I Polymer Chemistry	a) Students should know Polymer chemistry. b) Long chain and short chain polymers knowledge c) Isotatic, Syndiotatic polymers knowledge.
23	T.Y.B.Sc. (CH-511) SEC-II Environmental Chemistry	a) Various Factors that affect on environment that can be known. b) Types of pollutions that affects on the environment can be studied.

24	T.Y.B.Sc. (CH-601) Physical Chemistry-II	a) Principles of Thermodynamics can be known. b) To know the basic Electrochemical cell with specific examples. c) To know the basics crystal structure of Solid state and quantum chemistry.
25	T.Y.B.Sc. (CH-602) Physical chemistry-III	a) Principles and properties of electromagnetic radiations. b) To know the basics Electrochemical cell with specific examples. c) To know the basic crystal structure of Solid state and quantum chemistry.
26	T.Y.B.Sc. (CH-603) Physical chemistry Practical -II	a) Acquired skills of handling various tools, instrumentation techniques for chemical analysis. b) Well known about electrodes used for instruments.
27	T.Y.B.Sc. (CH-604) Inorganic chemistry-II	a) Various types of Organometallic compounds can be known, b) Acid and Bases Chemistry can be studied.
28	T.Y.B.Sc. (CH-605) Inorganic chemistry-III	a) knowledge of Bioinorganic Chemistry b) Whole Periodic table can be known. c) Coupling Reactions can be studied.
29	T.Y.B.Sc. (CH-606) Inorganic chemistry Practical-II	a) Complete Qualitative and Quantitative analysis of inorganic Compounds. b) To learn various tests regarding Some specific chemical groups. c) Groups like Phosphate, sulphate can be detected with tests.

30	T.Y.B.Sc. (CH-607) Organic chemistry-II	a) Well known about Spectroscopy b) UV , IR , NMR instruments can be known c) Problems related to Spectroscopic data can be solved and known about Doublet, triplet , quartet,...
31	T.Y.B.Sc. (CH-608) Organic chemistry-III	a) Organic Reaction mechanism can be known. b) Electrophilicity and Nucleophilicity known c) Roles of Electron donating and Electron withdrawing groups , Types of Effects in chemistry known. d) Rearrangements Reactions known.
32	T.Y.B.Sc. (CH-609) Organic chemistry Practical- III	a) Complete Qualitative and Quantitative analysis of inorganic Compounds. b) Thin Layer Chromatography (TLC) whole study. c) To learn various tests regarding Some specific chemical groups. d) Chemical Properties of Toxic chemicals can be learned.
33	T.Y.B.Sc. (CH-610) SEC III Chemistry of Soil and Agrochemicals	a) To Know the role of agriculture chemistry and its potential b) Understand basic concept of soil, properties of soil & its classification on the basis of pH. c) Know the different plant nutrients, their functions and deficiency symptoms.
34	T.Y.B.Sc. (CH-611) SEC IV Analytical Chemistry -II	a) Colorimetry and polarography as an analytical tool b) Knowledge about types of Errors , Deviations.