

Name of the Department : Department of Chemistry

1) From the Desk of Head in 200 Words.:

The Department of Chemistry is involved in both teaching and research. In teaching the Department is training the next generation students and enable them to lead the nation in chemistry. The training received by the students enabled them to achieve major positions in industries and research & academic institutions. The competency of the Department in research ranges from development of green synthetic methodologies, material science, solar energy harvesting, molecular modelling and cost effective methods for pollution control. The expertise available in the Department in thrust areas of research has also received recognition from funding agencies like UGC, DST, DAE and BRNS by sanctioning various major projects to the faculty. The department has also signed MoU with National and International organizations. The Department has also produced distinguished Alumni among which many have been Vice-Chancellors of various Universities. Presently about 30 Research Scholars are working in the department for their Doctoral Degree. The department has received grants from both UGC under SAP (I Phase & II Phase) programme and DST under FIST (Phase I) programme for their joint effort in current research areas. Many of our alumni are also in leading positions in foreign industries and industries.

2) Brief History of the department along with present focus in academic & research- 150 words.:

The Department of Chemistry was established in 1964 with an intake of 20 students and has grown immensely during the last five decades. Presently, the department is running six M.Sc. Courses; M.Sc. in Inorganic, Organic, Physical, Analytical and self supporting courses in Applied as well as Industrial Chemistry with a combined intake of about 200 students. Along with post graduate courses in six different branches M. Phil and Ph.D. programme in Chemistry are also conducted. The number of Alumni of the department has crossed over 5000 as on today. The faculty members are actively engaged in research in Frontier Areas of Chemistry and Interdisciplinary Areas. The Department has also produced distinguished Alumni among which many have been Vice-Chancellors of various Universities. The faculty at present have international recognition and have been received awards in their recognition.

3) Vision :

Aspiring for best education in chemistry and allied sciences. Developing the department as a center of excellence in research in chemistry.

4) Mission

To train the graduates into an efficient and compatible post-graduate. To offer courses in the emerging areas in the disciplines like environmental chemistry, Agrochemistry, Photochemistry, Nano Technology, material Science and Molecular Modelling.

5) Core Values of the Department

To furnish the skilled man power to industries like Pharmaceutical, dyes, polymer and agrochemical.

Development and optimization of green synthetic methodologies for Functional materials.
To be a best resource for chemistry.

Strengthen the collaboration with Institutions and Universities of International repute as well as Industries.

Absolute utilization of available facilities. Provide the analytical and consultancy services to industries.

6) Academic Program offered with intake

Sr. No.	Programme	Intake
1	M. Sc. In Inorganic Chemistry	33
2	M. Sc. In Organic Chemistry	33
3	M. Sc. In Physical Chemistry	20
4	M. Sc. In Analytical Chemistry	18
5	M. Sc. In Applied Chemistry	60
6	M. Sc. In Industrial Chemistry	40

- a) Outcome base Education :
- b) Program Education Objectives Annexure I
- c) Program Outcomes : Annexure I
- d) CBCS with course structure : Annexure II

7) Faculty Details (Details of Faculty in one page): Annexure III

8) Details of Research Laboratories & infrastructure with photographs : Annexure IV

9) NET/SET Qualified Students :

	NET/SET
1	Mr. Nitin Mhamane
2	Mr. Pradeep Mhaldar
3	Mr. Vikas Shinde
4	Mr. Praveen Pharande
5	Mr. Amol Nikam
6	Miss. Anita Salunkhe
7	Mr. Rohan D. Chavan
8	Mr. Arjun Bhingare
9	Mr. Aviraj Kuldeep
10	Mr. Suyog Korade
11	Mr. Sunil Zanje
12	Miss. Anita Salunkhe
13	Mr. Somanath Bhangre
14	Mr. Samadhan Deshmukh
15	Mr. Vinayak Gawade

10) Student Placements. : Annexure V

11) Details of MoUs and Linkages :

1. National Dong Haw University, Taiwan
2. M/s Lupin Limited , Thane, Maharashtra
3. Phyto Pharma Pvt. Ltd. (Gokul Shirgaon)
4. Chandi Kharkhandar Association Hupari

12) Extracurricular and extension activities

13) List of Distinguished Alumni

1. Prof. M. M. Salunkhe, Hon'ble Vice-Chancellor, Bharti Vidyapeeth, Pune
2. Prof. B. P. Badgar, Former Vice-Chancellor, Solapur Vidyapeeth, Solapur.
3. Prof. N. N. Maldar, Former Vice-Chancellor, Solapur Vidyapeeth, Solapur.
4. Prof. P. P. Mahulikar, Hon'be Pro-Vice-Chancellor, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon.
5. Dr. P. P. Wadgaonkar, Emeritus Scientist, National Chemical Laboratory, Pune.

14) Future roadmap of the department

1. **Organization of symposia/ Conferences in thrust areas.**
2. **Construction of new building including research laboratories, practical labs and classrooms for Industrial and Applied Chemistry.**
3. **Modification of curricula of M.Sc., M. Phil. and Ph. D. course work in consultation with experts from nearby industries and research institutes.**
4. **Research Plan of the Department in the following areas:**
 - Green synthesis**
 - Nanotechnology**
 - Hydrogen generation by water splitting**
 - Hybrid solar cells**
 - Catalysis**
 - Development of new methods in separation of metals**
 - Molecular modeling**
 - Organometallic chemistry**

15) Media coverage of the Department

Annexure I: Course Outcome, Program Outcome and program Specific outcomes

Semester		M. Sc. in Inorganic Chemistry	M. Sc. in Organic Chemistry	M. Sc. in Physical Chemistry	M. Sc. in Analytical Chemistry
I and II	Course outcome	<p>Paper –CH-1.1: Inorganic Chemistry-I Students will be able to understand the basic nature of inorganic materials, their spectroscopic characteristics, nomenclature, reactions and their applications.</p> <p>Paper –CH-2.1: Inorganic Chemistry-II This course introduce the basic understanding of stereochemistry of inorganic compounds, solid state chemistry as well as bioinorganic chemistry.</p>	<p>Paper –CH-1.2: Organic Chemistry-I In this course basic knowledge about the mechanism of organic reactions will be given along with introduction of benzenoid structure and stereochemistry is given to the students.</p> <p>Paper –CH-2.2: Organic Chemistry-II In this course Students will be able to understand the various methodologies utilized in organic synthesis like hydroboration, oxidations, reductions and protection of functional groups. It also deals with photochemistry of organic compounds and organometallic compounds.</p> <p>Paper – OCH IX:</p>	<p>Paper –CH-103: Physical Chemistry-I The course deals with revision and application of thermodynamic and statistical thermodynamic principles in ideal and real systems. The chemistry and physical properties of macromolecules and colloidal solutions is also dealt with in this course.</p> <p>Paper –CH-203: Physical Chemistry-II In this course basic knowledge about quantum chemistry, photochemistry, electrochemistry and chemical kinetics will be given.</p>	<p>Paper –CH-104: Analytical Chemistry-I This course introduces error in methods of analysis, fundamentals of qualitative analysis, chromatographic analysis and electrochemical analysis.</p> <p>Paper –CH-204: Analytical Chemistry-II This course introduces various instrumental methods of analysis including UV-VIS, IR, NMR, mass, Thermal and atomic spectroscopy.</p>
III and IV		Paper –ICH-IX: Inorganic	Paper No. OCH- IX: ORGANIC	Paper No. PCH- IX:	Paper No. ACH- IX:

	<p>chemical spectroscopy. The detailed knowledge about group theory, electronic absorption spectroscopy, IR, NMR and X-ray photoelectron spectroscopy is given.</p>	<p>REACTION MECHANISM This course gives very wide understanding about the organic reaction mechanism which is very helpful for students in preparation of NET, SET and Gate examination. In this program, Students also benefited in their higher study who will join for PhD or in R and D sector of chemical industries. This also helps to enter for the higher studies in National and International institute based on their ability of theoretical organic chemistry.</p>	<p>Advanced quantum chemistry. The course is intended to give intensive learning to the students about fundamental principles as well as advanced methods of quantum chemistry like variation principle, perturbation theory, Ab initio methods and semi empirical methods.</p>	<p>General analytical techniques. This course introduces the theoretical aspects of volumetric and gravimetric analysis as well as separation techniques and thermal methods of analysis.</p>
	<p>Paper –ICH-X: Coordination Chemistry I. The valence bond and crystal field theory, structural study of coordination complexes and their catalytic applications are discussed in this course.</p>	<p>Paper No. OCH -X: ADVANCED SPECTROSCOPIC METHODS This program gives students a solution of identification of organic compounds during their higher studies. This offers very good opportunity to students for their bright career in organic chemistry based on the good knowledge of this program. This is useful course to qualify an examination like</p>	<p>Paper No. PCH- X: Electrochemistry. This course deals with principles of electrochemistry incorporating the industrially important electrochemical topics like electrokinetic, fuel cells, corrosion,</p>	<p>Paper No. ACH- X: Organo analytical chemistry. The analysis of organic compounds including drug, pesticide, clinical, body fluid, forensic analysis and hyphenated techniques.</p>

		<p>Paper –ICH-XI: Nuclear chemistry. The generation and applications of alpha, beta and gamma radiations, nuclear reactions and their significance, as well as stability of the nucleus is deliberated in this course.</p>	<p>NET, SET and GATE.</p> <p>Paper No. OCH - XI: ADVANCED SYNTHETIC METHODS The knowledge of the reagents helps students during their higher studies specifically in PhD and in R and D department of industry in development of new synthetic route for valuable compounds by using suitable reagents since they know the role of reagents in a particular reaction. They can also utilize advanced techniques like microwaves, ionic liquids, ultrasound etc during their higher studies. In addition, retro-synthetic analysis technique helps for the study and design of a new reaction.</p>	<p>electrode reactions and ion-solvent interactions.</p> <p>Paper No. PCH- XI: Molecular structure I. This course introduces fundamental aspects as well as problem solving approach for spectroscopic techniques like microwave, infrared, Raman and electronic spectroscopy. The prediction of spectroscopic properties based upon the molecular structure and its symmetry is also taught in this course.</p>	<p>Paper No. ACH- XI: Electroanalytical techniques. The electrochemical techniques for analysis like cyclic voltammetry, coulometry, ion selective electrodes and electrophoresis is dealt with in this course.</p>
		<p>Paper –ICH-XIIA: Environmental chemistry. Various pollution aspects of air and water, pollution monitoring, control and prevention</p>	<p>Paper No. OCH - XII: DRUG AND HETEROCYCLE This basically offers very good opportunity to students in pharmaceutical industries in quality control and production division. Based on this,</p>	<p>Paper No. PCH- XII A:</p>	<p>Paper No. ACH- XIIA: Environmental chemical analysis and control. The sampling techniques, analysis of air and water samples for assessment of their pollution level will be</p>

	<p>methods for pollution is discussed in this course.</p> <p>Paper –ICH-XIIB: Organometallic chemistry. The techniques of methods of synthesizing organometallic compounds and their application in various chemical reactions is given in this course.</p> <p>Paper –ICH-XIIC: Selected topics in inorganic chemistry. In this course, industrially related topics like catalysis, inorganic polymers and fertilizers are discussed in reference to their production and characterization.</p> <p>Paper –ICH-XIII: Instrumental techniques.</p>	<p>students also entered in R and D department of pharmaceutical industries.</p> <p>Paper No. OCH - XIII: THEORETICAL ORGANIC CHEMISTRY This gives good knowledge of aromatic compounds and that help students to qualify NET, SET and GATE examination in future. The understanding of Huckel's rule help students to know the reactivity of aromatic compounds that can be very helpful in their higher studies like PhD.</p> <p>Paper No. OCH - XIV:</p>	<p>Advanced chemical kinetics. Prediction of reaction mechanism on the bases of kinetic data like, effect of hydrogen ion, nature of electron transfer and effect of catalyst will be discussed in this course. the carcinogenic oxidant like chromium(VI) and its mechanisms are also dealt with in this course.</p> <p>Paper No. PCH- XII B: Radiation and photochemistry. This course deals with the types of radiation with special reference to Lasers, basic photochemistry and mechanism of photochemical reactions.</p>	<p>taught in this course.</p> <p>Paper No. ACH- XIIB: Recent advances in analytical chemistry. The advances in analytical chemistry like radiochemical, electron spin resonance, multinuclear nuclear magnetic resonance are introduced in this course.</p> <p>Paper No. ACH- XIIC: Chemical analysis in agro, food and pharmaceutical industries. The analytical methods used in agro, food and pharmaceutical industries is introduced in this course.</p> <p>Paper No. ACH- XIII: Modern separation methods in analysis. The course introduces modern</p>
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	<p>The instrumental techniques like XRD, Thermal analysis, Mossbauer spectroscopy, ESR and NQR used for characterization of inorganic materials are discussed in detail.</p> <p>Paper-ICH-XIV: Coordination chemistry II. The reactions involving coordination complexes like electron transfer, substitution and stereochemistry as well as photochemistry and their applications are discussed in this course.</p> <p>Paper-ICH-XV: Chemistry of inorganic</p>	<p>STEREOCHEMISTRY The study of stereochemical aspects of organic molecules gives very important tool in assigning the properties of bioactive molecules. Latter is helpful in designing of new bioactive molecules with specific stereochemical properties in R and D department of pharmaceutical chemistry and drug design.</p> <p>Paper No. OCH - XV: CHEMISTRY OF NATURAL PRODUCTS The students can apply their knowledge for synthesis of various natural products in their research and also aware about the natural resources of important natural products.</p> <p>Paper No. OCH - XVIA: APPLIED</p>	<p>Paper No. PCH- XIII: Solid state chemistry. Introduction to crystallography, solid state reactions, preparation and electronic properties of materials along with polymeric materials is discussed in this course.</p> <p>Paper No. PCH- XIV: Thermodynamics and molecular modelling. The understanding of molecular interactions from the gross thermodynamic properties. It also give information regarding modelling of molecular interactions.</p> <p>Paper No. PCH- XV:</p>	<p>separation methods like high performance liquid chromatography, ion chromatography and gas chromatography.</p> <p>Paper No. ACH- XIV: Organic industrial analysis. The analysis of oils, fats, soaps, detergents, paints, petroleum products and cosmetics will be discussed in this course.</p> <p>Paper No. ACH- XV: Advanced methods in chemical analysis. The kinetic methods, fluorescence,</p>
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	<p>materials. As the name indicates this course deals with the chemical, magnetic, optoelectronic and electrolytic properties of inorganic materials as well as the inorganic nano materials.</p> <p>Paper-ICH-XVIA: Separation science. Various separation methods like solvent extraction, chromatographic and electrochemical are discussed in detail along with their applications.</p> <p>Paper-ICH-XVIB: Radiation chemistry. Different types of isotopes, their</p>	<p>ORGANIC CHEMISTRY This knowledge helps to get placement to the students in agrochemicals, cosmetic, pharmaceuticals, dyes, polymers industries.</p>	<p>Chemical kinetics. The course introduces concepts like fast reactions, theories of reaction rates, heterogeneous catalysis and mechanism of organic reactions.</p> <p>Paper No. PCH- XV: Molecular structure II. This course in introduces theoretical aspects of electrical and magnetic properties of the materials as well as the nuclear magnetic and electron spin resonance spectroscopy.</p> <p>Paper No. PCH- XVI A: Surface chemistry. The chemistry of surfaces, colloids, emulsions and various interfaces are discussed in this course.</p> <p>Paper No.</p>	<p>photoelectron spectroscopic and X-ray spectroscopic analysis will be dealt with in this course.</p> <p>Paper No. ACH- XVI A: Applied analytical Chemistry. The course introduces analysis of metals, alloys, soil, fertilizers and explosives.</p> <p>Paper No. ACH- XVIB: Techniques in forensic science. The analytical techniques used in forensic science like analysis of poisons and analytical microbiology will be taught in this course.</p>
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		<p>separation and biological applications of isotopes as well as Principles of tracer chemistry and radiation detection measurements is dealt with in this course.</p> <p>Paper-ICH-XVIC: Applied bioinorganic chemistry. Introduction of characterization methods used in bioinorganic chemistry, metalloproteins and enzymes and their applications are discussed in this course.</p>		<p>PCH- XVI B: Chemistry of materials. The chemistry of glasses, ceramics, composites, nanomaterials, superconducting materials and their properties is discussed in this course.</p> <p>Paper No. PCH- XVI C: Biophysical chemistry. The course introduces chemical understanding of basic units of biomolecules like amino acids, proteins, enzymes as well as mechanism of photosynthesis.</p>	<p>Paper No. ACH- XVIC: Computational chemistry. The course deals with scientific computer languages like Fortran, C as well as understanding about internet.</p>
	Program outcome	<p>The M. Sc in Inorganic chemistry program includes the four semesters with each semester have four papers. In addition to theory papers, there is also 200 marks practical in</p>	<p>The M. Sc in Organic chemistry program includes the four semesters with each semester have four papers. In addition to theory papers, there is also 200 marks practical in each semester. The first and second semester is general one giving significant</p>	<p>The M. Sc. in Physical chemistry is designed to enable the students to understand the basic principles of Physical Chemistry. The program course deals with revision and application of</p>	<p>The M.Sc in Analytical chemistry program includes the four semesters with each semester have four papers. In addition to theory papers, there is also 200 marks practical in</p>

		<p>each semester. The first and second semester is general one giving significant importance to all the branches of Chemistry to make a good theoretical background of students.</p> <p>The semester third and fourth totally assigned on Inorganic chemistry and it deeply covered most of the aspects of modern inorganic chemistry. In this program, students trained in such a way that they can gain good knowledge of theoretical and practical skill of inorganic chemistry experimentation. It helps to build their career in various fields.</p>	<p>importance to all the branches of Chemistry to make a good theoretical background of students.</p> <p>The semester third and fourth totally assigned on organic chemistry and it deeply covered most of the aspects of modern organic chemistry. In this program, students trained in such a way that they can gain good knowledge of theoretical and practical skill of organic chemistry experimentation. It helps to build their career in various fields.</p>	<p>thermodynamic and statistical thermodynamic principles. The chemistry and physical properties of macromolecules and colloidal solutions. The knowledge about quantum chemistry, photochemistry, electrochemistry and chemical kinetics. Intensive learning about advanced methods of quantum chemistry like variation principle, perturbation theory, Ab initio methods and semi empirical methods.</p> <p>The detailed acquaintance with Electrochemistry incorporating the industrially important electrochemical topics like electrokinetic, fuel cells, corrosion, electrode reactions and ion-solvent</p>	<p>each semester. The first and second semester is general one giving significant importance to all the branches of Chemistry to make a good theoretical background of students.</p> <p>The semester third and fourth totally assigned on organic chemistry and it deeply covered most of the aspects of modern organic chemistry. In this program, students trained in such a way that they can gain good knowledge of theoretical and practical skill of organic chemistry experimentation. It helps to build their career in various fields.</p>
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				<p>interactions.</p> <p>The fundamental aspects as well as problem solving approach for spectroscopic techniques like microwave, infrared, Raman and electronic spectroscopy. The prediction of spectroscopic properties based upon the molecular structure and its symmetry is also taught in this course. The insight of reaction mechanisms of carcinogen like chromium(VI). The types of radiation with special reference to Lasers, basic photochemistry and mechanism of photochemical reactions.</p> <p>Crystallography, solid state reactions, preparation and electronic properties of materials along with polymeric materials is</p>	
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				<p>discussed in this course.</p> <p>The understanding of molecular interactions from the gross thermodynamic properties. It also give information regarding modelling of molecular interactions.</p> <p>Fast reactions, theories of reaction rates, heterogeneous catalysis and mechanism of organic reactions.</p> <p>The theoretical aspects of electrical and magnetic properties of the materials as well as the nuclear magnetic and electron spin resonance spectroscopy.</p> <p>The chemistry of surfaces, colloids, emulsions and various interfaces.</p> <p>The chemistry of glasses, ceramics, composites, nanomaterials, superconducting materials and their</p>	
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				<p>properties. The chemical understanding of of biomolecules like amino acids, proteins, enzymes as well as mechanism of photosynthesis .</p>	
Program specific outcomes	<p>The student can get employment opportunities in various industries like electroplating, paints, instrumental analysis. The students have also shown good progress in development of fuel cells. They also have good employability in teaching and research fields. In research field our students are doing very good in the field of nanomaterials and their applications like phododegradat ion and solar energy conversion. Some of our students are involved in</p>	<p>The student can get employment opportunities in various industries like electroplating, paints, instrumental analysis. The students have also shown good progress in development of fuel cells. They also have good employability in teaching and research fields. In research field our students are doing very good in the field of nanomaterials and their applications like phododegradat ion and solar energy conversion. Some of our students are involved in</p>	<p>The student can get employment opportunities in various industries like electroplating, paints, instrumental analysis. The students have also shown good progress in development of fuel cells. They also have good employability in teaching and research fields. In research field our students are doing very good in the field of nanomaterials and their applications like phododegradat ion and solar energy conversion. Some of our students are involved in</p>	<p>The student can get employment opportunities in various industries like electroplating, paints, instrumental analysis. The students have also shown good progress in development of fuel cells. They also have good employability in teaching and research fields. In research field our students are doing very good in the field of nanomaterials and their applications like phododegradat ion and solar energy conversion. Some of our students are involved in</p>	<p>The student can get employment opportunities in various industries like electroplating, paints, instrumental analysis. The students have also shown good progress in development of fuel cells. They also have good employability in teaching and research fields. In research field our students are doing very good in the field of nanomaterials and their applications like phododegradat ion and solar energy conversion. Some of our students are involved in</p>

		central government project dealing with application water splitting reaction as a source of hydrogen as a fuel.		central government project dealing with application water splitting reaction as a source of hydrogen as a fuel.	central government project dealing with application water splitting reaction as a source of hydrogen as a fuel.
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Annexure II

Structure of Choice Based Credit System

M. Sc. Part – I (Inorganic, Organic, Physical, Analytical, Applied and Industrial Chemistry)

Semester I

	Course code	Paper No.		Title of course	
CGPA	CC-101	I	CH.1.1	Inorganic Chemistry - I	All courses are compulsory.
	CC-102	II	CH.1.2	Organic Chemistry - I	
	CC-103	III	CH.1.3	Physical Chemistry - I	
	CC-104	IV	CH.1.4	Analytical Chemistry - I	
	CCPR-105		CHP.1.1	Practical- I	
Non-CGPA	AEC -106				

Semester II

	Course code	Paper No.		Title of course	
CGPA	CC-201	V	CH.2.1	Inorganic Chemistry – II	All courses are compulsory.
	CC-202	VI	CH.2.2	Organic Chemistry – II	
	CC-203	VII	CH.2.3	Physical Chemistry – II	
	CC-204	VIII	CH.2.4	Analytical Chemistry - II	
	CCPR-205		CHP.2.1	Practical -II	
Non-CGPA	SEC - 206				

M. Sc. Part – II (Inorganic Chemistry)

Semester III

	Course code	Paper No.		Title of course	
CGPA Non-CGPA	CC-301	IX	ICH 3.1	Inorganic Chemical Spectroscopy	Compulsory course
	CCS-302	X	ICH 3.2	Coordination Chemistry - I	Compulsory course
	CCS-303	XI	ICH 3.3	Nuclear Chemistry	Compulsory course
	DSE-304(A)	XII(A)	ICH 3.4(A)	Organometallic and Bioinorganic Chemistry	Choose any one
	DSE-304(B)	XII(B)	ICH 3.4(B)	Selected Topics in Inorganic Chemistry	Choose any one
	CCPR-305		ICHP 3.1	Practical -III	Compulsory course

	AEC-306				
	EC(SWMMOOC)-307				

Semester IV

	Course code	Paper No.		Title of course	
CGPA	CC-401	XIII	ICH 4.1	Instrumental Techniques	Compulsory course
	CCS-402	XIV	ICH 4.2	Coordination Chemistry II	Compulsory course
	CCS-403	XV	ICH 4.3	Chemistry of Inorganic Materials	Compulsory course
	DSE-404(A)	XVI(A)	ICH 4.4(A)	Energy and Environmental Chemistry	Choose any one
	DSE-404(B)	XVI(B)	ICH 4.4(B)	Radiation Chemistry	Choose any one
	CCPR-405		ICHP 4.1	Practical –IV	Compulsory course
Non-CGPA	SEC-406				
	GE-407				

M. Sc. Part – II (Organic Chemistry)

Semester III

	Course code	Paper No.		Title of course	
CGPA	CC-301	IX	OCH 3.1	Organic Reaction Mechanism	Compulsory course
	CCS-302	X	OCH 3.2	Advanced Spectroscopic Methods	Compulsory course
	CCS-303	XI	OCH 3.3	Advanced Synthetic Methods	Compulsory course
	DSE-304(A)	XII(A)	OCH 3.4(A)	Drugs and Heterocycles	Choose any one
	DSE-304(B)	XII(B)	OCH 3.4(B)	Polymer Chemistry	Choose any one
	CCPR-305		OCHP 3.1	Practical –III	Compulsory course
Non-CGPA	AEC-306				
	EC(SWMMOOC)-307				

Semester IV

	Course code	Paper No.		Title of course	
	CC-401	XIII	OCH 4.1	Theoretical Organic	Compulsory

CGPA				Chemistry	course
	CCS-402	XIV	OCH 4.2	Stereochemistry	Compulsory course
	CCS-403	XV	OCH 4.3	Chemistry of Natural Products	Compulsory course
	DSE-404(A)	XVI(A)	OCH 4.4(A)	Applied Organic Chemistry	Choose any one
	DSE-404(B)	XVI(B)	OCH 4.4(B)	Bioorganic Chemistry	Choose any one
	CCPR-405		OCHP 4.1	Practical –IV	Compulsory course
Non-CGPA	SEC-406				
	GE-407				

M. Sc. Part – II (Physical Chemistry)

Semester III

	Course code	Paper No.		Title of course	
CGPA	CC-301	IX	PCH 3.1	Advanced Quantum Chemistry	Compulsory course
	CCS-302	X	PCH 3.2	Electrochemistry	Compulsory course
	CCS-303	XI	PCH 3.3	Molecular Structure – I	Compulsory course
	DSE-304(A)	XII(A)	PCH 3.4(A)	Solid State Chemistry	Choose any one
	DSE-304(B)	XII(B)	PCH 3.4(B)	Advanced Chemical Kinetics	Choose any one
	DSE-304(C)	XII(C)	PCH 3.4(C)	Radiation and Photochemistry	
	CCPR-305		PCHP 3.1	Practical –III	Compulsory course
Non-CGPA	AEC-306				
	EC(SWMMOOC)-307				

Semester IV

	Course code	Paper No.		Title of course	
CGPA	CC-401	XIII	PCH 4.1	Thermodynamics and Molecular Modeling	Compulsory course
	CCS-402	XIV	PCH 4.2	Chemical Kinetics	Compulsory course
	CCS-403	XV	PCH 4.3	Molecular Structure - II	Compulsory course

	DSE-404(A)	XVI(A)	PCH 4.4(A)	Surface Chemistry	Choose any one
	DSE-404(B)	XVI(B)	PCH 4.4(B)	Chemistry of Materials	Choose any one
	DSE-404(B)	XVI(C)	PCH 4.4(C)	Biophysical Chemistry	
	CCPR-405		PCHP 4.1	Practical –IV	Compulsory course
Non- CGPA	SEC-406				
	GE-407				

M. Sc. Part – II (Analytical Chemistry)

Semester III

	Course code	Paper No.		Title of course	
CGPA	CC-301	IX	ACH 3.1	Advanced Analytical Techniques	Compulsory course
	CCS-302	X	ACH 3.2	Organo Analytical Chemistry	Compulsory course
	CCS-303	XI	ACH 3.3	Electroanalytical Techniques in Chemical Analysis	Compulsory course
	DSE-304(A)	XII(A)	ACH 3.4(A)	Environmental Chemical Analysis and Control	Choose any one
	DSE-304(B)	XII(B)	ACH 3.4(B)	Recent Advances in Analytical Chemistry	Choose any one
	CCPR-305		ACHP 3.1	Practical –III	Compulsory course
Non- CGPA	AEC-306				
	EC(SWMMOOC)-307				

Semester IV

	Course code	Paper No.		Title of course	
CGPA	CC-401	XIII	ACH 4.1	Modern Separation Methods in Analysis	Compulsory course
	CCS-402	XIV	ACH 4.2	Organic Industrial Analysis	Compulsory course
	CCS-403	XV	ACH 4.3	Advanced Methods in Chemical Analysis	Compulsory course
	DSE-404(A)	XVI(A)	ACH 4.4(A)	Industrial Analytical Chemistry	Choose any one
	DSE-404(B)	XVI(B)	ACH 4.4(B)	Quality Assurance and	Choose any

				Accreditation	one
	CCPR-405		ACHP 4.1	Practical –IV	Compulsory course
Non-CGPA	SEC-406				
	GE-407				

M. Sc. Part – I (Applied Chemistry)

Semester I

	Course code	Paper No.		Title of course	
CGPA	CC-101	I	CH.1.1	Inorganic Chemistry - I	All courses are compulsory.
	CC-102	II	CH.1.2	Organic Chemistry - I	
	CC-103	III	CH.1.3	Physical Chemistry - I	
	CC-104	IV	CH.1.4	Analytical Chemistry - I	
	CCPR-105		CHP.1.1	Practical- I	
Non-CGPA	AEC -106				

Semester II

	Course code	Paper No.		Title of course	
CGPA	CC-201	V	CH.2.1	Inorganic Chemistry – II	All courses are compulsory.
	CC-202	VI	CH.2.2	Organic Chemistry – II	
	CC-203	VII	CH.2.3	Physical Chemistry – II	
	CC-204	VIII	CH.2.4	Analytical Chemistry - II	
	CCPR-205		CHP.2.1	Practical -II	
Non-CGPA	SEC - 206				

M. Sc. Part – II (Applied Chemistry)

Semester III

	Course code	Paper No.		Title of course	
CGPA	CC-301	IX	APCH 3.1	Applied Inorganic Chemistry – I	Compulsory course
	CCS-302	X	APCH 3.2	Applied Organic Chemistry - I	Compulsory course
	CCS-303	XI	APCH 3.3	Applied Physical Chemistry - I	Compulsory course

	DSE-304(A)	XII(A)	APCH 3.4(A)	Advanced Organic Chemistry – I	Choose any one
	DSE-304(B)	XII(B)	APCH 3.4(B)	Applied Analytical Chemistry – I	Choose any one
	DSE-304(C)	XII(C)	APCH 3.4(C)	Bioorganic Chemistry - I	
	CCPR-305		APCHP 3.1	Practical –III	Compulsory course
Non-CGPA	AEC-306				
	EC(SWMMOOC)- 307				

Semester IV

	Course code	Paper No.		Title of course	
CGPA	CC-401	XIII	APCH 4.1	Applied Inorganic Chemistry – II	Compulsory course
	CCS-402	XIV	APCH 4.2	Applied Organic Chemistry – II	Compulsory course
	CCS-403	XV	APCH 4.3	Applied Physical Chemistry - II	Compulsory course
	DSE-404(A)	XVI(A)	APCH 4.4(A)	Inorganic Chemical Industries	Choose any one
	DSE-404(B)	XVI(B)	APCH 4.4(B)	Pollution and Monitoring and Control	Choose any one
	DSE-404(B)	XVI(C)	APCH 4.4(C)	Applied Analytical Chemistry- II	
	CCPR-405		APCHP 4.1	Practical –IV	Compulsory course
Non-CGPA	SEC-406				
	GE-407				

M. Sc. Part – I (Industrial Chemistry)

Semester I

	Course code	Paper No.		Title of course	
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CGPA	CC-101	I	CH.1.1	Inorganic Chemistry - I	All courses are compulsory.
	CC-102	II	CH.1.2	Organic Chemistry - I	
	CC-103	III	CH.1.3	Physical Chemistry - I	
	CC-104	IV	CH.1.4	Analytical Chemistry - I	
	CCPR-105		CHP.1.1	Practical- I	
Non-CGPA	AEC -106				

Semester II

	Course code	Paper No.		Title of course	
CGPA	CC-201	V	CH.2.1	Inorganic Chemistry – II	All courses are compulsory.
	CC-202	VI	CH.2.2	Organic Chemistry – II	
	CC-203	VII	CH.2.3	Physical Chemistry – II	
	CC-204	VIII	CH.2.4	Analytical Chemistry - II	
	CCPR-205		CHP.2.1	Practical -II	
Non-CGPA	SEC - 206				

M. Sc. Part – II (Industrial Chemistry)**Semester III**

	Course code	Paper No.		Title of course	
CGPA	CC-301	IX	IND 3.1	Organic Chemical Industries – I	Compulsory course
	CCS-302	X	IND 3.2	Inorganic Chemical Industries - I	Compulsory course
	CCS-303	XI	IND 3.3	Methods of Analysis in Industries	Compulsory course
	DSE-304(A)	XII(A)	IND 3.4(A)	General Chemical Technology	Choose any one
	DSE-304(B)	XII(B)	IND 3.4(B)	Advanced Analytical Techniques in Industry	Choose any one
	DSE-304(C)	XII(C)	IND 3.4(C)	Chemical Analysis in Agro, Food and Pharmaceutical Industry	
	CCPR-305		INDP 3.1	Practical –III	Compulsory course
Non-CGPA	AEC-306				
	EC(SWMMOOC)- 307				

Semester IV

	Course code	Paper No.		Title of course	
CGPA	CC-401	XIII	IND 4.1	Drugs and Pharmaceuticals	Compulsory course
	CCS-402	XIV	IND 4.2	Inorganic Chemical Industries - II	Compulsory course
	CCS-403	XV	IND 4.3	Selected Topics in Industrial Chemistry	Compulsory course
	DSE-404(A)	XVI(A)	IND 4.4(A)	Environmental Chemistry	Choose any one
	DSE-404(B)	XVI(B)	IND 4.4(B)	Pharmaceutical Chemistry	Choose any one
	DSE-404(B)	XVI(C)	IND 4.4(C)	Chemistry of Industrially Important Materials	
	CCPR-405		INDP 4.1	Practical –IV	Compulsory course
Non-CGPA	SEC-406				
	GE-407				

Annexure III: Faculty Details (Details of Faculty in one page)

	Name	Designation	Qualifications	Specialization	Areas of Research	Number of Publications/ h-index	Teaching Experience
1	Prof. G. S. Gokavi	Professor	M. Sc., Ph. D	Physical Chemistry	Catalysis, Membrane Separations and Kinetics	76/13	31
2	Prof. G. B. Kolekar	Professor	M. Sc., Ph. D	Physical Chemistry	Photocatalysis, Sensors and nanomaterials.	116/19	26
3	Prof. S. S. Kolekar	Professor	M. Sc., Ph. D	Inorganic Chemistry	Supercapacitors , Water Splitting,	86/25	25
4	Prof. S. S. Chavan	Professor		Inorganic Chemistry	Coordination Chemistry, Organometallics and non linear optical materials	47/12	25
5	Prof. K. M. Garadkar	Professor	M. Sc., Ph. D	Physical Chemistry	Photocatalysis, Photodegradation and nanomaterials	112/28	26
6	Prof. P. V. Anbhule	Professor	M. Sc., Ph. D	Organic Chemistry	Synthetic Organic Chemistry, heterocyclic chemistry and sensors	76/13	17
7	Prof. S. D. Delekar	Professor	M. Sc., Ph. D	Inorganic Chemistry	Photocatalysis, Sensors and nanomaterials.	61/20	15
8	Prof. D. M. Pore	Professor	M. Sc., Ph. D	Organic Chemistry	Synthetic Organic Chemistry and catalysis	59/20	17
9	Prof. A. V. Ghule	Professor	M. Sc., Ph. D	Analytical Chemistry	Analytical Methods and supercapacitors	108/25	10
10	Dr. S. P. Hangirgekar	Associate Professor	M. Sc., Ph. D	Organic Chemistry	Synthetic Organic Chemistry, heterocyclic chemistry and sensors	5	10

1 1	Dr. D. H. Dagade	Assista nt Profess or	M. Sc., Ph. D	Physical Chemistry	Thermodynami cs of solutions, physical properties of Ionic liquids and simulation.	50/16	15
1 2	Dr. G. S. Rashinkar	Assista nt Profess or	M. Sc., Ph. D	Organic Chemistry	Synthetic Organic Chemistry and catalysis	54/14	16
1 3	Dr. S. A. Sankapal	Assista nt Profess or	M. Sc., Ph. D	Organic Chemistry	Synthetic Organic Chemistry and catalysis	13/5	12
1 4	Dr. D. S. Bhange	Assista nt Profess or	M. Sc., Ph. D	Inorganic Chemistry	Photocatalysis, water splitting and batteries	34/14	10
1 5	Dr. S. N. Tayade	Asiisat ant Profess or	M. Sc., Ph. D	Physical Chemistry	Electrochemistr y and graphene supported electrodes	3/1	06
1 6	Prof. P. N. Bhosale	B. S. R. Faculty	M. Sc., Ph. D	Inorganic Chemistry	Thin films and their applications.	155/28	32

Department of Chemistry Class Rooms









Department of Chemistry Laboratories







New Department of Chemistry Building



Annexure V: Placement of outgoing students for the year 2018-2019

	Number of students placed	Name of the employer with contact details	Package received	Programme graduated from
1	Mr. Ashish Bore	SITEC Labs, Mumbai	--	M.Sc. Organic Chemistry
2	Mr. Ajinkya Kadakane	Encube, Mumbai	Rs. 1,68,000/-	M. Sc. Analytical Chemistry
3	Miss Nikita S. Mangale	Micro Labs, Bangalore		M. Sc. Inorganic Chemistry
4	Mr. Laksmikant D. Gangnale	Anthem Biosciences Ltd., Bangalore	Rs. 3,30,000/-	M. Sc. Organic Chemistry
5	Mr. Nagesh R. Sutrave	Raichem Medicare Ltd. Raichur, Karnataka		M. Sc. Organic Chemistry
6	Miss Bhagyashree J Chimanna	-----do -----		M. Sc. Organic Chemistry
7	Mr. Somanath M. Gurav	-----do -----		M. Sc. Organic Chemistry
8	Miss Snehal M. Patil	-----do -----		M. Sc. Organic Chemistry
9	Mr. Namdev V. Patil	-----do -----		M. Sc. Organic Chemistry
10	Mr. Shubham A. Deshmukh	-----do -----		M. Sc. Organic Chemistry
11	Miss Bhagyashree N. Patil	-----do -----		M. Sc. Organic Chemistry
12	Miss. Anuradha P. Phadatare	-----do -----		M. Sc. Organic Chemistry
13	Mr. Pravin N. Bhavare	-----do -----		M. Sc. Analytical Chemistry
14	Miss Poonam R. Jamadar	-----do -----		M. Sc. Analytical Chemistry
15	Miss Shivani R. Pol	-----do -----		M. Sc. Analytical Chemistry
16	Miss Sonal B. Patil	-----do -----		M. Sc. Analytical Chemistry
17	Miss Aishwaraya S. Kore	-----do -----		M. Sc. Analytical Chemistry
18	Miss. Sonal S. Kavare	-----do -----		M. Sc. Industrial

				Chemistry
19	Mr. Shrikant S. Khedje	-----do -----		M. Sc. Industrial Chemistry
20	Mr. Onkar J. Ingawale	-----do -----		M. Sc. Organic Chemistry
21	Mr. Siddeshwar J. Kote	-----do -----		M. Sc. Organic Chemistry
22	Mr. Sagar G. Kalagonda	-----do -----		M. Sc. Organic Chemistry
23	Mr. Shubam J. Pujari	-----do -----		M. Sc. Organic Chemistry
24	Mr. Suresh H. Pukale	-----do -----		M. Sc. Organic Chemistry
25	Mr. Shubham E. Harale	-----do -----		M. Sc. Organic Chemistry
26	Miss Najmin A. Mullani	SRL Daignostics, Pune		M. Sc. Organic Chemistry
27	Mr. P. S. Pawar	Lupin Pune	Rs. 3,40,000/-	M. Sc. Inorganic Chemistry
28	Miss Vijayata K. Jagtap	NCL, Project Assistant		M. Sc. Inorganic Chemistry
29	Mr. Swapnil Bansode	Glenmark Nashik		M. Sc. Physical Chemistry
30	Mr. Mohin Jamadar	Lupin Pune		M. Sc. Physical Chemistry
31	Mr. Santosh Pednekar	Glenmark Goa		M. Sc. Analytical Chemistry
32	Mr. Shubham Ghatge	MSN Hyderabad		M. Sc. Inorganic Chemistry
33	Mr. Ramachandra Bhavadhane	Serum Institute Pune		M. Sc. Inorganic Chemistry
34	Mr. Dayanand Mole	Lupin Goa		M. Sc. Industrial Chemistry
35	Mr. Mahesh Jadhav	Cipla Baramati		M. Sc. Analytical Chemistry
36	Mr. Vinayak Patil	Lupin Goa		M. Sc. Analytical Chemistry
37	Mr. Sagar Kumbhar	Lupin Goa		M. Sc. Inorganic Chemistry
38	Mr. Abhijit Patil	Glenmark Goa		M. Sc. Industrial Chemistry
39	Mr. Madhav K. Londhe	GeoChem, Mumbai		M. Sc. Organic Chemistry
40	Mr. Avinash Kadam	Aurobindo Pharma		M. Sc. Industrial Chemistry

		Hyderabad		
41	Mr. Maqsood Zari	Aurobindo Pharma Hyderabad		M. Sc. Industrial Chemistry
42	Mr. Mayur Shirtode	Aurobindo Pharma Hyderabad		M. Sc. Industrial Chemistry
43	Mr. Subham Harale	Marcson Pharma Goa		M. Sc. Industrial Chemistry
44	Mr. Suresh Pukale	Arti Insustries Boisar		M. Sc. Industrial Chemistry
45	Mr. Ashish Ghanwat	Melody Healthcare Boisar		M. Sc. Industrial Chemistry
46	Miss Anuradha Jarag	Flamingo Pharma Mumbai		M. Sc. Industrial Chemistry
47	Miss Shivani Tawar	Myster Health and Hygine		M. Sc. Industrial Chemistry
48	Miss Reshma Gholap	Sapphire Pharma Palghar		M. Sc. Industrial Chemistry
49	Miss Swati Kalkundrikar	BEE Phrama Pvt. Ltd.		M. Sc. Industrial Chemistry
50	Miss Vidya Sutar	Pratap Organics Mumbai		M. Sc. Industrial Chemistry
51	Mr. Prashant V. Mali	Nichino Chemical India Pvt. Ltd., Hyderabad		M. Sc. Applied Chemistry
52	Mr. Ravidra B. Daphale	Nichino Chemical India Pvt. Ltd., Hyderabad		M. Sc. Applied Chemistry