#### 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.

Sr.	Programme	Intake	
No.			
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	

#### 6) Academic Program offered with intake

- 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 Bhange
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

Semest		M. Sc. in	M So in Organia	M. Sc. in	M. Sc. in
		Inorganic	M. Sc. in Organic Chemistry	Physical	Analytical
er		U	Chemistry	•	•
T and TT	C	Chemistry CII	Demonstration CIL 1.2	Chemistry CI	Chemistry CI
I and II	Course	Paper –CH-	Paper –CH-1.2:	Paper –CH-	Paper –CH-
	outcom	1.1: Inorganic	Organic Chemistry-	103: Physical	104:
	e	Chemistry-I		Chemistry-I	Analytical
		Students will		The course	Chemistry-I
		be able to	knowledge about	deals with	This course
		understand the	the mechanism of	revision and	introduces .
		basic nature of	e	application of	error in
		inorganic	will be given along	thermodynami	methods of
		materials, their		c and statistical	analysis,
		spectroscopic	benzenoid structure	thermodynami	fundamentals
		characteristics,	and stereochemistry	c principles in	of qualitative
		nomenclature,	is given to the	ideal and real	analysis,
		reactions and	students.	systems. The	chromatograph
		their		chemistry and	ic analysis and
		applications.		physical	electrochemica
			Paper –CH-2.2:	properties of	l analysis.
			Organic Chemistry-	macromolecule	
			II	s and colloidal	
			In this course	solutions is	
		Paper –CH-	Students will be	also dealt with	
		2.1: Inorganic	able to understand	in this course.	Paper –CH-
		Chemistry-II	the various	Paper –CH-	204:
		This course	methodologies	203: Physical	Analytical
		introduce the	utilized in organic	Chemistry-II	Chemistry-II
		basic	synthesis like	In this course	This course
		understanding	hydroboration,	basic	introduces
		of	oxidations,	knowledge	various
		stereochemistr	reductions and	about quantum	instrumental
		y of inorganic	protection of	-	methods of
		compounds,	functional groups. It	photochemistr	analysis
		solid state	also deals with	y,	including UV-
		chemistry as	photochemistry of	electrochemistr	VIS, IR, NMR,
		well as	organic compounds	y and chemical	mass, Thermal
		bioinorganic	and organometallic	kinetics will be	and atomic
		chemistry.	compounds.	given.	spectroscopy.
		enemistry.	compoundo.	Briom	speedose op j.
			Paper – OCH IX:		
			Ĩ		
III and		Paper –ICH-	Paper No. OCH- IX:	Paper No.	Paper No.
IV		IX: Inorganic	-	PCH- IX:	ACH- IX:

chemical spectroscopy. The detailed knowledge about group theory, electronic absorption spectroscopy, IR, NMR and X-ray photoelectron spectroscopy is given.	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.	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.	General analytical techniques. This course introduces the theoretical aspects of volumetric and gravimetric analysis as well as separation techniques and thermal methods of analysis.
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.	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	Paper No. PCH- X: Electrochemist ry. This course deals with principles of electrochemistr y incorporating the industrially important electrochemica 1 topics like electrokinetic, fuel cells, corrosion,	Paper No. ACH- X: Organo analytical chemistry. The analysis of organic compounds including drug, pesticide, clinical, body fluid, forensic analysis and hyphenated techniques.

l	NET, SET and	electrode	
	GATE.	reactions and	
	UATE.	ion-solvent	
	Demon No. OCH	interactions.	
	Paper No. OCH - XI: ADVANCED	interactions.	
Dense ICH			
Paper –ICH-	SYNTHETIC		Danan Ma
XI: Nuclear	METHODS		Paper No.
chemistry.	The knowledge of		ACH-XI:
The generation	the reagents helps		Electroanalytic
and	students during		al techniques.
applications of	their higher studies	Paper No.	The
alpha, beta and	specifically in PhD		electrochemica
gamma	and in R and D	Molecular	1 techniques
radiations,	department of		fro analysis
nuclear	industry in	This course	like cyclic
reactions and	development of new	introduces	voltammetry,
their	synthetic route for	fundamental	coulometry,
significance, as	valuable	aspects as well	ion selective
well as	compounds by	as problem	electrodes and
stability of the	using suitable	solving	electrophoresis
nucleus is	reagents since they		is delt with in
deliberated in	know the role of	1 1	this course.
this course.	reagents in a	1	
	particular reaction.	microwave,	
	They can also	,	
	utilize advanced		
	techniques like		
	microwaves, ionic	1 17	
	liquids, ultrasound	The prediction	
	etc during their	of .	
	higher studies. In	spectroscopic	
	addition, retro-	1 1	
	synthetic analysis	based upon the	
	technique helps for	molecular	
	the study and	structure and	
	design of a new	its symmetry is	Daman
	reaction.	also taught in	Paper No.
Demor ICII	Doman No OOU	this course.	ACH- XIIA:
Paper –ICH-	Paper No. OCH -		Environmental
XIIA:	XII: DRUG AND		chemical
Environmental	HETEROCYCLE		analysis and
chemistry.	This basically offers		control.
Various	very good		The sampling
pollution	opportunity to		techniques,
aspects of air	students in		analysis of air
and water,	pharmaceutical		and water
pollution	industries in quality		samples for
monitoring,	control and	Dense N	assessment of
control and	production division.	Paper No.	their pollution
prevention	Based on this,	PCH- XII A:	level will be

mathada far	students also	A dream and	tomate in this
methods for	students also		taught in this
pollution is	entered in R and D	chemical	course.
discussed in	department of		
this course.	pharmaceutical	Prediction of	
	industries.	reaction	
		mechanism on	
		the bases of	
		kinetic data	
		like, effect of	Paper No.
Paper –ICH-		hydrogen ion,	ACH- XIIB:
XIIB:		nature of	Recent
Organometalli		electron	advances in
c chemistry.		transfer and	analytical
The techniques		effect of	chemistry.
of methods of		catalyst will be	The advances
synthesizing		discussed in	in analytical
organometallic		this course. the	chemistry like
compounds		carcinogenic	radiochemical,
and their		oxidant like	electron spin
application in		chromium(VI)	resonance,
various		and its	multinuclear
chemical		mechanisms	nuclear
reactions is		are also dealt	magnetic
given in this		with in this	resonance are
course.		course.	introduced in
	Paper No. OCH -	Paper No.	this course.
Paper –ICH-	XIII:	PCH- XII B:	Paper No.
XIIC: Selected	THEORETICAL	Radiation and	ACH- XIIC:
topics in	ORGANIC	photochemistr	Chemical
inorganic	CHEMISTRY	y.	analysis in
chemistry.	This gives good	This course	agro, food and
In this course,	0 0	deals with the	-
industrially	aromatic	types of	industries.
related topics	compounds and that	radiation with	The analytical
like catalysis,	help students to	special	methods used
inorganic	qualify NET, SET	reference to	in agro, food
polymers and	and GATE	Lasers, basic	and
fretilizers are	examination in	photochemistr	pharmaceutical
discussed in	future. The	y and	industries is
reference to	understanding of	mechanism of	introduced in
their	Huckel's rule help	photochemical	this course.
production and	students to know	reactions.	Paper No.
characterizatio	the reactivity of		ACH- XIII:
n.	aromatic		Modern
	compounds that can		separation
	be very helpful in		methods in
Paper –ICH-	their higher studies		analysis.
XIII:	like PhD.		The course
Instrumental	Paper No. OCH -		introduces
techniques.	XIV:		modern
aconniques.	ZXI V .	1	mouch

The	STEREOCHEMIST		concretion
			separation
instrumental	RY	Paper No.	methods like
techniques	The study of		high
like XRD,	stereochemical	Solid state	performance
Thermal	aspects of organic	chemistry.	liquid
analysis,	molecules gives	Introduction to	chromatograph
Mossbaur	very important tool	crystallograph	y, ion
spectroscopy,	in assigning the	y, solid state	chromatograph
ESR and NQR	properties of	reactions,	y and gas
used for	bioactive	preparation	chromatograph
characterizatio	molecules. Latter is	and electronic	y.
n of inorganic	helpful in designing	properties of	5
materials are	of new bioactive	materials along	
discussed in	molecules with	with polymeric	
detail.	specific	materials is	
uctail.	stereochemical		
			Donon N-
	properties in R and	this course.	Paper No.
	D department of		ACH- XIV:
	pharmaceutical		Organic
	chemistry and drug		industrial
Paper-ICH-	design.		analysis.
XIV:			The analysis of
Coordination		Paper No.	oils, fats,
chemistry II.	Paper No. OCH -	PCH- XIV:	soaps,
The reactions	XV: CHEMISTRY	Thermodynami	detergents,
involving	OF NATURAL	cs and	paints,
coordination	PRODUCTS	molecular	petroleum
complexes like	The students can		products and
electron	apply their	The	cosmetics will
transfer,	knowledge for	understanding	be discussed in
substitution	synthesis of various	of molecular	this course.
and	natural products in	interactions	uns course.
	-		
strereochemistr	their research and	from the gross	
y as well as	also aware about	-	
photochemistr	the natural	c properties. It	
y and their	resources of	also give	
applications	important natural	information	
are discussed	products.	regarding	
in this course.		modelling of	
		molecular	
		interactions.	
			Paper No.
			ACH- XV:
			Advanced
			methods in
			chemical
			analysis.
Paper-ICH-			The kinetic
XV: Chemistry	Paper No. OCH -	Paper No.	methods,
of inorganic	XVIA: APPLIED	PCH- XV:	fluorescence,
1000000000			

materials.	ORGANIC	Chemical	photoelectron
As the na		kinetics.	spectroscopic
	his This knowledge	The course	and X-ray
	als helps to get		spectroscopic
with	the placement to the	-	analysis will
chemical,	students in	fast reactions,	be dealt with
magnetic,	agrochemicals,	theories of	in this course.
optoelectro		reaction rates,	
and	pharmaceuticals,	heterogeneous	
electrolytic	dyes, polymers	catalysis and	
properties	of industries.	mechanism of	
inorganic		organic	
materials	as	reactions.	
well as	the		
inorganic n	ano		
materials.		Paper No.	
		PCH- XV:	
		Molecular	
		structure II.	
		This course in	Paper No.
		introduces	ACH- XVI A:
		theoretical	Applied
		aspects of	
		electrical and	Chemistry.
		magnetic	The course
		properties of	
		the materials	analysis of
Paper-ICH-		as well as the	metals, alloys,
XVIA:		nuclear	soil, fertilizers
Separation		magnetic and	and explosives.
science.		electron spin	and explosives.
Various		1	
		resonance	Paper No.
separation	ilro	spectroscopy.	1
	ike	Denen Me	
solvent		Paper No.	Techniques in
extraction,	nh	PCH- XVI A:	forensic
chromatogr	-	Surface	science.
ic	and	chemistry.	The analytical
electrochen		The chemistry	techniques
1 are discus		of surfaces,	used in
in detail al	-	colloids,	forensic
	eir	emulsions and	science like
applications		various	analysis of
		interfaces are	poisons and
Paper-ICH-		discussed in	analytical
XVIB:Radi	tio	this course.	microbiology
n chemistry			will be taught
Different ty			in this course.
of isoto	es,		
their		Paper No.	

	separation and		PCH- XVI B:	
	biological		Chemistry of	Paper No.
	applications of		materials.	ACH- XVIC:
	isotopes as		The chemistry	Computational
	well as		of glasses,	chemistry.
	Principles of		ceramics,	The course
	tracer		composites,	deals with
	chemistry and		nanomaterials,	scientific
	radiation		superconductin	computer
	detection		g materials and	languages like
	€measurement		their properties	_ ~ ~
			is discussed in	11
	s is dealt with			
	in this course.		this course.	understanding about internet.
	Paper-ICH-			
	XVIC:			
	Applied		Paper No.	
	bioinorganic		PCH- XVI C:	
	chemistry.		Biophysical	
	Introduction of		chemistry.	
	characterizatio		The course	
			introduces	
	used in		chemical	
	bioinorganic		understanding	
	chemistry,		of basic units	
	metalloprotein		of	
	s and enzymes		biomolecules	
	and their		like amino	
	applications		acids, proteins,	
	are discussed		enzymes as	
	in this course.		well as	
			mechanism of	
			photosynthesis	
Progra	The M. Sc in	The M. Sc in	The M. Sc. in	The M.Sc in
m	Inorganic	Organic chemistry	Physical	Analytical
outcom	chemistry	program includes	chemistry is	chemistry
e	•	the four semesters	designed to	•
	program		enable the	program
	includes the	with each semester	students to	includes the
	four semesters	have four papers. In	understand the	four semesters
	with each	addition to theory	basic	with each
	semester have	papers, there is also	principles of	semester have
			Physical	
	four papers. In	200 marks practical	Chemistry.	four papers. In
	addition to	in each semester.	•	addition to
		The first and second	The program	theory papers,
	theory papers,	The first and second	0.011m0.0 -11	meory papers,
			course deals	
	there is also	semester is general	with revision	there is also

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	importance to all the branches of Chemistry to make a good theoretical background of students. The semester third and fourth totally assigned on organic chemistry and it deeply covered most of the aspects of modern organic chemistry.	thermodynami c and statistical thermodynami c principles The chemistry and physical properties of macromolecule s and colloidal solutions. The knowledge about quantum chemistry, photochemistr y,	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
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 experimentatio n. It helps to build their career in various fields.	experimentation. It helps to build their career in various fields.	quantum chemistry like variation principle, perturbation theory, Ab initio methods and semi empirical methods. The detailed acquaintance with Electrochemist ry incorporating the industrially important electrochemica 1 topics like electrokinetic, fuel cells, corrosion, electrode reactions and ion-solvent	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 experimentatio n. It helps to build their career in various fields.

interactions.
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
photochemistr
y and
mechanism of
photochemical
reactions.
Crystallograph
y, solid state
reactions,
preparation and electronic
properties of
materials along
with polymeric
materials is

discussed in
this course.
The
understanding
of molecular
interactions
from the gross
thermodynami
c properties. It
also give
information
regarding
modelling of
molecular
interactions.
Fast reactions,
theories of
reaction rates,
heterogeneous
mechanism of
organic
reactions.
The theoretical
aspects of
electrical and
magnetic
properties of
the materials
as well as the
nuclear
e
electron spin
resonance
spectroscopy.
The chemistry
of surfaces,
colloids,
emulsions and
various
interfaces.
The chemistry
of glasses,
ceramics,
composites,
nanomaterials,
superconductin
g materials and
their

Progra mThe student can getThe student get in various industries like poportunities in various industries like paints, instrumental analysis.The student method poportunities in various industries like paints, instrumental analysis.The student method poportunities in various industries like poportunities in various industries like poportunities paints, instrumental analysis.The student method progress in the students progress in the students progress in the students progress in field our students are podod good shown good progress in field our students are field our students are phododegradati on anomaterials and their applications field of students are phododegradati on anomaterials and their applications like in source of on anomaterials and their applications field of students are phododegradati on anomaterials and their applications like energy conversion. Some of ourThe student students analysis.The student analysis. the students the applications the students the anomaterials the students are the students are doing very good in the field of the applications like the applica	I	· · · · · · · · · · · · · · · · · · ·			
Progra mThe student can get employment outcom in various industries like electroplating, paints, instrumental analysis.The student can get employment opportunities in various industries like electroplating, paints, instrumental analysis. the students have progress in the students have also shown good field of field our students are progress in in tescarch fields. In the students are doing good employability in teaching and the iteroplating in tescarch fields. In the students are doing good shown good field our students are progress in in tescarch fields. In the students are doing good students are offield our students are progress in the students the students the students the students the students have also shown good the students are doing good students are doing good employability in teaching and field our tike field our students are progress in the students are doing good employability in teaching and their applications field our students are prododegradation their applications their applications and solar energy good in the prododegradat ion and solar energy <br< td=""><td></td><td></td><td></td><td>properties.</td><td></td></br<>				properties.	
Progra m can get specific outcom outcom outcom opportunities in various industries like electroplating, paints, instrumental analysis.The student can get employment opportunities paints, instrumental analysis.The student can get employment opportunities industries paints, instrumental analysis.The student can get employment opportunities industries paints, instrumental analysis. the students have good instrumental analysis. the students have good in the field our students are doing very doing very good in the field of in research fields. In research field our students are doing very doing very good in the field of in anomaterials and their applications like encoversion. Some of ourof of of biomolecules intervental analysis. the students have also shown good progress in in teaching and tesearch field. In research field. In research field our students are doing very good in the field our students are doing very good in the field of in anomaterials and their applications like phododegradati on and solar energy conversion. Some of ourof of our of our central and solar energy e					
Progra m can can specific outcomThe student to can getThe student employment opportunities intex various industries point industries industries industries industries industries esThe student to the student can opportunitiesThe student can get opportunities in various industries industries paints, the students have analysis. The students instrumental analysis. The students instrumental analysis. The students have also shown good to field out students are doing very good in the field out students are doing very good in the field out students are doing very good in the field out students are progress in anomaterials and version. field of field of field of field of field of field of field of in research fields. In research field out students are doing very good in the students are progress in doing very good in the involved in central and their applications good in the involved in central and their applications biblic phododegradat ion and solar energy enversion. Some of ourbib output some of ou				understanding	
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#### Annexure II

## Structure of Choice Based Credit System

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

	Course code	Paper		Title of course	
		No.			
	CC-101	Ι	CH.1.1	Inorganic Chemistry - I	All courses are
CGPA	CC-102	II	CH.1.2	Organic Chemistry - I	compulsory.
	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-	AEC -106				
CGPA					

#### Semester I

#### Semester II

	Course code	Paper		Title of course	
		No.			
	CC-201	V	CH.2.1	Inorganic Chemistry – II	All courses are
	CC-202	VI	CH.2.2	Organic Chemistry – II	compulsory.
CGPA	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-	SEC - 206				
CGPA					

#### M. Sc. Part – II (Inorganic Chemistry)

#### **Semester III**

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

	AEC-306		
	EC(SWMMOOC)-		
	307		

#### Semester IV

	Course code	Paper No.		Title of course	
	CC-401	XIII	ICH 4.1	Instrumental Techniques	Compulsory course
CGPA	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-	SEC-406				
CGPA	GE-407				

## M. Sc. Part – II (Organic Chemistry)

#### Semester III

	Course code	Paper No.		Title of course	
	CC-301	IX	OCH 3.1	Organic Reaction Mechanism	Compulsory course
CGPA	CCS-302	Х	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-	AEC-306				
CGPA	EC(SWMMOOC)- 307				

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

				Chemistry	course
CGPA	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	Applied Organic Chemistry	Choose any one
			4.4(A)		
	DSE-404(B)	XVI(B)	OCH	Bioorganic Chemistry	Choose any one
			4.4(B)		
	CCPR-405		OCHP 4.1	Practical –IV	Compulsory
					course
Non-	SEC-406				
CGPA	GE-407				

## M. Sc. Part – II (Physical Chemistry)

### Semester III

	Course code	Paper No.		Title of course	
	CC-301	IX	PCH 3.1	Advanced Quantum Chemistry	Compulsory course
CGPA	CCS-302	Х	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-	AEC-306				
CGPA	EC(SWMMOOC)- 307				

	Course code	Paper		Title of course	
		No.			
	CC-401	XIII	PCH 4.1	Thermodynamics and	Compulsory
				Molecular Modeling	course
CGPA	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)	РСН	Surface Chemistry	Choose any one
			4.4(A)		
	DSE-404(B)	XVI(B)	PCH	Chemistry of Materials	Choose any one
			4.4(B)		
	DSE-404(B)	XVI(C)	РСН	Biophysical Chemistry	
			4.4(C)		
	CCPR-405		PCHP 4.1	Practical –IV	Compulsory
					course
Non-	SEC-406				
CGPA	GE-407				

## M. Sc. Part – II (Analytical Chemistry)

#### Semester III

	Course code	Paper No.		Title of course	
	CC-301	IX	ACH 3.1	Advanced Analytical Techniques	Compulsory course
CGPA	CCS-302	Х	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-	AEC-306				
CGPA	EC(SWMMOOC)- 307				

	Course code	Paper No.		Title of course	
	CC-401	XIII	ACH 4.1	Modern Separation Methods in Analysis	Compulsory course
CGPA	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-	SEC-406			
CGPA	GE-407			

# M. Sc. Part – I (Applied Chemistry)

### Semester I

	Course code	Paper No.		Title of course	
	CC-101	Ι	CH.1.1	Inorganic Chemistry - I	All courses are
CGPA	CC-102	II	CH.1.2	Organic Chemistry - I	compulsory.
	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	
	CC-201	V	CH.2.1	Inorganic Chemistry – II	All courses
	CC-202	VI	CH.2.2	Organic Chemistry – II	are
CGPA	CC-203	VII	CH.2.3	Physical Chemistry – II	compulsory.
	CC-204	VIII	CH.2.4	Analytical Chemistry - II	
	CCPR-205		CHP.2.1	Practical -II	
Non-	SEC - 206				
CGPA					

## M. Sc. Part – II (Applied Chemistry)

### Semester III

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

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

### Semester IV

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

# M. Sc. Part – I (Industrial Chemistry)

	Course code	Paper	Title of course	
		No.		

	CC-101	Ι	CH.1.1	Inorganic Chemistry - I	All courses
CGPA	CC-102	II	CH.1.2	Organic Chemistry - I	are
	CC-103	III	CH.1.3	Physical Chemistry - I	compulsory.
	CC-104	IV	CH.1.4	Analytical Chemistry - I	
	CCPR-105		CHP.1.1	Practical- I	
Non-	AEC -106				
CGPA					

	Course code	Paper No.		Title of course	
	CC-201	V	CH.2.1	Inorganic Chemistry – II	All courses are
	CC-202	VI	CH.2.2	Organic Chemistry – II	compulsory.
CGPA	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-	SEC - 206				
CGPA					

	Course code	Paper No.		Title of course	
	CC-301	IX	IND 3.1	Organic Chemical Industries – I	Compulsory course
CGPA	CCS-302	Х	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-	AEC-306				
CGPA	EC(SWMMOO C)- 307				

## M. Sc. Part – II (Industrial Chemistry)

### Semester III

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

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

	Name	Designa tion	Qualificati ons	Specialization	Areas of Research	Number of Publicat ions/ h- index	Teachi ng Experie nce
1	Prof. G. S. Gokavi	Profess or	M. Sc., Ph. D	Physical Chemistry	Catalysis, Membrane Separations and Kinetics	76/13	31
2	Prof. G. B. Kolekar	Profess or	M. Sc., Ph. D	Physical Chemistry	Photocatalysis, Sensors and nanomaterials.	116/19	26
3	Prof. S. S. Kolekar	Profess or	M. Sc., Ph. D	Inorganic Chemistry	Supercapacitors , Water Splitting,	86/25	25
4	Prof. S. S. Chavan	Profess or		Inorganic Chemistry	Coordination Chemistry, Organometallic s and non linear optical materials	47/12	25
5	Prof. K. M. Garadkar	Profess or	M. Sc., Ph. D	Physical Chemistry	Photcatalysis, Photodegradati on and nanomaterials	112/28	26
6	Prof. P. V. Anbhule	Profess or	M. Sc., Ph. D	Organic Chemistry	Synthetic Organic Chemistry, heterocyclic chemistry and sensors	76/13	17
7	Prof. S. D. Delekar	Profess or	M. Sc., Ph. D	Inorganic Chemistry	Photocatalysis, Sensors and nanomaterials.	61/20	15
8	Prof. D. M. Pore	Profess or	M. Sc., Ph. D	Organic Chemistry	Synthetic Organic Chemistry and catalysis	59/20	17
9	Prof. A. V. Ghule	Profess or	M. Sc., Ph. D	Analytical Chemistry	Analytical Methods and supercapacitors	108/25	10
1 0	Dr. S. P. Hangirgekar	Associa te Profess or	M. Sc., Ph. D	Organic Chemistry	Synthetic Organic Chemistry, heterocyclic chemistry and sensors	5	10

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

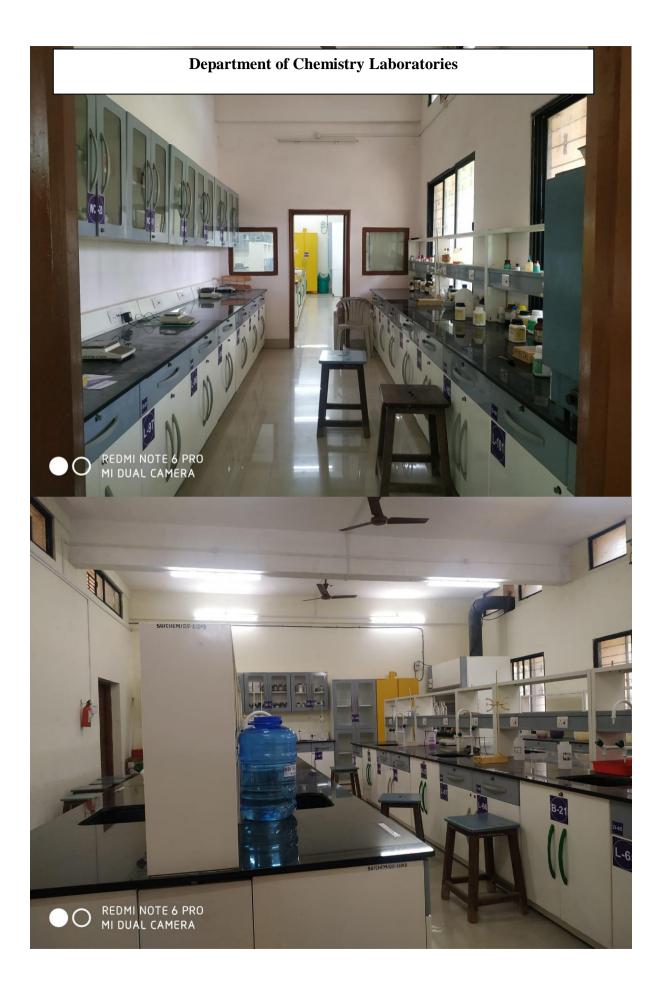
### **Department of Chemistry Class Rooms**



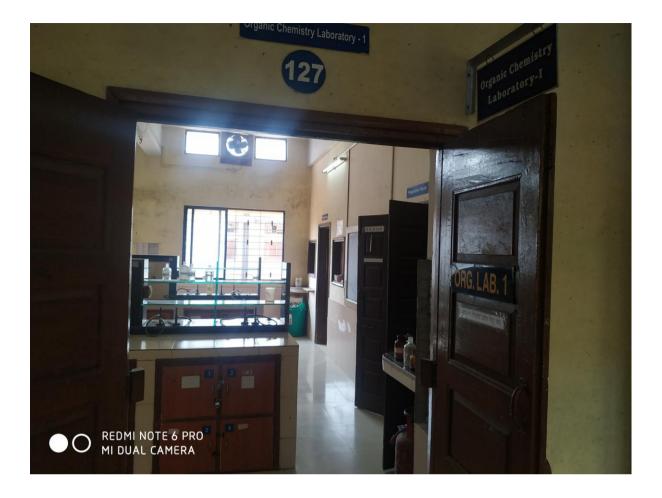












# New Department of Chemistry Building



	Number of students placed	Name of the	Doologo	Drogramma
	Number of students placed	employer with	Package received	Programme graduated from
		contact details	leceiveu	graduated from
1	Mr. Ashish Bore	SITEC Labs,		M.Sc. Organic
1	WII. ASIIISII DOIC	Mumbai		Chemistry
2	Mr. Ajinkya Kadakane	Encube,	Rs. 1,68,000/-	M. Sc.
2	Wii. Ajinkya Kadakane	Mumbai	Ks. 1,00,000/-	Analytical
		Widinoai		Chemistry
3	Miss Nikita S. Mangale	Micro Labs,		M. Sc. Inorganic
5	Wilss Wikita S. Waligate	Bangalore		Chemistry
4	Mr. Laksmikant D. Gangnale	Anthem	Rs. 3,30,000/-	M. Sc. Organic
	The Laksminut D. Gunghare	Biosciences	10. 5,50,000/	Chemistry
		Ltd., Bangalore		Chemistry
5	Mr. Nagesh R. Sutrave	Raichem		M. Sc. Organic
_	6	Medicare Ltd.		Chemistry
		Raichur,		5
		Karnataka		
6	Miss Bhagyashree J	do		M. Sc. Organic
	Chimanna			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
1.0	M' G ID D ''	1		Chemistry
16	Miss Sonal B. Patil	do		M. Sc.
				Analytical
17	Mias Aishers and C. V.	- 1.		Chemistry
17	Miss Aishwaraya S. Kore	do		M. Sc.
				Analytical
10	Miss Sanal S. Varian	da		Chemistry M. So. Industrial
18	Miss. Sonal S. Kavare	do		M. Sc. Industrial

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

				Chemistry
19	Mr. Shrikant S. Khedge	do		M. Sc. Industrial
				Chemistry
20	Mr. Onkar J. Ingawale	do		M. Sc. Organic
20	in onkar s. ingaware	ů		Chemistry
21	Mr. Siddeshwar J. Kote	do		M. Sc. Organic
21	Wit: Biddesitwar 5. Kote	uo		Chemistry
22	Mr. Sagar G. Kalagonda	do		M. Sc. Organic
	Mit. Bugui O. Kulugoliuu	uo		Chemistry
23	Mr. Shubam J. Pujari	do		M. Sc. Organic
23	in ondouin 5. 1 ajun	uo		Chemistry
24	Mr. Suresh H. Pukale	do		M. Sc. Organic
27	With Suresh II. I ukate	uo		Chemistry
25	Mr. Shubham E. Harale	do		M. Sc. Organic
23	Wit: Shubham E. Haraic			Chemistry
26	Miss Najmin A. Mullani	SRL		M. Sc. Organic
20	Wiss Najilili A. Wullali	Daignostics,		Chemistry
		Pune		Chemisuy
27	Mr. P. S. Pawar	Lupin Pune	Rs. 3,40,000/-	M. Sc. Inorganic
21	WII. 1 . 5. 1 awai		KS. 5,40,000/-	Chemistry
28	Miss Vijayata K. Jagtap	NCL, Project		M. Sc. Inorganic
20	Wiss Vijayata K. Jagtap	Assistant		Chemistry
29	Mr. Swapnil Bansode	Glenmark		M. Sc. Physical
29	Mi. Swapini Bansode	Nashik		Chemistry
30	Mr. Mohin Jamadar	Lupin Pune		M. Sc. Physical
30				Chemistry
31	Mr. Santosh Pednekar	Glenmark Goa		M. Sc.
51	WII. Santosh Fednekai	Ofeninark Oba		Analytical
				Chemistry
32	Mr. Shubham Ghatge	MSN		M. Sc. Inorganic
52	Wir. Shubham Ghatge	Hyderabad		Chemistry
33	Mr. Ramachandra	Serum Institute		M. Sc. Inorganic
55	Bhavadhane	Pune		Chemistry
34	Mr. Dayanand Mole	Lupin Goa		M. Sc. Industrial
54	Wir. Dayanand Worc			Chemistry
35	Mr. Mahesh Jadhav	Cipla Baramati		M. Sc.
55				Analytical
				Chemistry
36	Mr. Vinayak Patil	Lupin Goa		M. Sc.
50				Analytical
				Chemistry
37	Mr. Sagar Kumbhar	Lupin Goa		M. Sc. Inorganic
51	Tin. Sagai Kunionai			Chemistry
38	Mr. Abhijit Patil	Glenmark Goa		M. Sc. Industrial
50				Chemistry
39	Mr. Madhav K. Londhe	GeoChem,		M. Sc. Organic
37		Mumbai		Chemistry
40	Mr. Avinash Kadam	Aurobindo		M. Sc. Industrial
40		Pharma		Chemistry
L		1 11a1111a		Chemistry

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