



Nallamuthu Gounder Mahalingam College, Pollachi

(Autonomous, Affiliated to Bharathiar University, Coimbatore
ISO2009:2015 certified Institution, Reaccredited by NAAC)



POST GRADUATE DEPARTMENT OF CHEMISTRY

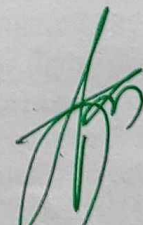
9TH BOARD OF STUDIES MEETING

DATE & TIME: 24.06.2023; 10.00 am

AGENDA

BoS / M.Sc Chem 9.1	:	Welcome address and Opening Remarks by Chairman, Board of studies in the POST GRADUATE DEPARTMENT OF CHEMISTRY
BoS / M.Sc Chem 9.2	:	Confirmation of the Minutes of the 8 th / Previous meeting of Board of studies in the Post Graduate Department of Chemistry held on 04 /06/2022 and Action taken report of 8 th meeting of Board of studies
BoS / M.Sc Chem 9.3	:	Discussion on Syllabus of I M.Sc CHEMISTRY under Regulation 2023-2024
	:	Discussion on Syllabus of II M.Sc CHEMISTRY under Regulation 2022-2023
	:	Discussion on Non Major Elective courses Regulation 2023-2025
	:	Discussion on value added course
	:	Discussion on certificate course
	:	Discussion on MOOC online courses
BoS / M.Sc Chem 9.4	:	Any other discussions if any
BoS / M.Sc Chem 9.4	:	Suggestion given by BOS Members
BoS / M.Sc Chem 9.5	:	Any other items




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**POST GRADUATE DEPARTMENT OF CHEMISTRY
MINUTES OF BOS MEETING**

The 9th Meeting of the Board of studies of the POST GRADUATE DEPARTMENT OF CHEMISTRY was held on 24.06.2023 at 10.00 a.m.

1. The following members were present:

1.	Dr.K.Poonkodi Assistant Professor & Head, PG Department of Chemistry, NGM College, Pollachi Mobile: 9842990353 poonks.che@gmail.com	Chairman
2.	Mrs.K.Vimaladevi Assistant Professor PG Department of Chemistry, NGM College, Pollachi Mobile: 9865222985 k.vimala83@gmail.com	Internal Members
3.	Dr.V.Prabhu Assistant Professor PG Department of Chemistry, NGM College, Pollachi Mobile: 8594061663 prabhunmr@gmail.com	
4.	Mrs.M.Anusuya Assistant Professor PG Department of Chemistry, NGM College, Pollachi Mobile: 9497470426 anusuyamk@gmail.com	
5.	Dr.M.Velayutham Pillai Assistant Professor PG Department of Chemistry, NGM College, Pollachi Mobile: 9843765857 mvpngmc@gmail.com	
6.	Dr. C.Karunakaran Associate Professor & Head, Department of Chemistry, VHNSN College Virudhunagar, Tamilnadu. Mobile: 6379102409	University Nominee



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	karunakaran@vhnsnc.edu.in	
7.	Dr. S. Vijayalakshmi Associate Professor PG & Research Department of Chemistry, Government Arts College Coimbatore, Tamilnadu. Mobile: 9443364590 Email: vijimohana4056@gmail.com	Academic Auditor
8.	Dr. Mallika J Associate Professor & Head Department of Chemistry, PSG College of Arts and Science Avinashi Road, Civil Aerodrome Post, Coimbatore - 641 014. 9600328444 Email: jmpsgcas@gmail.com	Subject Expert
9.	Mr.M.Kishore Production Supervisor JVC Clothing Pvt.Ltd 16 B, Patchankattu Palayam Karaipudhur Village, Tripur 9092401009 Email: tamizhkishor@gmail.com	Industrial Expert
10.	Ms. K.Thrisha M.Sc Chemistry (2019 batch) Research scholar Department of Chemistry, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore - 641 043 6383199738 Email: thrisha9299@gmail.com	Alumnus
11.	Mr. S.Mukilan II-MSc Chemistry Mobile: 6383629963 Email: mukilans56@gmail.com	Student representative

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HoD

Dr.K.POONKODI
HEAD
PG DEPARTMENT OF CHEMISTRY (SF)
NGM COLLEGE, POLLACHI

CDC Co-ordinator

COE

Dr. R. MANICKA CHEZIAN, M.Sc., M.S., Ph.D.,
Controller of Examinations
NGM College (Autonomous)
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BoS/M.Sc Chem 9.1 WELCOME ADDRESS AND OPENING REMARKS BY CHAIRMAN, BOARD OF STUDIES IN THE POST GRADUATE DEPARTMENT OF CHEMISTRY

The Chairman, BoS of the Post Graduate Department of Chemistry welcomed and introduced the members of 9th Board of Studies and thanked each one of them for sparing their valuable time to attend the meeting.

BoS/M.Sc Chem 9.2 TO CONFIRM THE MINUTES OF 9th BOS MEETING HELD ON 24.6.02023. The minutes of the 8th Board of Studies meeting held on 04.06.2022 were communicated to the members. The comments received have been incorporated and placed for confirmation. The same was approved by the PREVIOUS ACADEMIC MEETING NO Academic council.

~ Action Taken Report (Enclosed in Annexure 1)

BoS/M.Sc Chem 9.3

BoS/M.Sc chem 9.3.1 – Syllabus

I M.Sc CHEMISTRY (I - SEMESTER)

✦ Major Core Paper Code & Name

- 23PCY101- Core –I- Inorganic Chemistry-I- Solid State and Nuclear Chemistry
- 23PCY102 -Core– II- Organic Chemistry-I - Organic Reaction Mechanisms
- 23PCY103 -Core–III- Physical Chemistry-I- Group Theory and Chemical Kinetics

I M.Sc CHEMISTRY (II - SEMESTER)

✦ Major Core Paper Code & Name

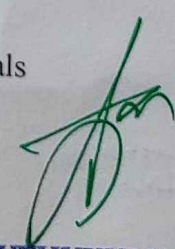
- 23PCY204 –Core-IV- Inorganic Chemistry-II- Coordination Chemistry
- 23PCY205 - Core-V – Organic Chemistry-II - Organic Reactions and Stereochemistry
- 23PCY206 - Core-VI – Physical Chemistry-II- Quantum Chemistry and Nano chemistry

✦ Major Elective -I

- 23PCY2E1 - Major Elective –I – Green Chemistry, Research Methodology & Cyber Security
- 23PCY2E2 - Major Elective –I- Electrochemistry
- 23PCY2E3 - Major Elective –I - Advanced Polymeric Materials

✦ Non Major Elective




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- 23PCY2N1 - Non Major Elective - Chemistry in day to day life

✦ Practicals

- 23PCY207 – Core- VII-Inorganic Chemistry Practical –I
- 23PCY208 – Core- VIII-Organic Chemistry Practical – I
- 23PCY209 – Core- IX-Physical Chemistry Practical - I

1. The presented syllabus was accepted by the experts and a **few suggestions** were given as follows:

The syllabus was well structured and frequently updated according to the current advances. More focus can be given for laboratory practice in research areas like spectroscopic and chromatographic techniques. As per Experts instructions new edition of text and reference books were added.

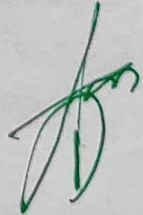
2. The following papers from M.Sc Chemistry were accepted by the experts fully without further suggestions:

- 23PCY102- Core– II- Organic Chemistry-I- Organic Reaction Mechanisms
- 23PCY103 - Core– III - Physical Chemistry-I - Group Theory and Chemical Kinetics
- 23PCY205- Core-V – Organic Chemistry-II - Organic Reactions and Stereochemistry
- 23PCY2E1 - Major Elective –I – Green Chemistry, Research Methodology & Cyber Security
- 23PCY2E3 - Major Elective –I - Advanced polymeric materials
- 23PCY2N1 - Non Major Elective - Chemistry in day to day life

3. The following courses were revised with major / minor modifications

- 23PCY101 -Core -I Inorganic Chemistry-I -Solid State and Nuclear Chemistry (Major)
- 23PCY204– Core–IV- Inorganic Chemistry-II -Coordination Chemistry (Major)
- 23PCY206 – Core VI- Physical Chemistry-II- Quantum Chemistry and Nano Chemistry (Minor)
- 23PCY207 - Core VII -Inorganic Chemistry Practical –I (Minor)
- 23PCY208- Core VIII- Organic Chemistry Practical – I (Minor)
- 23PCY209 – Core- IX -Physical Chemistry Practical –I (Minor)




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BoS/M.Sc Chem 9.3.2 - Syllabus

II MSc CHEMISTRY (III - SEMESTER)

✦ **Major Core Paper Code & Name**

- 22PCY310 - Organic Chemistry –III – Natural products and Organic reagents
- 22PCY311 - Physical Chemistry –III -Classical and Statistical Thermodynamics
- 22PCY312 – Organic Spectroscopy

✦ **Major Elective -II**

- 22PCY3E4 - Organometallic Chemistry
- 22PCY3E5 - Nanoscience and Nanotechnology
- 22PCY3E6 - Dye chemistry

• **Advanced Learners**

- 22PCY3AL - (Advanced learners) - Applied Chemistry (optional) / MOOC

II MSc CHEMISTRY (IV - SEMESTER)

✦ **Major Core Paper Code & Name**

- 22PCY413 - Inorganic Chemistry –III: Bioinorganic Chemistry
- 22PCY414 - Instrumental Methods of Chemical Analysis

✦ **Major Elective –III**

- 22PCY4E7 - Phytochemical Techniques and Health Chemistry
- 22PCY4E8 - Computational Chemistry
- 22PCY4E9 - Green Chemistry

✦ **Practicals**

- 22PCY415 - Inorganic Chemistry Practical –II
- 22PCY416 – Organic Chemistry Practical – II
- 22PCY417 – Physical Chemistry Practical – II

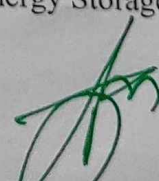
✦ **Project**

- 22PCY4P1 - Project Work & Viva-Voce

✦ **Value Added Course**

- 23PCY2VA-Value Added Course – I - Entrepreneurial Ventures in Chemistry
- 23PCY4VA- Value Added Course – II – Biofuels and Energy Storage Devices




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✦ Certificate Course

- 23PCYCFC01-Fundamentals of Pharmaceutical Chemistry.

1. The presented syllabus was accepted by the experts and a few suggestions were given as follows:

The content of some papers seems more topics are included; it will be difficult for the teacher and students to complete within the prescribed time and workload, so recommended to reduce few topics.

2. The following papers from M.Sc Chemistry were accepted by the experts fully without further suggestions:

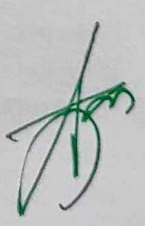
- 22PCY311 - Physical Chemistry –III - Classical and Statistical Thermodynamics.
- 22PCY312 – Organic Spectroscopy
- 22PCY3E5 – Major Elective – II – Nanoscience and Nanotechnology
- 22PCY3E6 – Major Elective – II - Dye Chemistry
- 22PCY414 - Instrumental Methods of Chemical Analysis
- 22PCY4E8- Computational Chemistry
- 22PCY4E9 – Green Chemistry
- 22PCY415 – Inorganic Chemistry Practical –II
- 22PCY416 – Organic Chemistry Practical -II
- 22PCY417 – Physical Chemistry Practical –II
- 22PCY4P1–Project Work & Viva – Voce

✦ Value Added Course

- 22PCY2VA-Value Added Course – I - Entrepreneurial Ventures in Chemistry
- 22PCY4VA- Value Added Course – II – Analytical techniques.

✦ Certificate Course




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- 23PCYC01-Fundamentals of Pharmaceutical Chemistry.

3. The following courses were revised with major / minor modifications.

- 22PCY 3E4- Major Elective –II - Organometallic Chemistry (**major**)
- 22PCY 4E7- Major Elective –III- Phytochemical Techniques and Health Chemistry (**major**)

New Course Added: (IF ANY)

- 22PCY 3AL- Applied Chemistry (Optional) (**major**)

± Certificate Course – I

- 22PCYCFC01-Fundamentals of Pharmaceutical Chemistry

These changes have been made effect for the students admitted in 2022-2024 with Semesters - I –IV accordingly.

BoS/M.Sc Chem 9.4 OVER ALL SUGGESTIONS GIVEN BY THE BoS MEMBERS

9.4.1: The board deliberated and carefully revised the contents of the courses offered for M.Sc Chemistry in tune current developments in the domains of Chemistry.

9.4.2: A present syllabus is designed with a focus on enhancing employable skills with special reference to NET/ JRF and other competitive examinations.

9.4.3: The programme outcomes and programme specific outcomes and course objectives have been designed and approved by Board which is in tune with vision and mission of the institution and its graduate attributes.

9.4.4: The board resolved to adopt MOOC/NPTEL/SWAYAM courses for second and third semester with due approval of the authorities.

9.4.5: Members of board of studies reviewed and revised the list of Value added courses and Certificate courses



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9.4.6: The Board of Studies authorized the list of subject experts for Question paper setting, paper valuation and practical examination.

9.4.7: The Pattern of Examination and the Distribution of Marks for M.Sc Degree also approved.

The members had a brainstorming discussion and interaction among themselves. After discussion, fruitful suggestions were incorporated appropriately in the Curriculum and Syllabi.

Based on the suggestions given by the members, BOS resolved to recommend the following to the Academic Council for further approval.

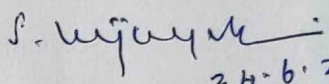
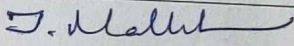
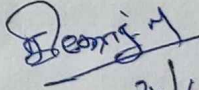
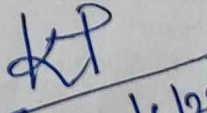
- The syllabus of First Year M.Sc Chemistry under Regulation 2023 - 2024.
- The syllabus of Second Year M.Sc Chemistry under Regulation 2022 - 2023

Members Present:

Chairman	
Dr.K.Poonkodi Assistant Professor & Head,, PG Department of Chemistry, NGM College, Pollachi Mobile: 9842990353 poonks.che@gmail.com	<i>K. Poonkodi</i> 24/6/23
Internal Members	
Ms.K.Vimaladevi Assistant Professor PG Department of Chemistry, NGM College, Pollachi Mobile: 9865222985 k.vimala83@gmail.com	<i>K. Vimaladevi</i> 24/6/23
Dr.V.Prabhu Assistant Professor PG Department of Chemistry, NGM College, Pollachi Mobile: 8594061663 prabhunmr@gmail.com	<i>Dr. V. Prabhu</i> 24/6/23
Ms.M.Anusuya Assistant Professor PG Department of Chemistry, NGM College, Pollachi Mobile: 7907923146 anusuyamk@gmail.com	<i>Ms. M. Anusuya</i> 24/6/23
Dr.M.Velayutham Pillai Assistant Professor PG Department of Chemistry, NGM College, Pollachi Mobile: 9843765857 mvpngmc@gmail.com	<i>Dr. M. Velayutham Pillai</i> 24/6/23

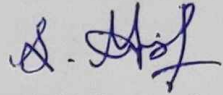


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University Nominee	
Dr. C. Karunakaran Associate Professor & Head, Department of Chemistry, VHNSN College Virudhunagar, Tamilnadu. Mobile: 6379102409 karunakaran@vhnsnc.edu.in	Absent
Academic Experts	
Dr. S. Vijayalakshmi Associate Professor PG & Research Department of Chemistry, Government Arts College Coimbatore, Tamilnadu. Mobile: 9443364590 Email: vijimohana4056@gmail.com	 24-6-23.
Dr. Mallika J Associate Professor & Head Department of Chemistry, PSG College of Arts and Science Avinashi Road, Civil Aerodrome Post, Coimbatore - 641 014. 9600328444 Email: jmpsgcas@gmail.com	 24-06-2023
Industrial Expert	
Mr. M. Kishore Production Supervisor JVC Clothing Pvt. Ltd 16 B, Patchankattu Palayam Karaipudhur Village, Tripur 9092401009 Email: tamizhkishor@gmail.com	 24/6/23
Alumnus nominated by Principal / HoD	
Ms. K. Thrisha M.Sc Chemistry (2019 batch) Research scholar Department of Chemistry, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore - 641 043 6383199738 Email: thrisha9299@gmail.com	 24/6/23.



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Special Invitees if any	
NIL	Nil
Student Member	
Mr. S.Mukilan II-MSc Chemistry Mobile: 6383629963 Email: mukilans56@gmail.com	 24.6.2023.



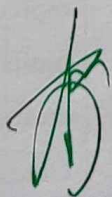

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ANNEXURE I

Minutes of the 8th/ Previous Meeting – Action Taken Report

S.No	Suggestion given by expert members	Action taken
1.	Inorganic Chemistry-I -Solid State and Nuclear Chemistry must be revised	Revised
2.	Inorganic chemistry- I must be revised	Revised
3.	In the Value added courses, credit points are given for the syllabus scheme.	Implemented
4.	In the Applications in Organic Chemistry paper, the title was changed as Organic Spectroscopy.	Implemented
5.	Reference, Text books of latest edition will be added	Implemented
6.	Video and Open source links are added throughout the course frame.	Implemented
7.	New Course introduced for advanced learners as Applied Chemistry	Implemented
8.	Self-study portion included in each unit entire syllabus for SET/ NET Requirements to motivate advanced learners.	Implemented
9.	In practicals waste should be minimized	Implemented
10.	21PCY2E1-Major elective -I- Green, nano chemistry and Cyber security is rearranged, Nanochemistry is shifted to Quantum chemistry course.	Implemented
11.	21PCY4E7 major elective -III-medicinal chemistry was replaced by Phytochemical Techniques and Health Chemistry	Implemented

2022 YEAR.pdf



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List of Courses having focus on local, national, regional and global developmental needs offered by the M.Sc Chemistry

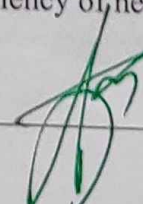
M.Sc CHEMISTRY						
Programme: M.Sc., Chemistry					Year: 2023-2025	
Course Code	Course Title	Need				Rationale
		Local	National	Regional	Global	
23PCY101	Core –I- Inorganic Chemistry I-Solid state and Nuclear Chemistry		✓	✓		Smart materials/ Competitive examination like, SET/NET/GATE/ JAM/ TNPSC/ novel energy material synthesis
23PCY102	Core– II- Organic Chemistry I-Organic Reaction Mechanisms		✓	✓	✓	New innovative compounds can be synthesized by using the mechanisms like antiviral, anti-cancer drugs
23PCY103	Core– III- Physical Chemistry –I- Group Theory and Chemical Kinetics		✓	✓		Competitive exams, rate of the reaction are useful for studying the reaction.
23PCY204	Core– IV- Inorganic Chemistry –II- Coordination Chemistry			✓	✓	Various types of electron transfer mechanism of metal complexes and their importance.
23PCY205	Core– V- Organic Chemistry-II –Organic Reactions and Stereochemistry		✓	✓		Stereo specific and regio selective drugs can be synthesized, Pharmaceutical importance
23PCY206	Core– VI-Physical Chemistry-II – Quantum Chemistry and Nano Chemistry		✓	✓		Competitive exams/scientific computation of molecular energy /simulation/docking/ molecular modelling studies / energy materials/ corrosion control
	Major Elective –I	✓	✓	✓	✓	Greener methods and nanoscale materials can be



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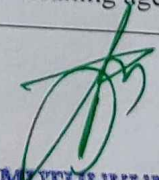
23PCY2E1	* Green Chemistry, Research					prepared with enormous energy efficient devices and battery materials, semiconductors, solar cells/ current needs/
23PCY2E2	Methodology & Cyber Security					
23PCY2E3	* Electrochemistry * Advanced Polymeric Materials					
23PCY2N1	*Non Major Elective-I Chemistry in day to day life	✓	✓	✓		Test the various forms of drugs, cosmetics and milk products in day to day life.
23PCY207	Core- VII- Inorganic Chemistry Practical –I		✓	✓	✓	New skills are helpful to improve the efficiency and manage time during newer materials preparation
23PCY208	Core- VIII- Organic Chemistry Practical –I		✓	✓	✓	
23PCY209	Core- IX- Physical Chemistry Practical –I		✓	✓	✓	
23PCY310	Core-X- Organic Chemistry – III– Natural Products and Organic Reagents	✓	✓	✓	✓	Competitive exams/ preparation of relevant drugs using natural products by semi synthetic path way/ isolation of phytochemicals.
23PCY311	Core-XI- Physical Chemistry –III – Classical and Statistical Thermodynamics		✓	✓	✓	Helpful to know the mechanism of automobiles and its efficiency/petrochemicals
23PCY312	Core-XII- Organic Spectroscopy	✓	✓	✓	✓	Helpful to characterize the structures of newly prepared inorganic and organic materials
23PCY3E4 23PCY3E5	Major Elective –II * Organometallic Chemistry * Material Science	✓	✓	✓	✓	Helpful to reduction of various pollutants, and increase the efficiency of newer materials as prepared




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23PCY3E6	*Dye chemistry					
23PCY413	Core XIII-Inorganic Chemistry –III- Bioinorganic Chemistry		✓	✓	✓	Competitive exams/ greener synthesis/ medicinal applications/ catalyst/ role metals in biological systems.
23PCY414	Core XIV- Instrumental Methods of Chemical Analysis			✓	✓	Basic principle, instrumentation and applications of various chromatographic techniques, thermal analysis.
23PCY4E7	Major Elective –III * Phytochemical Techniques and Health Chemistry	✓	✓	✓	✓	Drugs and their structure activity relationship will help to know the mechanism of action of newer drugs/ scientific computation of molecular energy / simulation/docking/ molecular modelling studies / smart materials.
23PCY4E8	*Computational chemistry					
23PCY4E9	* Green Chemistry					
23PCY415	Core XV-Inorganic Chemistry Practical – II		✓	✓		New skills are helpful to improve the efficiency and manage time during newer materials preparation
23PCY416	Core XVI-Organic Chemistry Practical – II		✓	✓		
23PCY417	Core XVII- Core Physical Chemistry Practical –II		✓	✓		
23PCY4P1	Core Project Work & viva voce	✓	✓	✓	✓	Helps to identify the potential of students as scientist and chemists/ able to develop and design next generation materials for benefit of society.
23PCY2VA	Value Added Course – I	✓	✓	✓	✓	The different exposure of chemicals used in day to day life such as Cleaning agents, surfactants and




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	Entrepreneurial Ventures in Chemistry					Insect repellent one can design and practice ecofriendly cosmetics of their own.
23PCY4VA	Value Added Course – II Biofuels and Energy Storage Devices	✓	✓	✓	✓	To expertise in current trends in batteries and energy storage devices.
23PCYCFC 01	Certificate Course – I Fundamentals of Pharmaceutical Chemistry	✓	✓	✓	✓	Pharma related products/ Drugs and their structure activity relationship will help to know the mechanism of action of newer drugs.

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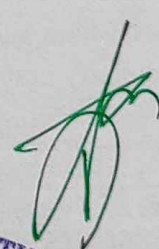
Dr. K. POONKODI

HEAD

DEPARTMENT OF CHEMISTRY (SF)
N.G.M. COLLEGE, POLLACHI

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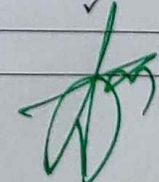



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**List of Courses having focus on employability/ entrepreneurship/ skill development offered by
the M.Sc Chemistry**

M.Sc CHEMISTRY						
Programme: M.Sc CHEMISTRY					Year: 2023-2024	
Course Code	Course Title	Employability (EM) / Entrepreneurship (EN) / Skill Development (SD)			Focus	Year of Introduction
		EM	EN	SD		
23PCY101	Core I- Inorganic Chemistry –I- Solid state and Nuclear Chemistry	✓			✓	2017
23PCY102	Core II- Organic Chemistry – I- Organic Reaction Mechanisms	✓	✓		✓	2017
23PCY103	Core III- Physical Chemistry –I- Group Theory and Chemical Kinetics	✓			✓	2017
23PCY204	Core IV-Inorganic Chemistry –II- Coordination Chemistry	✓		✓	✓	2022
23PCY205	Core V- Organic Chemistry-II –Organic Reactions and Stereochemistry	✓			✓	2017
23PCY206	Core VI- Physical Chemistry-II – Quantum Chemistry and Nano Chemistry	✓			✓	2022
23PCY2E1	Major Elective –I * – Green Chemistry, Research Methodology & Cyber Security	✓	✓	✓	✓	2017
23PCY2E2	* Electrochemistry					2023
23PCY2E3	* Advanced Polymeric Materials					2021
23PCY2N1	*Non Major Elective-I Chemistry in day to day life	✓			✓	2015
23PCY207	Core VII- Inorganic Chemistry Practical -I	✓		✓	✓	2015
23PCY208	Core VIII- Organic Chemistry Practical -I	✓		✓	✓	2015
23PCY209	Core IX-Physical Chemistry Practical -I	✓		✓	✓	2015
23PCY310	Core X- Organic Chemistry – III– Natural Products and Organic Reagents	✓	✓	✓	✓	2015
23PCY311	Core XI-Physical Chemistry –III – Classical and Statistical Thermodynamics	✓			✓	2015
23PCY312	Core XII- Organic Spectroscopy	✓		✓	✓	2017
	Major Elective –II					




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23PCY3E4	* Organometallic Chemistry	✓		✓	✓	2022
23PCY3E5	* Material Science					2023
23PCY3E6	*Dye chemistry		✓			2019
23PCY413	Core XIII-Inorganic Chemistry –III- Bioinorganic Chemistry	✓			✓	2017
23PCY414	Core XIV-Instrumental Methods of Chemical Analysis	✓	✓	✓	✓	2021
23PCY4E7	Major Elective –III * Phytochemical Techniques and Health Chemistry	✓	✓	✓	✓	2021
23PCY4E8	*Computational Chemistry					2021
23PCY4E9	* Green Chemistry					2021
23PCY415	Core XV-Inorganic Chemistry Practical - II	✓		✓	✓	2015
23PCY416	Core XVI-Organic Chemistry Practical -II	✓		✓	✓	2015
23PCY417	Core XVII-Physical Chemistry Practical – II	✓		✓	✓	2015
23PCY4P1	Core- Project Work & viva voce	✓	✓	✓	✓	2015
23PCY2VA	Value Added Course – I Entrepreneurial Ventures in Chemistry	✓	✓	✓	✓	2022
23PCY4VA	Value Added Course – II – Biofuels and Energy Storage Devices	✓	✓	✓	✓	2023
23PCYCFC0 1	Certificate Course – I Fundamentals of Pharmaceutical Chemistry	✓	✓	✓	✓	2021

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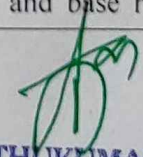
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**PERCENTAGE OF REVISION OF M.SC CHEMISTRY SYLLABUS UNDER REGULATION
2023-25**

PG CHEMISTRY							
S. No	Course Code	Course Title	Change Details	% of Changes	Content Deleted	Content Updated	Reason for Change
	23PCY 101	Inorganic Chemistry –I- Solid state and Nuclear Chemistry	Unit I	100%	Solid State Chemistry –I The growth and form of crystals - the crystal systems and Bravais lattices - Miller indices and labelling of planes - symmetry properties - crystallographic point groups and space groups - fundamentals of X-ray diffraction - powder and rotating crystal methods - systematic absences and determination of lattice types - analysis of X-ray data for cubic system - structure factor and Fourier synthesis - electron and neutron diffraction and structure determination.	Chains – Catenation, heterocatenation, isopolyanions, heteropolyanions (explanation with examples). Cages –Structure and bonding of phosphorus compounds, boranes, carboranes and metallocene carboranes. Metal clusters - Structure and bonding of dinuclear, trinuclear, tetra nuclear and hexa nuclear clusters - polyatomic zintl anions and cations - chevre phases - fullerenes and their applications. Rings - Structure and bonding of borazines - phosphonitrilic compounds- sulphur - nitrogen ring compounds (S ₄ N ₄).	Subject Expert
	23PCY 102	Organic Chemistry – I- Organic Reaction Mechanisms	Unit-I	1%	fulvene and sydnone.	Nil	Course Teacher
	23PCY 204	Inorganic Chemistry –II- Coordination Chemistry	Unit-IV	20%	Structure of coordination compounds with reference to the existence of various coordination numbers - complexes with coordination number two -	Inert and Labile complexes; Associative, Dissociative and SNCB mechanistic pathways for substitution reactions; acid and base hydrolysis	Subject Expert and Industrial Expert




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Unit
V

20%

complexes with coordination number three
- complexes with coordination number four
- tetrahedral and square planar complexes - complexes with coordination number five
- regular trigonal bipyramidal and square pyramidal - site preference in trigonal bipyramidal complexes - site preference in square planar complexes - isomerism in five coordinate complexes - coordination number six - distortion from perfect octahedral symmetry - trigonal prism - geometrical isomerism in octahedral complexes - coordination number seven and eight.

Inorganic chains - rings - cages and clusters - catenation - heterocatenation - intercalation chemistry - isopolyanions - heteropolyanions - borazines - phosphazenes - phosphazene polymers - ring compounds of sulphur and nitrogen - homocyclic inorganic systems - cages - boron cage compounds - metal clusters - dinuclear clusters - trinuclear clusters - tetranuclear clusters - hexanuclear clusters - structural prediction of

of octahedral complexes; Classification of metal ions based on the rate of water replacement reaction and their correlation to Crystal Field Activation Energy; Substitution reactions in square planar complexes: Trans effect, theories of trans effect and applications of trans effect in synthesis of square planar compounds; Kurnakov test.

Electron Transfer reactions in octahedral complexes: Outer sphere electron transfer reactions and Marcus-Hush theory; inner sphere electron transfer reactions; nature of the bridging ligand in inner sphere electron transfer reactions. Photo-redox, photo-substitution and photo-isomerisation reactions in complexes and their applications



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					organometallic clusters.		
23PCY 205	Organic Chemistry-II – Organic Reactions and Stereochemistry	Unit I	5%	Allylic oxidation - oxidation of alcohols, glycols, halides.	--		Course teacher and subject expert
		Unit III	5%	Simple problems in pericyclic reaction.	--		
23PCY 2E2	Electrochemistry	All units	100%	New course	New course		Academic Expert
23PCY 209	Physical Chemistry Practical –I	--	40%	PH, PKa for Phosphoric acid Titration of Potassium Iodide against Potassium Permanganate Colorimetric Estimations (using photoelectric colorimeter) –(Not for ESE) Estimation of Copper, Iron, Nickel, Manganese and Chromium	1. Determination of Critical Solution Temperature- Phenol – Water system. 2. Determination of effect of added electrolyte on CST of Phenol- Water system 3. Determination of the concentration of the electrolyte using CST of Phenol- Water system 4. Titration of Ferrous Ammonium Sulphate against Potassium Permanganate		Academic Expert
23PCY 310	Organic Chemistry –III – Natural Products and Organic Reagents	Unit I	5%	Biosynthesis of mono and di terpenoids.	--		Course teacher and subject expert
		Unit II	5%	Estrogen.			
		Unit V	5%	Structural elucidation of caffeine, Uracil, Cytosine and thymine.			
23PCY 311	Physical Chemistry –III - Classical and Statistical Thermodynamics	Unit V	100%	Quantum Statistics Bose Einstein distribution law- derivation – entropy of boson applications. Derivation of Planck's	Irreversible Thermodynamics Theories of conservation of mass and energy entropy production in		Course teacher and subject expert



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				capacity – Einstein theory and Debye theory - Debye T- cube law - Helium at low temperature Fermi – Dirac distribution law- derivation - entropy of fermions - applications - electron gas - Fermi energy of free electrons at absolute zero - Heat capacity of free electrons in metals - comparison of Maxwell Boltzmann, Bose Einstein, Fermi - Dirac statistics.	flux concepts. Onsager theory-validity and verification- Onsager reciprocal relationships. Electro kinetic and thermo mechanical effects- Application of irreversible thermodynamics to biological systems.	
23PCY 3E5	Major Elective –II Material Science	All units	100%	New course	New course	Academic Expert
23PCY 415	Inorganic Chemistry Practical –II	--	10%	Chromatography (Demonstration only) Column, Paper & Thin layer: Separation of Components in ink & flowers.	Colorimetric Estimations (using photoelectric colorimeter) –(Not for ESE) Estimation of Copper, Iron, Nickel, Manganese and Chromium	Course teacher and subject expert
23PCY 416	Organic Chemistry Practical –II	--	5%	Citric acid or ascorbic acid from a tablet or from a natural source. Chromatography: Column, Paper and thin layer.		Academic Expert
23PCY 417	Physical Chemistry Practical –II	--	10%	Determination of hydrolysis constant of aniline hydrochloride Determination of metal to ligand ratio of complexes by Job's method using UV- visible Spectrophotometer	--	Subject expert
23PCY 4VA	Value Added Course – II Biofuels and Energy Storage Devices	All units	100%	New course	New course	Industrial Expert

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