# List of New Course(s) Introduced

**Department : Chemistry**

**Programme Name : M. Sc.**

***Academic Year : 2022-23***

## *List of New Course(s) Introduced*

| Sr. No. | Course Code | Name of the Course |
|---|---|---|
| 01. | CYPCTT1 | Computer Applications in Chemistry |
| 02. | CYPCTA1 | Research Methodology |
| 03. | CYPCTO2 | Medicinal Chemistry |
| 04. | CYPCLO2 | Medicinal Chemistry Practical |
| 05. | CYPDTO3 | Industrial Chemistry |
| 06. | CYPDLO3 | Industrial Chemistry Practical |
| 07. | CYPCTD1 | Principles of Analytical Chemistry |
| 08. | CYPCLD1 | Analytical Chemistry Practical III |
| 09. | CYPCTD2 | Organometallic Chemistry of Transition Metals |
| 10. | CYPCLD2 | Inorganic Chemistry Practical III |
| 11. | CYPCTD3 | Stereochemistry, Reactions and Rearrangements |
| 12. | CYPCLD3 | Organic Chemistry Practical III |
| 13. | CYPCTD4 | Electrochemistry |
| 14. | CYPCLD4 | Physical Chemistry Practical III |
| 15. | CYPCTD5 | Chemical Analysis |
| 16. | CYPCLD5 | Analytical Chemistry Practical IV |
| 17. | CYPCTD6 | Inorganic Rings, Chains, and Clusters |
| 18. | CYPCLD6 | Inorganic Chemistry Practical IV |
| 19. | CYPCTD7 | Chemistry of Natural Products |
| 20. | CYPCLD7 | Organic Chemistry Practical IV |
| 21. | CYPCTD8 | Quantum Chemistry |
| 22. | CYPCLD8 | Physical Chemistry Practical IV |
| 23. | CYPCTC1 | Refer the List of Value-Added Course |
| 24. | CYPDTT6 | Biological Chemistry |
| 25. | CYPDTL6 | Biological Chemistry Practical |

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|---|---|---|
| 26. | CYPDTD1 | Advanced Separation Techniques |
| 27. | CYPDTD2 | Structural Methods in Inorganic Chemistry |
| 28. | CYPDTD3 | Organic Spectroscopy for Structural Elucidation |
| 29. | CYPDTD4 | Statistical Mechanics |
| 30. | CYPDTD5 | Electroanalytical Methods |
| 31. | CYPDTD6 | Special Topics in Inorganic Chemistry |
| 32. | CYPDTD7 | Reagents and Reactions in Organic Synthesis |
| 33. | CYPDTD8 | Chemical Kinetics |
| 34. | CYPDTD9 | Environmental Chemistry |
| 35. | CYPDDD1 | Dissertation/field work/ internship/project/ Industry visit |
| 36. | CYPATC1 | Refer the List of Value-Added Course |

# Minutes of Meetings (MoM) of Board of Studies (BoS)

**Academic Year : 2021-22**

**School : *School of Studies of Physical Science***

**Department : *Chemistry***

**Date and Time : *Oct. 28, 2021 – 12:00 noon***

**Venue : *Meeting room***

The scheduled meeting of member of Board of Studies (BoS) of Department of Chemistry, School of Studies of Physical Science, Guru Ghasidas Vishwavidyalaya, Bilaspur was held to design and discuss the structure and scheme of examination of Integrated UG/PG, M. Sc. Chemistry syllabi.

The following members were present in the meeting:

1. Dr Santosh Singh Thakur – Chairman
2. Prof. C. R. Sinha – External Expert
3. Prof. G. K. Patra – Member
4. Dr. A. K. Singh– Member
5. Dr. V. K. Rai – Member

Following points were discussed during the meeting

1. In this meeting; the contents of each paper of learning outcome based curriculum framework (LOCF) at undergraduate (UG) level and choice based credit system (CBCS) at postgraduate level (P.G.) were thoroughly discussed and suggestions made by members (both internal and external) were considered and incorporated.
2. The syllabus of Chemistry was thoroughly modified and restructured as per university as well as UGC guidelines.
3. The schemes and syllabus of UG and PG course in Chemistry are attached (Annexure –I and Annexure –II) which would be submitted to the university authority for approval.

The following new courses were introduced in the B. Sc. and M. Sc.:

- B. Sc. LOCF scheme
- M. Sc. CBCS scheme

Signature of Head, HoD

अध्यक्ष / Head
रसायन शास्त्र विभाग
Deptt. of Chemistry
गुरु घासीदास विश्वविद्यालय,
Guru Ghasidas Vishwavidyalaya,
बिलासपुर 495009 (छ.ग.)
Bilaspur 495009 (C.G.)

# Scheme and Syllabus

## CBCS- Course structure for M. Sc. (Chemistry)

(To be implemented from Session 2021-2022)

| Course Structure | Course Code | Title | T/L | CCA | ESE | Total Marks | Credit | Final credit |
|---|---|---|---|---|---|---|---|---|
| **SEMESTER -I** | | | | | | | | |
| CC-1 | CYPATT1 | Analytical Chemistry I | T-3 | 40 | 60 | 100 | 3 | 5 |
| | CYPALT1 | Analytical Chemistry Practical I | L-4 | 40 | 60 | 100 | 2 | |
| CC-2 | CYPATT2 | Inorganic Chemistry I | T-3 | 40 | 60 | 100 | 3 | 5 |
| | CYPALT2 | Inorganic Chemistry Practical I | L-4 | 40 | 60 | 100 | 2 | |
| CC-3 | CYPATT3 | Organic Chemistry I | T-3 | 40 | 60 | 100 | 3 | 5 |
| | CYPALT3 | Organic Chemistry Practical I | L-4 | 40 | 60 | 100 | 2 | |
| CC-4 | CYPATT4 | Physical Chemistry I | T-3 | 40 | 60 | 100 | 3 | 5 |
| | CYPALT4 | Physical Chemistry Practical I | L-4 | 40 | 60 | 100 | 2 | |
| OE | CYPATO1 | Polymer Chemistry | T-3 | 40 | 60 | 100 | 3 | 5 |
| | CYPALO1 | Polymer Chemistry- Practical I | L-4 | 40 | 60 | 100 | 2 | |
| VAC/ Certificate Course/ Optional | CYPATC1 | Refer the List of Value-Added Course (p. 5) | T-2 | 40 | 60 | 100 | 2 | Additional Credit Course |
| | CYPALC1 | | L-2 | 40 | 60 | 100 | 1 | |
| | | | | | **Total Credit** | | | **25** |
| **Semester-II** | | | | | | | | |
| CC-5 | CYPBTT1 | Analytical Chemistry II | T-3 | 40 | 60 | 100 | 3 | 5 |
| | CYPBLT1 | Analytical Chemistry Practical-II | L-4 | 40 | 60 | 100 | 2 | |
| CC-6 | CYPBTT2 | Inorganic Chemistry II | T-3 | 40 | 60 | 100 | 3 | 5 |
| | CYPBLT2 | Inorganic Chemistry Practical-II | L-4 | 40 | 60 | 100 | 2 | |
| CC-7 | CYPBTT3 | Organic Chemistry II | T-3 | 40 | 60 | 100 | 3 | 5 |
| | CYPBLT3 | Organic Chemistry Practical-II | L-4 | 40 | 60 | 100 | 2 | |
| CC-8 | CYPBTT4 | Physical Chemistry II | T-3 | 40 | 60 | 100 | 3 | 5 |
| | CYPBLT4 | Physical Chemistry Practical-II | L-4 | 40 | 60 | 100 | 2 | |
| CC-9 | CYPBTT5 | Molecular Spectroscopy | T – 4+1* | 40 | 60 | 100 | 5 | 5 |
| DSE-1 | CYPBTD1 | Instrumental Analytical Techniques | T – 4+1* | 40 | 60 | 100 | 5 | 5 |
| | CYPBTD2 | Bio-inorganic Chemistry | T – 4+1* | 40 | 60 | 100 | 5 | |
| | CYPBTD3 | Chemistry of Heterocycles | T – 4+1* | 40 | 60 | 100 | 5 | |
| | CYPBTD4 | Solid State Chemistry | T – 4+1* | 40 | 60 | 100 | 5 | |
| | **Remarks:** *Any one course from DSE-1 will be offered to each student by the Department.* | | | | | | | |
| VAC/ Certificate Course/ Optional | CYPATC1 | Refer the List of Value-Added Course (p. 5) | T-2 | 40 | 60 | 100 | 2 | Additional Credit Course |
| | CYPALC1 | | L-2 | 40 | 60 | 100 | 1 | |
| | | | | | **Total Credit** | | | **30** |
| **Semester-III** | | | | | | | | |
| CC-10 | CYPCTT1 | Computer Applications in Chemistry | T – 4+1* | 40 | 60 | 100 | 5 | 5 |
| RM | CYPCTA1 | Research Methodology | T-2 | 40 | 60 | 100 | 2 | 2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OE-2 | CYPCTO2 | Medicinal Chemistry | T-3 | 40 | 60 | 100 | 3 | 5 |
| | CYPCLO2 | Medicinal Chemistry Practical | L-4 | 40 | 60 | 100 | 2 | |
| | CYPDTO3 | Industrial Chemistry | T-3 | 40 | 60 | 100 | 3 | |
| | CYPDLO3 | Industrial Chemistry Practical | L-4 | 40 | 60 | 100 | 2 | |
| | **Remarks:** *Any one course each from OE will be offered by the Department.* | | | | | | | |
| DSE-2 | CYPCTD1 | Principles of Analytical Chemistry | T-3 | 40 | 60 | 100 | 3 | 5 |
| | CYPCLD1 | Analytical Chemistry Practical III | L-4 | 40 | 60 | 100 | 2 | |
| | CYPCTD2 | Organometallic Chemistry of Transition Metals | T-3 | 40 | 60 | 100 | 3 | |
| | CYPCLD2 | Inorganic Chemistry Practical III | L-4 | 40 | 60 | 100 | 2 | |
| | CYPCTD3 | Stereochemistry, Reactions and Rearrangements | T-3 | 40 | 60 | 100 | 3 | |
| | CYPCLD3 | Organic Chemistry Practical III | L-4 | 40 | 60 | 100 | 2 | |
| | CYPCTD4 | Electrochemistry | T-3 | 40 | 60 | 100 | 3 | |
| | CYPCLD4 | Physical Chemistry Practical III | L-4 | 40 | 60 | 100 | 2 | |
| | **Remarks:** *Any one course from DSE-2 will be offered to each student by the Department.* | | | | | | | |
| DSE-3 | CYPCTD5 | Chemical Analysis | T-3 | 40 | 60 | 100 | 3 | 5 |
| | CYPCLD5 | Analytical Chemistry Practical IV | L-4 | 40 | 60 | 100 | 2 | |
| | CYPCTD6 | Inorganic Rings, Chains, and Clusters | T-3 | 40 | 60 | 100 | 3 | |
| | CYPCLD6 | Inorganic Chemistry Practical IV | L-4 | 40 | 60 | 100 | 2 | |
| | CYPCTD7 | Chemistry of Natural Products | T-3 | 40 | 60 | 100 | 3 | |
| | CYPCLD7 | Organic Chemistry Practical IV | L-4 | 40 | 60 | 100 | 2 | |
| | CYPCTD8 | Quantum Chemistry | T-3 | 40 | 60 | 100 | 3 | |
| | CYPCLD8 | Physical Chemistry Practical IV | L-4 | 40 | 60 | 100 | 2 | |
| | **Remarks:** *Any one course from DSE-3 will be offered to each student by the Department* | | | | | | | |
| VAC/ Certificate Course/ Optional | CYPCTC1 | Refer the List of Value-Added Course (p.5) | T-2 | 40 | 60 | 100 | 2 | Additional Credit Course |
| | CYPCLC1 | | L-2 | 40 | 60 | 100 | 1 | |
| | | | | | **Total Credit** | | | **22** |
| **Semester-IV** | | | | | | | | |
| CC-11 | CYPDTT6 | Biological Chemistry | T-3 | 40 | 60 | 100 | 3 | 5 |
| | CYPDTL6 | Biological Chemistry Practical | L-4 | 20 | 30 | 50 | 2 | |
| | **Remarks:** *Any one course each from OE-2 will be offered by the Department.* | | | | | | | |
| DSE-4 | CYPDTD1 | Advanced Separation Techniques | T – 4+1* | 40 | 60 | 100 | 5 | 5 |
| | CYPDTD2 | Structural Methods in Inorganic Chemistry | T – 4+1* | 40 | 60 | 100 | 5 | |
| | CYPDTD3 | Organic Spectroscopy for Structural Elucidation | T – 4+1* | 40 | 60 | 100 | 5 | |
| | CYPDTD4 | Statistical Mechanics | T – 4+1* | 40 | 60 | 100 | 5 | |
| | **Remarks:** *Any one course from DSE-4 will be offered to each student by the Department* | | | | | | | |
| | CYPDTD5 | Electroanalytical Methods | T – 4+1* | 40 | 60 | 100 | 5 | |
| | CYPDTD6 | Special Topics in Inorganic Chemistry | T – 4+1* | 40 | 60 | 100 | 5 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| DSE-5 | CYPDTD7 | Reagents and Reactions in Organic Synthesis | T – 4+1* | 40 | 60 | 100 | 5 | 5 |
| | CYPDTD8 | Chemical Kinetics | T – 4+1* | 40 | 60 | 100 | 5 | |
| | **Remarks:** *Any one course from DSE-5 will be offered to each student by the Department* | | | | | | | |
| DSE-6 | CYPDTD9 | Environmental Chemistry | T – 4+1* | 40 | 60 | 100 | 5 | 5 |
| D | CYPDDD1 | Dissertation/field work/ internship/project/ Industry visit | D-12 | 40 | 60 | 100 | 6 | 6 |
| VAC/ Certificate Course/ Optional | CYPATC1 | Refer the List of Value-Added Course (p. 5) | T-2 | 40 | 60 | 100 | 2 | Additional Credit Course |
| | CYPALC1 | | L-2 | 40 | 60 | 100 | 1 | |
| | | | | | | **Total** | | **26** |
| MOOC's# | | | | | | | | |
| **Total Credit** | | | | | | | | **Credit: 103** |

**CC = Core course DSE = Discipline specific Elective OE = Open Elective T= Theory L=Lab**
**Course Structure:**

| **List of Value-Added Course (Certificate Course)** | |
|---|---|
| 1 | Lab Safety Management (Prof. G. K. Patra) |
| 2 | Green Water Technology (Dr. S. K. Singh & Dr. U. P. Azad) |
| 3 | Agrochemicals Formulation (Dr. Charu Arora) |
| 4 | Cement Chemistry (Dr. S. S. Thakur & Prof. G. K. Patra) |
| 5 | Chemistry of Smart Materials and Technology (Dr. Arti Srivastava & Dr. Neeraj Kumari) |
| 6 | Food Adulteration and Testing (Dr. V. K. Rai and Dr. Manorama Singh) |

#MOOC's courses may be offered at least one time during entire PG programme for the any of Core Course, Generic elective, Discipline specific elective, AEC course, Skill enhancement course available on MOOC's platform time to time. If any such course related to your subject is not available on MOOC's platform, department may continue with regular courses.

T – 4+1*refer to 4 hours Lecture and 1 hour Tutorial