



### Guru Ghasidas Vishwavidyalaya (A Central University Established by the Central Universities Act 2009 No. 25 of 2009) Koni, Bilaspur – 495009 (C.G.)

# Implementation of CBCS / ECS

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

Academic Year: 2022-23

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 S antosh 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

- 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

डान्यक्ष / Head
प्रायन शास्त्र विभाग
Deptt. of Chemistry
Signature चार्यावास विश्वविद्यालय,
Guru Chasidas Vishwavidyalaya,
बिलासपुर 495009 (छ.ग.)
Silaspur 495009 (С. G.)

## गुरु घासीदास विश्वविद्यालय (केन्रीय विश्वविद्यालय अधिनयम 2009 क्र. 25 के अंतर्गत स्थापित केन्नीय विश्वविद्यालय) कोनी, बिलासपुर - 495009 (छ.ग.)



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## Scheme and Syllabus-PG

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

(To be implemented from Session 2021-2022)

|                        |                 | SEMEST                                      | LK-I     |       |        |                | 255    |              |
|------------------------|-----------------|---|----------|-------|--------|----------------|--------|--------------|
| Course<br>Structure    | Course<br>Code  | Title                                       | T/L      | CCA   | ESE    | Total<br>Marks | Credit | Final credit |
| 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      | 51           |
|                        | CYPALO1         | Polymer Chemistry- Practical I              | L-4      | 40    | 60     | 100            | 2      | 5            |
| /AC/                   | CYPATC1         | Refer the List of Value-Added Course        | T-2      | 40    | 60     | 100            | 2      | Additional   |
| Certificate            | 01111102        | (p. 5)                                      | L-2      | 40    | 60     | 100            | -      | Credit       |
| Course/<br>Optional    | CYPALC1         |   | 1-2      | 40    | 60     | 100            | 1      | Course       |
| 7                      |                 |   |          |       |        |                |        |              |
|                        |                 |   |          | Total | Credit |                |        | 25           |
|                        |                 | Semest                                      | er-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            |
|                        | CYPBTD1         | Instrumental Analytical Techniques          | T - 4+1* | 40    | 60     | 100            | 5      |              |
|                        | CYPBTD2         | Bio-inorganic Chemistry                     | T - 4+1* | 40    | 60     | 100            | 5      |              |
| DSE-1                  | СҮРВТОЗ         | Chemistry of Heterocycles                   | T - 4+1* | 40    | 60     | 100            | 5      | 5            |
|                        | CYPBTD4         | Solid State Chemistry                       | T - 4+1* | 40    |        | 1000000        |        |              |
|                        | TO 10 THE ST. 2 | Any one course from DSE-1 will be offere    |          |       | 60     | 100            | 5      | _            |
| /AC/                   | CYPATC1         |   | T-2      | 40    | 60     | 100            | 2      | Additiona    |
| Certificate<br>Course/ | CIFAICI         | Refer the List of Value-Added Course (p. 5) | 9        |       | 00     | 100            | -      | Credit       |
| Optional               | CYPALC1         |   | L-2      | 40    | 60     | 100            | 1      | Course       |
|                        |                 |   |          | Total | Credit |                |        | 30           |
|                        | N 14            | Semeste                                     | er-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      |              |
|                        |                 |   | 1-2      | 40    | 00     | 100            | 2      | 2            |

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|                             | CYPCTO2   | Medicinal Chemistry  | T-3  | 40                                       | 60                   | 100                                  | 3                       |                               |
|-----------------------------|---|--|--|--|----------------------|--------------------------------------|-------------------------|-------------------------------|
|                             | CYPCLO2   | Medicinal Chemistry Practical  | L-4  | 40                                       | 60                   | 100                                  | 2                       |                               |
| OE-2                        | CYPDTO3   | Industrial Chemistry   | T-3  | 40                                       | 60                   | 100                                  | 3                       | 5                             |
|                             | CYPDLO3   | Industrial Chemistry Practical   | L-4  | 40                                       | 60                   | 100                                  | 2                       |                               |
|                             | Remarks:  | Any one course each from OE will be offere   |  |  | 00                   | 100                                  |                         | 4 54                          |
|                             | CYPCTD1   | Principles of Analytical Chemistry   | T-3  | 40                                       | 60                   | 100                                  | 3                       |                               |
|                             | CYPCLD1   | Analytical Chemistry Practical III   | L-4  | 40                                       | 60                   | 100                                  | 2                       |                               |
|                             | CYPCTD2   | Organometallic Chemistry of Transition<br>Metals   | T-3  | 40                                       | 60                   | 100                                  | 3                       |                               |
| DSE-2                       | CYPCLD2   | Inorganic Chemistry Practical III  | L-4  | 40                                       | 60                   | 100                                  | 2                       | 5                             |
|                             | CYPCTD3   | Stereochemistry, Reactions and Rearrangements  | T-3  | 40                                       | 60                   | 100                                  | 3                       |                               |
|                             | CYPCLD3   | Organic Chemistry Practical III  | L-4  | 40                                       | 60                   | 100                                  |                         |                               |
|                             | CYPCTD4   | Electrochemistry   | T-3  | 40                                       | 60                   | 100                                  | 2                       |                               |
|                             | CYPCLD4   | Physical Chemistry Practical III   | L-4  |  |                      | 100                                  | 3                       | -                             |
|                             | Remarks:  | Any one course from DSE-2 will be offered  |  | 40<br>ent by the                         | Departi              | ment.                                | 2                       | -                             |
|                             | CYPCTD5   | Chemical Analysis  |  |  | -1.71                |                                      |                         |                               |
|                             | CYPCLD5   | Analytical Chemistry Practical IV  | T-3  | 40                                       | 60                   | 100                                  | 3                       |                               |
| DCE 2                       | CYPCTD6   | Inorganic Rings, Chains, and Clusters  | L-4  | 40                                       | 60                   | 100                                  | 2                       | _ 5                           |
| DSE-3                       | CYPCLD6   | Inorganic Chemistry Practical IV   | T-3  | 40                                       | 60                   | 100                                  | 3                       |                               |
|                             | CYPCTD7   | Chemistry of Natural Products  | L-4  | 40                                       | 60                   | 100                                  | 2                       |                               |
|                             | CYPCLD7   | Organic Chemistry Practical IV   | T-3  | 40                                       | 60                   | 100                                  | 3                       |                               |
|                             | CYPCTD8   |  | L-4  | 40                                       | 60                   | 100                                  | 2                       | 199                           |
|                             | CYPCLD8   | Quantum Chemistry  | T-3  | 40                                       | 60                   | 100                                  | 3                       |                               |
|                             |   | Physical Chemistry Practical IV<br>any one course from DSE-3 will be offered to  | L-4  | 40                                       | 60                   | 100                                  | 2                       |                               |
|                             | The second second second second                   | my one course from BSE 3 will be offered to  | o each studer  | nt by the L                              | )epartm              | ent                                  |                         |                               |
| AC/<br>ertificate<br>ourse/ | CYPCTC1   | Refer the List of Value-Added Course (p.5)   | T-2  | 40                                       | 60                   | 100                                  | 2                       | Additiona<br>Credit<br>Course |
| ptional                     |   |  |  |  |                      |                                      |                         |                               |
| ptional                     | CYPCLC1   |  | L-2  | 40                                       | 60                   | 100                                  | 1                       |                               |
| ptional                     | CYPCLC1   |  | L-2  | 40                                       |                      | 100                                  | 1                       | Course                        |
| ptional                     | CYPCLC1   | Semeste  | .1   |  |                      | 100                                  | 1                       | Course                        |
|                             | CYPCLC1  CYPDTT6                                  | Semester Biological Chemistry  | .1   |  |                      | 100                                  |                         | Course 2                      |
|                             |   |  | r-IV   | Total (                                  | Credit               |                                      | 3 2                     | Course                        |
| CC-11                       | CYPDTT6   | Biological Chemistry   | <b>r-IV</b> T-3  L-4   | <b>Total (</b> 40 20                     | 60<br>30             | 100                                  | 3 2                     | Course 2                      |
|                             | CYPDTT6   | Biological Chemistry Biological Chemistry Practical Remarks: Any one course each from  | T-3<br>L-4   | 40<br>20<br>offered by                   | 60<br>30<br>y the De | 100<br>50<br>partmen                 | 3<br>2<br>nt.           | Course 2                      |
|                             | CYPDTT6 CYPDTL6                                   | Biological Chemistry Biological Chemistry Practical  | <b>r-IV</b> T-3  L-4   | <b>Total (</b> 40 20                     | 60<br>30             | 100                                  | 3 2                     | Course 2                      |
| CC-11                       | CYPDTT6 CYPDTL6 CYPDTD1                           | Biological Chemistry Biological Chemistry Practical Remarks: Any one course each from Advanced Separation Techniques Structural Methods in Inorganic   | T-3<br>L-4<br>n OE-2 will be                                   | 40<br>20<br>offered by                   | 60<br>30<br>4 the De | 100<br>50<br>epartmen                | 3<br>2<br>nt.           | Course 2:                     |
| CC-11                       | CYPDTT6 CYPDTL6 CYPDTD1 CYPDTD2                   | Biological Chemistry Biological Chemistry Practical Remarks: Any one course each from Advanced Separation Techniques Structural Methods in Inorganic Chemistry Organic Spectroscopy for Structural                                   | T-3<br>L-4<br>n OE-2 will be<br>T - 4+1*<br>T - 4+1*           | 40<br>20<br>offered by<br>40<br>40       | 60 60 60 60          | 100<br>50<br>epartment<br>100<br>100 | 3<br>2<br>bt.<br>5<br>5 | Course 2                      |
| CC-11                       | CYPDTT6 CYPDTL6  CYPDTD1 CYPDTD2  CYPDTD3 CYPDTD4 | Biological Chemistry Biological Chemistry Practical Remarks: Any one course each from Advanced Separation Techniques Structural Methods in Inorganic Chemistry Organic Spectroscopy for Structural Elucidation Statistical Mechanics | T-3<br>L-4<br>n OE-2 will be  T - 4+1*<br>T - 4+1*<br>T - 4+1* | 40<br>20<br>offered by<br>40<br>40<br>40 | 60 60 60 60 60       | 100<br>50<br>partmen<br>100<br>100   | 3 2 z tt. 5 5           | Course 2:                     |
|                             | CYPDTT6 CYPDTL6  CYPDTD1 CYPDTD2  CYPDTD3 CYPDTD4 | Biological Chemistry Biological Chemistry Practical Remarks: Any one course each from Advanced Separation Techniques Structural Methods in Inorganic Chemistry Organic Spectroscopy for Structural Elucidation                       | T-3<br>L-4<br>n OE-2 will be  T - 4+1*<br>T - 4+1*<br>T - 4+1* | 40<br>20<br>offered by<br>40<br>40<br>40 | 60 60 60 60 60       | 100<br>50<br>partmen<br>100<br>100   | 3 2 z tt. 5 5           | Course 2:                     |

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|                     |         | Total Credit   |                    |          |         |          | Cre    | edit: 103 |
|---------------------|---------|--|--------------------|----------|---------|----------|--------|-----------|
| baland -            |         | MOOC   | 's <sup>#</sup>    | - 10.1   |         | 364      |        |           |
|                     |         |  |                    |          | Total   |          |        | 2         |
| Course/<br>Optional | CYPALC1 | (p. 5)   | L-2                | 40       | 60      | 100      | 1      | Course    |
| VAC/<br>Certificate | CYPATC1 | Refer the List of Value-Added Course                           | T-2                | 40       | 60      | 100      | 2      | Additiona |
| D                   | CYPDDD1 | Dissertation/field work/<br>internship/project/ Industry visit | D-12               | 40       | 60      | 100      | 6      | 6         |
| DSE-6               | CYPDTD9 | Environmental Chemistry  | T - 4+1*           | 40       | 60      | 100      | 5      | 5         |
|                     | , a     | Remarks: Any one course from DSE-5 w                           | rill be offered to | each stu | dent by | the Depa | rtment |           |
|                     | CYPDTD8 | Chemical Kinetics  | T - 4+1*           | 40       | 60      | 100      | 5      |           |
| DSE-5               | CYPDTD7 | Reagents and Reactions in Organic<br>Synthesis                 | T - 4+1*           | 40       | 60      | 100      | 5      | 5         |

CC = Core course DSE = Discipline specific Elective Course Structure:

OE = Open Elective T= Theory L=Lab

|   | 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

Prof. C. R. Sinha (External Expert)

> rof. G. K. Patra (Member)

Dr. V. K. Rai (Member)

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(Member)

Dr. S. S. Thakur (HOD)