

**HIMACHAL PRADESH UNIVERSITY SHIMLA-171005**  
**CHOICE BASED CREDIT SYSTEM (CBCS)**  
**B.Sc Chemistry (Major)**

**Syllabus and Examination**  
**For B.Sc Chemistry (Major)**  
**Under CBCS Semester System,**  
**June-2013**

## Flag-A

Approved in BOS meeting in the Subject of  
Chemistry held on 17-11-2014

Annexure-I of  
BOS Meeting

**OUT LINES OF SYLLABI AND COURSES OF READING**  
**IN THE SUBJECT OF CHEMISTRY FOR B. Sc. WITH MAJOR IN CHEMISTRY AND MINOR ELECTIVE IN**  
**CHEMISTRY (June 2013 onwards)**

**(A) Structure Outline of Major in Chemistry (Minimum Credits to be Earned=56)**

| Semester           | Course Code                     | Course Type  | Course Name  | Credit(s) | Credits(Cumulated Credits) Category-wise                                      |
|--------------------|---------------------------------|--|--|-----------|---|
| <b>I<br/>(Odd)</b> |                                 | Compulsory Course I  | To be Selected from the list of Compulsory Courses                           | 3         | Compulsory – 6<br><b>Core – 8</b><br>Elective – 8<br>GI & H – 1<br>Total – 23 |
|                    |                                 | Compulsory Course II (Skill Based)   | To be Selected from the list of Compulsory Courses (Skill Based)             | 3         |   |
|                    | <b>B.Sc. CHEM-101</b>           | <b>Major Core Course -I</b>  | <b>Inorganic Chemistry</b>   | <b>3</b>  |   |
|                    | <b>B.Sc. CHEM-102</b>           | <b>Major Core Course -II</b>   | <b>Organic Chemistry</b>   | <b>3</b>  |   |
|                    |                                 | Minor Elective Course I (a)  | To be Selected from the list for Minor Elective Subject other than Chemistry | 3         |   |
|                    |                                 | Minor Elective Course I (b)  | To be Selected from the list for Minor Elective Subject other than Chemistry | 3         |   |
|                    | <b>B.Sc. CHEM-101(P)</b>        | <b>Major Core Lab Course - I</b>   | <b>Inorganic Chemistry (lab)</b>   | <b>1</b>  |   |
|                    | <b>B.Sc. CHEM-102(P)</b>        | <b>Major Core Lab Course - II</b>  | <b>Organic Chemistry (lab)</b>   | <b>1</b>  |   |
|                    | Minor Elective Lab Course I (a) | To be Selected from the list for Minor Elective Subject other than Chemistry | 1  |           |   |

| Semester     | Course Code              | Course Type                                       | Course Name  | Credit(s) | Credits(Cumulated Credits) Category-wise  |
|--------------|--------------------------|---|--|-----------|---|
|              |                          | Minor Elective Lab Course I (b)                   | To be Selected from the list for Minor Elective Subject other than Chemistry | 1         |   |
|              |                          | GI and H Course I                                 | To be Selected from the list GI and Hobby Courses                            | 1         |   |
| II<br>(Even) |                          | Compulsory Course III                             | To be Selected from the list of Compulsory Courses                           | 3         | Compulsory – 6 (12)<br><b>Core – 8 (16)</b><br>Elective – 8 (16)<br>GI & H – 1 (2)<br>Total 23 (46)                       |
|              |                          | Compulsory Course IV(Skill Based)                 | To be Selected from the list of Compulsory Courses (Skill Based)             | 3         |   |
|              | <b>B.Sc. CHEM-203</b>    | <b>Major Core Course- III</b>                     | <b>Physical Chemistry</b>  | <b>3</b>  |   |
|              | <b>B.Sc. CHEM-204</b>    | <b>Major Core Course -IV</b>                      | <b>Inorganic Chemistry</b>   | <b>3</b>  |   |
|              |                          | Minor Elective Course II (a)                      | To be Selected from the list for Minor Elective Subject other than Chemistry | 3         |   |
|              |                          | Minor Elective Course II (b)                      | To be Selected from the list for Minor Elective Subject other than Chemistry | 3         |   |
|              | <b>B.Sc. CHEM-203(P)</b> | <b>Major Core Lab Course III</b>                  | <b>Physical Chemistry (lab)</b>  | <b>1</b>  |   |
|              | <b>B.Sc. CHEM-204(P)</b> | <b>Major Core Lab Course IV</b>                   | <b>Inorganic Chemistry (lab)</b>   | <b>1</b>  |   |
|              |                          | Minor Elective Lab Course II (a)                  | To be Selected from the list for Minor Elective Subject other than Chemistry | 1         |   |
|              |                          | Minor Elective Lab Course II (b)                  | To be Selected from the list for Minor Elective Subject other than Chemistry | 1         |   |
|              | GI and H Course II       | To be Selected from the list GI and Hobby Courses | 1  |           |   |
| III<br>(Odd) |                          | Compulsory Course V                               | To be Selected from the list of Compulsory Courses                           | 3         | Compulsory – 6 (18) (Complete)<br><b>Core – 8 (24)</b><br>Elective – 8 (24)<br>GI & H – 1 (3) (Complete)<br>Total 23 (69) |
|              |                          | Compulsory Course VI                              | To be Selected from the list of Compulsory Courses (Skill Based)             | 3         |   |
|              | <b>B.Sc. CHEM-305</b>    | <b>Major Core Course V</b>                        | <b>Organic Chemistry</b>   | <b>3</b>  |   |
|              | <b>B.Sc. CHEM-306</b>    | <b>Major Core Course VI</b>                       | <b>Physical Chemistry</b>  | <b>3</b>  |   |
|              |                          | Minor Elective Course III                         | To be Selected from the list for Minor Elective Subject other than Chemistry | 3         |   |

| Semester         | Course Code              | Course Type                          | Course Name  | Credit(s) | Credits(Cumulated Credits) Category-wise   |
|------------------|--------------------------|--------------------------------------|--|-----------|--|
|                  |                          | Minor Elective Course III            | To be Selected from the list for Minor Elective Subject other than Chemistry | 3         |  |
|                  | <b>B.Sc. CHEM-305(P)</b> | <b>Major Core Lab Course V</b>       | <b>Organic Chemistry (lab)</b>   | <b>1</b>  |  |
|                  | <b>B.Sc. CHEM-306(P)</b> | <b>Major Core Lab Course VI</b>      | <b>Physical Chemistry (lab)</b>  | <b>1</b>  |  |
|                  |                          | Minor Elective Lab Course III(a)     | To be Selected from the list for Minor Elective Subject other than Chemistry | 1         |  |
|                  |                          | Minor Elective Lab Course III(b)     | To be Selected from the list for Minor Elective Subject other than Chemistry | 1         |  |
|                  |                          | GI and H Course III                  | To be Selected from the list GI and Hobby Courses                            | 1         |  |
| <b>IV (Even)</b> | <b>B.Sc. CHEM-407</b>    | <b>Major Core Course VII</b>         | <b>Inorganic Chemistry</b>   | <b>3</b>  | <b>Core – 12 (36)</b><br>Elective – 8 ((32)<br>Core / Elective (additional) - 4<br>Total 24 (93) |
|                  | <b>B.Sc. CHEM-408</b>    | <b>Major Core Course VIII</b>        | <b>Organic Chemistry</b>   | <b>3</b>  |  |
|                  | <b>B.S.C. CHEM-409</b>   | <b>Major Core Course IX</b>          | <b>Physical Chemistry</b>  | <b>3</b>  |  |
|                  |                          | Minor Elective Course IV (a)         | To be Selected from the list for Minor Elective Subject other than Chemistry | 4         |  |
|                  |                          | Minor Elective Course IV (b)         | To be Selected from the list for Minor Elective Subject other than Chemistry | 4         |  |
|                  | <b>B.Sc. CHEM-407(P)</b> | <b>Major Core Lab Course VII</b>     | <b>Inorganic Chemistry (lab)</b>   | <b>1</b>  |  |
|                  | <b>B.Sc. CHEM-408(P)</b> | <b>Major Core Lab Course VIII</b>    | <b>Organic Chemistry (lab)</b>   | <b>1</b>  |  |
|                  | <b>B.Sc. CHEM 409(P)</b> | <b>Major Core Lab Course IX</b>      | <b>Physical Chemistry (lab)</b>  | <b>1</b>  |  |
|                  |                          | Minor Elective Lab Course IV (a)     | To be Selected from the list for Minor Elective Subject other than Chemistry | 1         |  |
|                  |                          | Minor Elective Lab Course IV(b)      | To be Selected from the list for Minor Elective Subject other than Chemistry | 1         |  |
|                  |                          | Core / Elective Course (Additional)* |  | 4         |  |
| <b>V (Odd)</b>   | <b>B.Sc. CHEM-510</b>    | <b>Major Core Course X</b>           | <b>Inorganic Chemistry</b>   | <b>3</b>  | <b>Core – 12 (48)</b><br>Elective – 8 (40)   |
|                  | <b>B.Sc. CHEM-511</b>    | <b>Major Core Course XI</b>          | <b>Organic Chemistry</b>   | <b>3</b>  |  |

| Semester  | Course Code   | Course Type                          | Course Name  | Credit(s) | Credits(Cumulated Credits) Category-wise                                     |
|---|---|--------------------------------------|--|-----------|--|
|   | <b>B.Sc. CHEM-512</b>   | <b>Major Core Course XII</b>         | <b>Physical Chemistry</b>  | <b>3</b>  | (Complete)<br>Core / Elective (additional) - 4<br>Total 24 (117)             |
|   |   | Minor Elective Course V(a)           | To be Selected from the list for Minor Elective Subject other than Chemistry | 3         |  |
|   |   | Minor Elective Course V(b)           | To be Selected from the list for Minor Elective Subject other than Chemistry | 3         |  |
|   | <b>B.Sc. CHEM-510(P)</b>  | <b>Major Core Lab Course X</b>       | <b>Inorganic Chemistry (lab)</b>   | <b>1</b>  |  |
|   | <b>B.Sc. CHEM-511(P)</b>  | <b>Major Core Lab Course XI</b>      | <b>Organic Chemistry (lab)</b>   | <b>1</b>  |  |
|   | <b>B.Sc. CHEM-512(P)</b>  | <b>Major Core Lab Course XII *</b>   | <b>Physical Chemistry (lab)</b>  | <b>1</b>  |  |
|   |   | Minor Elective Lab Course V (a)      | To be Selected from the list for Minor Elective Subject other than Chemistry | 1         |  |
|   |   | Minor Elective Lab Course V (b)      | To be Selected from the list for Minor Elective Subject other than Chemistry | 1         |  |
|   |   | Core / Elective Course (Additional)* | Any one of the Additional or open elective courses                           | 4         |  |
| <b>VI (Even)</b><br><b>NOTE: In this semester ONLY TWO MAJOR courses out of B.Sc.Chem-613, 614, 615 along with respective lab courses are to be studied</b> | <b>B.Sc. Chem-613</b>   | <b>Major Core Course XIII</b>        | <b>Inorganic Chemistry</b>   | <b>3</b>  | <b>Core – 8 (56)</b><br>Core / Elective (additional) – 20*<br>Total 28 (145) |
|   | <b>B.Sc. CHEM-614</b>   | <b>Major Core Course XIV</b>         | <b>Organic Chemistry</b>   | <b>3</b>  |  |
|   | <b>B.Sc. CHEM-615</b>   | <b>Major Core Course XV</b>          | <b>Physical Chemistry</b>  | <b>3</b>  |  |
|   | <b>B.Sc. Chem-613(P)</b>  | <b>Major Core Lab Course XIII</b>    | <b>Inorganic Chemistry (lab)</b>   | <b>1</b>  |  |
|   | <b>B.Sc. CHEM-614(P)</b>  | <b>Major Core Lab Course XIV</b>     | <b>Organic Chemistry (lab)</b>   | <b>1</b>  |  |
|   | <b>B.Sc. CHEM-615(P)</b>  | <b>Major Core Lab Course XV</b>      | <b>Physical Chemistry (lab)</b>  | <b>1</b>  |  |
|   | B.Sc. (Or Other than Science) CHEM (or other than Chemistry) 06** | Core / Elective Course (Additional)* | Any one of the Additional or open elective courses                           | 4         |  |
|   | B.Sc. (Or Other than Science) CHEM (or other than Chemistry) 06** | Core / Elective Course (Additional)* | Any one of the Additional or open elective courses                           | 4         |  |

| Semester | Course Code   | Course Type                             | Course Name  | Credit(s) | Credits(Cumulated Credits) Category-wise |
|----------|---|---|--|-----------|--|
|          | B.Sc. (Or Other than Science)<br>CHEM(or other than Chemistry)<br>06**  | Core / Elective Course<br>(Additional)* | Any one of the Additional or open elective courses | 4         |  |
|          | B.Sc. (Or Other than Science)<br>CHEM (or other than Chemistry)<br>06** | Core / Elective Course<br>(Additional)* | Any one of the Additional or open elective courses | 4         |  |
|          | B.Sc. (Or Other than Science)<br>CHEM(or other than Chemistry)<br>06**  | Core / Elective Course<br>(Additional)* | Any one of the Additional or open elective courses | 4         |  |

**\*Additional Elective Courses offered by Chemistry Department (can be chosen for earning credits over and above 56 Major subject credits, 40 Minor elective credits, 9 (minimum) Compulsory course credits and 01(minimum) General Interest & Hobby Course credits i.e. total 106 Credits; for getting B.Sc. Degree a learner has to earn a minimum of 120 Credits).**

| Semester | Course Code                 | Course Type                             | Course Name                          | Credit(s) | Cumulated Credits Category-wise |
|----------|-----------------------------|---|--------------------------------------|-----------|---------------------------------|
| V/VI     | B.Sc. CHEM-616              | Core / Elective Course<br>(Additional)* | Inorganic Chemistry                  | 3         |                                 |
| V/VI     | B.Sc. Chem-616<br>(Project) | Project<br>(Additional)*                | Project - Inorganic Chemistry & viva | 1         |                                 |
| V/VI     | B.Sc. CHEM-617              | Core / Elective Course<br>(Additional)* | Organic Chemistry                    | 3         |                                 |
| V/VI     | B.Sc. CHEM-617<br>(Project) | Project<br>(Additional)*                | Project - Organic Chemistry & viva   | 1         |                                 |
| V/VI     | B.Sc. CHEM-618              | Core / Elective Course<br>(Additional)* | Physical Chemistry                   | 3         |                                 |
| V/VI     | B.Sc. CHEM-618<br>(Project) | Project<br>(Additional)*                | Project - Physical Chemistry & viva  | 1         |                                 |
| V/VI     | B.Sc. CHEM-619              | Core / Elective Course<br>(Additional)* | Inorganic Chemistry                  | 3         |                                 |
| V/VI     | B.Sc. CHEM-619<br>(Project) | Project<br>(Additional)*                | Project - Inorganic Chemistry & viva | 1         |                                 |

|      |                          |                                      |                                     |   |  |
|------|--------------------------|--------------------------------------|-------------------------------------|---|--|
| V/VI | B.Sc. CHEM-620           | Core / Elective Course (Additional)* | Organic Chemistry                   | 3 |  |
| V/VI | B.Sc. CHEM-620 (Project) | Project (Additional)*                | Project - Organic Chemistry & viva  | 1 |  |
| V/VI | B.Sc. CHEM-621           | Core / Elective Course (Additional)* | Physical Chemistry                  | 3 |  |
| V/VI | B.Sc. CHEM-621 (Project) | Project (Additional)*                | Project - Physical Chemistry & viva | 1 |  |

**Open/ Elective Courses offered by Chemistry Department**

|      |                          |   |                                    |   |  |
|------|--------------------------|---|------------------------------------|---|--|
| V/VI | B.Sc. CHEM-622           | Open Core / Elective Course (Additional)* | General Chemistry                  | 3 |  |
| V/VI | B.Sc. CHEM-622 (Project) | Project (Additional)*                     | Project - General Chemistry & viva | 1 |  |

**General Interest Course Offered by Chemistry Department**

|          |               |                 |                                      |   |  |
|----------|---------------|-----------------|--------------------------------------|---|--|
| I/II/III | B.Sc. CHEM-23 | GI and H Course | General Interest Course in Chemistry | 1 |  |
|----------|---------------|-----------------|--------------------------------------|---|--|

**Structure Outline of Minor Elective in Chemistry for other than Major Chemistry Students (Minimum Credits to be Earned=20)**

| Semester     | Course Code               | Course Name                          | Course Name                    | Credit(s) | Cumulated Credits Category-wise   |
|--------------|---------------------------|--------------------------------------|--------------------------------|-----------|---|
| I<br>(Odd)   |                           | Compulsory Course I                  |                                | 3         | Compulsory – 6<br>Core – 8<br><b>Minor Elective 1(a) – 4(4)</b><br>Minor Elective 1(b)=4<br>Total Minor Electives – 8 (8)<br><br>GI & H – 1<br>Total – 23                                     |
|              |                           | Compulsory Course II (Skill Based)   |                                | 3         |   |
|              |                           | Major Core Course I                  |                                | 3         |   |
|              |                           | Major Core Course II                 |                                | 3         |   |
|              | <b>B.Sc. CHEM-101</b>     | <b>Minor Elective Course I</b>       | <b>Inorganic Chemistry</b>     | <b>3</b>  |   |
|              |                           | Minor Elective Course I              |                                | 1         |   |
|              |                           | Major Core Lab Course I              |                                | 1         |   |
|              |                           | Major Core Lab Course II             |                                | 1         |   |
|              | <b>B.Sc. CHEM-101(P)</b>  | <b>Minor Elective Lab Course I</b>   | <b>Inorganic Chemistry Lab</b> | <b>1</b>  |   |
|              |                           | Minor Elective Lab Course I          |                                | 1         |   |
|              | GI and H Course I         |                                      | 1                              |           |   |
| II<br>(Even) |                           | Compulsory Course III                |                                | 3         | Compulsory – 6 (12)<br>Core – 8 (16)<br><b>Minor Elective 1(a) – 4 (8)</b><br>Minor Elective 1(b) – 4 (8)<br>Total Minor Electives – 8 (16)<br><br>GI & H – 1 (2)<br>Total 23 (46)            |
|              |                           | Compulsory Course IV(Skill Based)    |                                | 3         |   |
|              |                           | Major Core Course III                |                                | 3         |   |
|              |                           | Major Core Course IV                 |                                | 3         |   |
|              | <b>B.S.C. CHEM-203</b>    | <b>Minor Elective Course II</b>      | <b>Physical Chemistry</b>      | <b>3</b>  |   |
|              |                           | Minor Elective Course II             |                                | 3         |   |
|              |                           | Major Core Lab Course III            |                                | 1         |   |
|              |                           | Major Core Lab Course IV             |                                | 1         |   |
|              | <b>B.S.C. CHEM-203(P)</b> | <b>Minor Elective Lab Course II</b>  | <b>Physical Chemistry Lab</b>  | <b>1</b>  |   |
|              |                           | Minor Elective Lab Course II         |                                | 1         |   |
|              | GI and H Course II        |                                      | 1                              |           |   |
| III<br>(Odd) |                           | Compulsory Course V                  |                                | 3         | Compulsory – 6 (18) (Complete)<br>Core – 8 (24)<br><b>Minor Elective III(a) – 4 (12)</b><br>Minor Elective III(b) – 4 (12)<br>Elective – 8 (24)<br>GI & H – 1 (3) (Complete)<br>Total 23 (69) |
|              |                           | Compulsory Course VI                 |                                | 3         |   |
|              |                           | Major Core Course V                  |                                | 3         |   |
|              |                           | Major Core Course VI                 | -----                          | 3         |   |
|              | <b>B.Sc. CHEM-305</b>     | <b>Minor Elective Course III</b>     | <b>Organic Chemistry</b>       | <b>3</b>  |   |
|              |                           | Minor Elective Course III            | -----                          | 3         |   |
|              |                           | Major Core Lab Course V              | -----                          | 1         |   |
|              |                           | Major Core Lab Course VI             | -----                          | 1         |   |
|              | <b>B.Sc. CHEM-305(P)</b>  | <b>Minor Elective Lab Course III</b> | <b>Organic Chemistry Lab</b>   | <b>1</b>  |   |
|              |                           | Minor Elective Lab Course III        | -----                          | 1         |   |
|              | GI and H Course III       | -----                                | 1                              |           |   |



| Semester     | Course Code                          | Course Name                          | Course Name                    | Credit(s) | Cumulated Credits Category-wise  |
|--------------|--------------------------------------|--------------------------------------|--------------------------------|-----------|--|
| IV<br>(Even) |                                      | Major Core Course VII                | -----                          | 4         | Core – 12 (36)<br><b>Minor Elective IV(a) – 4 (16)</b><br>Minor Elective IV(b) – 4 (16)<br><br>Total Minor Electives – 8 (32)<br>Core / Elective (additional) - 4<br>Total 24 (93)           |
|              |                                      | Major Core Course VIII               | -----                          | 4         |  |
|              |                                      | Major Core Course IX                 | -----                          | 4         |  |
|              | <b>B.Sc. CHEM-407</b>                | <b>Minor Elective Course IV</b>      | <b>Inorganic Chemistry</b>     | <b>3</b>  |  |
|              |                                      | Minor Elective Course IV             | -----                          | 4         |  |
|              |                                      | Major Core Lab Course VII            | -----                          | 1         |  |
|              |                                      | Major Core Lab Course VIII           | -----                          | 1         |  |
|              | <b>B.Sc. CHEM-407(P)</b>             | <b>Minor Elective Lab Course IV</b>  | <b>Inorganic Chemistry Lab</b> | <b>1</b>  |  |
|              |                                      | Minor Elective Lab Course IV         | -----                          | 1         |  |
|              |                                      | Core / Elective Course (Additional)* | -----                          | 4         |  |
| V<br>(Odd)   |                                      | Major Core Course X                  | -----                          | 3         | Core – 12 (48)<br><b>Minor Elective V(a) – 4 (20)</b><br>Minor Elective V(b) – 4 (20)<br><br>Total Minor Electives – 8 (40) (Complete)<br>Core / Elective (additional) - 4<br>Total 24 (117) |
|              |                                      | Major Core Course XI                 | -----                          | 3         |  |
|              |                                      | Major Core Course XII                | -----                          | 3         |  |
|              | <b>B.Sc. CHEM-511</b>                | <b>Minor Elective Course V</b>       | <b>Organic Chemistry</b>       | <b>3</b>  |  |
|              |                                      | Minor Elective Course V              | -----                          | 3         |  |
|              |                                      | Major Core Lab Course X              | -----                          | 1         |  |
|              |                                      | Major Core Lab Course XI             | -----                          | 1         |  |
|              |                                      | Major Core Lab Course XII *          | -----                          | 1         |  |
|              | <b>B.Sc. CHEM-511(P)</b>             | <b>Minor Elective Lab Course V</b>   | <b>Organic Chemistry Lab</b>   | <b>1</b>  |  |
|              |                                      | Minor Elective Lab Course V          | -----                          | 1         |  |
|              | Core / Elective Course (Additional)* | -----                                | 4                              |           |  |

**Additional Minor Elective Courses offered by Chemistry Department for minor chemistry students who want to do more than five minor courses (upto 8 minor courses) in chemistry to earn more than 20 credits.**

| Semester | Course Code        | Course Name               | Credit(s) |
|----------|--------------------|---------------------------|-----------|
| IV       | B.Sc. CHEM-408     | Organic Chemistry         | 3         |
|          | B.Sc. Chem-408 (P) | Organic Chemistry (lab)   | 1         |
|          | B.Sc. CHEM-409     | Physical Chemistry        | 3         |
|          | B.Sc. CHEM-409(P)  | Physical Chemistry (lab)  | 1         |
| V        | B.Sc. CHEM-510     | Inorganic Chemistry       | 3         |
|          | B.Sc. CHEM-510(P)  | Inorganic Chemistry (lab) | 1         |
|          | B.Sc. CHEM-512     | Physical Chemistry        | 3         |
|          | B.Sc. CHEM-512(P)  | Physical Chemistry (lab)  | 1         |
| VI       | B.Sc. CHEM-613     | Inorganic Chemistry       | 3         |
|          | B.Sc. CHEM-613(P)  | Inorganic Chemistry (lab) | 1         |
|          | B.Sc. CHEM-614     | Organic Chemistry         | 3         |
|          | B.Sc. Chem-614 (P) | Organic Chemistry (lab)   | 1         |
|          | B.Sc. CHEM-615     | Physical Chemistry        | 3         |
|          | B.Sc. CHEM-615(P)  | Physical Chemistry (lab)  | 1         |

**Flag- B**  
**Comprehensive Continuance Assessment (CCA) and End-Semester Examination**  
**(ESE) in Chemistry of Three years B.Sc. Programme**  
**Scheme of Examination for every Major/Minor/Additional course**

- a) English shall be the medium of instructions and Examinations.
- b) Examinations shall be conducted at the end of each semester as per the academic calendar notified by H.P. University Shimla-5
- c) Each course will carry 125 marks (theory + practical) and will have following components.

1. Theory Paper 100 marks

- a) Internal Assessment 50 marks
  - I) Assignment/Class Test/Quiz/Seminar 15 marks
  - II) Mid-Term Tests 1 and 2 (15 marks each ) 30 marks
  - III) Attendance 05 marks

b) End- Semester Examinations 50 marks

2. Practical 25 marks

Practical examination will have following components

- I) Performing the two practical exercises assigned by the examiner in terms of requirement of chemicals/apparatus/ theory/ reaction (if any) involved, procedure/ scheme/ observations/calculations and results. 15 marks
- II) Practical note book , viva-voce examination and regularity during practical classes 10 marks

Theory Paper (Internal Assessment + End semester Examination) +Practical = 50 +50 +25 =125 marks

Criterion for Class-room attendance (05 marks)

75% Attendance is minimum eligibility condition

- I) Attendance > 75% but < 80% 1 mark
- II) Attendance > 80% but < 85% 2 marks
- III) Attendance > 85% but < 90% 3 marks
- IV) Attendance > 90% but < 95% 4 marks
- V) Attendance > 95% 5 marks