

**Programme Name: B.Sc. Physics**  
**Level 4.5 (Semester – I)**

**Batch: AY 25-26 onwards**

| Sr. No.   | Core      | Course Code | Course Name                          | Teaching Scheme (Hrs./Week) |          |           |           | Examination Scheme       |            |                          |            | Total Marks |
|---|-----------|-------------|--------------------------------------|-----------------------------|----------|-----------|-----------|--------------------------|------------|--------------------------|------------|-------------|
|   |           |             |                                      | L                           | T        | P         | C         | Formative Assessment CIA |            | Summative Assessment ESE |            |             |
|   |           |             |                                      |                             |          |           |           | Course                   | Lab        | Course                   | Lab        |             |
| <b>MAJOR(MANDATORY + ELECTIVES)</b>   |           |             |                                      |                             |          |           |           |                          |            |                          |            |             |
| 1   | Major     | NYPH101     | Introduction to Mechanics            | 3                           | -        | -         | 3         | 50                       | -          | 100                      | -          | 100         |
| 2   | Major     | NYPH102     | Electricity and Magnetism            | 3                           | -        | -         | 3         | 50                       | -          | 100                      | -          | 100         |
| <b>MINOR: NA</b>  |           |             |                                      |                             |          |           |           |                          |            |                          |            |             |
| NA  |           |             |                                      |                             |          |           |           |                          |            |                          |            |             |
| <b>Open Electives(OE)*</b>  |           |             |                                      |                             |          |           |           |                          |            |                          |            |             |
| 3   | Mandatory |             | Open Elective - I                    | 4                           | -        | -         | 4         | 50                       | -          | 100                      | -          | 100         |
| <b>Vocational and Skill Enhancement (VSEC)</b>                                |           |             |                                      |                             |          |           |           |                          |            |                          |            |             |
| 4   | VSC       | NYPH111     | Mechanics Laboratory                 | -                           | -        | 4         | 2         | -                        | 50         | -                        | 50         | 100         |
| 5   | SEC       | NYPH112     | Electricity and Magnetism Laboratory | -                           | -        | 4         | 2         | -                        | 50         | -                        | 50         | 100         |
| <b>Ability/Value Education Courses/ Indian Knowledge System(AEC/VEC/IKS)*</b> |           |             |                                      |                             |          |           |           |                          |            |                          |            |             |
| 6   | AEC       |             | Ability Enhancement Courses - I      | -                           | -        | 4         | 2         | -                        | 50         | -                        | 50         | 100         |
| 7   | VEC       |             | Value Education Courses- I           | -                           | -        | 4         | 2         | -                        | 50         | -                        | 50         | 100         |
| 8   | IKS       |             | Indian Knowledge System              | -                           | -        | 4         | 2         | -                        | 50         | -                        | 50         | 100         |
| <b>OJT/FP/CEP/CC/RP</b>   |           |             |                                      |                             |          |           |           |                          |            |                          |            |             |
| 9   | CC        |             | Co-Curricular Course II              | -                           | -        | 4         | 2         | -                        | 50         | -                        | 50         | 100         |
| <b>TOTAL</b>  |           |             |                                      | <b>12</b>                   | <b>-</b> | <b>20</b> | <b>22</b> | <b>150</b>               | <b>300</b> | <b>300</b>               | <b>300</b> | <b>900</b>  |

| <b>CIA:</b> Continuous Internal Assessment<br><b>ESE:</b> End Semester Theory Exam.<br><b>L:</b> Theory Lecture,<br><b>T:</b> Tutorial,<br><b>P:</b> Practical | <b>OJT – On Job Training</b><br><b>FP – Field Project</b><br><b>CEP – Community Engagement Project</b><br><b>CC – Curricular Course</b><br><b>RP – Research Project</b><br><b>* - Refer University Notification</b> | <b>CIA</b>       | <b>Weightage</b> | <b>Description</b>   |
|--|---|------------------|------------------|--|
|  |   | CIA 1            | 10%              | Home Assignment  |
|  |   | CIA 2            | 20%              | Mid-Term Exam (MTE)  |
|  |   | CIA 3            | 10%              | Activity/Project and research based learning along with seminar presentation |
|  |   | CIA 4            | 10%              | Behavioural Attitude +General Discipline Theory +Practical attendance        |
|  |   | <b>CIA TOTAL</b> | <b>50%</b>       |  |
| Written Examination – End Semester Exam (ESE)  |   |                  | 50%              |  |
|  |   | <b>TOTAL</b>     | <b>100%</b>      |  |

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**Programme Name: B.Sc. Physics**  
**Level 4.5 (Semester – II)**
**For the Batch: AY 25-26 onwards**

| Sr. No.   | Core      | Course Code | Course Name                      | Teaching Scheme (Hrs./Week) |          |           |           | Examination Scheme       |            |                          |            | Total Marks |
|---|-----------|-------------|----------------------------------|-----------------------------|----------|-----------|-----------|--------------------------|------------|--------------------------|------------|-------------|
|   |           |             |                                  | L                           | T        | P         | C         | Formative Assessment CIA |            | Summative Assessment ESE |            |             |
|   |           |             |                                  |                             |          |           |           | Course                   | Lab        | Course                   | Lab        |             |
| <b>MAJOR(MANDATORY + ELECTIVES)</b>   |           |             |                                  |                             |          |           |           |                          |            |                          |            |             |
| 1   | Major     | NYPH201     | Wave and Optics                  | 3                           | -        | -         | 3         | 50                       | -          | 100                      | -          | 100         |
| 2   | Major     | NYPH202     | Fundamentals of Electronics      | 3                           | -        | -         | 3         | 50                       | -          | 100                      | -          | 100         |
| <b>MINOR</b>  |           |             |                                  |                             |          |           |           |                          |            |                          |            |             |
| 3   | Minor     |             | Minor I                          | 2                           | -        | -         | 2         | 50                       | -          | 100                      | -          | 100         |
| <b>Open Electives(OE)*</b>  |           |             |                                  |                             |          |           |           |                          |            |                          |            |             |
| 4   | Mandatory |             | Open Elective – II               | 4                           | -        | -         | 4         | 50                       | -          | 100                      | -          | 100         |
| <b>Vocational and Skill Enhancement (VSEC)</b>                                |           |             |                                  |                             |          |           |           |                          |            |                          |            |             |
| 5   | SEC       | NYPH211     | Optics Laboratory                | -                           | -        | 4         | 2         | -                        | 50         | -                        | 50         | 100         |
| 6   | VSC       | NYPH212     | Electronics Laboratory           | -                           | -        | 4         | 2         | -                        | 50         | -                        | 50         | 100         |
| <b>Ability/Value Education Courses/ Indian Knowledge System(AEC/VEC/IKS)*</b> |           |             |                                  |                             |          |           |           |                          |            |                          |            |             |
| 7   | AEC       |             | Ability Enhancement Courses - II | -                           | -        | 4         | 2         | -                        | 50         | -                        | 50         | 100         |
| 8   | VEC       |             | Value Education Courses- II      | -                           | -        | 4         | 2         | -                        | 50         | -                        | 50         | 100         |
| <b>OJT/FP/CEP/CC/RP</b>   |           |             |                                  |                             |          |           |           |                          |            |                          |            |             |
| 9   | CC        |             | Co-Curricular Course II          | -                           | -        | 4         | 2         | -                        | 50         | -                        | 50         | 100         |
| <b>TOTAL</b>  |           |             |                                  | <b>12</b>                   | <b>-</b> | <b>20</b> | <b>22</b> | <b>200</b>               | <b>250</b> | <b>400</b>               | <b>250</b> | <b>900</b>  |

| CIA: Continuous Internal Assessment | OJT – On Job Training              | CIA   | Weightage   | Description  |
|-------------------------------------|------------------------------------|---|-------------|--|
|                                     | FP – Field Project                 | CIA 1   | 10%         | Home Assignment  |
| ESE: End Semester Theory Exam.      | CEP – Community Engagement Project | CIA 2   | 20%         | Mid-Term Exam (MTE)  |
| L: Theory Lecture,                  | CC – Curricular Course             | CIA 3   | 10%         | Activity/Project and research based learning along with seminar presentation |
| T: Tutorial,                        | RP – Research Project              | CIA 4   | 10%         | Behavioural Attitude +General Discipline Theory +Practical attendance        |
| P: Practical                        | * - Refer University Notification  | <b>CIA TOTAL</b>                              | <b>50%</b>  |  |
|                                     |                                    | Written Examination – End Semester Exam (ESE) | 50%         |  |
|                                     |                                    | <b>TOTAL</b>                                  | <b>100%</b> |  |

**Exit option: Award of UG Certificate with 44 Credits.**

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**NEP 2020 - Course Structure**

**Programme Name: B.Sc. Physics**  
**Level 5.0 (Semester – III)**

**For the Batch: AY 25-26 onwards**

| Sr. No.   | Core      | Course Code | Course Name                         | Teaching Scheme (Hrs./Week) |          |           |           | Examination Scheme       |            |                          |            | Total Marks |
|---|-----------|-------------|-------------------------------------|-----------------------------|----------|-----------|-----------|--------------------------|------------|--------------------------|------------|-------------|
|   |           |             |                                     | L                           | T        | P         | C         | Formative Assessment CIA |            | Summative Assessment ESE |            |             |
|   |           |             |                                     |                             |          |           |           | Course                   | Lab        | Course                   | Lab        |             |
| <b>MAJOR (MANDATORY + ELECTIVES)</b>  |           |             |                                     |                             |          |           |           |                          |            |                          |            |             |
| 1   | Major     | NYPH301     | Mathematical Physics                | 4                           | -        | -         | 4         | 50                       | --         | 100                      | --         | 100         |
| 2   | Major     | NYPH302     | Acoustics and Vibrations            | 4                           | -        | -         | 4         | 50                       | --         | 100                      | --         | 100         |
| <b>MINOR</b>  |           |             |                                     |                             |          |           |           |                          |            |                          |            |             |
| 3   | Minor     |             | Minor II                            | 4                           | --       |           | 4         | 50                       | --         | 100                      | --         | 100         |
| <b>Open Electives (OE)*</b>   |           |             |                                     |                             |          |           |           |                          |            |                          |            |             |
| 4   | Mandatory |             | Open Elective - III                 | 2                           | --       |           | 2         | 50                       | --         | 100                      | --         | 100         |
| <b>Vocational Skill Course (VSC)</b>  |           |             |                                     |                             |          |           |           |                          |            |                          |            |             |
| 5   | VSC       | NYPH311     | Acoustics and Vibrations Laboratory | --                          | --       | 4         | 2         | --                       | 50         | --                       | 50         | 100         |
| <b>Ability/Value Education Courses/ Indian Knowledge System(AEC/VEC/IKS)*</b> |           |             |                                     |                             |          |           |           |                          |            |                          |            |             |
| 6   | AEC       |             | Ability Enhancement Courses - III   | --                          | --       | 4         | 2         | --                       | 50         | --                       | 50         | 100         |
| <b>OJT/FP/CEP/CC/RP</b>   |           |             |                                     |                             |          |           |           |                          |            |                          |            |             |
| 7   | FP        | NYPH312     | Field Project                       | --                          | --       | 4         | 2         | --                       | 50         | --                       | 50         | 100         |
| 8   | CC        |             | Co – curricular course III          | --                          | --       | 4         | 2         | --                       | 50         | --                       | 50         | 100         |
| <b>TOTAL</b>  |           |             |                                     | <b>14</b>                   | <b>-</b> | <b>16</b> | <b>22</b> | <b>200</b>               | <b>200</b> | <b>400</b>               | <b>200</b> | <b>800</b>  |

|  |   |                  |                  |  |
|--|---|------------------|------------------|--|
| <b>CIA:</b> Continuous Internal Assessment<br><b>ESE:</b> End Semester Theory Exam.<br><b>L:</b> Theory Lecture,<br><b>T:</b> Tutorial,<br><b>P:</b> Practical | OJT – On Job Training<br>FP – Field Project<br>CEP – Community Engagement Project<br>CC – Curricular Course<br>RP – Research Project<br>* - Refer University Notification | <b>CIA</b>       | <b>Weightage</b> | <b>Description</b>   |
|  |   | CIA 1            | 10%              | Home Assignment  |
|  |   | CIA 2            | 20%              | Mid-Term Exam (MTE)  |
|  |   | CIA 3            | 10%              | Activity/Project and research based learning along with seminar presentation |
|  |   | CIA 4            | 10%              | Behavioural Attitude +General Discipline Theory +Practical attendance        |
|  |   | <b>CIA TOTAL</b> | <b>50%</b>       |  |
| Written Examination – End Semester Exam (ESE)  |   |                  | 50%              |  |
| <b>TOTAL</b>   |   |                  | <b>100%</b>      |  |

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**Programme Name: B.Sc. Physics**  
**Level 5.0 (Semester – IV)**

**For the Batch: AY 25-26 onwards**

| Sr. No.  | Core      | Course Code | Course Name                                    | Teaching Scheme (Hrs./Week) |          |           |           | Examination Scheme          |            |                             |            | Total Marks |
|--|-----------|-------------|--|-----------------------------|----------|-----------|-----------|-----------------------------|------------|-----------------------------|------------|-------------|
|  |           |             |  | L                           | T        | P         | C         | Formative Assessment<br>CIA |            | Summative Assessment<br>ESE |            |             |
|  |           |             |  |                             |          |           |           | Course                      | Lab        | Course                      | Lab        |             |
| <b>MAJOR (MANDATORY + ELECTIVES)</b>   |           |             |  |                             |          |           |           |                             |            |                             |            |             |
| 1  | Major     | NYPH401     | Electrodynamics                                | 4                           | -        | -         | 4         | 50                          | --         | 100                         | --         | 100         |
| 2  | Major     | NYPH402     | Thermal Physics                                | 4                           | -        | -         | 4         | 50                          | --         | 100                         | --         | 100         |
| <b>MINOR</b>   |           |             |  |                             |          |           |           |                             |            |                             |            |             |
| 3  | Minor     |             | Minor III                                      | 4                           | --       |           | 4         | 50                          | --         | 100                         | --         | 100         |
| <b>Open Electives (OE)*</b>  |           |             |  |                             |          |           |           |                             |            |                             |            |             |
| 4  | Mandatory |             | Open Elective - IV                             | 2                           | --       |           | 2         | 50                          | --         | 100                         | --         | 100         |
| <b>Skill Enhancement Course (SEC)</b>  |           |             |  |                             |          |           |           |                             |            |                             |            |             |
| 5  | SEC       | NYPH411     | Electrodynamics and Thermal Physics Laboratory | --                          | --       | 4         | 2         | --                          | 50         | --                          | 50         | 100         |
| <b>Ability/Value Education Courses/ Indian Knowledge System (AEC/VEC/IKS)*</b> |           |             |  |                             |          |           |           |                             |            |                             |            |             |
| 6  | AEC       |             | Ability Enhancement Courses - IV               | --                          | --       | 4         | 2         | --                          | 50         | --                          | 50         | 100         |
| <b>OJT/FP/CEP/CC/RP</b>  |           |             |  |                             |          |           |           |                             |            |                             |            |             |
| 7  | CEP       | NYPH412     | Community Engagement Project                   | --                          | --       | 4         | 2         | --                          | 50         | --                          | 50         | 100         |
| 8  | CC        |             | Co – curricular course IV                      | --                          | --       | 4         | 2         | --                          | 50         | --                          | 50         | 100         |
| <b>TOTAL</b>   |           |             |  | <b>14</b>                   | <b>-</b> | <b>16</b> | <b>22</b> | <b>200</b>                  | <b>200</b> | <b>400</b>                  | <b>200</b> | <b>800</b>  |

| CIA: Continuous Internal Assessment<br>ESE: End Semester Theory Exam.<br>L: Theory Lecture,<br>T: Tutorial,<br>P: Practical | OJT – On Job Training<br>FP – Field Project<br>CEP – Community Engagement Project<br>CC – Curricular Course<br>RP – Research Project<br>* - Refer University Notification | CIA  | Weightage | Description     |
|---|---|--|-----------|-----------------|
|   |   | CIA 1  | 10%       | Home Assignment |
| CIA 2   | 20%   | Mid-Term Exam (MTE)  |           |                 |
| CIA 3   | 10%   | Activity/Project and research based learning along with seminar presentation |           |                 |
| CIA 4   | 10%   | Behavioural Attitude +General Discipline Theory +Practical attendance        |           |                 |
| <b>CIA TOTAL</b>  |   | <b>50%</b>   |           |                 |
| Written Examination – End Semester Exam (ESE)   |   | 50%  |           |                 |
| <b>TOTAL</b>  |   | <b>100%</b>  |           |                 |

**Exit option: Award of UG Diploma with 88 Credits.**

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**NEP 2020 - Course Structure**

**Programme Name: B.Sc. Physics**  
**Level 5.5 (Semester – V)**

**For the Batch: AY 25-26 onwards**

| Sr. No.                                 | Core     | Course Code | Course Name                                 | Teaching Scheme (Hrs./Week) |          |           |           | Examination Scheme       |            |                          |            | Total Marks |
|---|----------|-------------|---|-----------------------------|----------|-----------|-----------|--------------------------|------------|--------------------------|------------|-------------|
|   |          |             |   | L                           | T        | P         | C         | Formative Assessment CIA |            | Summative Assessment ESE |            |             |
|   |          |             |   |                             |          |           |           | Course                   | Lab        | Course                   | Lab        |             |
| <b>MAJOR (MANDATORY + ELECTIVES)</b>    |          |             |   |                             |          |           |           |                          |            |                          |            |             |
| 1                                       | Major    | NYPH501     | Classical & Statistical Mechanics           | 4                           | -        | -         | 4         | 50                       | --         | 100                      | --         | 100         |
| 2                                       | Major    | NYPH502     | Relativity                                  | 4                           | -        | -         | 4         | 50                       | --         | 100                      | --         | 100         |
| 3                                       | Major    | NYPH511     | Statistical Mechanics Laboratory            | -                           | -        | 4         | 2         | --                       | 50         | --                       | 50         | 100         |
| <b>Major Elective– I</b>                |          |             |   |                             |          |           |           |                          |            |                          |            |             |
| 4                                       | Major    | NYPHE--     | Major Elective - I                          | 4                           | -        | -         | 4         | 50                       | -          | 100                      | -          | 100         |
| <b>Minor</b>                            |          |             |   |                             |          |           |           |                          |            |                          |            |             |
| 5                                       | Minor    |             | Minor IV                                    | 4                           | --       |           | 4         | 50                       | --         | 100                      | --         | 100         |
| <b>Vocational Skill Courses (VSC)</b>   |          |             |   |                             |          |           |           |                          |            |                          |            |             |
| 6                                       | VSC      | NYCH512     | Instrumentation and Data Acquisition Skills | -                           | -        | 4         | 2         | --                       | 50         | --                       | 50         | 100         |
| <b>Ability Enhancement Course (AEC)</b> |          |             |   |                             |          |           |           |                          |            |                          |            |             |
| 7                                       | AEC      | NYPH513     | AEC-V                                       | -                           | -        | 4         | 2         |                          | 50         |                          | 50         | 100         |
| <b>FP/CEP</b>                           |          |             |   |                             |          |           |           |                          |            |                          |            |             |
| 8                                       | FP / CEP | NYPH514     | Filed Project /Community Engagement Project | --                          | --       | 4         | 2         | --                       | 50         | --                       | 50         | 100         |
| <b>TOTAL</b>                            |          |             |   | <b>16</b>                   | <b>-</b> | <b>16</b> | <b>24</b> | <b>200</b>               | <b>200</b> | <b>400</b>               | <b>200</b> | <b>800</b>  |

|  |   |                  |                  |  |
|--|---|------------------|------------------|--|
| <b>CIA:</b> Continuous Internal Assessment<br><b>ESE:</b> End Semester Theory Exam.<br><b>L:</b> Theory Lecture,<br><b>T:</b> Tutorial,<br><b>P:</b> Practical | OJT – On Job Training<br>FP – Field Project<br>CEP – Community Engagement Project<br>CC – Curricular Course<br>RP – Research Project<br>* - Refer University Notification | <b>CIA</b>       | <b>Weightage</b> | <b>Description</b>   |
|  |   | CIA 1            | 10%              | Home Assignment  |
|  |   | CIA 2            | 20%              | Mid-Term Exam (MTE)  |
|  |   | CIA 3            | 10%              | Activity/Project and research based learning along with seminar presentation |
|  |   | CIA 4            | 10%              | Behavioural Attitude +General Discipline Theory +Practical attendance        |
|  |   | <b>CIA TOTAL</b> | <b>50%</b>       |  |
| Written Examination – End Semester Exam (ESE)  |   |                  | 50%              |  |
| <b>TOTAL</b>   |   |                  | <b>100%</b>      |  |

| Course Code | Major Elective I           |
|-------------|----------------------------|
| NYPHE01     | Materials Science          |
| NYPHE02     | Astrophysics and Astronomy |
| NYPHE03     | Biophysics                 |

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**NEP 2020 - Course Structure**

**Programme Name: B.Sc. Physics**  
**Level 5.5 (Semester – VI)**

**For the Batch: AY 25-26 onwards**

| Sr. No.                                 | Core  | Course Code | Course Name                  | Teaching Scheme (Hrs./Week) |          |           |           | Examination Scheme       |            |                          |            | Total Marks |
|---|-------|-------------|------------------------------|-----------------------------|----------|-----------|-----------|--------------------------|------------|--------------------------|------------|-------------|
|   |       |             |                              | L                           | T        | P         | C         | Formative Assessment CIA |            | Summative Assessment ESE |            |             |
|   |       |             |                              |                             |          |           |           | Course                   | Lab        | Course                   | Lab        |             |
| <b>MAJOR (MANDATORY + ELECTIVES)</b>    |       |             |                              |                             |          |           |           |                          |            |                          |            |             |
| 1                                       | Major | NYPH601     | Quantum Mechanics            | 4                           | -        | -         | 4         | 50                       | --         | 100                      | --         | 100         |
| 2                                       | Major | NYPH602     | Spectroscopy                 | 4                           | -        | -         | 4         | 50                       | --         | 100                      | --         | 100         |
| 3                                       | Major | NYPH611     | Quantum Mechanics Laboratory | -                           | -        | 4         | 2         | --                       | 50         | --                       | 50         | 100         |
| <b>Major Elective – II</b>              |       |             |                              |                             |          |           |           |                          |            |                          |            |             |
| 4                                       | Major | NYPHE--     | Major Elective – II          | 4                           | -        | -         | 4         | 50                       | -          | 100                      | -          | 100         |
| <b>Minor</b>                            |       |             |                              |                             |          |           |           |                          |            |                          |            |             |
| 5                                       | Minor |             | Minor VI                     | 4                           | --       |           | 4         | 50                       | --         | 100                      | --         | 100         |
| <b>Ability Enhancement Course (AEC)</b> |       |             |                              |                             |          |           |           |                          |            |                          |            |             |
| 6                                       | AEC   | NYPH612     | AEC-IV                       | --                          | --       | 4         | 2         | --                       | 50         | --                       | 50         | 100         |
| <b>OJT</b>                              |       |             |                              |                             |          |           |           |                          |            |                          |            |             |
| 7                                       | OJT   | NYPH613     | On Job Training              | --                          | --       | 8         | 4         | --                       | 50         | --                       | 50         | 100         |
| <b>TOTAL</b>                            |       |             |                              | <b>16</b>                   | <b>-</b> | <b>16</b> | <b>24</b> | <b>200</b>               | <b>150</b> | <b>400</b>               | <b>150</b> | <b>700</b>  |

| <b>CIA:</b> Continuous Internal Assessment<br><b>ESE:</b> End Semester Theory Exam.<br><b>L:</b> Theory Lecture,<br><b>T:</b> Tutorial,<br><b>P:</b> Practical | OJT – On Job Training<br>FP – Field Project<br>CEP – Community Engagement Project<br>CC – Curricular Course<br>RP – Research Project<br>* - Refer University Notification | <b>CIA</b>  | <b>Weightage</b> | <b>Description</b>   |
|--|---|-------------|------------------|--|
|  |   | CIA 1       | 10%              | Home Assignment  |
|  |   | CIA 2       | 20%              | Mid-Term Exam (MTE)  |
|  |   | CIA 3       | 10%              | Activity/Project and research based learning along with seminar presentation |
|  |   | CIA 4       | 10%              | Behavioural Attitude +General Discipline Theory +Practical attendance        |
| <b>CIA TOTAL</b>   |   | <b>50%</b>  |                  |  |
| Written Examination – End Semester Exam (ESE)  |   | 50%         |                  |  |
| <b>TOTAL</b>   |   | <b>100%</b> |                  |  |

| Course Code | Major Elective II                   |
|-------------|-------------------------------------|
| NYPHE04     | Nanomaterials and Nanoscience       |
| NYPHE05     | Advanced Astrophysics               |
| NYPHE06     | Geophysics and Earth System Science |

**Exit option: Award of UG Degree with 132 Credits.**

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**NEP 2020 - Course Structure**

**Programme Name: B.Sc. Physics**  
**Level 6.0 (Semester – VII)**

**(UG Honours)**  
**For the Batch: AY 25-26 onwards**

| Sr<br>No                             | Core  | Course<br>Code | Course Name                   | Teaching Scheme (Hrs./Week) |          |          |           | Examination Scheme             |           |                                |           | Total Marks |
|--------------------------------------|-------|----------------|-------------------------------|-----------------------------|----------|----------|-----------|--------------------------------|-----------|--------------------------------|-----------|-------------|
|                                      |       |                |                               | L                           | T        | P        | C         | Formative<br>Assessment<br>CIA |           | Summative<br>Assessment<br>ESE |           |             |
|                                      |       |                |                               |                             |          |          |           | Course                         | Lab       | Course                         | Lab       |             |
| <b>MAJOR (MANDATORY + ELECTIVES)</b> |       |                |                               |                             |          |          |           |                                |           |                                |           |             |
| 1                                    | Major | NYPH701        | Atomic Spectroscopy           | 4                           | -        | -        | 4         | 50                             | --        | 100                            | --        | 100         |
| 2                                    | Major | NYPH702        | Nuclear Physics               | 4                           | -        | -        | 4         | 50                             | --        | 100                            | --        | 100         |
| 3                                    | Major | NYPH703        | Advanced Quantum<br>Mechanics | 4                           |          |          | 4         | 50                             | --        | 100                            | --        | 100         |
| 4                                    | Major | NYPH711        | Physics Laboratory I          | -                           | -        | 4        | 2         |                                | 50        |                                | 50        | 100-        |
| <b>Major Elective – III</b>          |       |                |                               |                             |          |          |           |                                |           |                                |           |             |
| 5                                    | Major | NYPHE--        | Major Elective – III          | 4                           | -        | -        | 4         | 50                             | -         | 100                            | -         | 100         |
| <b>Minor</b>                         |       |                |                               |                             |          |          |           |                                |           |                                |           |             |
| 6                                    | Minor | 17RDP101       | Research Methodology          | 4                           | --       |          | 4         | 50                             | --        | 100                            | --        | 100         |
| <b>TOTAL</b>                         |       |                |                               | <b>20</b>                   | <b>-</b> | <b>4</b> | <b>22</b> | <b>250</b>                     | <b>50</b> | <b>500</b>                     | <b>50</b> | <b>600</b>  |

|  |   |                  |                  |  |
|--|---|------------------|------------------|--|
| <b>CIA:</b> Continuous Internal Assessment<br><b>ESE:</b> End Semester Theory Exam.<br><b>L:</b> Theory Lecture,<br><b>T:</b> Tutorial,<br><b>P:</b> Practical | OJT – On Job Training<br>FP – Field Project<br>CEP – Community<br>Engagement Project<br>CC – Curricular Course<br>RP – Research Project<br>* - Refer University<br>Notification | <b>CIA</b>       | <b>Weightage</b> | <b>Description</b>   |
|  |   | CIA 1            | 10%              | Home Assignment  |
|  |   | CIA 2            | 20%              | Mid-Term Exam (MTE)  |
|  |   | CIA 3            | 10%              | Activity/Project and research<br>based learning along with seminar<br>presentation |
|  |   | CIA 4            | 10%              | Behavioural Attitude +General<br>Discipline<br>Theory +Practical attendance        |
|  |   | <b>CIA TOTAL</b> | <b>50%</b>       |  |
| Written Examination – End Semester Exam (ESE)  |   |                  | 50%              |  |
|  |   | <b>TOTAL</b>     | <b>100%</b>      |  |

| Course Code | Major Elective III                    |
|-------------|---------------------------------------|
| NYPHE07     | Materials Characterization Techniques |
| NYPHE08     | Energy Systems and Smart Materials    |
| NYPHE09     | Computational Methods in Physics      |

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**NEP 2020 - Course Structure**

**Programme Name: B.Sc. Physics**  
**Level 6.0 (Semester – VIII)**

**(UG Honours)**  
**For the Batch: AY 25-26 onwards**

| Sr. No.                              | Core  | Course Code | Course Name                           | Teaching Scheme (Hrs./Week) |          |           |           | Examination Scheme       |            |                          |            | Total Marks |
|--------------------------------------|-------|-------------|---------------------------------------|-----------------------------|----------|-----------|-----------|--------------------------|------------|--------------------------|------------|-------------|
|                                      |       |             |                                       | L                           | T        | P         | C         | Formative Assessment CIA |            | Summative Assessment ESE |            |             |
|                                      |       |             |                                       |                             |          |           |           | Course                   | Lab        | Course                   | Lab        |             |
| <b>MAJOR (MANDATORY + ELECTIVES)</b> |       |             |                                       |                             |          |           |           |                          |            |                          |            |             |
| 1                                    | Major | NYPH801     | Solid State Physics                   | 4                           | -        | -         | 4         | 50                       | --         | 100                      | --         | 100         |
| 2                                    | Major | NYPH802     | Physics of Molecules & Laser Physics  | 4                           | -        | -         | 4         | 50                       | --         | 100                      | --         | 100         |
| 3                                    | Major | NYPH803     | Quantum Field Theory and Applications | 4                           | -        | -         | 4         | 50                       | --         | 100                      | --         | 100         |
| 4                                    | Major | NYPH811     | Physics Laboratory II                 | -                           | -        | 4         | 2         | --                       | 50         | --                       | 50         | 100         |
| <b>Major Elective – IV</b>           |       |             |                                       |                             |          |           |           |                          |            |                          |            |             |
| 4                                    | Major | NYPHE--     | Major Elective – IV                   | 4                           | -        | -         | 4         | 50                       | -          | 100                      | -          | 100         |
| <b>OJT</b>                           |       |             |                                       |                             |          |           |           |                          |            |                          |            |             |
| 6                                    | OJT   | NYPH812     | On Job Training                       | --                          | --       | 8         | 4         | --                       | 50         | --                       | 50         | 100         |
| <b>TOTAL</b>                         |       |             |                                       | <b>16</b>                   | <b>-</b> | <b>12</b> | <b>22</b> | <b>200</b>               | <b>100</b> | <b>400</b>               | <b>100</b> | <b>600</b>  |

|  |   |                  |                  |  |
|--|---|------------------|------------------|--|
| <b>CIA:</b> Continuous Internal Assessment<br><b>ESE:</b> End Semester Theory Exam.<br><b>L:</b> Theory Lecture,<br><b>T:</b> Tutorial,<br><b>P:</b> Practical | OJT – On Job Training<br>FP – Field Project<br>CEP – Community Engagement Project<br>CC – Curricular Course<br>RP – Research Project<br>* - Refer University Notification | <b>CIA</b>       | <b>Weightage</b> | <b>Description</b>   |
|  |   | CIA 1            | 10%              | Home Assignment  |
|  |   | CIA 2            | 20%              | Mid-Term Exam (MTE)  |
|  |   | CIA 3            | 10%              | Activity/Project and research based learning along with seminar presentation |
|  |   | CIA 4            | 10%              | Behavioural Attitude +General Discipline Theory +Practical attendance        |
|  |   | <b>CIA TOTAL</b> | <b>50%</b>       |  |
| Written Examination – End Semester Exam (ESE)  |   |                  | 50%              |  |
|  |   | <b>TOTAL</b>     | <b>100%</b>      |  |

| Course Code | Major Elective IV                      |
|-------------|--|
| NYPHE10     | Advanced Condensed Matter Physics      |
| NYPHE11     | High-Energy Astrophysics and Cosmology |
| NYPHE12     | Experimental Techniques in Physics     |

**Exit option: Award of UG Honours with 176 credits.**

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**NEP 2020 - Course Structure**

**Programme Name: B.Sc. Physics**  
**Level 6.0 (Semester – VII)**

**(UG Honours with Research)**  
**For the Batch: AY 25-26 onwards**

| Sr. No.                              | Core  | Course Code | Course Name            | Teaching Scheme (Hrs./Week) |          |           |           | Examination Scheme       |            |                          |            | Total Marks |
|--------------------------------------|-------|-------------|------------------------|-----------------------------|----------|-----------|-----------|--------------------------|------------|--------------------------|------------|-------------|
|                                      |       |             |                        | L                           | T        | P         | C         | Formative Assessment CIA |            | Summative Assessment ESE |            |             |
|                                      |       |             |                        |                             |          |           |           | Course                   | Lab        | Course                   | Lab        |             |
| <b>MAJOR (MANDATORY + ELECTIVES)</b> |       |             |                        |                             |          |           |           |                          |            |                          |            |             |
| 1                                    | Major | NYCH701     | Atomic Spectroscopy    | 4                           | -        | -         | 4         | 50                       | --         | 100                      | --         | 100         |
| 2                                    | Major | NYCH702     | Nuclear Physics        | 4                           | -        | -         | 4         | 50                       | --         | 100                      | --         | 100         |
| 3                                    | Major | NYCH712     | Physics Laboratory III |                             |          | 4         | 2         | --                       | 50         | --                       | 50         | 100         |
| <b>Major Elective – III</b>          |       |             |                        |                             |          |           |           |                          |            |                          |            |             |
| 5                                    | Major | NYPHE--     | Major Elective - III   | 4                           | -        | -         | 4         | 50                       | -          | 100                      | -          | 100         |
| <b>Minor</b>                         |       |             |                        |                             |          |           |           |                          |            |                          |            |             |
| 6                                    | Minor | 17RDP101    | Research Methodology   | 4                           | --       |           | 4         | 50                       | --         | 100                      | --         | 100         |
| <b>Research Project</b>              |       |             |                        |                             |          |           |           |                          |            |                          |            |             |
| 7                                    | RP    | NYPH713     | Research Project - I   | --                          | --       | 8         | 4         | --                       | 50         | --                       | 50         | 100         |
| <b>TOTAL</b>                         |       |             |                        | <b>16</b>                   | <b>-</b> | <b>12</b> | <b>22</b> | <b>200</b>               | <b>100</b> | <b>400</b>               | <b>100</b> | <b>600</b>  |

| Course Code | Major Elective III                    |
|-------------|---------------------------------------|
| NYPHE07     | Materials Characterization Techniques |
| NYPHE08     | Energy Systems and Smart Materials    |
| NYPHE09     | Computational Methods in Physics      |

| <b>CIA:</b> Continuous Internal Assessment<br><b>ESE:</b> End Semester Theory Exam.<br><b>L:</b> Theory Lecture,<br><b>T:</b> Tutorial,<br><b>P:</b> Practical | OJT – On Job Training<br>FP – Field Project<br>CEP – Community Engagement Project<br>CC – Curricular Course<br>RP – Research Project<br>* - Refer University Notification | CIA              | Weightage | Description  |
|--|---|------------------|-----------|--|
|  |   | CIA 1            | 10%       | Home Assignment  |
|  |   | CIA 2            | 20%       | Mid-Term Exam (MTE)  |
|  |   | CIA 3            | 10%       | Activity/Project and research based learning along with seminar presentation |
|  |   | CIA 4            | 10%       | Behavioural Attitude +General Discipline Theory +Practical attendance        |
|  |   | <b>CIA TOTAL</b> |           | <b>50%</b>   |
| Written Examination – End Semester Exam (ESE)  |   | 50%              |           |  |
| <b>TOTAL</b>   |   | <b>100%</b>      |           |  |

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**NEP 2020 - Course Structure**

**Programme Name: B.Sc. Physics**  
**Semester – VIII**

**(UG Honours with Research)**  
**For the Batch: AY 25-26 onwards**

| Sr. No.                              | Core  | Course Code | Course Name                          | Teaching Scheme (Hrs./Week) |          |           |           | Examination Scheme       |            |                          |            | Total Marks |
|--------------------------------------|-------|-------------|--------------------------------------|-----------------------------|----------|-----------|-----------|--------------------------|------------|--------------------------|------------|-------------|
|                                      |       |             |                                      | L                           | T        | P         | C         | Formative Assessment CIA |            | Summative Assessment ESE |            |             |
|                                      |       |             |                                      |                             |          |           |           | Course                   | Lab        | Course                   | Lab        |             |
| <b>MAJOR (MANDATORY + ELECTIVES)</b> |       |             |                                      |                             |          |           |           |                          |            |                          |            |             |
| 1                                    | Major | NYPH801     | Solid State Physics                  | 4                           | -        | -         | 4         | 50                       | --         | 100                      | --         | 100         |
| 2                                    | Major | NYPH802     | Physics of Molecules & Laser Physics | 4                           | -        | -         | 4         | 50                       | --         | 100                      | --         | 100         |
| 3                                    | Major | NYPH813     | Physics Laboratory IV                | -                           | -        | 4         | 2         | -                        | 50         | -                        | 50         | 100         |
| <b>Major Elective – IV</b>           |       |             |                                      |                             |          |           |           |                          |            |                          |            |             |
| 4                                    | Major | NYPHE--     | Major Elective - IV                  | 4                           | -        | -         | 4         | 50                       | -          | 100                      | -          | 100         |
| <b>Research Project</b>              |       |             |                                      |                             |          |           |           |                          |            |                          |            |             |
| 5                                    | RP    | NYCH814     | Research Project                     | -                           | -        | 16        | 8         | -                        | 50         | --                       | 50         | 100         |
| <b>TOTAL</b>                         |       |             |                                      | <b>12</b>                   | <b>-</b> | <b>20</b> | <b>22</b> | <b>150</b>               | <b>100</b> | <b>300</b>               | <b>100</b> | <b>500</b>  |

| Course Code | Major Elective IV                      |
|-------------|--|
| NYPHE10     | Advanced Condensed Matter Physics      |
| NYPHE11     | High-Energy Astrophysics and Cosmology |
| NYPHE12     | Experimental Techniques in Physics     |

**Exit option: Award of UG Honours with Research by earning 176 credits.**

|  |   |                  |                  |  |
|--|---|------------------|------------------|--|
| <b>CIA:</b> Continuous Internal Assessment<br><b>ESE:</b> End Semester Theory Exam.<br><b>L:</b> Theory Lecture,<br><b>T:</b> Tutorial,<br><b>P:</b> Practical | OJT – On Job Training<br>FP – Field Project<br>CEP – Community Engagement Project<br>CC – Curricular Course<br>RP – Research Project<br>* - Refer University Notification | <b>CIA</b>       | <b>Weightage</b> | <b>Description</b>   |
|  |   | CIA 1            | 10%              | Home Assignment  |
|  |   | CIA 2            | 20%              | Mid-Term Exam (MTE)  |
|  |   | CIA 3            | 10%              | Activity/Project and research based learning along with seminar presentation |
|  |   | CIA 4            | 10%              | Behavioural Attitude +General Discipline Theory +Practical attendance        |
|  |   | <b>CIA TOTAL</b> | <b>50%</b>       |  |

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