DEPARTMENT of PHYSICS & ASTROPHYSICS

University of Delhi

Guidelines for 2025-26

(*Optional paper allotments for semesters III and IV)*

The web portal will be open/circulated for submission of choices on 1st May 2025 and will be closed on 13th May 2025 (till midnight).

Following are the courses to be offered in semesters III and IV in 2025-26. Students can opt for Elective/Open Elective/Special ***Theory OR Experimental*** *papers.*

Students can opt either **Theory stream** or **Experimental stream**. Those who are opting for **Theory stream** they should select at least TWO Elective papers from Group B. Those who are opting for **Experimental stream** they should select at least TWO Elective papers from Group A. Additional papers to fulfil the credits can be chosen from *Open Elective/Dissertation/Special Theory* in Semester-III and Semester-IV.

Note: Offering of the courses will be subject to the availability of the teachers. Courses will be run in parallel if the number of common students in the subjects is less than 05. If we cannot offer you a course due to any of the above reasons, you will be allotted your next choice based on merit, so fill your preferences carefully.

SEMESTER-III

(Total number of courses: 5)

Compulsory courses:

1) **Nuclear & Particle Physics (PH-CT 501): Core Theory course.**

2) **Computational Physics (PH-CL-502): Core Lab course.**

Optional courses: Three to be chosen

Experimental option: Two (considered as One unit) from Group A-III and One from Group B-III or Group C-III or Group D-III to be chosen (subject to restrictions*)

Or

Theory options: Either (a) Three from Group B-III,
or (b) Two from Group B-III and One from Group C-III or Group D-III
to be chosen (subject to restrictions*)

** Restrictions/Methodology in choices/allotments are mentioned in pages 4 and 5.*

Group A-III: Elective Courses - Experimental [Lab - Theory & Expt. (Lab)]

(*Two* courses considered as *One* unit)

1) Physics at Nano Scale - I: Theory + Expt. (PH-ET511 & PH-EL512): **Seats - 36**
2) Advanced Electronics - I: Theory + Expt. (PH-ET513 & PH-EL514): **Seats - 60**
3) Advanced Nuclear Physics - I: Theory + Expt. (PH-ET515 & PH-EL516): **Seats - 36**
4) Laser & Spectroscopy - I: Theory + Expt. (PH-ET517 & PH-EL518): **Seats - 36**
5) Advanced Solid State Physics - I: Theory + Expt. (PH-ET519 & PH-EL520): **Seats - 36**

Group B-III: Elective courses - Theory ***(subject to restrictions*)***

1) GTR & Cosmology - I (PH-ET531): **Seats – 60**
2) Astronomy & Astrophysics - I (PH-ET532): **Seats - 60**
3) Condensed Matter Physics - I (PH-ET533): **Seats - 60**
4) Plasma Physics - I (PH-ET534): **Seats – 60**
5) Particle Physics - I (PH-ET535): **Seats – 60**
6) Quantum Field Theory – I (PH-ET536): **Seats – 60**

Group C-III: Dissertation-I (PH-ED540) ***(subject to restrictions*)***

Group D-III: Open Elective courses ***(subject to restrictions*)***

1) Radiation Safety (PH-OT541): **Seats - 90 + 25 (from other departments)**
2) Introductory Astronomy (PH-OT542): **Seats - 90 + 25 (from other departments)**

SEMESTER-IV

(Total number of courses: 5)

Compulsory course:

Atomic & Molecular Physics (PH-CT 503): Core Theory course.

Optional courses: Some of them being fixed by the choices made in semester III, One / Two / Three to be chosen (depending on what remains)

** Restrictions/Methodology in choices/allotments are mentioned in pages 4 and 5.*

Experimental option: ***Two (considered as One combined unit) in Group A-IV being fixed by the choice made in Group A-III, the remaining One / Two is(are) to be chosen from Group D-IV or Group E-IV or Group F-IV (subject to applicability and restrictions*)***

Or

Theory option: ***Three/Two/One being fixed according to the choice made in Group B-III, the remaining One / Two / Three is(are) to be chosen from Group C-IV or Group D-IV or Group E-IV or Group F-IV (subject to applicability and restrictions*)***

Group A-IV: Elective Courses - Experimental [Lab - Theory & Expt. (Lab)]

(*Two* courses considered as *One* unit)

1) Physics at Nano Scale - II: Theory + Expt. (PH-ET551 & PH-EL552): Seats - 32
2) Advanced Electronics - II: Theory + Expt. (PH-ET553 & PH-EL554): Seats - 60
3) Advanced Nuclear Physics - II: Theory + Expt. (PH-ET555 & PH-EL556): Seats - 32
4) Laser & Spectroscopy - II: Theory + Expt. (PH-ET557 & PH-EL558): Seats - 32
5) Advanced Solid State Physics - II: Theory + Expt. (PH-ET559 & PH-EL560): Seats - 36

Group B-IV: Elective courses - Theory:

1) GTR & Cosmology - II (PH-ET571): **Seats – 60**
2) Astronomy & Astrophysics - II (PH-ET572): **Seats – 60**
3) Condensed Matter Physics - II (PH-ET573): **Seats – 60**
4) Plasma Physics - II (PH-ET574): **Seats – 60**
5) Particle Physics - II (PH-ET575): **Seats – 60**
6) Quantum Field Theory – II (PH-ET576): **Seats – 60**

Group C-IV: Special Courses - Theory *(subject to restrictions*)*

1) Nonlinear Dynamics (PH-ET581): **Seats – 60**
2) Nuclear Astrophysics (PH-ET586): **Seats – 60**
3) Soft Matter Physics (PH-ET584): **Seats – 60**
4) Fluid Dynamics (PH-ET 585): **Seats - 60**
5) Applied Physics (PH-ET588): **Seats – 60**
6) Superconductivity, Superfluidity & Critical Phenomena (PH-ET583): **Seats - 60**

Group D-IV: Observational Astronomy Lab: Seats 18

Group E-IV: Dissertation-II (PH-ED580) *(subject to restrictions*)*

** Restrictions/Methodology in choices/allotments are mentioned in pages 4 and 5.*

Group F-IV: Open Elective courses ***(subject to restrictions*)***

1) Radiation Safety (PH-OTXXXX): **Seats - 90 + 25 (from other departments)**
2) Any other open elective for example Biological Physics, if offered, will be informed before the end of Semester 3.

General guidelines:

1) *Dissertation-I* *(PH-ED540) or (and)* ***Dissertation-II*** *(PH-ED580) in semesters III and IV respectively:*

*a) The option of the Dissertation(s) is only available to those who secured at least **6.5 SGPA** in semester-I and the first 20% students in the "**merit list**" (see, Methodology **to be adopted for course allotments** section for the definition of merit list**)**. Students should not have any active backlog/ER in any paper.*

b) Separate option form for the Dissertation(s) require(s) to be submitted along with the main option form.

c) Maximum seats available (for Dissertation-I and Dissertation-II combined): 50

*d) A maximum of **two** students can have the same supervisor, for their Dissertation. In other words, no teacher can supervise more than two students.*

2) *Open Elective (OE) courses* *in semesters III and IV:*

a) At least one OE course (in the entire academic year) MUST be opted for.

b) OE courses could be opted from those offered by any of the departments under the science faculty. Other departments offer open elective courses only in the III semester.

c) OE courses of all such departments will be assigned the same time slot.

3) *Online/Blended teaching pattern*: *To be decided by the concerned teacher(s) only.*

4) *Mentors*: *To be duly assigned to all students.*

Restrictions on the choice of optional papers:

Restrictions in Semester – III:

1. Theory and the corresponding Lab papers in an Experimental Module will be allotted as one unit.
2. Minimum two theory courses will be assigned to those who would opt for the "theory stream".
3. Only one of the following two courses is allowed:
   Particle Physics - I (PH-ET535) and Plasma Physics - I (PH-ET534)

** Restrictions/Methodology in choices/allotments are mentioned in pages 4 and 5.*

4. Students opting for the Experimental module can also opt for Plasma Physics - I (PH-ET534).
5. Students having Astrophysics-I/II will not be allotted Introductory Astronomy as an Open Elective.

Restrictions in Semester – IV:

1. If the **part-I** of any course has been opted for (in semester III), then the **part-II** of that course would be allotted automatically in semester IV. For e.g., if someone opts for Plasma Physics - I in semester III, then (s)he would be automatically allotted Plasma Physics - II in semester IV.
2. Special paper *Nuclear Astrophysics (PH-ET586)* cannot be allotted together with the Elective theory paper *Astronomy & Astrophysics - II (PH-ET572)*.
3. A Special course can only run if the number of students opting **for it is at least 10**.
4. Two separate time slots will be assigned to the Special Theory courses. Accordingly, the following would apply:
   i) *A maximum of <u>two</u> such courses (at different time slots) can be allotted.*
   ii) *Among the three courses Nonlinear Dynamics (PH-ET581), Nuclear Astrophysics (PH-ET586), and Soft Matter Physics (PH-ET584) only one can be allotted, since the classes for these three will run in parallel.*
   iii) *Among the three courses Fluid Dynamics (PH-ET585), Applied Physics (PH-ET588), and Superconductivity, Superfluidity & Critical Phenomena (PH-ET583), only one can be allotted, since the classes for these three will run in parallel.*
5. **The students having three theory courses in the IV semester may be allowed to drop part-II of one of the theory courses (on a case-by-case basis).**
6. To opt for the Observational Astronomy Lab in Sem-IV, one must have Astrophysics – I and II

Methodology to be adopted for course allotments:

- ***A merit list will be prepared based on the total marks secured in the Internal Assessment tests in semester II combined along with the grade/marks obtained in semester-I with equal weightage. The number of ERs will not be taken into account while preparing the merit list. The time of submission of the optional form will be considered for any ambiguity in the merit list.***

- ***For semester III, the first two papers would be allotted, according to the students' preferences and merit. After the allotment of the first two optional papers to all the students, the third optional paper would be allotted, according to the students' preferences and merit.***

- ***For the options in semester IV, the allotment of part-II of the respective courses would take place by default, whereas the remaining optional papers would be allotted on the basis of the student's choices and merit of Semester-I and II.*** **Note: Choices for remaining optional courses will be taken at the end of semester III.**

- ***The groups P1/P2/P3/P4/T1/t2/T3/T4/T5/T6 will be dissolved and new groups F1/F2/F3/F4 will be created after allotment of elective courses. Students are advised to check the notice board regularly for details.***

** Restrictions/Methodology in choices/allotments are mentioned in pages 4 and 5.*

- ***Attendance is compulsory in all courses as per university norms.***

Guidelines for filling out option form

(*Optional paper allotments for semesters III and IV)*

1. Please visit the website of the Department of Physics and Astrophysics: https://physics.du.ac.in/
2. Locate the "Student Corner" section and click on "Student Login."
3. Register yourself and click on your student login ID.
4. Carefully enter the correct department Unique ID (UID), Email ID, and **Exam Roll number**. Any information with errors in these data will not be considered for the elective option.
5. Login to your option form filling account using your UID and password.
6. Thoroughly read all the information provided on the home page of the option form.
7. Choose the "Elective Option Form" to complete the option form.
8. If you are interested in selecting an open elective from other departments within the science faculty, choose the "Open Elective Form" option.
9. If you have opted for a Dissertation, upload a duly signed consent form (signed by both you and your supervisor). You can download a template for the consent form from the website.
10. Select your desired course options from the Elective Option page.
11. You need to select options for Semester-III Course-I & II as well as Semester-III Course-III.

12. The first two electives will be assigned to all students from a set of 11 options (Course-I & II).
13. The remaining electives, open electives, and Dissertation courses will be assigned from the Course-III column. Choose your options based on your preferences. If you select a Dissertation, make sure to indicate it as your first choice (by selecting First Choice).

    For Experimental stream: You should select Dissertation OR Open Elective from Department or Outside Department as third paper in Semester-III.

    For Theory Stream: If you choose an open elective or Elective as your third paper, your first choice should be one of the open electives offered by the Department or Elective papers.
14. Students who have opted for a dissertation course for Semester-III & IV will be assigned a Semester IV open elective course.
15. Experimental options are organized in modules of two electives. If you choose an experiment module, both the theoretical and experimental parts of that module will be assigned to you. Therefore, make your choice carefully. For instance, selecting PH-EL511 (Physics at Nano Scale - I: Theory) will automatically assign PH-ET512 (Physics at Nano Scale - I: Lab.) to you.
16. You need to select two courses for Semester IV: Course-IV and Course-V. Mention No option in all choices as choices for Sem IV courses will be taken later.
17. Fill in all possible combinations of your course choices for Semester IV (Course IV and Course V), even if you have opted for a dissertation course for Semesters III & IV. A Semester-IV open elective course will be assigned to students who have chosen a dissertation course for Semester-III & IV.
18. Send a copy of the submitted form to the email address provided on the form. If a printable version of the form does not generate due to network issues, follow these steps:

a) First log out from your account.

b) Login again and locate the "Print Elective Option Form" tab. This will generate a printable webpage containing your filled options if the form was successfully submitted in the database.

c) If you don't receive a printable version of your submitted option form, resubmit your options from your login account.