

# DEPARTMENT OF PHYSICS & ASTROPHYSICS

University of Delhi

## Guidelines

*(Optional papers allotment for semesters III and IV)*

*Followings are the courses offered in semester III & IV in 2017-18. Student can opt for Experimental or Theory option.*

### SEMESTER-III

*For Experimental option: Choose one module from Group A\* courses and two courses from Group B\**

*Or*

*For Theory option: Choose four courses from Group B\**

- I. Computer Programming: PHYS-501** A compulsory course for all students.
- II. Group A: Experimental modules (Lab-theory papers +Expt. (Lab.) papers)**
  - a) Physics at Nano Scale -I: Theory + Expt. (PHYS-511 & PHYS-512) : **Seats- 36**
  - b) Electronics -I: Theory + Expt. (PHYS -513 & PHYS-514): **Seats- 65**
  - c) Solid State Physics -I: Theory + Expt. (PHYS -515 & PHYS-516): **Seats- 35**
  - d) Nuclear Physics -I: Theory + Expt. (PHYS -517 & PHYS-518): **Seats- 40**
  - e) Laser & Spectroscopy -I: Theory + Expt. (PHYS -519 & PHYS-520): **Seats- 40**
- III. Group B: Theoretical courses**
  1. Particle Physics – I (PHYS-551): **Seats- 100**
  2. Field theory & QED -I (PHYS-552): **Seats- 100**
  3. Adv. Solid State Theory -I (PHYS-553): **Seats- 100**
  4. Plasma -I (PHYS-554): **Seats- 100**
  5. Astronomy & Astrophysics -I (PHYS-555): **Seats- 100**
  6. GTR & Cosmology-I (PHYS-556): **Seats- 100**
  7. Mathematical Physics (PHYS-557): **Seats- 100**

### SEMESTER-IV

*For Experimental option: Choose one module from Group A\* courses and three courses from Group B\**

*Or*

*For theory option: Choose five courses from Group B\**

- I. Group A: Experimental module (Lab-theory papers +Expt. (Lab.) papers).**
  - a) Physics at Nano Scale -II: Theory + Expt. (PHYS-531 & PHYS-532): **Seats- 36**
  - b) Electronics -II: Theory + Expt. (PHYS -533 & PHYS-534): **Seats- 65**

- c) Solid State Physics -II: Theory + Expt. (PHYS -535 & PHYS-536): **Seats- 35**
- d) Nuclear Physics -II: Theory + Expt. (PHYS -537 & PHYS-538): **Seats: 40**
- e) Laser & Spectroscopy -II: Theory + Expt. (PHYS -539 & PHYS-540): **Seats- 40**

## II. Group B:

### i) Theoretical papers:

1. Particle Physics – II (PHYS-571): **Seats- 100**
2. Field theory & QED –II (PHYS-572): **Seats- 100**
3. Adv. Solid State Theory –II (PHYS-573): **Seats- 100**
4. Plasma –II (PHYS-574): **Seats- 100**
5. Astronomy & Astrophysics –II (PHYS-575): **Seats- 100**
6. GTR & Cosmology-II (PHYS-576): **Seats- 100**
7. Non-linear Dynamics (PHYS-577): **Seats- 100**
8. Introduction to String Theory (PHYS-578): **Seats- 100**
9. Physics at Nanoscale -II: Theory (PHYS-531): **Seats- (100 – x)**
10. Electronics -II: Theory (PHYS-533): **Seats- (100 – x)**
11. Nuclear Physics -II: Theory (PHYS-537): **Seats- (100 -x)**

### ii) Lab papers:

12. Observational Astronomy Lab. (Lab. Course) (PHYS-579): **Seats- 18**
13. Advanced Numerical Techniques (Computer Lab. Course) (PHYS-580): **Seats- 50**

### iii) Dissertation:

14. **Dissertation** (*only available to student who secure at least 60% marks in semesters I & II together and have no ER (Essential Repeat) in any semester-II papers. Separate option form for Dissertation will be invited during August – November 2017.*)

**Note: x is the number of seats filled by students taking Experimental module for concerned course.**

## Restrictions on choice of optional papers:

## Restrictions in Semester – III:

1. The theory and corresponding lab. course in an Experimental Module will be allotted together as one unit.
2. A student is allowed only one course from each of the following pairs of courses:
  - i) Particle Physics (PHYS-551) and Plasma Physics (PHYS-554),
  - ii) Adv. Solid State Theory (PHYS – 553) and Astronomy & Astrophysics (PHYS-555),
  - iii) Solid State Physics module (PHYS-515) and Adv. Solid State Theory (PHYS-553).

## Restrictions in Semester – IV:

3. A student taking part-I of any course must also take part-II of that course.
4. The theory components of three Experimental Modules namely the papers “Physics at Nanoscale” (PHYS-531), “Electronics” (PHYS-533) and “Nuclear Physics” (PHYS-537) are also available as optional papers to all students who do not have the corresponding lab courses, subject to the following restriction:
  - i) *From the three courses Physics at Nanoscale (PHYS-531), Electronics (PHYS-533) and Solid State Physics (PHYS-535) only one will be allowed. (Classes for these three will run in parallel)*
  - ii) *From the two courses Nuclear Physics (PHYS-537) and Laser & Spectroscopy (PHYS-539) only one will be allowed. (Classes for these two will run in parallel)*
5. Observational Astronomy Lab. course (PHYS-580) will only be allotted to student having Astronomy and Astrophysics (PHYS-555) in the semester-III.

## Methodology to be adopted for course allotments:

- *A merit list will be prepared based on the total marks secured in semester -I & II combined. The number of ERs will not be taken into account while preparing the merit list.*
- *For semester -III, the first two optional papers (for Experimental option one Module) will be allotted as per the student preference according to merit. After allocating the first two optional papers to all the students, the third and fourth options will be allocated according to student preferences and merit.*
- *For semester -IV, the part-II of the courses would be allotted automatically.*
- *For allotting Non-linear Dynamics (PHYS- 577), students having Mathematical Physics (PHYS-557) in semester -III will be given preference.*
- *The remaining optional papers will be allotted based on the student’s choice and merit.*