Second Semester 2015-16

Course Handout Part II Date: 7/01/2016

In addition to Part I (General Handout for all courses appended to the Time Table), this portion gives further specific details regarding the course.

Course No.: PHY F344
Course Title: Advanced Physics Laboratory
Instructor-in-charge: **Subhashish Gangopadhyay**
Instructors: Anshuman Dalvi, Debashis Bandyopadhyay, Raj Kumar Gupta, and PhD students.

1. Scope and Objective of the course
   The aim of the course is to provide the students experimental skills to perform experiments with a scope to get them exposed to the different specialized experimental physics research fields (*i.e.,* condensed matter, surface science, nanotechnology, etc).

2. Text Book
   (a) H. H. Wilard, L.L. Merritt and John A. Dean, Instrumental Methods of Analysis
   (b) Experimental Manuals and literatures.

3. Course plan with various laboratory experiments

Faculty Instructor	Expt. No.	Experiments
Anshuman Dalvi	A. I	Superionic transition in AgI and impedance spectroscopy
	A. II	X-ray diffraction study of crystalline, amorphous systems
	A. III	Differential Thermal Analysis
Debashis Bandyopadhyay	B. I	Study of Gunn characteristics and measurement of DC of solid materials
	B. II	Study of Reflex Klystron characteristics
	B. III	Study of optical properties of microwave
	B. IV	Study of microwave antenna wave pattern
	B.V	Study of diffraction of microwave using SCC crystal structure
Raj Kumar Gupta	C. I	Ellipsometry
	C. II	Characterization of white LED
	C. III	Detection and estimation of contaminants in water
	C. IV	Electrical characterization of soft matter
Subhashis Gangopadhyay	D. I	Thin film deposition (metal)
	D. II	Scanning tunneling microscopy (Au and HOPG)
	D. III	(a) Electrical resistivity measurements and (b) AC magnetic susceptibility measurements

Few more experiments may be installed as a part of advanced physics lab.

4. Evaluation Scheme

Components	Duration	Weightage (%)	Date and Time
Attendance, day-to-day performance, laboratory records etc	3 hours	30	----
Tut tests (lecture based)	----	20	(lecture class)
Project (related to lab experiments)	----	5	----
Comprehensive Lab. Test	2 hours	20	****
Comprehensive Exam.	2hours	25	****

5. Chamber Consultation Hour: Laboratory hours

6. Make-up policy: Make-up for the Lab. will be granted only on genuine grounds of sickness (**to be supported by medical certificate and not prescription**). Prior permission is necessary for leaving the station on the test date.

7. Notices: All notices will be displayed on the Physics Group Notice Board.

Instructor-in-charge

PHY F344