

**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI**  
**INSTRUCTION DIVISION**  
**FIRST SEMESTER 2016-17**  
**Course Handout Part II**

Date: 02-08-2016

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. : PHA F211**

**Course Title : Pharmaceutical Analysis**

**Instructor-in-charge : Mahaveer singh**

**Instructors : Saurav mundra, SNC sridhar**

**1. Scope and Objective:**

The objective of this course is to provide students with knowledge of basic principles of quantitative analytical chemistry necessary for use and interpretation of pharmaceutical methods of analysis especially those methods official in the Indian, United States and British Pharmacopoeias.

**2. Text Book:** A.H. Beckett and J.B. Stenlake. "Practical Pharmaceutical Chemistry" 4<sup>th</sup> ed., Part 1 & 2

**Reference Books:**

1. Remington's Pharmaceutical Sciences 18<sup>th</sup> ed.
2. A Textbook of Pharmaceutical Analysis – Kenneth A Connors.
3. A textbook of quantitative inorganic analysis-Arthur. I. Vogel.

**3. Course Plan:**

Lec. No	Objective	Topics to be covered	Reference
1-3	Brief Introduction to pharmaceutical analysis	Pharmacopoeia, Sources of impurities in medicinal agents. Assays, Limit tests, Titration methods	TB:1 (Part 1)
4-6	Study of acid-base titrimetric methods	Standard volumetric solutions, direct titration of acids, bases, back titration.	TB:5 (1)
7-8	To study titrations in non-aqueous solvents	Theory, titration of amine and amine salts, titration of halogen acid salts of bases and acidic substances	TB:6 (1)
9-10	Study of oxidation-reduction titrations	Determination involving the use of pot. permanganate, iodine, iodine-sod. thiosulphate, iodine value of fixed oil	TB: 7(1)
11-12	Study of precipitation titrations	Argentometric titration, ammonium thiocyanate titration of silver salts and mercury compounds	TB:8 (1)
13-15	Study of complexometric methods	Theory of complexometric analysis, pH indicators, direct titration with sod. edetate, back titration, and displacement titration	TB: 8 (1)
16	Study of gravimetric analysis	Gravimetric method determination of medicinal compounds	TB: 8 (1)
17-20	Study of electrochemical	Introduction, conductometric titration,	TB:5

	methods	potentiometry and amperometric titration	(Part 2)
21	Study on nephelometry and turbidimetry	Introduction, instrumentation and application of nephelometric and turbidometry	RB: 3:12
22-26	Study on chromatography	Theory, mobile phases, stationary phases, thin layer chromatography, paper chromatography and column chromatography	TB:4 (2)
27-28	Advance analysis	Determination of water content etc.	TB:10 (1)

#### Practicals:

1. In practical classes, in addition to limit tests, experiments related to quantitative and qualitative analysis of pharmaceuticals by titrimetry and chromatography will be performed.
2. Students should maintain and bring updated record notebooks for every practical class.
3. Make-ups for practical are not ordinarily possible. However, depending on the genuineness of the situations, students may be permitted to perform backlog experiments, if any Instructor is free, outside regular class hours.
4. It is imperative that all students come prepared for the experiment in terms of principles and protocols involved.

#### 4. Evaluation Scheme:

Component	Duration	Weightage (%)	Date & Time	Remarks
Mid Term	90 mts.	20-30	5/10 2:00 - 3:30 PM	CB
Continuous evaluation		20-30		CB+OB
Lab work		20		OB
Comprehensive Exam	180 mts.	30-40	7/12 FN	CB+OB

#### 5. Further Information

**Attendance:** Although attendance is not compulsory, regularity in theory and practical classes will be decisive factor during grading, especially in borderline cases.

**Grading Procedure:** It is not mandatory to award all the eight grades (A to E); subjective judgment will be exercised while awarding grades. In borderline cases subjective judgment will be exercised to decide the final grade. The student shall not be considered exposed to the course, unless he/she demonstrates appreciable skill in both laboratory and theory component of the course.

**Make-up:** Make-up will be given only for genuine reasons. However, the decision of the Instructor-in-Charge in the above matter will be final. Prior permission for Make-up should be taken.

**Chamber Consultation Hour:** To be announced in the class.

**Notices:** Notices pertaining to this course will be displayed only on Pharmacy Group notice board.

Instructor-in-Charge  
PHA F211