

**DEPARTMENT OF CHEMISTRY**  
**SRM UNIVERSITY**  
**KATTANKULATHUR**

**LESSON PLAN**

Academic year 2016 – 17

Program : B.Sc. Chemistry

Subject Title : Principles of Analytical Chemistry

hours: 45 hours

Subject Code : UCY15302

Total No. of

Semester : 3

UNIT No.& Title	TOPICS	LECTURE NO.	REFERENCE BOOKS
I. Introduction to analytical chemistry and safety methods	analytical chemistry- introduction	1	(i) Gopalan R..., (2004): <i>Elements of Analytical Chemistry</i> , 3 <sup>rd</sup> edition, sultan Chand and Co., New Delhi.  (ii) Skong D.A., West D.M., (1988): <i>Fundamentals of Analytical Chemistry</i> , Saunders College Publishing, New York.
	Role and classification of analytical methods	2 and 3	
	Advantages of instrumental methods	4 and 5	
	Good lab habits	6	
	Common lab operations	7	
	Lab safety	8	
	First aid techniques for burns and cuts	9	
II. Data Analysis	Mean analysis definition and working	10	(i) Gopalan R..., (2004): <i>Elements of Analytical Chemistry</i> , 3 <sup>rd</sup> edition, sultan Chand and Co., New Delhi.  (ii) Skong D.A., West D.M., (1988): <i>Fundamentals of Analytical Chemistry</i> , Saunders College Publishing, New York.
	The median	11	
	Precession, accuracy and confidence limits	13	
	Standard deviation	14	
	Errors and rules for improving accuracy	15	
	Rejection of data and significant figures	16	
	Reporting and presenting data	17	
	Scatter diagrams and SI units	18	
III. Purification Techniques	Desiccant, its types and efficiencies	19 and 20	(i) Gopalan R..., (2004): <i>Elements of Analytical Chemistry</i> , 3 <sup>rd</sup> edition, sultan Chand and Co., New Delhi.  (ii) Skong D.A., West D.M., (1988): <i>Fundamentals of Analytical Chemistry</i> , Saunders College Publishing, New York.
	Drying agents	21	
	Choice of desiccants and techniques	22 and 23	
	Solids drying	24	
	Theory of distillation and techniques	25	
	Types of distillations and recrystallization techniques	26	

	Melting and boiling point tests	27	
IV. Separation Techniques	Precipitation and solvent extraction processes	28	(i) Skong D.A., West D.M., (1988): <i>Fundamentals of Analytical Chemistry</i> , Saunders College Publishing, New York.
	Introduction to chromatography and its types	29 and 30	
	Column and Thin layer chromatography	31	
	Gas chromatographic techniques	32	(ii) Vogel A.I., (1957): <i>A Textbook of Practical Organic Chemistry</i> , Longman, London.
	Liquid chromatographic techniques	33	
	HPLC and Prep. HPLC	34 and 35	
	Electroporesis	36	
V. Principles of Gravimetric analysis	Precipitate preparation and conditions	37	Vogel A.I., (1957): <i>A Textbook of Practical Organic Chemistry</i> , Longman, London.
	Precipitants and its types	38 and 39	
	Sequestering agents	40	
	Theories of Co-precipitation and post precipitation methods	41 and 42	
	Occlusion minimization and surface adsorption techniques	43	
	Washing and drying of precipitates	44	
	Crucibles and its types	45	

## STAFF DETAILS

**Name of the Staff** : Dr K Namitharan  
**Designation** : Assistant Professor  
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K. Namitharan 21/06/2016  
 Name & Signature of the Staff

Dr. K. Namitharan 21/6/16  
 HOD/Chemistry