

▪ SEMESTER:- III

▪ COURSE NO.:- FCN-235

COURSE TITLE:- TECHNIQUES IN FOOD ANALYSIS

▪ CREDITS:- 3(1+2)

➤ THEORY

NO. OF UNITS	TOPICS	NO. OF LECTURES
1	<p><i>Nature and concepts of food analysis</i></p> <p>i) <i>Rules and regulations of food analysis</i></p> <p>ii) <i>Safety in laboratory</i></p> <p>iii) <i>Sampling techniques</i></p>	2
2	<p><i>Principles and methodology involved in analytical techniques</i></p> <p>i) <i>PH Meter and use of ion selective electrodes</i></p> <p>ii) <i>Spectroscopy</i></p> <p>a. <i>Ultra violet visible, florescence</i></p> <p>b. <i>Infrared spectrophotometer</i></p> <p>c. <i>Atomic absorption and emission</i></p> <p>d. <i>Mass spectroscopy</i></p> <p>iii) <i>Nuclear magnetic resonance and electron spin resonance</i></p> <p>iv) <i>Chromatography</i></p> <p>a. <i>Adsorption</i></p> <p>b. <i>Column</i></p> <p>c. <i>Partition</i></p> <p>d. <i>Gel-filtration</i></p> <p>e. <i>Affinity</i></p> <p>f. <i>Ion-exchange</i></p> <p>g. <i>Size-exclusion method</i></p> <p>h. <i>Gas liquid</i></p> <p>i. <i>High performance liquid chromatography</i></p> <p>v) <i>Separation techniques</i></p> <p>a. <i>Dialysis</i></p> <p>b. <i>Electrophoresis i) Paper ii) SDS gel electrophoresis iii) Immuno electrophoresis</i></p> <p>c. <i>Sedimentation, ultra filtration, ultracentrifugation</i></p> <p>d. <i>Iso-electric focusing</i></p> <p>e. <i>Isotopic techniques</i></p> <p>f. <i>Manometric techniques.</i></p>	<p>1</p> <p>2</p> <p>1</p> <p>3</p> <p>2</p>

3	<i>Principles and methodology involved in analysis of foods.</i> i) <i>Rheological analysis</i> ii) <i>Textural profile</i>	3
4	<i>Immuno assay techniques in food analysis</i> i) <i>Isotopic and Non-isotopic immuno assay</i> ii) <i>Enzyme-immuno assay</i>	1
5	<i>Evaluation of analytical data</i> i) <i>Accuracy and precision</i> ii) <i>Statistical significance</i> iii) <i>Co-relations regression</i> iv) <i>Computers for data analysis and result interpretation</i>	1
6	<i>Sensory analysis of food</i> i) <i>Objective method</i> ii) <i>Subjective method</i>	2
	TOTAL	18

➤ PRACTICALS

NO. OF UNITS	TOPICS	NO. OF EXPT.
1	<i>Analysis of heavy metal using atomic absorption spectrophotometer</i>	2
2	<i>Estimation of phytic acid and trypsin inhibitor activity using spectrophotometer</i>	3
3	<i>Separation of amino acids by two-dimensional paper chromatography</i>	2
4	<i>The identification of sugars in fruit juice using TLC</i>	2
5	<i>Separation of prolines by Ion-exchange chromatography</i>	3
6	<i>Molecular weight determination using sephadox-gel</i>	2
7	<i>Identification of organic acids by paper electrophoresis</i>	2
8	<i>Gel-electrophoresis for analytic techniques</i>	2
9	<i>Quantitative determination of sugars and fatty acid profile by GLC</i>	3

10	<i>Quantitative make-up of water and fat soluble vitamins using HPLC</i>	4
11	<i>Determination of rheological characteristics of food sol / gel and sensory evaluation of foods</i>	5
	TOTAL	30

➤ *Reference Books:*

- *Food Analysis Theory and Practice* *Pomeranz & Meloan*
- *Methods in Food Analysis* *Maynard*
- *Practical Biochemistry* *Thamiah*