- To understand and learn the principle of quantitative estimation of different types of organic molecules, methods o such as sugars, amino acids, phenols, carboxylic acids, amides, esters, aldehydes, ketones, urea, acid-ester mixture, amide-ester mixture.
- To know the estimation of functional groups like hydroxyl, vic-hydroxy, enol, amino, amide, unsaturation, nitro group
- Semi-micro analysis of nitrogen, halogen, alkoxy, C-methyl and active hydrogens. nd semi-micro analysis of nitrogen, halogen, alkoxy, C-methyl and active hydrogens. nd semi-micro analysis of nitrogen, halogen, alkoxy, C-methyl and active hydrogens.

Quantitative determination of sugars, amino acids, phenols, carboxylic acids, amides, esters, aldehydes, ketones, urea by various methods. Determinations of acid & ester and acid & amide in the mixtures.
Determination of functional groups like hydroxyl, vic-hydroxyl, enol, amino, amide, unsaturation and nitro groups by various methods. Semi-micro analysis of Nitrogen, Halogen, Alkoxy, C-methyl and active hydrogens.

OC P 508: Organic Chemistry Practicals – IV

COURSE OUTCOME:

Enable the students:

- To gain the knowledge about the isolationand characterization of caffeine, recinolic acid, azelic acid, piperine, hesperidine, cysteine, casein, lycopene, carotenes, lipase and sucrose.
- To understand the extraction of groundnut oil and cocnut oil, determination of saponification and iodine values. value of the oils and fats.
- To know the identification and purification of organic compounds by paper, TLC and column chromatographic techniques.
- To learn the characterization of natural products by oxidation and derivatisation.

Isolation and Charecterization of natural products like Caffeine, Recinoleic acid, Azelic acid, Piperine, Hespiridine, Cysteine, Casein, Lycopene and enzymes like Lipase and Sucrase. Extraction of Groundnut oil and Coconut oil. Determination of Saponification oils and fats, Determination of Iodine values of oils and fats using ICl & chloramine-T. Isolation of Carotenes-Purification by paper, TLC and Column. Charecterization of natural products by oxidation studies, Derivatization of natural products.

OC P 509: Organic Chemistry Practicals – V

COURSE OUTCOME:

Enable the students:

- To acquire in-depth knowledge and skill on separation and purification of ternary mixture of organic compounds,
- Identification and qualitative analysis of the individual compounds of the mixture,
- Characterization by derivatization,
- Recording physical constant, TLC and spectral techniques.

Separation, purification, analysis and derivatization of ternary mixture of organic compounds, Identification, separation and qualitative analysis of the individual compounds and preparation of suitable derivative for each component, identification of derivative by m.p., TLC and spectral techniques.

References:-

1. Elementary Practical Organic Chemistry-Vol. III: quantitative Organic Analysis- A.I Vogel
2. Vogel's Text Book of Practical Organic Chemistry- Furniss et al. (ELBS, London)1978.
3. Experimental Organic Chemistry- Vol. I &II- P.R.Singh (Tata McGraw-Hill) 1981.
4. Practical Organic Chemistry- IV Ed- Dey &.Sitaraman (Allied)
5. Laboratory Experiments in Organic Chemistry-Adam, Johnson & Wicon (McMillan, London) 1979.
6. Experimental Organic Chemistry- H. D. Durst & G. E. Goke (McGraw-Hill)1980

4th SEMESTER

OC H 551: Organic Synthetic Methods

COURSE OUTCOME:

Enable the students:

- To acquire knowledge on the various reagents employed for oxidation and reduction of various kinds of organic molecules.
- To understand the various methods of halogenations of carbonyl compounds, benzylic and allylic halogenations.
- To learn the principles and technologies used in disconnection approach,
- To study the utility of protecting group strategy in organic synthesis and retrosynthetic analysis.

UNIT-I: **[15 Hours]**

Reduction Reactions: Catalytic hydrogenation-Introduction, catalysts and solventsemployed, reduction of functional groups, mechanisms and stereochemistry of catalytic hydrogenations, Hydrogenolysis, homogeneous catalytic hydrogenation.

Metal hydride reduction: Reduction with $LiAlH_4$, $NaBH_4$,BH_3, $AlH_3$and DIBAL.Stereochemistry of reduction, Functional group transformation during reduction, Reduction with diborane and related reactions. Reduction with Trimethylsilane. Reduction in Biological systems-NADH, FAD.

Dissolving Metal Reductions: Mechanisms of reduction of conjugated system and carbonylcompounds((including Birch, Benkeser, Clemmensen reductions), Bimolecular reductions of esters, Birch reduction, Reduction with hydrazine and its derivatives, Wolf-Kishner reduction, McMurry reaction, Pummer, Willgerdot, Corey-Bakshi-Shibata and Tishchenkoreactions. Reduction with arene sulphonyl derivative of hydrazine, Reaction with diimide andrelated compounds.

UNIT-II: **[15 Hours]**