	Lecture Plan					
Name of the College: Government College of Arts, Science	Name of the College: Government College of Arts, Science and Commerce. Sanquelim - Goa					
Name of Faculty: ASHOK MAHADEV CHODANKAR	Subject: CHEMISTRY					
Paper code: CHC 110	Program: BSc	Division: -				
Academic year: 2024 - 2025	Semester: VI	Total Lectures: 30				
THOERY COURSE OBJECTIVES Section A To understand the reactions and mechanism of name reactions and rearrangements mentioned in the syllabus. To know the definition of the enolate ion and understand the concept of acidity and pka values of carbonyl compounds. To understand the generation of enolate ions and their use in synthetic organic chemistry. To study Keto-enol tautomerism of Ethylacetoacetate. To study Jablonskii diagram and understand fluorescence, phosphorescence, intersystem crossing, and vibrational relaxation. To learn and understand photochemical reactions. PRACTICAL COURSE OBJECTIVES To get hands on experience for the preparation of derivatives using the reactions learnt in theory and binary mixture separation followed by analysis of individual compound.						
Course Outcome: At the end of the course students will be able to • Explain and give the reactions and mechanism of reactions mentioned in the syllabus.						

- Draw Jablonskii diagram and explain various processes.
- Discuss and illustrate photochemical reactions.
- Define enolate ion.
- Explain the acidity of carbonyl compounds, pka values, Keto-enol tautomerism.
- Describe the use of enolate ion in organic synthesis
- Elucidate the structure of terpenes.
- Describe the synthesis of terpenes.
- Illustrate the reactions of glucose, open chain reactions of sucrose and determination of ring size of Glucose and sucrose.
- Give the evidence of presence of glucose and fructose unit in sucrose.
- Describe stereospecific and stereoselective reactions and mechanism w.r.t. addition,
- substitution and elimination reactions.

Practical

- At the end of the course students will be able to
- Perform reactions and prepare derivatives.
- Develop skills of separation of binary mixture and the analysis of separated compound at microscale level.

Student Learning Outcome:

Course Outcome:

At the end of the course students will be able to

- Explain and give the reactions and mechanism of reactions mentioned in the syllabus.
- Draw Jablonskii diagram and explain various processes.
- Discuss and illustrate photochemical reactions.
- Define enolate ion.
- Explain the acidity of carbonyl compounds, pka values, Keto-enol tautomerism.
- Describe the use of enolate ion in organic synthesis
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- ring size of Glucose and sucrose.
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substitution and elimination reactions.

Practical

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• Perform reactions and prepare derivatives.

• Develop skills of separation of binary mixture and the analysis of separated compound

at microscale level.

Month	Lecture From	Lecture To	No. of lectur es allott ed	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
09 DEC TO	8.45	9.45	01	Reaction and mechanism		SMART	1.I.L. Finar, Organic
15 DEC 2024	8.45	9.45	01	Reaction and mechanism		BOARD	Chemistry Vols I and II, Orient
	11.15	3.15	04	Binary mixture separation and analysis (Microscale)			Longman. 2.Morrison and
	11.15	3.15	04	Binary mixture separation and analysis (Microscale)			Boyd, Organic Chemistry; 6th Edn. Prentice Hall India.
16 DEC TO	8.45	9.45	01	LEAVE			3.Francis Carey,
22 DEC	8.45	9.45	01	HOLIDAY			Organic Chemistry,
2024	11.15	3.15	04	Binary mixture separation and analysis (Microscale)			10th Edition. 4.Paula Yurkanis
	11.15	3.15	04	Binary mixture separation and analysis (Microscale)		FAVE	Bruice, Organic Chemistry; 3rd Edn. Pearson Education Asia. 51. March.
02 JAN TO	8.45	9.45	01	HOLIDAY			Advanced Organic
04 JAN 2025	8.45	9.45	01	Reaction and mechanism of the following: Comparison of			Chemistry: Reaction,

				Clemmensen reduction and Wolff
				Kishner reduction.
	11.15	3.15	04	HOLIDAY
	11.15	3.15	04	HOLIDAY
	8.45	9.45	01	Reaction and mechanism of the
				following: Benzoin
	8.45	9.45	01	Reaction and mechanism of the
06 JAN TO				following: BENZOIN
11 JAN				
2025	11.15	3.15	04	Binary mixture separation and
				analysis (Microscale)
	11.15	3.15	04	Binary mixture separation and
				analysis (Microscale)
	8.45	9.45	01	Reaction and mechanism of the
				following: Aldol,
	8.45	9.45	01	Reaction and mechanism of the
13 JAN TO				following: Knoevanagel,
2025	11.15	3.15	04	Binary mixture separation and
2023	11110	0.120		analysis (Microscale)
	11.15	3.15	04	Binary mixture separation and
				analysis (Microscale)
	8.45	9.45	01	Reaction and mechanism of the
				following: Wittig
	8.45	9.45	01	Reaction and mechanism of the
20 JAN TO				following
25 JAN				Darzens Glycidic ester.
2024	11.15	3.15	04	Binary mixture separation and
	44.45	2.45		analysis (Microscale)
	11.15	3.15	04	Binary mixture separation and
	0.45	0.45	01	Boastion and machanism of the
	0.45	9.45	01	following:
FEB ZUZO				i oliowing:

Mechanism and Structure, Wiley, 2010, 4th Ed.

				. Rearrangement with mechanism:
				Beckmann
	8.45	9.45	01	Reaction and mechanism of the
				following: Wolff
	11.15	3.15	04	Binary mixture separation and
				analysis (Microscale)
	11.15	3.15	04	Binary mixture separation and
				analysis (Microscale)
3 FEB TO 8	8.45	9.45	01	Reaction and mechanism of the
FEB 2025				following: Hofmann.
	8.45	9.45	01	Reaction and mechanism of the
	0110			following:
				Baever Villiger.
	11.15	3.15	04	Binary mixture separation and
	_		_	analysis (Microscale)
	11.15	3.15	04	Binary mixture separation and
				analysis (Microscale)
10 FEB TO	8.45	9.45	01	Appel, Diekmann
15 FEB				
2025	8.45	9.45	01	Reaction and mechanism of the
				following:
				Stobbe.
	11.15	3.15	04	Binary mixture separation and
				analysis (Microscale)
	11.15	3.15	04	Binary mixture separation and
				analysis (Microscale)
	8.45	9.45	01	Reaction and mechanism of the
				following: Schmidt, Claisen,
17 FEB TO	8.45	9.45	01	Reaction and mechanism of the
22 FEB				following: Favorskii ,Curtius.
2025	11.15	3.15	04	Binary mixture separation and
				analysis (Microscale)
	11.15	3.15	04	Binary mixture separation and
				analysis (Microscale)

	8.45	9.45	01	Chemistry of Enolates)
	8.45	9.45	01	Chemistry of Enolates)
24 FEB TO 1				Definition of enolate ion, acidity of
MARCH				carbonyl compounds.
2025	11.15	3.15	04	Binary mixture separation and
				analysis (Microscale)
	11.15	3.15	04	Binary mixture separation and
				analysis (Microscale)
	8.45	9.45	01	HOLIDAY
	8.45	9.45	01	Chemistry of Enolates
				pka values, generation of
3 MARCH				enolate ion, role of bases in
TO 8				enolate ion formation.
MARCH	11.15	3.15	04	Binary mixture separation and
2025				analysis (Microscale)
	11.15	3.15	04	Binary mixture separation and
				analysis (Microscale)
	8.45	9.45	01	Chemistry of Enolates)
				alkylation of carbonyl compounds
				with reference to cyclohexanone,
				acetone, etnylacetoacetate,
	9.45	0.45	01	Chamistry of Englator
	0.45	9.45	01	Claison
				condensation for preparation of
				ethylacetoacetate (reaction and
				mechanism)
				meenansinj.
10 MARCH	11.15	3.15	04	Binary mixture separation and
TO 15				analysis (Microscale)
MARCH	11.15	3.15	04	Binary mixture separation and
2025				analysis (Microscale)
	8.45	9.45	01	Chemistry of Enolates
17 MARCH				Keto-enol
TO 22				tautomerism of ethylacetoacetate.

MARCH 2025	8.45	9.45	01	Chemistry of Enolates Malonic ester synthesis of carboxylic acids, ethylacetoacetate synthesis of ketones.
	11.15	3.15	04	Binary mixture separation and analysis (Microscale)
	11.15	3.15	04	Binary mixture separation and analysis (Microscale)
	8.45	9.45	01	Chemistry of Enolates Alkylation of 1,3-dithianes.
24 MARCH TO 29	8.45	9.45	01	Chemistry of Enolates Alkylation via enamine synthesis. Michael addition reaction.
MARCH 2025	11.15	3.15	04	Binary mixture separation and analysis (Microscale)
	11.15	3.15	04	Binary mixture separation and analysis (Microscale)
	8.45	9.45	01	Norrish Type I and Type II cleavage reactions of ketones.
31 MARCH	8.45	9.45	01	Paterno Buchi and Barton reaction.
TO 5 APRIL	11.15	3.15	04	HOLIDAY
2025	11.15	3.15	04	Binary mixture separation and analysis (Microscale)
7 APRIL TO 11 APRIL 2025	8.45	9.45	01	Photochemistry Jablonski diagram, fluorescence, phosphorescence
	8.45	9.45	01	Photochemistry : intersystem crossing and vibrational

			relaxation. Norrish Type I and Type II cleavage reactions of ketones. Paterno Buchi and
			Barton reaction.
11.15	3.15	04	Binary mixture separation and analysis (Microscale)
11.15	3.15	04	Binary mixture separation and analysis (Microscale)

	Component	Max Marks
		20/01 to
	ISA 1	28/01/2025 (10)
Assessment		
Rubrics	ISA 2	
		(50) AFTER
		SEMESTER END
	Practical	EXAM
		100 BEFORE
	Project	THEORY EXAM
	Semester End	(80) FROM 18
	Exam	APRIL 2025