Government Degree College

~

Tekkali



Department of Chemistry

Academic Year 2024-2025

Certificate Course

Organic Polymers

On



Govt.Degree College Tekkali

REQUESTING FOR THE APPROVAL OF CERTIFICATE COURSE

1. Department	: CHEMISTRY				
2. Title of the Certificate Course	: "Organic Polymers"				
3. Name of the Course Coordinator	: Dr B. SATEESH KUMAR				
4. Course Code	: CHE-OP-01				
5. Objectives of the Course	:				

On successful completion of this course, students will be able:

1. Have the elementary understanding of the reaction mechanisms involved in organic polymer synthesis and the kinetics of these reactions.

2. Learn basic concepts of organic polymer chain architecture, structure and morphology, with particular emphasis on the relationship between chemical structure (chain architecture) and the morphology of the solid state (semi-crystalline vs. amorphous polymers).

6. Outcomes of the Course

In this course student will understand the polymer or macromolecules are giant molecules with large structures and high molecular weights. In spite of their varieties they are governed by the same laws that apply to Small molecules. Polymers from the basis for life itself and for our communication, transportation, buildings, food, etc. polymers include protein and nucleic acids in our bodies, the fibers (natural and synthetic) we use for clothing, the protein and starch we eat, the elastomers in our automotive tires, the paint, plastic wall and floor coverings, foam insulation, dishes, furniture, pipes, etc.

7. Duration of the Course	: 30 Days (30hrs)
8. Date of Commencement of the Course	03-02-2025
9. Course Fee	: Nil
10. No. Of Students	: 20

Signature of the Course Coordinator



Signature of the Department In-charge

Govt.Degree College Tekkali

Certificate Course on Organic Polymers (Course Code: CHE-OP-01)

Objectives & Outcomes

The Department of Chemistry has decided to offer a certificate course on "ORGANIC POLYMERS" for the I B.SC Chemistry students to enhance their Skills which are essential for their Professional development.

Objectives:

On successful completion of this course, students will be able:

1. Have the elementary understanding of the reaction mechanisms involved in polymer synthesis and the kinetics of these reactions.

2. Learn basic concepts of polymer chain architecture, structure and morphology, with particular emphasis on the relationship between chemical structure (chain architecture) and the morphology of the solid state (semi-crystalline vs. amorphous polymers).

Course Outcomes:

In this course student will understand the polymer or macromolecules are giant molecules with large structures and high molecular weights. In spite of their varieties they are governed by the same laws that apply to Small molecules. Polymers from the basis for life itself and for our communication, transportation, buildings, food, etc. polymers include protein and nucleic acids in our bodies, the fibers (natural and synthetic) we use for clothing, the protein and starch we eat, the elastomers in our automotive tires, the paint, plastic wall and floor coverings, foam insulation, dishes, furniture, pipes, etc.

Signature of the Course Coordinator

Signature of the Department In-ch



Signature PRINCIPAL Govt. Degree College TEKKALI-532 203

ORGANIC POLYMERS

Syllabus

Learning Outcomes:

Students after successful completion of the course will be able to:

- 1. To know the classification of polymers
- 2. Acquire a critical knowledge on the preparation of organic polymers.
- 3. To know the various applications of polymers in daily life

Unit-1: Organic Polymers

Definitions of Monomer and polymer, degree of polymerization, classification of polymers- Natural and Synthetic polymers, Organic and In organic polymers, Thermoplastic and Thermo setting polymers, Plastics, Elastomers, Fibers and Resins, Linear, Branched and Cross-Linked polymers.

Unit-2: Synthetic mechanisms of Organic Polymers

Types of polymerizations -Addition polymerization- cationic and anionic polymerization and Condensation polymers, Difference between Addition and condensation polymerization, mechanism of addition polymerization- Free radical, ionic and cationic and Zeigler-Natta polymerization.

Unit -3: Applications of Organic Polymers

Industrial applications of following polymers- Polystyrene, Poly acrylonitrile, Poly methacrylate, Poly methyl-methacrylate, poly lactic acid, poly ethylene LDPE, HDPE, PVC, Nylon-6, Nylon 66, Poly styrene.

References:

 Seymour, R.B & Carraher, C.E *Polymer Chemistry*: An introduction, Marel Dekker, Inc.NewYork, 1981.

2) Odian G. Principles of Polymerization, 4th Ed.Wiley, 2004.

- 3) Billmeyer, F.w. Textbook of polymer science, 2nd Ed. Wiley Interscience, 1997.
- 4) Ghosh, P.Polymer science & Technology, Tata McGraw-Hill Education, 1991.34

Bond

Degree College

10 hours

10 hours

10 hours

Government Degree College-Tekkali

Department of Chemistry

Certificate Course on "Organic Polymers"

Academic Year 2024-2025

Students List

S.No	Regd.No	Name of the	Signature of the
		Student	Student
1	2024400021079	A. Ganesh	A-Ganesh
2	2024400061852	A . Ekambaram	ACREMBORIN
3	2024400038232	B. Gowthami	B. Gowthami
4	2024400158804	B. Haribabu	B-Havibabu
5	2024400029653	B. Rohith	B. Rohit
6	202440110098	B. Santhosh	13 Santhash
7	2024400036156	B. Jaswanth	B.Jaswanih.
8	2024400026856	Ch. Bhuvan	ch. Bhuvan.
9	2024400043606	G. Ashik	GASLijk
10	2024400037499	G. Vamsi	G. Vamsi
11	2024400034700	K. Mohan Rao	& uchango
12	2024400008723	K. Tejeswara Rao	12. Tegying Rap
13	2024400022609	K. Hemalatha	K. Hemalatha
14	202400038301	N. Yathish	N. Yathish
15	202400023170	P. Sujatha	P. sujatha
16	202400002277	P. Raghu	PRayny
17	202400030282	R. Karthik	E. Masthers
18	202400038301	P.Likhitha	P. Likith
19	202400023608	S.Vamsikrishna	S. Campeterishow
20	202400029100	S.Shanmukha Rao	S. Shermuldor

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	CERTIFICATE COURSE 2024-25											
	ORGANIC POLYMERS											
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S.NO.	NAME OF THE STUDEN	REGD. NO	03-02-2025	04-02-2025	05-02-2025	06-02-2025	07-02-2025	10-02-2025	11-02-2025	12-02-2025	13-02-2025	14-02-2025
1	A. GANESH	2024400021079	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
2	A. EKAMBARAM	2024400061852	Р	Р	P	А	Р	Р	Р	Р	A	Р
3	B. GOWTHAM	2024400038232	P ,	Р	Р	Р	Р	Р	Р	Р	Р	Р
4	B. HARI BABU	2024400158804	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
5	B. ROHITH	2024400029653	Р	Р	Р	Ρ	Р	А	Р	Р	Р	Р
6	B. SANTHOSH	2024400110098	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
7	B. JASWANTH	2024400036156	Р	Р	P	Р	Р	Р	Р	Р	Р	Р
8	CH. BHUVAN	2024400026856	P -	Р	Р	Р	Р	Р	Р	Р	Р	Р
9	G. ASHIK	2024400043606	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
10	G. VAMSI	2024400037499	Р	Р	Р	Р	Р	А	Р	Р	Р	Р
11	K. MOHAN RAO	2024400034700	Р	Р	P	Р	Р	Р	Р	Р	Р	Р
12	K. TEJESWARA RAO	2024400008723	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
13	K. HEMALATHA	2024400022609	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
14	N. YATHISH	202400038301	Р	Р	Р	Р	Р	Р	Р	P	Р	Р
15	P. SUJATHA	202400023170	Р	Р	. P	Р	Р	Р	Р	Р	Р	Р
16	P. RAGHU	202400002277	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
17	R. KARTHIK	202400030282	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
18	P. LIKHITHA	202400038301	Р	Р	Р	Р	Р	Р	Р	Р	Р	Р
19	S. VAMSIKRISHNA	202400023608	Р	Р	Р	Р	Р	Р	Р	Р	Ρ.	Р
20	S. SHANMUKHA RAO	202400029100	Р	Р	Р	A	Р	Р	Р	Р	Р	Р
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Р	Р	Р	Р	Р	Р	Р	30	P. GANESH		
Р	Р	P	Р	Р	Р	Р	28	A-Gramhgan		
Р	Р	Р	Р	Р	Р	Р	30.	8. Gouthami		
Р	Р	Р	Р	Р	Р	Р	30.	B-Hasibabu		
Ρ	Р	Р	Р	Р	Р	Р	29	B. Rohit		
Ρ	Р	Р	Р	Р	Р	Р	30	B. Santhosh		
Р	Р	Р	Р	Р	Р	Р	30	B. Jaswanth		
Р	Р	Р	P	Р	Р	Р	30	ch. Bhuvan		
Р	Р	Р	Р	Р	Р	Р	30	6-Ashik		
Ρ	Р	Р	Р	Р	Р	Р	29	G. Vanisi		
Р	Р	Р	Р	Р	Р	Р	30	Kulohenzeo		
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Р	Р	Р	Р	Р	Р	Р	30	K. Hemalatha		
Р	Р	Р	Р	Р	Р	Р	30	N. Ya-Kish	0	
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Test No-1 Organic polymers

Name of the student:	Roll no:	
1. Nylon threads are made of		I 1
a. polyester polymer b. polyamide polyn	ner c. polyethylene polymer	d. polyvinyl polymer
2. Which of the following is a branched p	oolymer?	[]
a. low density polymer b. polyester	c. high density polymer	d. Nylon
3. On the basis of mode of formation poly	ymers can be classified:	[]
a. as addition polymers only	b. as condensation po	lymers only
c. as copolymers	d. as addition and con	densation polymers
4. The process of heat softening, mouldin	g and cooling to rigidness can b	e repeated for which plastics? []
a. thermoplastics b. thermosetting pla	astics c. both (a) and (b)	d. neither (a) nor (b)
5. The polymer used in making hair synt	hetic hair wigs is made up of	[]
a. CH ₂ =CHCl b. CH ₂ =CHCOOCH ₃	c. $C_6H_5CH=CH_2$	d. CH ₂ =CH-CH=CH ₂
6. Which of the following monomers for	n biodegradable polymers?	[]
a. 3-hydroxybutanoic acid + 3-hydroxypent	tanoic acid b. Glycine + A	Amino caproic acid
c. ethylene glycol + phthalic acid	d. both a and b	5
7. In addition polymer, monomer used is		4 1
a. unsaturated compounds	b. saturated compound	s
c. bifunctional saturated compounds	d. trifunctional saturate	ed compounds
8. Polymer formation from monomer sta	rts by	[]
a. The condensation reaction between mono	omers b. The coordin	nate reaction between monomers
c. Conversion of monomer to monomer ion	s by protons d. Hydrolysis	s of monomers
9. Which of the following statements is n	ot correct for fibres?	r I I
a. Fibres possess high tensile strength and h	ugh modulus b. Fi	bres impart crystalline nature
c. Characteristic features of fibres are due t	o strong intermolecular forces like	e hydrogen bonding
d. All are correct		
10. Which of the following does not unde	rgo additional polymerization?	[]
a. vinyl chloride b. butadiene c. styr	rene d. all of the above under	ergoes addition polymerizations
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Evolution:

Score: 90-100% - O Grade, 80-90%-A Grade, 70-80%-B Grade 60-70%-C Grade, 50-60% -D Grade

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TEST No-2

Organic polymers

Name of the student	::		Group:		
1. A substance that is	formed of multiple repeati	ng units of is know	vn as a polymer.	I	1
a. Mers	b. Plastic	c. Resins	d. Blocks		
2. Bakelite is an exam	ple ofpolymer.			ſ]
a. Elastomer	b. fibre	c. thermoplastic	d. thermosetting		
3. A polymer with an	amide linkage is known as	:		1	1
a. nylon-6,6	b. Teflon	c. Terylene	d. Bakelite		
4. Which of the follow	ing is fully fluorinated pol	ymer?		I	1
(a) Neoprene	(b) PVC	(c) Teflon	(d) Thiokol		
5. Nylon-6 is made fro	om			I	1
(a) Butadiene	(b) Chloroprene	(c) Adipic acid	(d) Caprolactum		
6. Cellulose is a polym	ner of:			I	1
(a) Fructose	(b) Ribose	(c) Glucose	(d) Sucrose		
7. Cellulose acetate is	a			ſ	1
(a) Natural polymer	(b) Semi synthetic polyr	mer (c) Synthetic polymer	(d) Plasticizer		
8. Ethylene-propylene	e rubber can be			I	1
(a) Vulcanized by sulpl	hur	(b) Vulcanized by peroxic	les		
(c) Both (a) and (b)		(d) Non-vulcanizable			
9. Nylon threads are r	nade of:			I	1
(a) Polyvinyl polymer	(b) Polyester polymer	(c) Polyamide polymer	(d) Polyethylene	poly	mer
10. Which of the follo	wing is an example of cond	lensation polymers?		I	1
(a) Polythene	(b) PVC	(c) Orlon	(d) Terylene		

Evolution:

Score: 9-10 - O Grade, 8-9%-A Grade, 7-8%-B Grade, 6-7%-C Grade, 5-6% -D Grade

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Government Degree College-Tekkali

Department of Chemistry

Certificate Course on "Organic Polymers"

Academic Year 2024-2025

S.No	Regd.No	Name	Total Marks (20 M)	Grade
1	2024400021079	A. Ganesh	20	0
2	2024400061852	A . Ekambaram	20	0
3	2024400038232	B. Gowtham	19	0
4	2024400158804	B. Haribabu	20	0
5	2024400029653	B. Rohith	19	0
6	202440110098	B. Santhosh	18	0
7	2024400036156	B. Jaswanth	19	0
8	2024400026856	Ch. Bhuvan	17	0
9	2024400043606	G. Ashik	18	0
10	2024400037499	G. Vamsi	18	0
11	2024400034700	K. Mohan Rao	18	0
12	2024400008723	K. Tejeswara Rao	19	0
13	2024400022609	K. Hemalatha	18	0
14	202400038301	N. Yathish	18	0
15	202400023170	P. Sujatha	18	0
16	202400002277	P. Raghu	18	0
17	202400030282	R. Karthik	17	Α
18	202400038301	P.Likhitha	19	0
19	202400023608	S.Vamsikrishna	19	0
20	202400029100	S.Shanmukha Rao	20	0

Govt. Degree College TEKKALI-532 203

Model

Feed Back Form

Academic year: 2024-25

Name of the student:

Class:

Group:

S.NO	STATEMENT	STRONGLY AGREE	AGREE	DISAGREE
1	The course I pursue is useful for my goal attainment			
2	The course is useful for getting job opportunities relevant			
3	The syllabus would help me to improve laboratory space			
4	The course is useful for pursuing higher studies			
5	Syllabus is in accordance with modern technology			
6	Syllabus of the course is up-to-date and satisfactory			
7	Changes are required to the syllabus			
8	The course would increase my confidence			
9	I suggest continuous of the course.		-	
10	Suggestions if any:			



Feedback on Certificate Course 'Organic Polymers' 2024-25

18 responses

Publish analytics

Name of the student

18 responses

K Hemalatha

A Ganesh

B Jaswanth

Rokalla Kartheek

P Likitha

B Gowthami

B Rohith

B Hari Babu

K Mohan Rao

G Ashik

B Santhosh

A Ekambaram

S Venkata Rao

P Sujatha

G Vamsi

S Shanmukha Rao

N Yathish

S Vamshi Krishna











Suggestions if any

8 responses

Good

Useful to me sir

Good course

Nice

Nice

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GOVERNMENT DEGREE COLLEGE, TEKKALI (Accredited with NAAC 'B' Grade) DEPARTMENT OF CHEMISTRY Course Certificate Certified that Mr./Ms. G. Vamsi of I B.Sc Chemistry Major Successfully completed course on "Organic Polymers" and scored O Grade during the academic year 2024-2025.





Principal

DEPARTMENT OF CHEMISTRY Course Certificate Certified that Mr./Ms. K. Mohan Rao of I B.Sc Chemistry Major Successfully completed course on "Organic Polymers" and scored O Grade during the academic year 2024-2025.







GOVERNMENT DEGREE COLLEGE, TEKKALI



(Accredited with NAAC 'B' Grade)

DEPARTMENT OF CHEMISTRY

Course Certificate

Certified that Mr./Ms. K. Tejeswara Rao of I B.Sc Chemistry Major Successfully completed course on "Organic Polymers" and scored O Grade during the academic year 2024-2025.





Principa

IOAC Co-Ordinator



GOVERNMENT DEGREE COLLEGE, TEKKALI



(Accredited with NAAC 'B' Grade) DEPARTMENT OF CHEMISTRY

Course Certificate

Certified that Mr./Ms. N. Yathish of I B.Sc Chemistry Major Successfully completed course on "Organic Polymers" and scored O Grade during the academic year 2024-2025.



IQAC Co-Ordinator

Principa



year 2024-2025.









DEPARTMENT OF CHEMISTRY

Course Certificate

Certified that Mr./Ms. P. Raghu of | B.Sc Chemistry Major Successfully completed course on "Organic Polymers" and scored **O** Grade during the academic year 2024-2025.







IQAC Co-Ordinator



GOVERNMENT DEGREE COLLEGE, TEKKALI



(Accredited with NAAC 'B' Grade)

DEPARTMENT OF CHEMISTRY

Course Certificate

Certified that Mr./Ms. N. Yathish of I B.Sc Chemistry Major Successfully completed course on "Organic Polymers" and scored O Grade during the academic year 2024-2025.



IQAC Co-Ordinator

Principa



Polymers" and scored <u>O</u> Grade during the academic year 2024-2025.









Certified that Mr./Ms. P. Raghu of | B.Sc Chemistry Major Successfully completed course on "Organic Polymers" and scored O Grade during the academic year 2024-2025.





Principa







IQAC Co-Ordinator





"Organic Polymers" and scored O Grade during the academic year 2024-2025.







GOVERNMENT DEGREE COLLEGE, TEKKALI (Accredited with NAAC 'B' Grade)

DEPARTMENT OF CHEMISTRY

Course Certificate

Certified that Mr./Ms. S.Shanmukha Raoof | B.Sc Chemistry Major Successfully completed course on "Organic Polymers" and scored O Grade during the academic year 2024-2025.









Principal



IQAC Co-Ordinator



Certified that Mr./Ms. B. Haribabu of I B.Sc Chemistry Major Successfully completed course on "Organic Polymers" and scored O Grade during the academic year 2024-2025.





Principal

Principal

IOAC Co-Ordinator





(Accredited with NAAC 'B' Grade) DEPARTMENT OF CHEMISTRY Course Certificate

Certified that Mr./Ms. B. Jaswanth of I B.Sc Chemistry Major Successfully completed course on "Organic Polymers" and scored O Grade during the academic year 2024-2025.







(Accredited with NAAC 'B' Grade) DEPARTMENT OF CHEMISTRY

Course Certificate

Certified that Mr./Ms. Ch. Bhuvan of I B.Sc Chemistry Major Successfully completed course on "Organic Polymers" and scored O Grade during the academic year 2024-2025.







Principal



GOVERNMENT DEGREE COLLEGE TEKKALI DEPARTMENT OF CHEMISTRY **CERTIFICATE COURSE 2024-25 ORGANIC POLYMERS**

ACTION TAKEN REPORT ON FEEDBACK ON CERTIFICATE COURSE

The feedback on certificate course entitled 'Organic Polymers' was collected and analyzed. Based on this, the following action has been taken.

- > The certificate course will be continued for the next academic year.
- The syllabus will be reviewed in the next academic year.

1. V. My. (V. LUKE PAUL) COURSE COORDINATOR Dept. In-charge

2. (Dr. P.V.N. ACHARYULU)

3. (P.V. SATYANARAYANA)

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