

IV semester Chemical Engineering

OCBC SYLLABUS

SUBJECT

CHEMICAL TECHNOLOGY II

CO 1	Identify raw materials required for the manufacturing of specific chemical.	Hoursofstudy	Marks	
LO 1	To describe the technology adopted to produce saturated and unsaturated oil.	26		A
Content	<p>Oil Industry</p> <p>Difference between oil, fats and waxes</p> <p>Preparation of raw materials for processes:</p> <p>Refining</p> <p>Bleaching</p> <p>Major engineering problems of oil industries and their remedies</p> <p>Economics.</p> <p>By products and their uses.</p>	8	10	
LO 2	To analyze the sample of oil	10	10	C
	<p>Oil Industry</p> <p>Preparation of raw materials for processes:</p> <p>Extraction of oil</p> <p>Hydrogenation of oil</p> <p>Major engineering problems of oil industries and their remedies</p> <p>Economics.</p>			
LO 3	To determine the total fatty matter of soap	4	10	B
	<p>Soap Industry</p> <p>Manufacturing of soap and detergents</p> <p>Physical and chemical properties of soap</p> <p>Types of soaps.</p> <p>Process description and flow chart of soap</p> <p>Additives to soap in present practices and their function.</p> <p>Major engineering problems</p> <p>Uses and economics.</p>			

L0 4	Apply knowledge of latest trends in soaps and detergent industries. Detergent Industry Manufacturing of synthetic Detergents types of detergents(quick wash 'top load 'front load etc) Raw material and their selection. Cleaning mechanism of soap and detergents. Physical and chemicalproperties Process description and flow chart Major engineering problems Consumption pattern and economics	4	10	D
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CO 2	Use latest technology for the manufacture of paper and dyes.	26		
LO 1	Convert the trees cellulose into usable pulp cellulose form.	16	10	A
	Introduction to pulp and paper. Pulp Pulping method Trees and quality of pulp from them. Manufacture of pulp Different processes adopted produce pulp and their comparison. Physical and chemical properties Process description and flow chart Major engineering problems Uses and economics			
LO 2	Describe the techniques to form different qualities of paper.	6	10	A
	Paper Types of paper product Physical and chemical properties Process description and flow chart Description of fillers and components added to improve whiteness strength and other properties with their functioning. Recycling process of waste paper and its economics. Major engineering problems Uses and economics Consumption pattern and future scope of pulp and paper industries in view of digitalization.			
LO 3	Apply basic knowledge of common fabricates and hair dyes.	4	10	B
	Dyes and Intermediate Introduction Classification of dyes Manufacturing of some common dyes for fabric and hair.			
CO 3	Apply the chemical reactions process conditions requirement for manufacturing polymer product.	26		
LO 1	Describe process of polymerization.	6	10	B
	Polymerization Technology Principles of polymerization Types of polymerization and difference between them. Mechanism of polymerization Methods of polymerization Difference amongst monomer, polymer and resin Difference amongst the fiber, filament and thread.			
LO 2	Select proper process conditions for getting maximum yield of rubber	8	10	A
	Rubber Industry Difference between natural and synthetic rubber Compounding of rubber. Manufacturing of Styrene-Butadiene Rubber (SBR) Physical and chemical properties Process description and flow chart Major engineering problems and economics Vulcanization of rubber Processing of Rubber Latex Rubber Reclaiming			

LO 3	To prepare phenol formaldehyde , urea formaldehyde and Nylon 6.	12	10	C
	Plastic Industry Classification of plastic Introduction, uses, properties and recognition of polymer plastics like:- Nylon, LDPE, HDPE, PP, PET,PU, PVC, PVDC, ABS, PS AND Teflon			
CO 4	Use some common industrial solvents appropriately.	18		
LO 1	Prepare and use commonly used industrial solvents in the laboratory.	6	10	A
	Industrial Solvents Industrial Solvents: basic principle, raw material, reactions, flow diagram, process description, major engineering problems, economics,			
LO 2	Apply basic knowledge to identify the importance of the industrial solvents.	12	10	C
	consumption pattern and industrial importance for the manufacturing of the following industrial solvents Methanol Acetone N-Hexane Ethyl alcohol Acetic acid			
CO 5	Apply the basic principles of chemical engineering for the production of some agro based products.	24		
LO 1	Prepare commonly used insecticides and pesticides in the laboratory.	12	10	D
	Agro based Products and Explosives Basic principle, raw material, reactions, flow diagram, process description, major engineering problems, economics, consumption pattern and industrial importance for the manufacturing of the following. pesticides melathion Beta-Hexachlorocyclohexane (BHC) Parathion sulphos Explosives Tri Nitro Toluene (TNT) Nitroglycerine Research Department Explosive (RDX) fire crackers Ammonium Chloride			
LO 2	Describe production of sugar crystals from cane sugar.	6	10	A
	Sugar Industry Physical and chemical properties Process description and flow chart Major engineering problems Uses and economics			

LO 3	Process agriculture based starch production	6	10	A
	Starch Industry Physical and chemical properties Process description and flow chart Major engineering problems Uses and economics			

Where

A --- Theory exam

B--- Internal Assessment

C --- Internal practical assessment

D --- Practical examination

List of Practicals

S.No.	NAME OF EXPERIMENT	CO	LO
1	Determine Iodine value of oil	1	2
2	Determine acid value of Oil..	1	2
3	Determine saponification value of Oil.	1	2
4	Determine TFM (Total fatty matter) of soap	1	3
5	Prepare Azo dye and calculate its yield.	1	4
6	Prepare acid dyes and calculate its yield.	1	4
7	Prepare basic dyes and calculate its yield.	1	4
8	Prepare Phenol formaldehyde	3	3
9	Prepare Urea formaldehyde	3	3
10	Synthesize Nylon-6	3	3
11	Identification of methanol.	4	2
12	Identification of ethanol.	4	2
13	Identification of acetic acid.	4	2

RGPV (Diploma Wing) Bhopal		E FOR LEARNING OUTCOME		Branch Code		Course Code		CO Code	LO Code	Format No. 4
				C	0	2			I	
COURSE NAME	CHEMICAL TECHNOLOGY – II									
CO Description	Identify raw materials required for the manufacturing of specific chemical.									
LO Description	To describe the technology adopted to produce saturated and unsaturated oil.									
SCHEME OF STUDY										
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required		Remarks		
1	Oil Industry Difference between oil, fats and waxes Preparation of raw materials for processes: Refining Bleaching Major engineering problems of oil industries and their remedies Economics. By products and their uses.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	08	04	Handouts, chalk board, PPT, text book.				
SCHEME OF ASSESSMENT										
S. No.	Method of Assessment	Description of Assessment		Maximum Marks	Resources Required			External / Internal		
1	Theory Exam	Theory questions related to the learned content will be asked in the university question paper		10	Question paper			External		
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)										
Nil										

RGPV (Diploma Wing) Bhopal	E FOR LEARNING OUTCOME	Branch Code			Course Code	CO Code	LO Code	Format No. 4
		C	0	2			1	

COURSE NAME	CHEMICAL TECHNOLOGY – II
CO Description	Identify raw materials required for manufacture of specific chemical.
LO Description	To analyze the sample of oil

SCHEME OF STUDY

S. No.	Learning Content	Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Oil industry Preparation of raw materials for processes: Extraction of oil Hydrogenation of oil Major engineering problems of oil industries and their remedies Economics.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	.Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge. Teacher will conduct lab assignments to make students practice their knowledge. Teacher will demonstrate the procedure of lab experiments	10	04	Handouts, chalk board, PPT, textbook.lab	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Laboratory Test by observation	Examiner will ask to students to take reading and then calculate in front of him and will asses correctness of result	10	Rating Scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Nil

RGPV (Diploma Wing) Bhopal	E FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No.
		C	0	2				1	3	4

COURSE NAME	CHEMICAL TECHNOLOGY – II
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CO Description	Identify raw materials required for manufacture of specific chemical.
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LO Description	To determine the total fatty matter of soap
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SCHEME OF STUDY

S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
	Soap Industry Manufacturing of soap and detergents Physical and chemical properties of soap Types of soaps. Process description and flow chart of soap Additives to soap in present practices and their function. Major engineering problems Uses and economics.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial Lab assignments, presentation, lab demonstration, hands on practice.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	04	04	Handouts, chalk board, charts,	

1.2.1

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Paper Pen Test	Theory question (including simple numerical problem) related to the learned content will be asked in the test paper	10	Test Paper + Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Nil

RGPV (Diploma Wing) Bhopal	E FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	2				1	4	

COURSE NAME	CHEMICAL TECHNOLOGY –II
CO Description	Identify raw materials required for manufacture of specific chemical.
LO Description	Apply knowledge of latest trends in soaps and detergent industries.

SCHEME OF STUDY

S. No.	Learning Content	Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Detergent Industry Manufacturing of synthetic Detergents types of detergents(quick wash 'top load 'front load etc) Raw material and their selection. Cleaning mechanism of soap and detergents. Physical and chemical properties Process description and flow chart or engineering problems Consumption pattern and economics	Interactive classroom teaching, demonstration, quiz, assignments, tutorial. lab demonstration	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge. Teacher will conduct lab assignments to make students practice their knowledge. Teacher will demonstrate the procedure of lab experiments	04	01	Handouts, chalk board, PPT, text book, lab	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Laboratory Test by observation	Examiner will ask to students to take reading and then calculate in front of him and will assess correctness of result	10	Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Nil

RGPV (Diploma Wing) Bhopal		E FOR LEARNING OUTCOME		Branch Code			Course Code			CO Code	LO Code	Format No. 4
				C	0	2				2	1	
COURSE NAME		CHEMICAL TECHNOLOGY – II										
CO Description		Use latest technology for the manufacture of paper and dyes.										
LO Description		Convert the trees cellulose into usable pulp cellulose form.										
SCHEME OF STUDY												
S. No.	Learning Content	ing –Learning Method	ription of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks			
1	Introduction to pulp and paper. Pulp Pulping method Trees and quality of pulp from them. Manufacture of pulp Different processes adopted produce pulp and their comparison. Physical and chemical properties Process description and flow chart Major engineering problems Uses and economics engineering problems.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	16	01	Handouts, chalk board, PPT, text book,						
SCHEME OF ASSESSMENT												
S. No.	Method of Assessment	Description of Assessment		Maximum Marks	Resources Required			External / Internal				
1	Theory Exam	Theory questions related to the learned content will be asked in the university question paper		10	Question paper			External				
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)												
Nil												

RGPV (Diploma Wing) Bhopal	E FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	2				2	2	

COURSE NAME	CHEMICAL TECHNOLOGY – II
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CO Description	Use the latest technology for the manufacture of paper and dyes.
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LO Description	Describe the techniques to form different qualities of paper.
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SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Paper Types of paper product Physical and chemical properties Process description and flow chart Description of fillers and components added to improve whiteness strength and other properties with their functioning. Recycling process of waste paper and its economics. Major engineering problems Uses and economics Consumption pattern and future scope of pulp and paper industries in view of digitalization.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	06	1	Handouts, chalk board, charts, , lab.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory Exam	Theory questions related to the learned content will be asked in the university question paper	10	Question paper	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Nil

	E FOR LEARNING OUTCOME	Branch Code	Course Code	CO Code	LO Code	
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COURSE NAME	CHEMICAL TECHNOLOGY – II
CO Description	Use latest technology for the manufacture of paper and dyes.
LO Description	Apply basic knowledge of common fabricates and hair dyes.

SCHEME OF STUDY

S. No.	Learning Content	Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Dyes and Intermediate Introduction Classification of dyes manufacturing of some common dyes for fabric and hair.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial. lab demonstration	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/quiz/tutorial to make students practice their knowledge .	04	03	Handouts, chalk board, PPT, text book, charts.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	Internal
1	Paper Pen Test	Theory question (including simple numerical problem) related to the learned content will be asked in the test paper	10	Test Paper + Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Nil

RGPV (Diploma Wing) Bhopal	FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		<i>C</i>	<i>0</i>	<i>2</i>				<i>3</i>	<i>1</i>	

COURSE NAME	CHEMICAL TECHNOLOGY - II
CO Description	Apply the chemical reactions process conditions requirement for manufacturing polymer product.
LO Description	Describe process of polymerization.

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Unit-3.0 Polymerization Technology Principles of polymerization Types of polymerization and difference between them. Mechanism of polymerization Methods of polymerization Difference amongst monomer, polymer and resin Difference amongst the fiber, filament and thread.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial. lab demonstration	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge..	06	01	Handouts, chalk board, PPT, text book, charts.lab	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Paper Pen Test	Theory question (including simple numerical problem) related to the learned content will be asked in the test paper	10	Test Paper + Rating Scale	Internal

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Nil

RGPV (Diploma Wing) Bhopal		CODE FOR LEARNING OUTCOME		Branch Code			Course Code			CO Code	LO Code	Format No. 4
				<i>C</i>	<i>0</i>	<i>2</i>				3	2	
COURSE NAME		CHEMICAL TECHNOLOGY – II										
CO Description		Apply the chemical reactions process conditions requirement for manufacturing polymer product.										
LO Description		Select proper process conditions for getting maximum yield of rubber.										
SCHEME OF STUDY												
S. No.	Learning Content	Learning –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks					
1	Rubber Industry Difference between natural and synthetic rubber Compounding of rubber. Manufacturing of Styrene-Butadiene Rubber (SBR) Physical and chemical properties Process description and flow chart Major engineering problems and economics Vulcanization of rubber Processing of Rubber Latex Rubber Reclaiming	Interactive classroom teaching, demonstration, quiz, assignments, tutorial. lab demonstration	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	08	01	Handouts, chalk board, PPT, text book, charts,						
SCHEME OF ASSESSMENT												
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required						External / Internal		
1	Theory Exam	Theory questions related to the learned content will be asked in the university question paper	10	Question paper						External		
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)												
Nil												

RGPV (Diploma Wing) Bhopal		REQUIREMENT FOR LEARNING OUTCOME		Branch Code		Course Code		CO Code	LO Code	Format No. 4
				<i>C</i>	<i>0</i>	<i>2</i>		<i>3</i>	<i>3</i>	
COURSE NAME	CHEMICAL TECHNOLOGY – II									
CO Description	Apply the chemical reactions process conditions requirement for manufacturing polymer product.									
LO Description	To prepare phenol formaldehyde , urea formaldehyde and Nylon 6.									
SCHEME OF STUDY										
S. No.	Learning Content	Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required		Remarks		
1	Plastic Industry Classification of plastic Introduction, uses, properties and recognition of polymer plastics like:-Nylon, LDPE, HDPE, PP, PET,PU, PVC, PVDC, ABS, PS AND Teflon	Interactive classroom teaching, demonstration, quiz, assignments, tutorial. lab demonstration	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge. Teacher will conduct lab assignments to make students practice their knowledge	12	08	Handouts, chalk board, PPT, text book, charts, lab.				
SCHEME OF ASSESSMENT										
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required		External / Internal				
1	Laboratory Test by observation	Examiner will ask to students to take reading and then calculate in front of him and will assess correctness of result	10	Rating Scale		External				
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)										
Nil										

RGPV (Diploma Wing) Bhopal		IE FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
			<i>C</i>	<i>0</i>	<i>2</i>				<i>4</i>	<i>1</i>	
COURSE NAME	CHEMICAL TECHNOLOGY – II										
CO Description	Use some common industrial solvents appropriately.										
LO Description	Prepare and use commonly used industrial solvents in the laboratory.										
SCHEME OF STUDY											
S. No.	Learning Content	Learning Method	Description of T-L Process	Teach Hrs.	Lect. /Tut Hrs.	LRs Required				Remarks	
1	Unit-4.0 Industrial Solvents Industrial Solvents: basic principle, raw material, reactions, flow diagram, process description, major engineering problems, economics,	Interactive classroom teaching, demonstration, quiz, assignments, tutorial. lab demonstration	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	06	02	Handouts, chalk board, PPT, text book, charts					
SCHEME OF ASSESSMENT											
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required				External / Internal			
1	Theory Exam	Theory questions related to the learned content will be asked in the university question paper	10	Question paper				External			
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)											
nil											

RGPV (Diploma Wing) Bhopal		E FOR LEARNING OUTCOME		Branch Code			Course Code			CO Code	LO Code	Format No. 4
				<i>C</i>	<i>0</i>	<i>2</i>				<i>4</i>	<i>2</i>	
COURSE NAME	CHEMICAL TECHNOLOGY – II											
CO Description	Use some common industrial solvents appropriately.											
LO Description	Apply basic knowledge to identify the importance of the industrial solvents.											
SCHEME OF STUDY												
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks			
1	sumption pattern and industrial importance for the manufacturing of the following industrial solvents Methanol Acetone N-Hexane Ethyl alcohol Acetic acid	Fermentation process and its importance in chemical engineering field.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	12	08	Handouts, chalk board, PPT, text book, charts, lab.						
SCHEME OF ASSESSMENT												
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal					
1	Laboratory Test by observation	Examiner will ask to students to take reading and then calculate in front of him and will asses correctness of result	10	Rating Scale			External					
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)												
Nil												

RGPV (Diploma Wing) Bhopal	E FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	2				5	1	

COURSE NAME	CHEMICAL TECHNOLOGY – II
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CO Description	Apply the basic principles of chemical engineering for the production of some agro based products.
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LO Description	Prepare commonly used insecticides and pesticides in the laboratory.
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SCHEME OF STUDY

S. No.	Learning Content	Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Unit-5.0 Agro based Products and Explosives a) Basic principle, raw material, reactions, flow diagram, process description, major engineering problems, economics, consumption pattern and industrial importance for the manufacturing of the following. pesticides melathion Beta-Hexachlorocyclohexane (BHC) parathion sulphos Explosives Tri Nitro Toluene Nitroglycerine Research Department Explosive (RDX) fire crackers Ammonium Chloride	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge. Teacher will conduct lab assignments to make students practice their knowledge	12	02	Handouts, chalk board PPT, lab.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
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1	Laboratory Test by observation	Examiner will ask to students to take reading and then calculate in front of him and will asses correctness of result	10	Rating Scale	Internal
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)					

RGPV (Diploma Wing) Bhopal		CODE FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					C	0	2				5	2	
COURSE NAME	CHEMICAL TECHNOLOGY – II												
CO Description	Apply the basic principles of chemical engineering for the production of some agrobased products.												
LO Description	Describe production of sugar crystals from cane sugar.												
SCHEME OF STUDY													
S. No.	Learning Content	Learning –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required						Remarks	
1	Sugar Industry Physical and chemical properties Process description and flow chart Major engineering problems Uses and economics	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	06	02	Handouts, chalk board PPT, .							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required					External / Internal				

1	Theory Exam	Theory questions related to the learned content will be asked in the university question paper	10	Question paper	External
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ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing) Bhopal		CODE FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					<i>C</i>	<i>0</i>	<i>2</i>				5	3	
COURSE NAME	CHEMICAL TECHNOLOGY – II												
CO Description	Apply the basic principles of chemical engineering for the production of some agro based products.												
LO Description	Process agriculture based starch production.												
SCHEME OF STUDY													
S. No.	Learning Content	Learning –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks				

1	Starch Industry Physical and chemical properties Process description and flow chart Major engineering problems 5.4.5 Uses and economics	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	06	01	Handouts, chalk board, charts, video film, .	
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SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Theory Exam	Theory questions related to the learned content will be asked in the university question paper	10	Question paper	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

Nli