

**DEPARTMENT OF INDUSTRIAL CHEMISTRY
COURSE CURRICULUM**

PART-A: Introduction			
Program: Bachelor in Science (Honors/ Honors with Research)		Semester - VIII	Session: 2024-2025
1	Course Code	ICSE-12T	
2	Course Title	TECHNOLOGY OF SELECTED FINISHED PRODUCT – DRUGS	
3	Course Type	DSE	
4	Pre-requisite(if,any)	As per program	
5	Course Learning Outcomes(CLO)	<ul style="list-style-type: none"> ➤ Understanding Drug Development Process ➤ Mastery of Pharmaceutical Manufacturing Techniques ➤ Students will apply quality assurance and quality control principles in pharmaceutical manufacturing ➤ Students will learn about pharmacokinetic and pharmacodynamic principles governing drug absorption, distribution, metabolism, and excretion 	
6	Credit Value	3 Credits	Credit = 15 Hours -learning & Observation
7	Total Marks	Max. Marks: 100	Min Passing Marks:40
PART -B: Content of the Course			
Total No.of Teaching–learning Periods(01 Hr. per period) - 45 Periods (45 Hours)			
Unit	Topics(Course contents)		No.of Period
I	Preparation and application of following group of drugs:- - Antimalarial drugs: Chloroquine, Primaquine. - Antipyretics and Analgesic drugs:-Antipyrine, Phenacetin, Paracetamol, Aspirin, Salol. - Sulpha drugs or Antibacterial drugs:-Sulphathiazole, Sulfapyrimidines, Sulfacetamide, SulphaFurazole. - Anti TB drugs:- p-Amino salicylic acid. Antidiabetic drugs:-Tolbutamide. - Anticancer drugs:-Chlorambucil.		12
II	Preparation and application of following group of drugs:- - Anthelmintics and Antiseptic Drugs:- n-Hexyl Resorcinol, Chloramine-T, Vioform, Chlorocavacrol. - Anaestheticdrugs:- Diethyl ether, Benzocaine, Procaine, Stovene. - Antipasmodic:- Atropine, Papaverine. - Antihistamine:- Benadryl, Avil. - Anticoagulants Drugs:- Dicoumarol, Valium. - Antilepretric Drugs: Dapsone. - Antibiotic Drugs: Chloramphenicol.		11
III	Industrial production of following Drugs:- - Insulin, Darvon, Caffiene, Camphor, Paracetamol, Aspirin, Sorbitol, Acetanilide, Morphine, Cocaine, Codeine.		11
IV	Synthesis of following important drugs:- - Mebonadazole, Tolbutamie, Isoniazid, Metronidazole, Diphenhydramine, Antiphetamine, Chlorambucil, Chlorpromazine, Ibuprofen, Sulphmenoxazole. Information of Good Manufacture Practice (GMP), Good Laboratory Practice (GLP), Codex, Pharmacopeia and Codex monogram.		11
Keywords	Drug Molecués, Biomedical Applications, Antibiotic, Drug Synthesis, Good Laboratory Practice		

Signature of Convener & Members (CBoS):

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended –

1. Soni, P. L., & Chawla, H. M. (2007). Organic Chemistry. New Age International.
2. Kar, A. (2004). Medicinal Chemistry. New Age International Publishers.
3. Jain, A. K. (2009). Introduction to Pharmaceutical Chemistry. Pharma Book Publications.

Reference Books Recommended –

1. Burger, A. (Ed.). (2003). Medical Chemistry Part 1 & 2. Wiley Inter Science.
2. Jenkins, G. S., Smith, H. A., & Wikel, J. H. (1982). Chemistry of Organic Medicinal Products. Wiley Inter Science.
3. Gennaro, A. R. (Ed.). (1995). Remington's Pharmaceutical Sciences. Mach Publishing Company

Online Resources–

- <https://www.who.int/>
- <https://www.ncbi.nlm.nih.gov/books>
- <https://www.niaid.nih.gov/diseases-conditions>
- <https://www.aaaai.org/conditions-and-treatments/drug-guide>
- http://ijrpc.com/invited_article.php?inv_id=8

Online Resources–

- e-Resources / e-books and e-learning portals

PART-D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100 Marks

Continuous Internal Assessment(CIA):30 Marks

End Semester Exam(ESE):70 Marks

Continuous Internal Assessment(CIA): (By Course Teacher)	Internal Test / Quiz-(2): 20 +20 Assignment/Seminar- 10 Total Marks -30	Better marks out of the two Test / Quiz+ obtained marks in Assignment shall be considered against 30 Marks
End Semester Exam (ESE):	Two section – A & B Section A: Q1. Objective – 10 x1= 10 Mark; Q2. Short answer type- 5x4 =20Marks Section B: Descriptive answer type qts., 1out of 2 from each unit- 4x10=40Marks	

Name and Signature of Convener & Members of CBoS:

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FOUR YEAR UNDERGRADUATE PROGRAM(2024 – 28)
DEPARTMENT OF INDUSTRIAL CHEMISTRY
COURSE CURRICULUM

PART-A: Introduction			
Program: Bachelor in Science (Honors/ Honors with Research)		Semester - VIII	Session: 2024-2025
1	CourseCode	CHSE-12P	
2	CourseTitle	TECHNOLOGY OF SELECTED FINISHED PRODUCT – DRUGS LAB. COURSE	
3	CourseType	DSE	
4	Pre-requisite(if,any)	As per program	
5	Course Learning Outcomes(CLO)	<ul style="list-style-type: none"> ➤ To understand the synthesis of drug of different types. ➤ To understand the need of basic need of drug synthesis. ➤ Understanding Drug Development Process. ➤ Student will learn to determine the percentage purity of a drug. 	
6	CreditValue	1 Credits	Credit =30 Hours Laboratory or Field learning/Training
7	TotalMarks	Max.Marks:50	Min Passing Marks:20

PART -B: Content of the Course

Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)

Module	Topics(Course contents)	No. of Period
Lab./Field Training/ Experiment Contents of Course	<ol style="list-style-type: none"> 1. To prepare and submit tolbutamide from p-toluene sulfonamide and calculate its percentage yield. 2. To Prepare and submit chlorbutanol from acetone and calculate the Percentage Yield. 3. To Synthesis and submit Synthesis of 7- Hydroxy -4- methyl coumarin. 4. To synthesis and submit sulphanilamide from p-acetamido benzen sulphanilamide and calculate its percentage yield. 5. To prepare and submit hexamine from formaldehyde and calculate its Percentage Yield. 6. To determine the percentage purity of given sample of Isonicotinic acid hydrazid tablet. 7. To determine the percentage purity of given sample of Metronidazole tablet. 8. To determine the percentage purity of given sample of tablet. 9. To determine the percentage purity of given sample of Chlorpheniramin malate. 10. To determine the percentage purity of given sample of Benzyl penicillin tablet. 	30

Keywords *Sulfanilamide, Chlorbutanol, 7-hydroxy-4-methylcoumarin, hexamine*

Signature of Convener & Members (CBoS):

PART-C: Learning Resources		
Text Books, Reference Books and Others		
Text Books Recommended –		
<ol style="list-style-type: none"> 1. Mehrotra, K. N. (2001). Handbook of Drugs and Cosmetic Act. 2. Connors, K. A. (1982). Textbook of Pharmaceutical Analysis. Wiley Eastern Limited. 3. Ahluwalia, V. K. (2012). Pharmaceutical Analysis. BCS Publishers & Distributors Pvt. Ltd. 		
Reference Books Recommended –		
<ol style="list-style-type: none"> 1. Remstad, K. G. (1998). Modern Pharmacognosy. McGraw Hill. 2. Indian Pharmacopoeia. (1985). 3. British Pharmacopoeia. (1990). 4. Pharmaceutical Dosage Forms. 5. Li, J. J., Johnson, D. S., & Smith, S. C. (Eds.). (2017). Current Drug Synthesis. Wiley. 6. Patrick, G. L. (2013). Introduction to Drug Synthesis. Oxford University Press. 		
Online Resources–		
<ul style="list-style-type: none"> ➤ https://www.ncl-india.org/ ➤ https://www.iict.res.in/ 		
PART-D: Assessment and Evaluation		
Suggested Continuous Evaluation Methods:		
Maximum Marks: 50 Marks		
Continuous Internal Assessment(CIA):15 Marks		
End Semester Exam(ESE):35Marks		
Continuous Internal Assessment(CIA): (By Course Teacher)	Internal Test / Quiz-(2): 10 &10 Assignment/Seminar +Attendance- 05 Total Marks -15	Better marks out of the two Test / Quiz +obtained marks in Assignment shall be considered against 15 Marks
End Semester Exam (ESE):	Laboratory / Field Skill Performance: On spot Assessment HH. Performed the Task based on lab. work - 20 Marks II. Spotting based on tools& technology (written) – 10 Marks JJ. Viva-voce (based on principle/technology) - 05 Marks	Managed by Course teacher as per lab. status

Name and Signature of Convener & Members of CBoS: