

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

PART-A: Introduction			
Program: Bachelor in Science (Diploma / Degree/Honors)		Semester - III	Session: 2024-2025
1	Course Code	ICSE-01T	
2	Course Title	FOOD CHEMISTRY	
3	Course Type	DSE	
4	Pre-requisite(if,any)	As per program	
5	Course Learning Outcomes(CLO)	<ul style="list-style-type: none"> ➤ Understanding the basics of cereals and sugars and their related products. ➤ Role of vegetables, fungi, and algae in food chemistry. ➤ Understanding the role and mechanism of action of beverages and appetizers. ➤ Applications of preservatives, additives, and packaging in food industry. 	
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	Cereals and Sugar Cereals definition - Classification, Processing - Structure of Cereals - Composition and nutritive value. Pulses definition - Classification - Processing - Structure of Pulses Composition and nutritive value - Toxic Constituents in pulses - medicinal value of cereals and pulses. Sugar and related products. Sugar Structure and Properties. Nutritive value - Sugar composition in different food items. Sugar related product - Classification & nutritive value. Artificial sweeteners - example - advantages and disadvantages.		11
II	Vegetables, Fungi, and Algae Vegetables - classification - composition & nutritive values - Fruits- Classification - Composition & nutritive values. Fungi and algae as food - enzymatic browning and non-enzymatic browning - Nutritive value of some common foods - milk, egg., soyabeans.		11
III	Beverages and Appetizers: Beverages - definition and examples - Classification of beverages Fruit beverages - Milk based beverages - malted beverages - examples. Alcoholic and non-alcoholic beverages - examples. Appetizers - definition - classification - examples - Water - functions and deficiency.		11
IV	Food preservatives, additives, and packaging: Food Preservatives - definition - classification - Food Spoilage - definition - Prevention. Methods of preservation - classification - Low and high temperature - preservatives examples - Dehydration - osmotic pressure - food irradiation. Food additives -Definition-classification-their functions- chemical substance. Packaging of foods -classification-Materials used for packaging.		12
Keywords	Food, chemistry, cereals, sugar, beverages, appetizers, preservatives, packaging.		

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. Srilakshmi, B. (2003). <i>Food science</i>. New Age International.2. Swaminathan, D. M. (2013). <i>Handbook of food and nutrition</i>. The Bangalore Printing & Publishing Co. Ltd.		
Reference Books Recommended – <ol style="list-style-type: none">1. Meyer, L. H. (2015). <i>Food chemistry</i>.2. Mudambi, S. R. (2001). <i>Fundamentals of foods and nutrition</i>. New Age International.		
Online Resources–		
e-Resources / e-books and e-learning portals		
➤ https://ccsuniversity.ac.in/bridge-library/pdf/FST-Paper-%20II%20Food%20Beverages-%20IV-Semester.pdf		
➤ http://ecoursesonline.iasri.res.in/mod/page/view.php?id=90258		
➤ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8464797/		
➤ http://www.uprtou.ac.in/other_pdf/dvapfv_block_3.pdf		
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., 1 out of 2 from each unit-4x10=40 Marks	

Name and Signature of Convener & Members of CBoS:

(Handwritten signatures in blue ink)

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DEPARTMENT OF INDUSTRIAL CHEMISTRY
COURSE CURRICULUM

PART-A: Introduction			
Program: Bachelor in Science (Diploma / Degree/Honors)		Semester - III	Session: 2024-2025
1	CourseCode	ICSE-01P	
2	CourseTitle	FOOD CHEMISTRY 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 find out moisture content in food samples. ➤ To find out ash, crude protein, crude fat, total carbohydrate, crude fibre in food samples. ➤ To determine pH, acidity, vitamin, and sugars in food samples. ➤ To identify pigments, Saccharine, and nutritional deficiency disorders. 	
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 theCourse			
TotalNo.of learning-Training/performancePeriods:30 Periods (30 Hours)			
Module	Topics(Coursecontents)		No.ofP eriod
Lab./Field Training/ Experiment Contents of Course	<ul style="list-style-type: none"> • To find out the moisture content from a given food sample by lab oven method. • To find out the moisture content from a given sample by using moisture meter. • To find out the ash in the given food sample. • To find out the acid insoluble ash from a given food sample. • To find out the amount of crude protein in a given food sample. • Experiment- Crude Protein- Protein by Kjeltec. • To find out the amount of crude fat in a given food sample. • To find out the amount of total carbohydrates in a given food sample. • To find out the amount of crude fiber in a given food sample. • To determine the pH of a given sample using pH paper and Universal Indicator. • To determine the pH of a given sample using pH Meter • Determination of acidity of given honey sample. • To determine the acidity of extracted fat in a given sample of biscuit. • To determine the reducing and non- reducing sugars in a given food sample. • To determine the Vitamin- C (Ascorbic Acid) in a given food sample. • To determine the Diastase enzyme (α- amylase) activity in a given food sample by Falling Number test. • To identify different pigments, present in a given food sample by paper chromatography. • To observe the effect of baking soda in CO₂ production. • To test the presence of Saccharine in the given sample of beverage. • To know about various nutritional deficiency disorders. • Reports/Projects conductance on food chemistry. 		30
Keywords	Food, chemistry, moisture, Protein, vitamin, carbohydrate, fat, ash, pH meter, crude, fiber, pH meter, nutrition.		

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. Shukla, S., & Bedi, G. S. (2015). Food analysis laboratory manual (2nd ed.). New Age International (Publishers). 2. Desai, B. S. (2010). Experimental food science (3rd ed.). Viva Books Private Limited. 	
Reference Books Recommended –	
<ol style="list-style-type: none"> 1. Caballero, B., Finglas, P., & Toldrá, F. (2015). Encyclopedia of food and health. San Diego, CA: Academic Press. 2. Nielsen, S. S. (2017). Introduction to food analysis. In Food analysis (pp. 3-16). New York, NY: Springer. 3. Parimelazhagan, T., & Thangaraj, P. (2016). Proximate composition analysis. In Pharmacological assays of plant-based natural products (pp. 21-31). 4. BeMiller, J. N. (2017). Carbohydrate analysis. In Food analysis (pp. 333-360). New York, NY: Springer. 	
Online Resources–	
e-Resources / e-books and e-learning portals	
<ul style="list-style-type: none"> ➤ https://gpadampur.files.wordpress.com/2015/08/3-2-fcn-practical.pdf ➤ http://sihfwup.in/content/assets/pdf/CME/Nutritional Deficiency Disease Book.pdf ➤ https://onlinecourses.swayam2.ac.in/cec20_ag10/preview ➤ https://onlinecourses.nptel.ac.in/noc23_ag19/preview ➤ https://archive.nptel.ac.in/courses/103/107/103107088/ 	
Online Resources–	
<ul style="list-style-type: none"> ➤ e-Resources / e-books and e-learning portals 	

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 A. Performed the Task based on lab. work - 20 Marks B. Spotting based on tools& technology (written) – 10 Marks C. Viva-voce (based on principle/technology) - 05 Marks	Managed by Course teacher as per lab. status

Name and Signature of Convener & Members of CBoS:

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