



JAI HIND COLLEGE
BASANTSING INSTITUTE OF SCIENCE
&
J.T.LALVANI COLLEGE OF COMMERCE
(AUTONOMOUS)

"A" Road, Churchgate, Mumbai - 400 020, India.

Program: B.Sc

Proposed Course: Microbiology (Applied Component)

Food Production and Processing

Semester VI

**Credit Based Semester and Grading System (CBCS) with effect from
the academic year 2020-21**

T.Y.B.Sc Applied Component

Food Production and Processing Academic year 2020-2021

SEMESTER VI

Course Code	UNIT	TOPICS	Credits	Lec/ Week
SMIC6AC		Food Production and Processing (Applications and Q.A)	2.5	4
	I	Modern Methods of Food production		1
	II	Production of Fermented Food and Beverages		1
	III	Food Safety and Quality Assurance		1
	IV	Food Packaging and Marketing		1
SMIC6ACPR		Practicals based on above course in theory	2.5	4

Semester VI – Theory

Course: SMIC6AC	Course Title: FOOD PRODUCTION AND PROCESSING (Applications and Quality Assurance) (Credits : 2.5, Lectures/Week:04)
	<p>Objectives:</p> <ul style="list-style-type: none"> ➤ Understanding modern techniques involved in food production ➤ Learn the principles that underline food spoilage and the importance of food safety and quality assurance ➤ Study the importance of packaging in food industry <p>Outcomes: On completion of this course students will learn about genetically engineered plant and animal products, fermented foods and beverages, aspects of food safety and food packaging.</p>
Unit I	Modern Methods of Food Production 15 L
1.	General Methodology of genetic Engineering. 01
2.	Applications of Genetic Engineering – Modification of plant nutritional content, modification of plant taste and appearance. - Plant yield, fruit ripening and edible vaccines. 08
3.	Transgenic Animals 03
4.	Nanotechnology 03
Unit II	Production of Fermented Foods and beverages 15 L
1.	Lactic acid Fermentation: Sauerkraut and cucumber pickles 03
2.	Bread Production 02
3.	Animal Products : Fermented sausages 02
4.	Plant Products: Idli fermentation 02
5.	Fermented Soyabean Products – miso, tofu, soy sauce 02
6.	Nutraceuticals and functional foods 02
7.	Probiotics, Prebiotics and Synbiotics 02
Unit III	Food Safety and Quality Assurance 15 L
1.	Principles of food spoilage- Physical, Chemical and Microbial 03
2.	Food Hazards: Microbial – bacterial, fungal, protozoal, viral, emerging food pathogens. Food hazards: Non microbial- adulteration, natural/artificial coloring agents, metals, etc. 03
3.	Food analysis: Sensory, chemical, microbiological, rapid detection methods, CDC programs – pulseNet, FoodNet 03
4.	Safe Process Design and Operation : GMP, HACCP, Food Hygiene and sanitation, risk assessment, flow sheets 04
5.	Food Standards and Laws- National, International legislation and 02

	agencies governing food and its quality	
Unit IV	Food Packaging and marketing	15 L
1.	Functions of Packaging	02
2.	Types of Packages	02
3.	Types of Packaging materials	03
4.	Labeling and Printing	02
5.	Food and food packaging interaction	03
6.	Testing of packaging material	03

Textbook:

1. Srilaxmi. B (2010) Food Science, 5th Edition, New Age International Ltd.
2. Ramesh Vijay (2007) Food Microbiology, MJ Publishers.
3. Joshi. S.A (2015) Nutrition and Dietetics, 4th Edition, McGraw Hill.
4. Adams .M.R, Moss. M.O (2008) Food Microbiology, RSC Publishing.
5. Potter Norman. N (1987) Food Sciences, 3rd Edition, CBS Publishers and distributors,
6. Prescott and Dunn (2004) Industrial Microbiology, 4th Edition, CBS Publishers and distributors.
7. James. J (1987) Modern Food Microbiology, 3rd Edition, CBS Publishers and distributors.
8. Breck. W.M (2016) Nanotechnology Volume 2, CBS Publishers and distributors,
9. Glick and Pasternak - Molecular Biotechnology- Principles and Applications of Recombinant DNA, 3rd Edition, ASM Press.
10. Chandy.M (1992) Fishes, National book Trust.
11. Madigan.M.T, Martinko.J.M (2009) Brock Biology of Microorganisms, 12th Edition, Pearson International Edition.

Semester VI– Practical

Course: SMIC6ACPR	FOOD PRODUCTION AND PROCESSING (Credits: 2.5 Practicals/Week: 8) <ol style="list-style-type: none">1. Production of Sauerkraut2. Preparation of Bread3. Study of Microbial fermentation of Idli batter :DMC, SPC, LAB count, Titratable acidity (2 to 8 hrs incubation)4. Extraction and detection of lycopene from tomatoes.5. Study of probiotic food samples6. Food adulteration7. Analysis of food- butter and cheese using FSSAI manuals.8. Types of Packaging9. Synthesis and antimicrobial activity of nanoparticles10. Assignment on GM (genetically modified) foods.
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Semester VI– Practical

EVALUATION SCHEME:

Examination		Time Duration	Marks
A. EVALUATION SCHEME FOR THEORY COURSES (1 PAPER)			
I. Continuous Assessment (C.A.)			40
C.A.I Test	MCQ, 1M answers etc	40 mins	20
C.A.II Test	Assignment/Project /Posters/ Presentations etc		20
II. Semester End Examination (SEE)		2 hours	60
Theory Paper			40+60= 100
B. EVALUATION SCHEME FOR PRACTICAL COURSES (1 COURSE)			
II. Semester End Practical Examination			
Practical course: SMIC6ACPR			100