



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

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

**Affiliated to  
University of Mumbai**

Program: B.Sc

Proposed Course: Food Production and Processing: Sem VI  
**Credit Based Semester and Grading System (CBGS) with  
effect from the academic year 2019-20**

**T.Y.B.Sc Applied Component**  
**Food Production and Processing Academic year 2019-2020**

**SEMESTER VI**

<b>Course Code</b>	<b>UNIT</b>	<b>TOPICS</b>	<b>Credits</b>	<b>Lec/ Week</b>
<b>SMIC6AC</b>		<b>Food Production and Processing (Applications and Q.A)</b>	<b>2.0</b>	
	<b>I</b>	Modern Methods of Food production		<b>1</b>
	<b>II</b>	Production of Fermented Food and Beverages		<b>1</b>
	<b>III</b>	Food Safety and Quality Assurance		<b>1</b>
	<b>IV</b>	Food Packaging and Marketing		<b>1</b>
<b>SMIC6ACPR</b>		<b>Practicals based on above course in theory</b>	<b>2.0</b>	<b>4</b>

## Semester VI – Theory

<b>Course:</b> SMIC6AC	<b>Course Title: FOOD PRODUCTION AND PROCESSING (Applications and Quality Assurance)</b> (Credits : 2.0 , Lectures/Week:04)	
	<p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>➤ Understanding modern techniques involved in food production</li> <li>➤ Learn the principles that underline food spoilage and the importance of food safety and quality assurance</li> <li>➤ Study the importance of packaging in food industry</li> </ul> <p><b>Outcomes:</b> 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>	
<b>Unit I</b>	<b>Modern Methods of Food Production</b>	<b>15 L</b>
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
4.	Transgenic Animals	03
5.	Nanotechnology	03
<b>Unit II</b>	<b>Production of Fermented Foods and beverages</b>	<b>15 L</b>
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	02
7.	Probiotic foods	02
<b>Unit III</b>	<b>Food Safety and Quality Assurance</b>	<b>15 L</b>
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	
<b>Unit IV</b>	<b>Food Packaging and marketing</b>	<b>15 L</b>
<b>1.</b>	Functions of Packaging	02
<b>2.</b>	Types of Packages	02
<b>3.</b>	Types of Packaging materials	03
<b>4.</b>	Labeling and Printing	02
<b>5.</b>	Food and food packaging interaction	03
<b>6.</b>	Testing of packaging material	03

**Textbook:**

1. Srilaxmi. B (2010) Food Science, 5th Edition, New Age International Ltd.
2. Ramesh Vijay (2007) Food Microbiology, MJP 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, 12rd Edition, Pearson International Edition.

## Semester VI– Practical

<b>Course: SMIC6ACPR</b>	<b>FOOD PRODUCTION AND PROCESSING (Credits: 2.5 Practicals/Week: 8)</b> 1 Mushroom cultivation 2 Practicals on Nanotechnology- Synthesis and antimicrobial activity 3. Estimation of Vitamin C from lemon juice 4. Determination of Iodine number. 5. Production of Sauerkraut 6. Preparation of Bread 7. Study of Microbial fermentation of Idli batter :DMC, SPC, LAB count, Titratable acidity (2 to 8 hrs incubation) 8. Food adulteration 9. Types of Packaging 10.Study of Probiotic food samples.
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### Evaluation Scheme

#### [A] Evaluation scheme for Theory courses

1.Semester End Examination (SEE)- 100 Marks

#### [B] Evaluation scheme for Practical courses

1. Semester End Examination (SEE) – 100 Marks