

University of Mumbai



No. UG/ 118 of 2019-20

CIRCULAR:-

Attention of the Principals of the Affiliated Colleges, and Directors of the recognized Institutions in Science & Technology Faculty is invited to the syllabus uploaded by Academic Authority Unit which was accepted by the Academic Council at its meeting held on 27th February, 2013 **vide** item No. 4.16 relating to the revised syllabus as per (CBSGS) for the T.Y.B. Sc. Applied Component Course in Food Production and Processing (USACFP).

They are hereby informed that the recommendations made by the Board of Studies in Microbiology at its meeting held on 22nd May, 2019 have been accepted by the Academic Council at its meeting held on 26th July, 2019 **vide** item No. 4.9 and that in accordance therewith, the revised syllabus as per the (CBCS) for the T.Y.B.Sc. (Sem. V & VI) Food Production & Processing (USACFP) (Applied Component) has been brought into force with effect from the academic year 2019-20, accordingly. (The same is available on the University's website www.mu.ac.in).

MUMBAI - 400 032
18th September, 2019


(Dr. Vinod P. Patil)
I/c REGISTRAR

To

The Principals of the affiliated Colleges, and Directors of the recognized Institutions in Science & Technology Faculty. (Circular No. UG/334 of 2017-18 dated 9th January, 2018.)

A.C/4.9/26/07/2019

No. UG/ 118 -A of 2019-20

MUMBAI-400 032

18th September, 2019

Copy forwarded with Compliments for information to:-

- 1) The I/c Dean, Faculty of Science & Technology,
- 2) The Chairman, Board of Studies in Microbiology,
- 3) The Director, Board of Examinations and Evaluation,
- 4) The Professor-cum-Director, Institute of Distance and Open Learning (IDOL),
- 5) The Director, Board of Students Development,
- 6) The Co-ordinator, University Computerization Centre,


(Dr. Vinod P. Patil)
I/c REGISTRAR

*Ordinances and Regulations apply for Eligibility and Evaluation need to be clearly mentioned
Ranib
15/7/19*

Cover Page

AC 26/7/19
Item No. 4.9

UNIVERSITY OF MUMBAI



Syllabus for Approval

Sr. No.	Heading	Particulars
1	Title of the Course	TYB& Applied Component for Microbiology : Food Production & Processing
2	Eligibility for Admission	XII (Sc) Second Year BSc with Microbiology
3	Passing Marks	40/100
4	Ordinances / Regulations (if any)	Ord: D.2145. Circular No. UG/394 of 2004 dt Sept 2004
5	No. of Years / Semesters	2 Semesters
6	Level	P.G. / U.G./ Diploma / Certificate (Strike out which is not applicable)
7	Pattern	Yearly / Semester (Strike out which is not applicable)
8	Status	New / Revised (Strike out which is not applicable)
9	To be implemented from Academic Year	From Academic Year <u>2019-20</u>

17/7/19

Date:

Signature:

Bhathena

Name of BOS Chairperson / Dean :

Prof (Dr) Z P. Bhathena

Ranib

UNIVERSITY OF MUMBAI



**Revised Syllabus for T.Y.B.Sc.
(APPLIED COMPONENT)
Program: B.Sc.(Microbiology)
Course: Food Production and Processing
(USACFP)**

Choice Based Credit System with effect from the
academic year **2019–2020**

IV	Principles of Food Spoilage and Food Preservation			
	4.1 Principles of Food Spoilage- Physical, Chemical and Microbial	3		
	4.2 Principles of Food Preservation-			
	A. Physical Methods-			
	i. Methods using High temperature -Blanching, Pasteurization, Canning.	2		
	ii. Methods using Low temperature- Chilling, Freezing.	1	15	
iii. Dehydration	1			
iv. Irradiation	2			
B. Chemical Methods	2			
Salt, Sugar, Na-benzoate, Meta bisulfite, Citrate, Acetate				
4.3. Newer Preservation & Processing Methods- Natural antimicrobials, Hydrostatic pressure, Electric pulse, Light pulse, High magnetic pulse, Microwave, minimally processed foods, Bio-preservation, hurdle technology	4			

PRACTICALS BASED ON SEMESTER V (USACFPP-501):

1. Estimation of carbohydrates from rice products like puffed and parched rice.
2. Estimation of proteins from soya flour, wheat flour (direct Biuret method).
3. Estimation of protein content of Spirulina (indirect Biuret method).
4. Estimation of Vitamin C content. (from amla /lime)
5. Study of idli batter - Count of lactic acid bacteria, SPC, Titrable acidity
6. Determination of Iodine number of oil/ ghee/ butter.
7. Determination of saponification value of fats.
8. Preparation of ketchup / pickles.
9. Preparation of jam.
10. MIC of salt, sugar, benzoate, potassium meta-bisulphite.
11. Isolation of spoilage causing microorganisms from bread, butter, cheese, pickles.
12. Assignment: Preparation of a day's menu plan for different individuals.
13. Visit to aquaculture/ oil extraction unit/ rice mill.

PRACTICALS BASED ON SEMESTER VI (USACFPP-601):

1. Sample preparation for microbiological (SPC and Coliforms) analysis:
 - a. Jam
 - b. Pickles
2. Determination of titrable acidity of fruit juices
3. Extraction and detection of lycopene from tomatoes.
4. Study of probiotic and prebiotics in food samples.
5. Analysis of food- butter and cheese using FSSAI manuals.
6. Food adulteration.
7. Study of types of packaging materials.
8. Testing of packaging materials.
9. Assignment on GM (genetically modified) foods.

Text books

Course: USACFP-501 and USACFP- 601

1. Joshi Shubhangini, Nutrition and Dietetics, Second Edition, Reprint 2007 Tata McGraw Hill Publishing
2. Mudambi R and Rajagopal M. V. 2001. Fundamentals of food and nutrition. 4t Edi. New Age International Ltd. Publ
3. Manay N. S. and Shadasaraswamy. Foods –facts and principles. New Age International Pvt Ltd. 3rdEdi.
4. Shrilaxmi B., Food Science, Fourth Edition, New Age International Publishers
5. Shivshankar B., 2005, Food Processing and Preservation, Eastern Economy Edition, Prentice Hall of India Pvt. Ltd
6. Swaminathan Handbook of Food and Nutrition. Fifth edition , Reprint 2006.

References

1. Glick and Pasternak, 3rd Edi. ASM Press. Molecular Biotechnology- Principles and Applications of Recombinant DNA.
2. Mudambi S., Rao Shalini and Rajgopal M.V., 2006, Food Science, Revised second Edition, New Age Publishers.
3. Swaminathan M. Principles of Nutrition and Dietetics. 2nd Edi
4. Vijaya Ramesh K., 2007, Food Microbiology, MJP Publishers, Chennai
5. Adams M.R.and Moss M.O., 2008, Food Microbiology, Third Edition, RSC Publishing
6. FSSAI Manuals.
7. Ceirwyn S. James Analytical Chemistry of Foods. Blackie Academic and Professional Publication.
8. R.C. Dubey. A textbook of Biotechnology. Chand publication Fourth edition.
9. Bibek Ray & Arun Bhunia. Fundamental Food Microbiology. Fourth edition. CRC press
10. James Jay Modern Food Microbiology Seventh edition. Springer International edn.