



HAJEE KARUTHA ROWTHER HOWDIA COLLEGE

(An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai.)

Uthamapalayam, Theni District. Pin Code: 625 533.

DEPARTMENT OF MICROBIOLOGY

PART – IV NME MICROBIOLOGY

SYLLABUS

Choice Based Credit System – CBCS

(As per TANSCH/MKU Guidelines)

(Academic Year 2020 -2021 onwards)

Details of Course Category, Code, Credits & Title

Course Category	Course Code	Course Title	Hrs	CIAE	TEE	Max. Marks	Credits
Semester - I							
Part - IV							
NME - I	20UMBN11	Mushroom Technology	2	25	75	100	2
Semester - II							
Part - IV							
NME - II	20UMBN21	Food and Dairy Microbiology	2	25	75	100	2

Course Code	Course Title	Category	Total Hours	Credits
20UMBN11	Mushroom Technology	NME - I	30	2

Nature of Course	
Knowledge Oriented	✓
Skill Oriented	
Employability Oriented	
Entrepreneurship Oriented	

Course Relevance	
Local	✓
Regional	✓
National	
Global	

Preamble

To create awareness among the students about mushroom cultivation. To promote the mushroom production in student communities through training, spawn production.

Syllabus

- Unit I** 6 hours
 History of mushrooms- Major genera of edible mushrooms – Structure and key for identification of mushrooms.
- Unit II** 6 hours
 Food values of mushroom – Medicinal values of mushrooms- Economic importance of mushroom.
- Unit III** 6 hours
 Substrate for mushroom production-composting methods-long and short time method-Methods of cultivation of mushrooms-oyster mushroom and paddy straw mushroom.
- Unit IV** 6 hours
 Diseases of mushroom-Fungal diseases- soft mildew, brown plaster mold, white plaster mold, olive green mold, inky cap, truffle disease, bubble disease, brown spot disease - Insect pest of mushroom – sciarids, phorids, spring tails, cecid,mites and nematodes.
- Unit V** 6 hours
 Poisonous mushrooms – *Amanita, Boletus, Clitocybe, and Coprinus*- Identification of Poisonous mushrooms.

Text Books

Rajan S, *Mushroom Technology*, CBS Publishers and Distributors, 2020.

Reference Books

Nitabhal, *Mushroom Technology*, Orientlongman publications.

Pathak V. N ,Nagendra Yadav and Maneesh Gaur, *Mushroom production and processing technology*, Vedams Ebooks Pvt. Ltd, New Delhi, 2000.

Pedagogy

Chalk & Talk, E-Resources, Group Discussion

Teaching aids

Black Board, LCD Projector

Course Contents and Lecture Schedule

Module No.	Topic	No. of Lectures	Content Delivery Methods
UNIT - I			
1.1	History of mushrooms	2	Chalk & Talk
1.2	Major genera of edible mushrooms	2	E-Resources
1.3	Structure and key for identification of mushrooms.	2	Chalk & Talk
UNIT - II			
2.1	Food values of mushroom	2	E-Resources
2.2	Medicinal values of mushrooms	2	Discussion
2.3	Economic importance of mushroom.	2	E-Resources
UNIT - III			
3.1	Substrate for mushroom production	2	E-Resources
3.2	composting methods-long and short time method-	2	Chalk & Talk
3.3	Methods of cultivation of mushrooms-oyster mushroom and paddy straw mushroom.	2	Discussion
UNIT - IV			
4.1	Diseases of mushroom-Fungal diseases-soft mildew, brown plaster mold, white plaster mold, olive green mold	2	Discussion
4.2	inky cap, truffle disease, bubble disease, brown spot disease	1	E-Resources
4.3	Insect pest of mushroom - sciarids, phorids, spring tails, cecid,mites and nematodes	3	E-Resources

UNIT - V			
5.1	Poisonous mushrooms – <i>Amanita, Boletus</i>	2	Chalk & Talk
5.2	<i>Clitocybe, and Coprinus</i>	2	E-Resources
5.3	Identification of Poisonous mushrooms.	2	E-Resources
Total		30	

Course Designer

Ms. M. Musbira Banu

Assistant Professor of Microbiology

Course Code	Course Title	Category	Total Hours	Credits
20UMBN21	Food and Dairy Microbiology	NME - II	30	2

Nature of Course	
Knowledge Oriented	✓
Skill Oriented	
Employability Oriented	
Entrepreneurship Oriented	

Course Relevance	
Local	✓
Regional	✓
National	
Global	

Preamble

To create awareness among the students about Food & Dairy Microbiology and to promote the importance of Food preservation & Spoilage.

Syllabus

- UNIT I** 6 Hours
 Importance of Food and Dairy Microbiology - Food as substrate for microbial growth - intrinsic and extrinsic factors affecting growth and survival of microorganism in foods.
- UNIT II** 6 Hours
 Contamination of cereals, milk, egg by microorganisms. Features of food spoilage like fruits, vegetables, milk and milk products.
- UNIT III** 6 Hours
 Milk sterilization techniques, Phosphatase test- Spoilage of bread and cereals, meat, fish and poultry.
- UNIT IV** 6 Hours
 Food preservation by removal of microorganisms, low temperature, high temperature, irradiation and chemical methods.
- UNIT V** 6 Hours
 Food borne infection, food borne intoxications. Detection of food - borne pathogens.

Text Books

- Hobbs BC and Roberts D, *Food Poisoning and Food Hygiene*, Edwards Arnold, London, 1993.
- Jay JM, *Modern Food Microbiology*, Aspen Publishers, 2000, 2nd edition.
- Yousef, AE and Carlstrom C, *Food Microbiology A Laboratory manual*, Wiley Interscience, 2003.

Reference Books

Adams. MR and Moss, MO, *Food Microbiology*, New age International Pvt. Ltd publications, 2005.

Frazier, W C and Westhoff D C, *Food Microbiology*, McGrawHill, NewYork, 2003, 4th edition.

Pedagogy

Chalk & Talk, Group Discussion & E-Resources

Teaching aids

Black Board, LCD Projector

Course Contents and Lecture Schedule

Module No.	Topic	No. of Lectures	Content Delivery Methods
UNIT - I			
1.1	Importance of Food and Dairy Microbiology Food as substrate for microbial growth.	2	Chalk & Talk
1.2	Intrinsic factors affecting growth and survival of microorganism in foods.	2	E-Resources
1.3	Extrinsic factors affecting growth and survival of microorganism in foods.	2	Chalk & Talk
UNIT - II			
2.1	Contamination of cereals, milk, egg by microorganisms.	2	E-Resources
2.2	Features of food spoilage like fruits, vegetables.	2	Discussion
2.3	Spoilage of milk and milk products.	2	E-Resources
UNIT - III			
3.1	Milk sterilization techniques, Phosphatase test.	2	E-Resources
3.2	Spoilage of bread and cereals,	2	Chalk & Talk
3.3	Spoilage of meat, fish and poultry.	2	Discussion

UNIT - IV			
4.1	Food preservation by removal of microorganisms, low temperature	2	Discussion
4.2	Food preservation by high temperature	1	E-Resources
4.3	Food preservation by irradiation and chemical methods.	3	E-Resources
UNIT - V			
5.1	Food borne infection	2	Chalk & Talk
5.2	food borne intoxications	2	E-Resources
5.3	Detection of food-borne pathogens	2	E-Resources
Total		30	

Course Designer

Ms. R. Selvakani

Assistant Professor of Microbiology