FACULTY OF ENGINEERING & TECHNOLOGY

Effective from Academic Batch: 2022-23

Programme: **Bachelor of Technology (Automobile Engineering)**

Semester: **V**

Course Code: **202070521**

Course Title: **Fundamentals of Food Safety and Quality**

Course Group: **Open Elective -I**

Course Objectives:

The learners will able to understand the importance of various issues related to food quality and safety. Overall understanding about how safe food is significant at social level. Moreover, the learners will get acquainted with national and international food regulatory authorities and their role.

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
				Theory		J/V/P*		Total
Lecture	Tutorial	Practical		Internal	External	Internal	External	
3	0	0	3	50/18	50/17	NA	NA	100/35

* **J**: Jury; **V**: Viva; **P**: Practical

Detailed Syllabus:

Sr.	Contents	Hours
1	**Introduction:** Food Quality Concept and definitions; Food Quality attributes – Physical, Chemical, Microbial, Sensory and Nutritional; Quality Control, Quality Assurance; Functions and Responsibilities of Quality Assurance in Food Industry;	9
2	**Importance and significance of microbes in food safety:** Microbial spoilage of foods Factors affecting kinds, numbers, growth and survival of microorganisms in foods; Intrinsic factors; pH,, water activity, nutrients etc., Extrinsic factors: Relative humidity, temperature, gaseous atmosphere; Chemical changes caused by microorganisms	10
3	**Food Safety:** Meaning and Concept**;** Requirement and importance of food safety system; Principles of Food Safety; Challenges in Food Safety Management, Global Food Safety Initiative, Personal Hygiene, Good Manufacturing Practices, Food Traceability, Natural contaminants in food	10

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4	**Introduction to food laws National and International food laws:** FSSAI : Need of FSSAI, Responsibility of FSSAI, Food Business Operator Licensing and Registration, General requirements of food labeling; AGMARK; Bureau of Indian StandardIntroduction to Codex Alimentarius Commission and European Union Food Safety Authority.	**7**
5	**Introduction to HACCP and ISO:** Food Safety Management System (ISO 22000), Food Quality Management System (ISO 9000 Series), Food Hazards, Pre-requisite programs, Principles of HACCP, Food Safety Policies in Food Industry.	**6**

Reference Books:

1	Ronald H. Schmidt and Gary E. Rodrick. Food Safety Handbook. John Wiley & Sons, Inc., Hoboken. New Jersey, USA
2	Food Safety and Food Quality by R.E. Hester and R.M. Harrison. Publisher Royal Society of Chemistry, Cambridge, UK
3	Quality Control for Food Industries by Krammer A. & Twigg B.A. Publisher AVI Publishing Co.
4	Foods Facts and Principles by N. ShakunthalaManay and M. ShadaksharaswamyPublisher New Age International (P) Ltd.).
5	Food Microbiology by Fraizer William C Publisher Mc-Graw Hill Publishing

Supplementary learning Material:	
1	Food Fraud and Authenticity: Emerging Issues and Future Trends by AnnemiekeM.Pustjens, Yannick Weesepoel, Saskia M.Van Ruth in Innovation and Future Trends in Food Manufacturing and Supply Chain Technologies
2	Quality Management: Important Aspects for the Food Industry by Caroline Liboreiro Paiva. Available on https://www.intechopen.com/chapters/41652
3	Evaluation of food quality by Vaclavik VA, Christian EW, Campbell T. in Essentials of Food Science
4	https://fssai.gov.in/cms/food-safety-and-standards-regulations.php
5	https://www.fda.gov/food/guidance-regulation-food-and-dietary-supplements/food-safety-modernization-act-fsma

Pedagogy:

- Direct classroom teaching
- Audio Visual presentations/demonstrations
- Assignments/Quiz
- Continuous assessment
- Interactive methods
- Industrial/ Field visits
- Course Projects

Internal Evaluation :

The internal evaluation comprised of written exam (40% weightage) along with combination of various components such as Certification courses, Assignments, Mini Project, Simulation, Model making, Case study, Group activity, Seminar, Poster Presentation, Unit test, Quiz, Class Participation, Attendance, Achievements etc. where individual component weightage should not exceed 20%.

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Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						**R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating
R	**U**	**A**	**N**	**E**	**C**	
30%	40%	10%	10%	10%	0%	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Conceptualize food quality and importance of quality in food industry	**30**
CO-2	Conceptualize food safety concept, measures and understanding its significance in society.	**30**
CO-3	Understand important aspects of food microbiology.	**20**
CO-4	Know about national and international food standards and their role in ensuring food quality and safety	**20**

Curriculum Revision:	
Version:	2
Drafted on (Month-Year):	June-2022
Last Reviewed on (Month-Year):	
Next Review on (Month-Year):	June-2027

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