



FACULTY OF ENGINEERING & TECHNOLOGY

First Year Master of Technology

Semester I

Course Code: 102380111

Course Title: Nutraceuticals and Functional Foods

Type of Course: Program Elective II

Course Objectives: The objectives of this course are to provide students with an overview of the field of functional foods, nutraceuticals and natural health products

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
Lecture	Tutorial	Practical		Internal		External		Total
				Theory	J/V/P*	Theory	J/V/P*	
3	0	2	4	30 / 15	20 / 10	70 / 35	30 / 15	150 / 75

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

Detailed Syllabus:

Sr.	Contents	Hours
1	Nutraceutical Historical perspective; definition, nature, nutraceutical compounds and their classification based on chemical/biochemical nature with suitable and relevant descriptions; scope and future prospects.	5
2	Functional food Overview; definition, classification; functional food, functional food science, food technology and its impact on functional food development; key issues in Indian functional food industry and nutraceutical	5
3	Antioxidants Concept of free radicals and antioxidants; antioxidants role as nutraceuticals and functional foods	5
4	Functional food and nutraceuticals for Disease management Management of cardiovascular diseases, Diabetes , Cancer, Hypertension and Obesity by nutraceutical compounds and their mechanisms of action	10
5	Food Sources Different foods as functional food: cereal products (oats, wheat bran, rice bran, etc.), fruits and vegetables, milk and milk products, legumes, nuts, oil seeds and sea foods, herbs, spices and medicinal plants. Coffee, tea and other beverages as functional foods/drinks and their protective effects.	7
6	Marketing and regulatory issues for functional foods and nutraceuticals: CODEX Guidelines, EU guidelines and FSSAI guidelines	3



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

Distribution of Theory Marks						R: Remembering; U: Understanding; A: Application, N: Analyze; E: Evaluate; C: Create
R	U	A	N	E	C	
25	40	15	15	05	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.

Reference Books:

1	John Shi, G. Mazza and Marc Le Maguer, Functional Foods, Vol.2 Biochemical and Processing Aspects CRC Press
2	Richard Neeser & J. Bruce German Bioprocesses and Biotechnology for Functional Foods and Nutraceuticals, Jean, Marcel Dekker, Inc.2004
3	Aluko, Rotimi, Functional Foods and Nutraceuticals, Springer-Verlag New York Inc., 2012.
4	Satinder Kaur Brar, Surinder Kaur and Gurpreet Singh Dhillon, Nutraceuticals Functional Foods, 2014
5	Robert E.C. Wildman, Robert Wildman, Taylor C, Handbook of Nutraceuticals and Functional Foods, Third Edition, Wallace, 2002
6	Pathak Y. Handbook of Nutraceuticals; Ingredient, Formulations, and Applications. CRC Press, Taylor & Francis Group, London

Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Understand the basic concepts of nutraceuticals and functional foods.	25
CO-2	Understand the role of various nutraceuticals and functional foods towards managing chronic diseases.	40
CO-3	Understand the source of various nutraceuticals and functional foods	25
CO-4	Learn the marketing and regulatory aspects of nutraceuticals and functional foods	10

List of Practicals / Tutorials: [Click or tap here to enter text.](#)

1	Market survey of existing health foods
2	Identification and estimation of lycopene
3	Determination of total antioxidant capacity of selected nutraceuticals
4	Determination of tocopherol content in rice bran oil
5	Determination of tannin content, ascorbic acid content in aonla juice
6	Development of protein enriched biscuits as a functional food
7	Production of functional food for diabetic patient
8	Determination of dietary fibre content in selected functional food
9	Production of flavonoid rich food product and evaluation of flavonoid content in it
10	Production of carotenoids from pumpkin powder

Supplementary learning Material:



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Curriculum Revision:	
Version:	1
Drafted on (Month-Year):	Apr-20
Last Reviewed on (Month-Year):	Jul-20
Next Review on (Month-Year):	Apr-22