Title of the Course: Nutraceuticals and functional food

Preamble:

Functional foods are considered as those foods which are intended to be consumed as part of the normal diet and provide several health benefits beyond basic nutrition. Nutraceuticals are naturally occurring compounds in foods with health-promoting properties. The online course on Nutraceuticals and Functional Food covers important health promoting nutritional factors and bioactive constituents, their potential health implications and mechanisms of action. After studying this online course, the students shall be able to describe what are functional foods and nutraceuticals, classify the functional foods, discuss the mechanisms of functional foods in providing various potential health benefits as well as discuss the applications of functional foods in the industry.

Target Participants/ Industry: Fresh graduates, Industry personnel, students pursuing graduation, job seekers, working professionals
Duration of the Course: 3 Months
Mode of Operation: Online
Number of Lectures of 1-hour duration: 42 Lectures
Number of Practical Sessions of 2 hours duration: NA

To be covered in each Lecture

Module-1 (Nutraceuticals and Functional Food: An Introduction)
Historical perspective, classification, scope & future prospects. Applied aspects of the Nutraceutical Science. Sources of Nutraceuticals and functional food, The link between nutrition and medicine.

Module 2 (Nutrient Components of Food)
Bioactive Carbohydrates: Polysaccharides, Soluble Fibers, Insoluble Fiber, Resistant Starch, Prebiotics, Slowly Digestible Starch.Bioactive Lipids: MUFA, PUFA, Omega 3 and 6 Fatty Acid, Conjugated Linoleic Acid(CLA).Bioactive Peptides: Sources, Isolation and Purification methods. Antihypertensive, Antioxidant, Antimicrobial, Anticancer and immunomodulating Peptides.

Module 3- (Nutraceuticals of Plant and Animal Origin)
Plant secondary metabolites, alkaloids, phenols, Terpenoids, uses and Preventive role in diseases. Animal metabolites - Examples: Chitin, Chitosan, Glucosamine, Chondroitin Sulphate, uses and applications in preventive medicine and treatment.

Module-4 (Microbial and Algal Nutraceuticals)
Concept of probiotics - principle, mechanism, production and technology involved and health benefits of probiotics. Algae as source of omega - 3 fatty acids, proteins, fibers, antioxidants, vitamins and minerals – examples: Chlorella, Haematococcus, Spirulina, Dunaliella

Module-5 (Functional food for the gut)
probiotics, prebiotics and synbiotics, Fermented functional beverages, Bioactive milk peptides, Functional properties of snack bar, preliminary consideration in development of functional food

Module-6 (Specific Functional foods and health benefits)
Tea, Green coffee, Garlic, Honey, Flaxseed, buckwheat, Barley, Grape seed extract and Lycopene and their preventive role in cardiovascular diseases, Metabolic disorders, Cancer, Bone health, skin diseases etc.

Module -7 (Nutraceutical and functional food Industry and Market Information)
Marketing and Regulatory Issues for Functional Foods and Nutraceuticals, Growth Opportunities, current status, Key challenges and Future aspects in Nutraceuticals and Functional Foods, Nutraceutical and functional food industries in India and abroad (study of 5 reputed Indian and International industries involved in production and development of nutraceuticals and functional foods).

To be covered in each Practical Session: NA

Pre-requisite, if any: Nil
Schedule of the Classes: Saturday & Sundays 2 hrs
Name of the Faculty Coordinators: Dr Smriti Gaur
Name(s) of the Faculty to be involved in conduction of the Course: Dr Smriti Gaur
Minimum Qualifications for participants: students pursuing or completed graduation

Mode of evaluation of the participants after every 15 Lecture Sessions: Online quiz and assignment

Mode of evaluation of the participants after 02 Practical Sessions: NA

Contact Person: Dr Smriti Gaur, smriti.gaur@jiit.ac.in

For the Registration, please fill the Google form:
https://forms.gle/AkVidsjMp5ArfwNj7