MFT-201Technology of Fruits and Vegetables	
Teaching Scheme	**ExaminationScheme**
Lectures:3hrs./week	InternalAssessment Marks[IAM]:30
Tutorials:1 hr./ week	[Class Test: 12, Teachers assessment:6,Attendance: 12]
Credits: 4	EndSemesterMarks[ESM]:70

CourseObjectives:

1. To give knowledge of chemical composition of fruits and vegetables,their pre processing operations.
2. Togiveknowledgeabouttechnology of fruits and vegetable products processing in various forms.
3. Givesknowledgeof technology of tomato and its products preparation.
4. Toimpartknowledgeontechnologyfor new product formulation and utilization of food industry wastes.
5. To give knowledge of tea, coffee, cocoa, vinegar processing and pectin production.

DetailedSyllabus

MODULE1
Classification and composition of fruits and vegetables and their nutritional significance; climacteric and no-climacteric fruits; post harvest treatments, edible coatings. Physical and chemical indices of fruit maturity, crop maturity and ripening, bio-chemical changes during maturation, ripening, processing and storage. Pre-processing operations: washing, blanching, peeling, sorting and grading of fruits and vegetables; minimal processing of fruits and vegetables; quality factors for processing, export standards, fruit product order (FPO).
MODULE2
Technology of jam, jellies, marmalades, specifications, role of pectin and theories of gel formation. Technology for juice pressing, juice extraction and clarification, methods of bottling, enzymatic clarification and debittering of juices, physiological and enzymological aspects of fruit juice production, fruit juice concentrates and powders- preparation and specifications, packaging. Fruit juice beverages, squash, cordial, crush, RTS, nectar, syrups, blending of juices.
MODULE3
Technology of tomato products: sauce, puree, ketchup and tomato paste.Fruit preserves and candied fruits, dehydrated fruits & vegetables, spoilage of processed products.

Canning of fruits and vegetables, preparation of syrups and brines, spoilage of canned fruits and vegetables.
MODULE4
Stages of new product development, by products from fruit and vegetable wastes, utilization and disposal of fruit industry wastes. Production of mushroom and its processed products; Cashew and coconut: chemical composition, processing technology and their processed products.
MODULE5
Vinegar: Method of preparation and quality control. Raw material processes and uses of pectin, products based on pectin, manufacturing and quality.

Suggested Readings	
1.	Haard,N.F.andSalunkhe,D.K.1975.PostharvestBiologyandHandlingofFruitsandVegetables.AVI,Westport.
2.	PreservationofFruitsandVegetables–GirdhariLal,SiddhapaandTondon,ICAR,NewDelhi.
3.	Salunkhe,D.K.andKadam,S.S.Ed.1998.HandbookofVegetableScienceandTechnology.MarcelDekker,NewYork, USA.
4.	Wills,R.B.H.,McGlasson,W.B.,graham,D.,Lee,T.H.andHall,E.G.2016.Postharvest:AnIntroductionto thePhysiologyandHandlingofFruitsand Vegetables.BSP Professional Books,Oxford.
5.	HandBookofAnalysisandQualityControlofFruits&VegetableProducts– S.RangannaTataMcGrawHill,NewDelhi.

CourseOutcomes

Aftercompletingthecourse,students willbeable to:

1.Understandthedifferent fruits and vegetableschemical composition. and their pre processing operations.
2.Givesknowledge aboutfruit andvegetables products preparation methods and technology involved.
3. Impartsknowledgeabouttomato products preparation methods and technology involved.
4.Understand thestages of new product formulation and food industry waste utilization .
5.Technology of vinegar,tea,cocoa and pectin production.