Rajarshi Shahu Mahavidyalaya, Latur

(Autonomous)

Structured Work Plan for Teaching

Winter - 2021-2022

1. **Details of Classes to be taught**

Sr. No.	**Class**	**Name of Assist. Prof.**	**Subject**	**Paper**
1	B. Voc. FPT II	Miss. Swati G. Swami	Food Processing And Technology	**Course Title:** Introduction to Cereal and Legume Processing. **Course Code:** U-ICL-422 **Course Title:** Lab Course VIII **Course Code:** U- LAC- 423
2	B. Voc. FPT I			**Course Title:** Dairy Technology I **Course Code:** U-DAT-213 **Course Title:** Lab Course III **Course Code:** U-LAC-214
3	B. Voc FPT III			**Course Title:** Food and beverage processing. **Course Code:** U-FBP-654 **Course Title:** Lab Course XV **Course Code:** U- LA- 657
4	BSc BT I		Biotechnology	**Course Title:** Chemistry For Biologist. **Course code:** U- CBF- 190 **Course Title:** Lab Course IV **Course Code:** U- LA- 194

1) Summary of Lesson Plan

Name of Teacher: Miss. Swati G. Swami **Class: B.Voc. II (Third Semester)**

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organizer	No. of Test / Assignment with topic and date
1	**Introduction to Cereal and Legume Processing**	**Unit 1** • Present status and future prospects of cereals and millets; • Morphology: physicochemical properties; chemical composition and nutritive value Rice • Paddy processing and rice milling: conventional milling, modern milling, milling operations, milling machines, milling efficiency, byproducts of rice milling. • Quality characteristics influencing final milled products. • Parboiling: rice bran stabilization and its methods; Aging of rice; • Enrichment – need, methods processed foods from rice – breakfast cereals, flakes, puffing, canning and instant rice. • Wheat: break system, purification system and reduction system; extraction rate and its effect on flour composition	05-July 2021 To 15 Aug. 2021	03 2 3 2 2 2 2	Group Discussion Surprise test	1) Class test on unit I: **17Aug. 2021** 2) Class test on Unit II: **25Sept. 2021**
		Unit II • Quality characteristics of flour and		03		

		their suitability for baking. • Barley: Malting and milling • Sorghum: milling, Malting, Pearling and industrial utilization • Millets: Importance of Millet, composition, processing of millets for food uses, major and minor millets Products.	16 Aug. 2021 to 20 Sept. 2021	04 03 03	Group Discussion	
		Unit III: • Present status and future prospects of legumes and oilseeds; • Morphology of legumes and oilseeds; • Classification and types of legumes and oilseeds, • Antinutritional compounds in legumes and oilseeds; • Methods of removal of Antinutritional compounds, • Milling of legumes: home scale, cottage scale and modern milling methods, milling quality, • Efficiency and factors affecting milling; • Problems in dhal milling industry, Soaking and germination of pulses.	21 Sept. 2021 to 18 Oct. 2021	01 01 02 02 02 03 02 03	One Minute show	
		Unit IV: • Cooking quality of legumes – factors affecting cooking quality, • Oilseeds: composition, methods of extraction, • Desolventization and refining of oils: degumming, neutralization bleaching, filtration, deodorization, etc. • New technologies in oilseed processing, Utilization of oil seed	19 Oct. 2021 to 2 Nov.	03 03 03 03	Surprise test	

		meals for food uses i.e. high protein products like concentrate, isolates • Byproduct of pulses and oil milling and their value addition.	2021	03		

Lab Course: VIII **Class: B.Voc. II (Third Semester)**

Sr. No.	Subject	Practicals	Date	No. of Practicals
1	**Cereal And Legume Processing**	1. Determination of physical properties of cereal grains	14 July 2021 to 2 Nov. 2021	1
2		2. Determination of chemical properties of cereal grains		1
3		3. Studies on cooking quality of cereals		1
4		4. Preparation of malt		1
5		5. Value added products from cereals and millets		1
6		6. Production of modified starch		1
7		7. Visit to milling industry		1
8		8. Determination of physical properties of legumes and oil seeds		1
9		9. Determination of proximate composition of selected pulses and oilseeds		1
10		10.Determination of nutritional quality of selected pulses and oilseeds		1
11		11.Study of mini dhal mill; Study of mini oil mill		1
12		12.Preconditioning of pulses before milling Preconditioning of oilseeds before milling.		1
13		13.Removal of anti-nutritional compounds from selected pulses and oilseeds		1
14		14.Laboratory milling of selected pulses and its quality evaluation		1
15		15.Laboratory milling of selected oilseeds and its quality evaluation		1
16		16. Laboratory refining of selected oils; Laboratory hydrogenation of selected oils.		1
18		18. To understand diversity of living organisms through educational tour.		1
19		19. Visit to commercial dhal mills and oil mills.		1

2) Summary of Lesson Plan

Name of Teacher: Miss. Swati G. Swami **Class: B. Voc. I (First Semester)**

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organizer	No. of Test / Assignment with topic and date
1	**Dairy Technology I**	**Unit II** • Chemistry of milk Lactose: Lactose (alpha and beta forms). • Significances of lactose in dairy industry. Milk fat: • Composition and structure, and physical properties, • crystallization, structure of fat granules, lipolysis, autoxidation, fat constants (saponification value, iodine value, RM value, Polenske value, peroxide value). • Protein and Enzymes: General structure, amphoteric nature,	01-12-2021 to 15-12-2021	03 2 3 2 2	Group Discussion Surprise test	1) Class test on unit I: 2) Class test on Unit II:

		• Difference between casein and serum protein, different types of casein (acid and rennet), uses of casein, fractionation of protein. • Enzymes- catalase, alkaline phosphatase, lipases and proteases.		2 2		
		Unit III: • Market milk industry and milk products: • Clean and hygienic milk production, Systems of collection of milk, Reception, • Platform testing, Various stages of processing: Cooling/ chilling, Filtration, • Clarification, Standardization, Homogenization, • Pasteurization, Sterilization, Packaging and Storage, Cleaning and Sanitation	16-12-2021 to 30-01-2022	03 04 03 03	Group Discussion	

		Unit IV: • Description and working of clarifier, • cream separator, homogenizer and plate heat exchanger, • Cleaning and sanitization Flow diagram for • manufacture of following milk products: Flavored milk, Butter, ice-cream, milk powder.	01-01-2022 to 17-01-2022	03 04 04 04	One Minute show	

Lab Course III **Class: B. Voc I (First Semester)**

Sr. No.	**Subject**	**Practicals**	**Date**	**No. of Practicals**
1	**Dairy Technology I**	To perform platform tests in milk. (Acidity and COB).	15-12-2021 To 15-01-2022	1
2		To estimate moisture content and total solids in milk.		1
3		To estimate skim milk protein by titration method.		1
4		To estimate milk fat by Gerber method.		1
5		To estimate SNF of milk		1
6		To estimate specific gravity of milk		1
7		To check the efficiency of sterilization of milk by Turbidity test.		1
8		To prepare casein and calculate its yield.		1
9		Preparation of flavored milk		1

10		Preparation of butter		1

Name of Teacher: Miss. Swati G. Swami **Class: B. Voc III (Fifth Semester)**

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	**Food and beverage processing**	**Unit I:** **Introduction to different food beverage** • Theory History, importance of beverages, status of beverage industry in India, • Need of particular beverage, Raw materials used for beverages, • Food additives used in different beverages, • Types of beverages, Packaged drinking water, juice-based beverages, Synthetic, still, carbonated, • low-calorie and dry beverages, isotonic and sports drinks, dairy based, • Alcoholic beverages fruit beverages.	01-Aug. 2021 To 2 Sept. 2021	4 2 2 2 3 2	Group Discussion Quiz Competition	1) Class test on unit I: **10 Sept. 2021** 2) Class test on Unit II: **04 Oct. 2021**
		Unit II: • Manufacturing process of beverages Beverages		3	Group	

		based on tea, coffee, cocoa, spices, plant extracts, herbs, nuts, Dairy-based beverages. • Types of coffee and tea Chemical composition and processing of tea and coffee and their quality assessment. • Types of tea: black tea, green tea, oolong tea. • Types of coffee: Vacuum coffee, drip coffee, iced coffee. • Espresso coffee, instant coffee. • Decaffeination of Coffee types of decaffeination: Roselius method, swiss water process, direct and indirect method, triglyceride method, carbon dioxide method.	3 Sept. 2021 To 28 Sept. 2021	02 03 02 02 03	Discussion	
		Unit III • Alcoholic beverages: • Types, manufacture and quality evaluation; • The role of yeast in beer and other alcoholic beverages, • Ale type beer, lager type beer, technology of brewing process, • Equipment used for brewing and distillation, • Wine and related beverages, distilled spirits	29 Sept. 2021 To 20 Oct. 2021	02 02 03 03 02 03	One Minute show	
		Unit IV	21 Oct.	03		

		• Packaged drinking water • Definition, types, manufacturing processes, quality evaluation and raw and processed water, • Methods of water treatment, • BIS quality standards of bottled water; • Mineral water, natural spring water, flavoured water, carbonated water.	2021 to 2 Nov. 2021	03 03 03 03		

Lab Course XV **Class: B. Voc III (Fifth Semester)**

Sr. No.	Subject	Practicals	Date	No. of Practicals
1	**Food And Beverages Technology**	1. Chemical analysis of raw water quality;	14 July 2021 to 2 Nov. 2021	1
2		2. Preparation of regional fruit juices;		1
3		3. Preparation of whey-based beverages;		1
4		4. preparation of crush, nectar, blended juice		1
5		5. Preparation of soy milk, fruit milkshakes herbal beverages;		1
6		6. Preparation of herbal beverages;		1
7		7. Microbiological analysis of raw water quality		1
8		8. Visit to relevant processing units.		1

Name of Teacher: Miss. Swati G. Swami **Class: B. Sc I (First Semester)**

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	**Chemistry For Biologist**	**Unit I:** • Chemical bonding- various theories (Valence bond theory and Valence Shell Electron Pair Repulsion (VSEPR) theory), • Type of Chemical bonds, • Acids & Bases, • Buffer solutions, solubility products, • Ways of expressing concentrations of solution- (Molarity, Normality, Molality, Formality), • Colligative properties- Lowering of vapour pressure, Osmosis and osmotic pressure, Elevation in boiling point, Depression in freezing point.	15-11. 2021 To 30-11-2021	3 2 2 3 3 3	Group Discussion Surprise Test Seminar	1)Daily Assignments on Google classroom 2)Class test on Unit I: 18 Dec. 2020 3)Class test on Unit I and II: 28 Jan. 2021
		Unit II: • Basics in organic chemistry- Tetra covalency of Carbon, Hybridization, Substrates & Reagents, • Bond fission, • Types of Reagents, Reactive intermediates- Carbocation, Carbanion, Free radicals, • Types of organic	01-12-2021 to 15-12-2021	3 2 2 2		

		reactions- Substitution, Addition, Elimination, Rearrangement reactions, • Oxidation reactions of carbohydrates, • Osazone formation reaction, Ruff degradation, Kiliani Fischer synthesis.		2 2		
		Unit III: • Reaction Kinetics: Rate constant, Order of reaction & Molecularity of reactions, • Activation Energy, Zero, First & Second order kinetics, • Catalysis & enzyme catalysis for elementary reactions. • Thermodynamics: Recapulation of definition & terms involved in thermodynamics, • Laws of thermodynamics, Hess law, Heat of formations, • Free energy, work function & Kirchhoff's equations.	16-12-2021 to 30-01-2022	2 2 2 2 2 2		
		Unit IV: • Isomerism and its types- Optical & Geometrical isomerism, • Representation of molecules Fischer Projection formulae, • Sawhorse Projection, Newman & Flying & Wedge model. • Definition of spectroscopy,	01-01-2022 to 17-01-2022	3 2 3 2		

		Electromagnetic spectrum & its characterization (frequency, wavelength, Wave number), • Principle & applications of various spectroscopic techniques.		2		

Lab Course: IV **Class: B. Sc I (First Semester)**

Sr. No.	Subject	Practicals	Date	No. of Practicals
1	**Chemistry for Biologist**	Safety Measures in Laboratory, care of Glassware, Handling of Instruments	15-12-2021 To 15-01-2022	2
2		Preparation of Standard Solutions, Molar, Normal Percent, Buffer Preparations (Milimoles and Micromoles).		2
3		Determination of pKa of weak acid(Acetic acid / Amino acid) by pH metry		2
4		Steam Distillation		2
5		Column Chromatography		2
6		Determine the Strength and Normality of an acid.		2
7		Study of kinetics of cooling of Hot water		2
8		Synthesis of aniline from Nitrobenzene by reduction with Sn/Hcl		2
9		Synthesis of Congo Red Dye/ P-amino azobenzene/orange-II		2
10		Determination of Activation energy of Reaction between KI and K2S2O8		2
11		Preparation of Standard Solution of K2Cr2O7 and standardization of given FeSO4 solution		2
12		Preparation of Standard Solution of Na2CO3 and standardization of given HCl solution and estimate the amount of NaOH in the given solution		2
13		Determination of Physical constant of organic compounds M.P. - Naphthalene, m-dinitrobenzene, acetanilide, Benzoic acid.		2
14		Determination of Physical constant of organic compounds B.P.- Aniline, Acetophenone, Benzaldehyde, Acetone.		2

Rajarshi Shahu Mahavidyalaya, Latur

(Autonomous)

Structured Work Plan for Teaching

(Summer 2021-2022)

1. **Details of Classes to be taught**

Sr. No.	**Class**	**Name of Asist. Prof.**	**Subject**	**Paper**
1	B. Voc FPT II	Miss. Swati G. Swami	Food Processing And Technology	**Course Title:** Fruits and Vegetable Processing **Course Code:** U-FVP-522 **Course Title:** Lab Course XII **Course Code:** U-LAC-523
2	BSc BT II		Biotechnology	**Course Title:** SEC- Algal Cultivation Technology **Course Code:** U-ADC-434-A

1) Summary of Lesson Plan

Name of Teacher: Miss. Swati G. Swami **Class: B. Sc BT (Fourth Semester)**

Sr. No.	Subject	Unit and Chapter to be covered	No. of Lectures	Date	Academic activities to be organizer	No. of Test / Assignment
1	Fruits and Vegetable Processing	**Unit 1** • Introduction to Fruits and Vegetables – • Scope, importance, production and processing status of Fruits and Vegetables in India – • Morphology and Composition of Fruits and vegetables – • Storage of fruits and vegetables- • principles and types of storage systems	01 04 03 03 04	17/ 12/2021 To 06/01/2022	Group Discussion Surprise test Quiz competition	1)Class test on unit I: 2)Class test on Unit II: 3)Quiz competition.
		Unit II • Fruit Beverages - Definition and types – • Methods of preparation- Juice, RTS, squash, nectar, syrup, crush, cordial and blended beverages • Jam, Jelly & Marmalade - Definition – • Selection of fruits - Ingredients used and their role - Method of preparation	04 04 03 04	07/01/2022 To 26/02/2022		
		Unit III: • Dehydration of fruits & vegetables – • Mechanical dehydration – • Osmotic dehydration – • Dehydrated products-	01 04 03 03	27/02/2022 To 16/03/2022		

		• Vegetable granule, Powder and Flakes	04			
		Unit IV: • Pickling - Introduction – • Ingredients and their role - Pickling process • Canning of fruits and vegetables • Definition, History - Process of canning- • fruits, vegetables - spoilage of canned fruits and vegetables	01 04 03 03 04	17/03/2022 To 16/04/2022		

Sr. No.	Subject	Practical's	Date	No. of Practical's
1	Fruits and Vegetable Processing	Introduction to equipments used in Fruit and vegetables processing	01/01/2022 To 16/04/2022	01
2		Preparation and comparative sensory analysis of Juices and Pulps of different Fruits		01
3		Preparation and comparative sensory analysis of Fruit Jam and Jelly		01
4		Preparation and comparative sensory analysis of Fruit Syrup		01
5		Preparation of Dehydrated Vegetables		01
6		Preparation of Raisins from Grapes		01
7		Preparation of Amachur		01

8		Preparation of Pickles from Fruits and Vegetables		01
9		Preparation of Sauce from Fruits and Vegetables		01
10		Visit to fruit processing industry		01

Name of Teacher: Miss. Swati G. Swami **Class: B. Sc BT (Fourth Semester)**

Sr. No.	**Subject**	**Practical's**	**Date**	**No. of Practical's**
1	SEC: Algal Cultivation Technology	Collection & Microscopic observation of algae.	01/01/2022 To 16/04/2022	03
2		Quantification of collected algae.		03
3		Isolation, Identification of economic important algae.		03
4		Inoculum development pilot scale production.		03
5		Qualitative estimation of protein from algae		03
6		Chromatographic separation of essential biomolecules from algae.		03

Name of Lecturer: Miss. S. G. Swami

Signature: