

GENERAL INFORMATION

1. Name of the Trade: **Food Beverages**
2. NCO Code No. **7415.90**
3. Duration : One year (Two semesters)
4. Power Norms : 6 kW
5. Space Norm: Lab Space – **96 Sq. m**
Class Room Space - **30 Sq. m**
6. Entry Qualification: Passed 10th Class Examination with science and mathematics.
7. Unit Size(No. of students): 20
8. Instructor's/Trainer's Qualification:
 - (i) National Trade Certificate in Food Beverage trade with three years experience in relevant industry.
 - OR
 - (ii) Diploma in Food Technology with two years experience in relevant industry.
 - OR
 - (iii) Degree in Food Technology with one years experience in relevant industry.
9. Desirable Qualification Preference will be given to **Craft Instructor's Certificate (CIC)**
10. Job Profile
 - **Quality Analyst** in Food Beverage industry.
 - **Supervisor** in Beverages Industry.
 - **Packaging Supervisor** in Beverage industry.
 - **Skilled Worker** in Food MNC.
 - **Entrepreneur** in Beverage industry.

Note: At least one instructor must have Degree/Diploma in particular trade

FOOD BEVERAGES

SYLLABUS: FIRST SEMESTER

| Weeks | Practical | Theory |
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| 1-3 | <ul style="list-style-type: none">• Study of the different food beverages available in the Market. | Introduction to different food beverage <ul style="list-style-type: none">• Types of beverages.• Need of particular beverage.• Classification of food beverages.• Raw materials used for beverages.• PFA-standards for food beverages.• Food additives used in different beverages.• Quality of water for beverages. |
| 4-6 | <ul style="list-style-type: none">• Operate all equipment safely.• Identify and removal of faults in machines. | Primary processing machinery: <ul style="list-style-type: none">• Principle and working of equipment used e.g., Juice extractor, pulper, fermenter, vinegar generator, crown corking machine, bottle filling machine, Soda water machine, basket press, filter press,• Maintenance of machines safety |
| 7-8 | <ul style="list-style-type: none">• Extraction of juice from different fruits.• Preservation of fruits juices with addition of preservative. | Juice Extractions : <ul style="list-style-type: none">• Principle and methods for fruits juice manufacture, machinery used in different fruits juice extraction• Preparation process flow charts of juice extraction from various fruits. Preservative : <ul style="list-style-type: none">• Definition of Preservatives.• Types of preservatives commonly used in food industry.Limits of usage of preservatives |
| 9-12 | <ul style="list-style-type: none">• Material calculation of Fruit Beverages as per FPO Specification.• Preparation of common fruit beverages available in the region such as squashes, crushes, cordial, syrups, nectars, R.T.S. beverages.• Determination of Acids in fruits beverages.• Determination of TSS with Hand refractometer in fruit Beverage. | Non Alcoholic Beverages (TEA COFFEE) : <ul style="list-style-type: none">• Type of non alcoholic beverage.• Preparation process and latest development.• Machinery and equipment for non alcoholic beverages.• Process variable and their control.• Nutritional and energy values Fruit Beverages <ul style="list-style-type: none">• Introduction to different fruits juices.• Raw materials used in fruit beverages, and their properties.• Machinery involved in different fruits juice extraction.• Principle and preparation methods of Ready-To-Serve (RTS), Squash, fruit juice, nectar, concentrate, syrup, cordial,• Process of manufacture |

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| | | <ul style="list-style-type: none"> Quality control in beverage industry. FPO standards for fruit beverages. |
| 13-14 | <ul style="list-style-type: none"> Preparation of various flavoured milk beverages. Packaging, labelling and storage of flavoured milk. Quality of Flavoured milk. | Flavoured milk Beverages : <ul style="list-style-type: none"> Raw materials used in flavoured milk beverages, and their properties. Nutritional and energy values. Process of manufacture Quality control |
| 15-16 | <ul style="list-style-type: none"> General purification techniques. Production of mineral water from mini water treatment plant. Quality of packaged water | Package drinking water : <ul style="list-style-type: none"> Principle and method for production of mineral water. Quality standard (BIS) of water. Different types of water. |
| 17-18 | <ul style="list-style-type: none"> Production of soda water. Packaging, labelling and storage of soda water | Soda water : <ul style="list-style-type: none"> Principle and Method of soda water production. Raw material used in soda water, and their properties. Quality standards for soda water. |
| 19-20 | <ul style="list-style-type: none"> Preparation of malt syrup, badam, pista, herbal, concentrates, rose syrup | Miscellaneous Beverage : <ul style="list-style-type: none"> Beverage from other materials, grains malt, vegetable (tomato), herbs & medicinal plants |
| 21-22 | <ul style="list-style-type: none"> Practical demonstration of bottle filling machine. | <ul style="list-style-type: none"> Study of various types of containers like Glass, Tin-merits and demerits of each-scope for new types of containers/ packaging materials, such as plastic pouches, brick packs, tetra pack, PET bottle and cartons. |
| 23-25 | Industrial Training in Food Beverage industry | |
| 26 | Revision/Examination | |

| FOOD BEVERAGES | | |
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| SYLLABUS: SECOND SEMESTER | | |
| Weeks | Theory | Practical |
| 1-2 | Food beverage <ul style="list-style-type: none"> • Importance of food beverages for entrepreneurship. • Scope of food beverages. • Beverages and its importance in modern life. • Industrial growth and development. | <ul style="list-style-type: none"> • Study of the different carbonated and non carbonated, alcoholic and non alcoholic, fermented and unfermented beverages available in the market |
| 3-7 | Synthetic soft drinks : <ul style="list-style-type: none"> • Study the role of ingredients used in production of soft drink. • Process of manufacture of soft drinks. • Quality of water for soft drinks. • Study the detail of various water treatment processes. • Food additives used in soft drinks. • Quality control in a soft drink manufacturing industry. | <ul style="list-style-type: none"> • Selection of ingredients for soft drink production • Preparation of different soft drinks. • Packaging of the soft drinks (PET Bottling, canning) • Quality testing in soft drinks. |
| 13-18 | Alcoholic Beverages : <ul style="list-style-type: none"> • Commercial process details of manufacturing alcoholic beverages like whiskey, beer, wine, rum, brandy. • Role of ingredients used in production of various alcoholic beverages. • Nutritional and energy values of these products. | <ul style="list-style-type: none"> • Selection of ingredients for the production of whiskey, beer, wine, rum, brandy. • Demonstrations of beer, whiskey, wine, rum and brandy. • Quality testing in alcoholic beverages. • Packaging of the alcoholic beverages. • Industrial visit of alcoholic beverages industry. |
| 19-22 | <ul style="list-style-type: none"> • Food regulations: Overview of Food Safety and Standards Act, 2006 BIS, ISO-22000, Agmark, HACCP, International Food Standards • GMP. Importance of personal Hygiene, Cleaning & Sanitary standards of dairy industry. | <ul style="list-style-type: none"> • Application of HACCP and GMP in Food beverages industry. • Utilization of Food beverages industry wastes. |
| 23-25 | Industrial Training in Alcoholic or carbonated beverage industry | |
| 26 | Revision/Examination | |

| Equipment, Machine & Tools | | |
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| Sl. No. | Item/ Specification | Quantity proposed for a batch of 20 trainees |
| 1 | Oven : 5 KW, | 1 |
| 2 | Platform scale balance : 100 Kg Capacity, | 1 |
| 3 | Meat cutting knives : Heavy duty SS | As required |
| 4 | Seed germinator : Cabinet type, Different chambers, Temp and RH Controller | 1 |
| 5 | Vinegar generator : Chamber made of SS, with sparger and baffles | 1 |
| 6 | Fermenter : Bioreactor, SS, with sparger and baffles | 1 |
| 7 | Vegetable slicing machine | 1 |
| 8 | Automatic pouch machine / filler sealer machine | 1 |
| 9 | Pluping Machine for fruits and vegetables | 1 |
| 10 | Kettle | 1 |
| 11 | Fruit mill | 1 |
| 12 | Jel meter | 1 |
| 13 | Can body reformer | 1 |
| 14 | Can seamer | 1 |
| 15 | Exhaust box | 1 |
| 16 | Auto clave | 1 |
| 17 | Cup sealer | 1 |
| 18 | Steel scale : 12 “ standard steel | 2 |
| 19 | Steel tape : Scales 1 meter, and of 50 ft | 2 |
| 20 | Weight box : For balances | 1 |
| 21 | Cutting equipments : Different knives, Cutters for fruits /Vegetables | As required |
| 22 | Sinks : standard size | 1 |
| 23 | Hot plate : Electrical 2 KW | 1 |
| 24 | Pickle mixer : Rotatory type, Contact Parts of SS | 1 |
| 25 | Heat sealing machine : Hand / pedal operated | 1 |
| 26 | Tanks SS : 50 liters capacity, cylindrical with cap | 1 |
| 27 | Syrup tanks : 50, 100 lit capacity SS | 01 each |
| 28 | Pressure Cooker : 5 Kg and 10 Kg SS | 01 each |

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| 29 | Liquid filling machine : For filling liquid in bottles, 200 ml, 500 ml, 1000 ml. Manual | 01 each |
| 30 | SS filter : Sieve type cloth filter, hydraulic, | 1 |
| 31 | Sugar coating pan : SS, Revolving type with speed control, | 1 |
| 32 | Bottle opener : Heavy duty, Stainless Steel | 4 |
| 33 | Burette : 50 ml digital Automatic/ ordinary glass | 2 |
| 34 | Pipette : 5-50 ml capacities, glass | 2 |
| 35 | Improved stoves : Made of MS with proper safety Measures, Valves etc | 2 |
| 36 | Stainless steel / Aluminium pots : Different Capacities | As required |
| 37 | Wooden spoons : Different sizes | As required |

- Raw material, Testing Chemicals and consumables are not included in the list.

| A) | Furniture | | |
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| | Class Room <ul style="list-style-type: none"> • Instructor Chair & Table • Dual Desk | : : : | 01 No 10Nos. |
| | Workshop/Lab <ul style="list-style-type: none"> • Suitable Worktables • Stools • Discussion Table | : : : | 06Nos. 20Nos. 01No. |
| | Tool Cabinet | : | 01No. |
| | TraineesLockerwithspacefor20 | : | 01No. |
| | First Aid Box | : | 01No. |
| | Book Shelf(glass panel) | : | 01No. |
| | Storage rack | : | 01No. |

