

Government of Pakistan

National Vocational and Technical Training Commission

Prime Minister's Hunarmand Pakistan Program

"Skills for All"



Course Contents/ Lesson Plan

Course Title: Food Technology (Preservation and Processing)

Duration: 6 Months

Revised Edition

Trainer Name	
Course Title	Food Technology (Preservation and Processing)
Objectives and Expectations	<p>Employable skills and hands-on practice for Food Technology (Preservation and Processing)</p> <p>The goal of this course is to provide students with a fundamental understanding of food preservation and food processing techniques and to ensure students are technically ready for the food industry through a practical, problem-solving approach. In this food processing course, you will learn about food processing and preservation, the changes that occur during processing, processing technologies and safe ways of food processing.</p> <p><u>Main Expectations:</u></p> <p>In short, the course under reference should be delivered by professional instructors in such a robust hands-on manner that the trainees are comfortably able to employ their skills for earning money (through wage/self-employment) at its conclusion.</p> <p>This course thus clearly goes beyond the domain of the traditional training practices in vogue and underscores an expectation that a market-centric approach will be adopted as the main driving force while delivering it. The instructors should therefore be experienced enough to be able to identify the training needs for the possible market roles available out there. Moreover, they should also know the strengths and weaknesses of each trainee to prepare them for such market roles during/after the training.</p> <ol style="list-style-type: none"> i. Specially designed practical tasks to be performed by the trainees have been included in the Annexure-I to this document. The record of all tasks performed individually or in groups must be preserved by the management of the training Institute clearly labeling name, trade, session, etc. so that these are ready to be physically inspected/verified through monitoring visits from time to time. The weekly distribution of tasks has also been indicated in the weekly lesson plan given in this document. ii. To materialize the main expectations, a special module on <u>Job Search & Entrepreneurial Skills</u> has been included in the latter part of this course (5th & 6th month) through which, the trainees will be made aware of the Job search techniques in the local as well as international job markets (Gulf countries). Awareness around the visa process and immigration laws of the most favored labor destination countries also form a part of this module. Moreover, the trainees would also be encouraged to venture into self-employment and exposed to the main requirements in this regard. It is also expected that a sense of civic duties/roles and responsibilities will also be inculcated in the trainees to make them responsible citizens of the country. iii. A module on Work Place Ethics has also been included to highlight the importance of good and positive behavior in the workplace in the line with the best practices elsewhere in the world. An outline of such

qualities has been given in the Appendix to this document. Its importance should be conveyed in a format that is attractive and interesting for the trainees such as through PPT slides +short video documentaries. Needless to say, that if the training provider puts his heart and soul into these otherwise non-technical components, the image of the Pakistani workforce would undergo a positive transformation in the local as well as international job markets.

To maintain interest and motivation of the trainees throughout the course, modern techniques such as:

- Motivational Lectures
- Success Stories
- Case Studies

These techniques would be employed as an additional training tool wherever possible (these are explained in the subsequent section on Training Methodology).

Lastly, evaluation of the competencies acquired by the trainees will be done objectively at various stages of the training and a proper record of the same will be maintained. Suffice to say that for such evaluations, practical tasks would be designed by the training providers to gauge the problem-solving abilities of the trainees.

(i) Motivational Lectures

The proposed methodology for the training under reference employs motivation as a tool. Hence besides the purely technical content, a trainer is required to include elements of motivation in his/her lecture. To inspire the trainees to utilize the training opportunity to the full and strive towards professional excellence. Motivational lectures may also include general topics such as the importance of moral values and civic role & responsibilities as a Pakistani. A motivational lecture should be delivered with enough zeal to produce a deep impact on the trainees. It may comprise of the following:

- Clear Purpose to convey the message to trainees effectively.
- Personal Story to quote as an example to follow.
- Trainees Fit so that the situation is actionable by trainees and not represent a just idealism.
- Ending Points to persuade the trainees on changing themselves.

A good motivational lecture should help drive creativity, curiosity, and spark the desire needed for trainees to want to learn more.

The impact of a successful motivational strategy is amongst others commonly visible in increased class participation ratios. It increases the trainees' willingness to be engaged on the practical tasks for a longer time without boredom and loss of interest because they can see in their mind's eye where their hard work would take them in short (1-3 years); medium (3 -10 years) and long term (more than 10 years).

As this tool is expected that the training providers would make arrangements for regular well planned motivational lectures as part of a coordinated strategy interspersed throughout the training period as suggested in the weekly lesson plans in this document.

Course-related motivational lectures online link is available in **Annexure-II**.

(ii) Success Stories

Another effective way of motivating the trainees is using Success Stories. Its inclusion in the weekly lesson plan at regular intervals has been recommended till the end of the training.

A success story may be disseminated orally, through a presentation, or using a video/documentary of someone that has risen to fortune, acclaim, or brilliant achievement. A success story shows how a person achieved his goal through hard work, dedication, and devotion. An inspiring success story contains compelling and significant facts articulated clearly and easily comprehensible words. Moreover, it is helpful if it is assumed that the reader/listener knows nothing of what is being revealed. The optimum impact is created when the story is revealed in the form of:-

- Directly in person (At least 2-3 cases must be arranged by the training institute)
- Through an audio/ videotaped message (2-3 high-quality videos must be arranged by the training institute)

It is expected that the training provider would collect relevant high-quality success stories for inclusion in the training as suggested in the weekly lesson plan given in this document.

Suggestive structure and sequence of a sample success story and its various shapes can be seen in **Annexure III**.

(iii) Case Studies

Where a situation allows, case studies can also be presented to the trainees to widen their understanding of the real-life specific problem/situation and to explore the solutions.

In simple terms, the case study method of teaching uses a real-life case example/a typical case to demonstrate a phenomenon in action and explain theoretical as well as practical aspects of the knowledge related to the same. It is an effective way to help the trainees comprehend in depth both the theoretical and practical aspects of the complex phenomenon in depth with ease. Case teaching can also stimulate the trainees to participate in discussions and thereby boost their confidence. It also makes the classroom atmosphere interesting thus maintaining the trainee interest in training till the end of the course.

Depending on suitability to the trade, the weekly lesson plan in this document may suggest case studies be presented to the trainees. The trainer may adopt a PowerPoint presentation or video format for such case studies whichever is deemed suitable but only those cases must be selected that are relevant and of a learning value.

The Trainees should be required and supervised to carefully analyze the cases.

For this purpose, they must be encouraged to inquire and collect specific information/data, actively participate in the discussions, and intended solutions to the problem/situation.

Case studies can be implemented in the following ways: -

- i. A good quality trade-specific documentary (At least 2-3 documentaries must be arranged by the training institute)

	<p>ii. Health & Safety case studies (2 cases regarding safety and industrial accidents must be arranged by the training institute)</p> <p>iii. Field visits(At least one visit to a trade-specific major industry/ site must be arranged by the training institute)</p>
Entry-level of trainees	Intermediate
Learning Outcomes of the course	<p>By the end of this course, students will be able to:</p> <ul style="list-style-type: none"> • Comply with Work Health and Safety Policies • Obey the Workplace Policies and Procedures • Follow Basic Communication Skills (General) • Operate Computer Functions(General) • Adopt Basic Good Manufacturing Practices (GMP) for Food Processing & Packaging • Comply Personal Health and Safety Guidelines • Communicate the Workplace Policy and Procedure • Perform Basic Communication (Specific) • Perform Basic Computer Application (Specific) • Maintain Tools and Equipment • Receive Raw Materials as per Manufacturing order • Perform food Cleaning and Sanitation • Apply Work Health and Safety Practices (WHS) • Identify and Implement Workplace Policy and Procedures • Communicate at Workplace • Perform Computer Application Skills • Manage Personal Finances • Perform Packaging as per Manufacturing Order • Ensure Hazard Analysis Critical Control Points (HACCP) & Food Safety Management Systems • Perform Food processing • Contribute to Work Related Health and Safety (WHS) Initiatives • Analysis Workplace Policy and Procedures

	<ul style="list-style-type: none"> • Perform Advanced Communication • Develop Advance Computer Application Skills • Manage Human Resource Services • Develop Entrepreneurial Skills • Monitor and Control Plant Operations • Complete Production Documentation • Perform Quality Assurance Measure for Food Products (microbiological, physical and chemical Measurements and Sensory Evaluation)
Course Execution Plan	<p>The total duration of the course:6 months (26 Weeks) Class hours:4 hours per day Theory:20% Practical: 80% Weekly hours: 20 hours per week Total contact hours: 520hours</p>
Companies offering jobs in the respective trade	<ol style="list-style-type: none"> 1. Adams's dairy 2. Haleeb milk dairy 3. American dairy products 4. Pak cola dairy farm 5. Nestle dairy farm
Job Opportunities	<p>Food Technology (Preservation and Processing) responsible for preparing and preserving a wide selection of food items. They work with customers to identify the pests posing a problem, develop a plan to exterminate them, and apply any necessary pesticides. Pesticide technicians work in the specific areas of ornamental and turf pesticides, termite control, rodent control, fumigation, and general pest control. Pest control workers spend time traveling between client locations and frequently have client meetings on weekends and during evenings.:</p> <ul style="list-style-type: none"> • Food technologist • Food safety auditor • Quality Assurance Specialist • Academia (Higher Education) • Assistant Technician in Food Processing • Operator (Extruded Products Processing)
No of Students	25
Learning Place	Classroom / Lab
Instructional Resources	https://youtu.be/LawGmKybh5M Food preservation https://youtu.be/w2furegPI2o types of food preservations https://www.youtube.com/watch?v=ogcr2PVD8DI

	<p>scope of food technology https://www.youtube.com/watch?v=9w3b1wb5DT8 careers in food technology https://www.youtube.com/watch?v=1JbnRA-Hpwg modern food processing technology https://www.youtube.com/watch?v=ALNWNlgKGss food technology diploma importance https://www.youtube.com/watch?v=3PiETilegmQ careers in food technology https://www.youtube.com/watch?v=4S322LZd8bw nestle company jobs</p>
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MODULES

Scheduled Weeks	Module Title	Learning Units	Remarks
Week 1	Introduction to Food Technology (Preservation and Processing)	<ul style="list-style-type: none"> • Motivational Lecture(For further detail please see Page No: 3& 4) • Course Introduction • Job market • Course Applications • Institute/work ethics • Introduction to Food Technology (Preservation and Processing) • career opportunities • Survey industry requirements for each career path • History of Food Technology (Preservation and Processing) • Various specialties within the industry of food preservation and processing • An understanding of Food Technology (Preservation and Processing) role in future industries 	<ul style="list-style-type: none"> • Task 1 • Task 2 • Task 3 <p><u>Details may be seen at Annexur e-I</u></p>
Week 2	Maintain personal health and safety and Environmental standards	<ul style="list-style-type: none"> • Success stories(For further detail please see Page No: 3 & 4) <p>Students are introduced to:</p> <ul style="list-style-type: none"> • The fundamentals of safety policies • Workplace hazards from preservation and processing • Ensure personal safety • Minimize danger risks • Personal Protective Equipment (PPE) as per the job 	<ul style="list-style-type: none"> • Task 4 • Task 5 <p><u>Details may be seen at Annexur e-I</u></p>
Week 3	Follow Basic Communication Skills (General)	<ul style="list-style-type: none"> • Motivational Lecture (For further detail please see Page No: 3& 4) • Adopt Effective listening to Skills • Develop Nonverbal communication with peers • Use communication platform at workplace • Body language • Prepare for Interview to get a job 	<ul style="list-style-type: none"> • Task 6 <p><u>Details may be seen at Annexur e-I</u></p>

Week 6	Principles of Food Preservation	<ul style="list-style-type: none"> • Success stories(For further detail please see Page No: 3 & 4) • Prevention of contamination of food • Delay or Prevention of Autolysis • Delay or Prevention of Microbial activity 	<ul style="list-style-type: none"> • Task 11 <p><u>Details may be seen at Annexure-I</u></p>
	Safety Rules in food preservation	<ul style="list-style-type: none"> • Safety awareness Lecture (For further detail please see Page No: 3 & 4) <p>Students are introduced to:</p> <ul style="list-style-type: none"> • Safety Rules in food preservation 	
Week 7	Milk analysis	<ul style="list-style-type: none"> • Motivational Lecture(For further detail please see Page No: 3& 4) <p>Students are introduced to:</p> <ul style="list-style-type: none"> • Inspect milk vehicle • Milk sampling • Milk analysis • Maintain records 	<ul style="list-style-type: none"> • Task 12 • Task 13 <p><u>Details may be seen at Annexure-I</u></p>
	Importance of food preservation	<p>Students are introduced to:</p> <p>Importance of food preservation</p> <ul style="list-style-type: none"> • Elimination of microbes • Help to increase shelf life of food • Saving time and energy • Making seasonal food available throughout the year • Improving nutritional value of food • Adding variety to the diet • Controlling prices 	
Week 8	Control of Pest Activities	<ul style="list-style-type: none"> • Success stories(For further detail please see Page No: 3 & 4) <p>Students are introduced to</p> <ol style="list-style-type: none"> 1. Sterilization 2. Pasteurization 3. Boiling method 4. Fumigation 	<ul style="list-style-type: none"> • Task 14 <p><u>Details may be seen at Annexure-I</u></p> <p>Monthly Test 2</p>
	Reduction in Physical Defects	<p>Students are introduced to</p> <ol style="list-style-type: none"> 1. Surface Drying 2. Crystallization 3. Other defects 	
Week 9	Traditional	<ul style="list-style-type: none"> • Motivational Lecture (For further 	<ul style="list-style-type: none"> • Task 15

	methods of preservation	<i>detail please see Page No: 3& 4)</i> Students are introduced to: <ul style="list-style-type: none"> • Drying • Refrigeration • Fermentation 	<u>Details may be seen at Annexure-I</u>
	Modern methods of Preservation	Students are introduced to: <ul style="list-style-type: none"> • Canning • Sterilization • Pasteurizing <ol style="list-style-type: none"> 1. Continuous Pasteurizers 2. Discontinuous Pasteurizers • Freezing • Irradiation • High pressure • Addition of chemicals 	
Week 10	Knowledge of Food Processing	<ul style="list-style-type: none"> • Success stories (<i>For further detail please see Page No: 3& 4)</i> • Define food processing • Purpose of food processing • Prepare food 	<ul style="list-style-type: none"> • Task 16 • Task 17 <u>Details may be seen at Annexure-I</u>
	Food Industry in Pakistan	Major Food Industries in Pakistan <ul style="list-style-type: none"> • Fruit and vegetable processing industry • Beverage industry • Wheat and grain milling industry • Baking industry • Snack food industry • Vegetable ghee and oil industry • Sugar industry • Confectionary industry • Dairy industry • Ice cream manufacturing industry • Poultry and meat processing industry • Fast food sector in Pakistan 	

Week 11	Tools in food processing	<ul style="list-style-type: none"> • Motivational Lecture(For further detail please see Page No: 3& 4) Students are introduced to: • Tools in food processing <ol style="list-style-type: none"> 1. Precision controls. 2. Pressure gauges. 3. Scales and weighing systems. 4. Thermometers. 5. Timers. 	<ul style="list-style-type: none"> • Task 18 <u>Details may be seen at Annexure-I</u>
Week 12	Food Processing Operational Units	<ul style="list-style-type: none"> • Success stories(For further detail please see Page No: 3 & 4) Students are introduced to: • Handling and transportation of raw material • Cleaning <ol style="list-style-type: none"> i. Dry Cleaning ii. Wet Cleaning • Sorting and Grading <ol style="list-style-type: none"> i. Weight Sorting ii. Size Sorting iii. Shape Sorting iv. Color Sorting • Peeling • Disintegration/Size Reduction • Blanching and Sulphating • Mixing • Filtration (if required) • Preservation of Enzymatic Browning 	<ul style="list-style-type: none"> • Task 19 <u>Details may be seen at Annexure-I</u>
	Build your CV	Download professional CV template from any good site (https://www.coolfreecv.com or relevant) <ul style="list-style-type: none"> • Add Personal Information • Add Educational details • Add Experience/Portfolio • Add contact details/profile links 	
Week 13	Mid Term		
Week 14	Preservation Using Heat and Energy	<ul style="list-style-type: none"> • Success stories (For further detail please see Page No: 3& 4) • Use of High Temperature <ul style="list-style-type: none"> • Cooking and frying • Blanching • Pasteurization • Canning 	<ul style="list-style-type: none"> • Task 20 • Task 21 <u>Details may be seen at Annexure-I</u>

		<ul style="list-style-type: none"> • Knowledge about <ol style="list-style-type: none"> i. Equipment's ii. Refrigeration System <p>Use of Low Temperature</p> <ul style="list-style-type: none"> • Use of above freezing Temperature • Use of below freezing Temperature 	
	Preservation Using Heat and Energy	<p>Students are introduced to:</p> <ul style="list-style-type: none"> • Blanching Factors effecting blanching time • Canning <ol style="list-style-type: none"> 1. Preparation of Raw Materials 2. Filling 3. Syruping and Brining 4. Lidding and Clinching 5. Exhausting and Vacuuming 6. Sealing 7. Heat processing 8. Cooling 9. Labeling 10. Storing and Packing 	
Week 15	Removal of Moisture	<ul style="list-style-type: none"> • Motivational Lecture<i>(For further detail please see Page No: 3& 4)</i> <p>Students are introduced to:</p> <ul style="list-style-type: none"> • Role of water in food • Forms of water in food • Controlling water activity • Advantages of Dried foods 	<ul style="list-style-type: none"> • Task 22 <u>Details may be seen at Annexure-I</u>
	Create an account profile on Fiverr (at least two gigs) and Upwork	<p>Create an account by following these steps:</p> <p>Step 1: Personal Info Step 2: Professional Info Step 3: Linked Accounts Step 4: Account Security</p>	

Week 16	Removal of Moisture	<ul style="list-style-type: none"> • Success stories(For further detail please see Page No: 3 & 4) <p>Students are introduced to:</p> <ul style="list-style-type: none"> • Sun drying <ol style="list-style-type: none"> 1. Equipment 2. Procedure 3. Precautions • Evaporation and Concentration • Dehydration <ol style="list-style-type: none"> 1. Drying Atmosphere 2. Humidity-Temperature relation 	<ul style="list-style-type: none"> • Task 23 • Monthly Test 3 <u>Details may be seen at Annexure-I</u>
Week 17	Use of chemical additives	<ul style="list-style-type: none"> • Motivational Lecture(For further detail please see Page No: 3& 4) • Definition <ul style="list-style-type: none"> • Contaminant • Food Adulterant • Chemical Additive • Role of Food Additives • Importance of Food Addi • Food Laws 	<ul style="list-style-type: none"> • Task 24 <u>Details may be seen at Annexure-I</u>
	E-Commerce	<ul style="list-style-type: none"> • SEO (Search Engine Optimization) <ol style="list-style-type: none"> 1. Apply SEO techniques 2. Employ SEO keywords 3. Demonstrate SEO techniques to priorities their site or web application using automated tools 	
Week 18	Chemical Additives as Preservatives	<ul style="list-style-type: none"> • Success stories (For further detail please see Page No: 3& 4) <p>Students are introduced to:</p> <ul style="list-style-type: none"> • Anti-ripening Agents • Antioxidants • Sprout Inhibitors • Anti-microbial Agents 	<ul style="list-style-type: none"> • Task 25 <u>Details may be seen at Annexure-I</u>
	Chemical Additives as Non-Preservatives	<p>Students are introduced to:</p> <ul style="list-style-type: none"> • Color improvement • Flavor enhancement • Taste adulteration • Nutrition variation • Enhance Functional Properties of Foods 	
Week 19	<ul style="list-style-type: none"> • Fermentation • Types of Fermentation 	<ul style="list-style-type: none"> • Motivational Lecture (For further detail please see Page No: 3& 4) 	<ul style="list-style-type: none"> • Task 26 <u>Details</u>

		<p>Students are introduced to:</p> <p>Students are introduced to:</p> <ul style="list-style-type: none"> • What is fermentation? • Objectives of fermentation • Role of fermentation • Types of Fermentation <ol style="list-style-type: none"> 1. Ethanolic/Alcoholic Fermentation 2. Lactic acid Fermentation 3. Acetic Acid Fermentation 	<p><u>may be seen at Annexure-I</u></p>
Week 20	<p>Food Irradiation</p> <p>Commercial applications</p> <p>Effects of irradiation on food</p>	<ul style="list-style-type: none"> • Success stories (<i>For further detail please see Page No: 3& 4</i>) <p>Students are introduced to:</p> <ul style="list-style-type: none"> • Units of measurements • Characteristics of radiations (electromagnetic radiations) • Source of radiations • Uses of UV and Ionizing radiations <p>Commercial applications</p> <p>Effects of irradiation on food</p> <ul style="list-style-type: none"> • Effect on Water • Effect on Protein • Effect on Vitamins • Effect on Carbohydrates • Effect on Lipids 	<p>• Task 27</p> <p><u>Details may be seen at Annexure-I</u></p> <p>Monthly Test 4</p>
Week 21	<p>Formulation of Different Food Products</p>	<ul style="list-style-type: none"> • Motivational Lecture(<i>For further detail please see Page No: 3& 4</i>) • Preparation of Jelly • Preparation of ketchup • Preparation of Sauce • Preparation of Pickles 	<p>• Task 28</p> <p><u>Details may be seen at Annexure-I</u></p>

	<p>Employable Project/Assignment in addition of regular classes.</p>	<ul style="list-style-type: none"> • Guidelines to the Trainees for selection of student's employable project like final year project (FYP) • Assign Independent project to each Trainee • A project based on trainee's aptitude and acquired skills. • Designed by keeping in view the emerging trends in the local market as well as across the globe. • The project idea may be based on Entrepreneur. • Leading to the successful employment. • The duration of the project will be 6 weeks • Ideas may be generated via different sites such as: https://1000projects.org/ https://nevonprojects.com/ https://technofizi.net/best-computer-science-and-engineering-cse-project-topics-ideas-for-students/ https://engineering.eckovation.com/plc-based-final-year-projects/ • Final viva/assessment will be conducted on project assignments. • At the end of session, the project will be presented in skills competition • The skill competition will be conducted on zonal, regional and National level. • The project will be presented in front of Industrialists for commercialization 	
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		<ul style="list-style-type: none"> • The best business idea will be placed in NAVTTC business incubation center for commercialization. <p style="text-align: center;">OR</p> <p>On job training for 2 weeks:</p> <ul style="list-style-type: none"> • Aims to provide 2 weeks industrial training to the Trainees as part of overall training program • Ideal for the manufacturing trades • As an alternate to the projects that involve expensive equipment <p>Focuses on increasing Trainee's motivation, productivity, efficiency and quick learning approach.</p>	
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	Entrepreneurship	Fundamentals of Entrepreneurship <ul style="list-style-type: none"> • Food business opportunities • Principles of marketing Principles of Financial Management	
Week 22	Formulation of Different Food Products	<ul style="list-style-type: none"> • Success stories(For further detail please see Page No: 3 & 4) Preparation of Bakery Products <ul style="list-style-type: none"> • Bread manufacturing • Cake manufacturing • Biscuit manufacturing • Pizza manufacturing 	<ul style="list-style-type: none"> • Task 29 <u>Details may be seen at Annexure-I</u>
	Analyze job in local market CV building as per job demand Job searching	Analyze job in local market <ul style="list-style-type: none"> • Review the job requirements. • Research similar job descriptions. • Identify the outcomes required for the job. • Examine the job efficiencies. • Determine the skills and training required. • Define the salary bands. • Continue to evolve the job. CV building as per job demand <ul style="list-style-type: none"> • Write down your Objective. • Enlist your Key skills and experience. • Write down your Education. • Write down your work experience. • Enlist Additional skills. • Write down your Interests and activities. • Enlist References if any. 	
Week 23	Formulation of Different Food Products	<ul style="list-style-type: none"> • Motivational Lecture(For further detail please see Page No: 3 & 4) Preparation of Meat Products <ul style="list-style-type: none"> • Preparation of intact meat products • Preparation of restructured meat products 	<ul style="list-style-type: none"> • Task 30 <u>Details may be seen at Annexure-I</u>
	Analyze job demand in any two-international country Jobs Applying procedure in any two-international country Analyze customer demand	Students are introduced to: Analyze job demand in any two-international country <ul style="list-style-type: none"> • Be clear about why you want to work overseas. • Keep an open mind about your choice of location. • Start with the constraints. • Consult with your employer. • Do your research. • Think transferable skills. 	

		Jobs Applying procedure in any two-international country <ul style="list-style-type: none"> • Determine the type of job you want. • Decide what country you want to work in. • Find a job you're interested in. • Apply for a visa or work permit. • Update and localize your resume. • Apply for the job. Analyze customer demand <ul style="list-style-type: none"> • Collection of information from customer. • Situational analysis and specification of objectives • Conduct of market survey. 	
Week 24	Formulation of Different Food Products	<ul style="list-style-type: none"> • Success stories(For further detail please see Page No: 3 & 4) Preparation of Dairy Products <ul style="list-style-type: none"> • Yogurt • Butter • Cheese 	<ul style="list-style-type: none"> • Task 31 • Task 32 <u>Details may be seen at Annexure-I</u>
	Perform cost analysis of customer demand Conduct market survey for project estimation	Students are introduced to: Perform cost analysis as per customer demands. <ul style="list-style-type: none"> • Categorizing Costs • Collect Data for Cost Analysis • Calculate the Costs Conduct market survey for project estimation <ul style="list-style-type: none"> • Set a clear goal. • Know what target market to survey. • Know what you want to investigate. • Get help from the people who know surveys. • Consider the best way to get your answers. • Administer the survey effectively. • Conduct a thorough survey analysis. 	
Week 25	Formulation of Different Food Products	<ul style="list-style-type: none"> • Motivational Lecture(For further detail please see Page No: 3& 4) • Preparation of Dairy Products • Flavored milk • Ice cream 	<ul style="list-style-type: none"> • Task 33 <u>Details may be seen at Annexure-I</u>

		<ul style="list-style-type: none"> • Develop professionalism • Be productive • Develop a professional image • Take the initiative • Maintain effective work habits 	<ul style="list-style-type: none"> • Monthly Test 5
	Complete the Work done on and Develop professionalism	<p>Students are introduced to:</p> <p>Complete the Work done</p> <ul style="list-style-type: none"> • Collect all related work items • Develop a process • Get organized. • Set a time to review • Just do it! <p>Develop professionalism</p> <ul style="list-style-type: none"> • Be productive • Develop a professional image • Take the initiative • Maintain effective work habits • Manage your time efficiently • Demonstrate integrity • Provide excellence. • Be a problem-solver • Be resilient • Communicate effectively • Develop self-awareness • Build relationships 	
Week 26	<p style="text-align: center;">Final Term</p>		<ul style="list-style-type: none"> • Task 34 <i><u>Details may be seen at Annexure-I</u></i>

Tasks For Certificate in Food Technology (Preservation and Processing)

Task No.	Description	Week
1.	<ul style="list-style-type: none"> Explore different food sources based on climatic variations in Pakistan 	Week 1
2.	<ul style="list-style-type: none"> Survey career opportunities 	
3.	<ul style="list-style-type: none"> Generate a report on Institute work ethics and professionalism related to your course 	
4.	<ul style="list-style-type: none"> Visit to any food industry Observe the food processing machines. Record their working pattern 	Week-2
5.	<ul style="list-style-type: none"> Prepare first aid box. 	
6.	<ul style="list-style-type: none"> Write an application to food director for job. 	Week 3
7.	<ul style="list-style-type: none"> Draw a chart of food preservation 	Week 4
8.	<ul style="list-style-type: none"> Classify the various spoilage agents of different foods and correlate them with the suitable principle of food preservation 	Week 5
9.	<ul style="list-style-type: none"> Identify damaged tools/equipment Repair or replace parts/tools Perform calibration Maintain all record of tools/equipment's 	
10.	<ul style="list-style-type: none"> Draw and label the parts of canning machine. 	
11.	<ul style="list-style-type: none"> Visit any dairy industry. Seek safety rules of dairy industry. 	Week 6
12.	<ul style="list-style-type: none"> Find out fat percentage of milk Take some drops of milk Pass it on the polished surface Check the fat percentage. 	Week 7
13.	<ul style="list-style-type: none"> Find out LR of milk 	
14.	<ul style="list-style-type: none"> How to reduce physical defects? 	Week 8
15.	Why modern methods are more efficient than	Week 9

	traditional methods?	
16.	Visit any food industry	Week 10
17.	Identify the food choices for Pakistani people based on geographical distribution	
18.	Enlist the tools used in food processing	Week 11
19.	<ul style="list-style-type: none"> • Visit food processing unit • Clean raw material of food • Demonstrate the basic purpose of cleaning and peeling 	Week 12
	Mid Term	Week 13
20.	<ul style="list-style-type: none"> • Draw a mechanical refrigeration system on notebook 	Week 14
21.	<ul style="list-style-type: none"> • Prepare fruits syrup • Prepare brine for vegetables • Determine brix and viscosity 	
22.	<ul style="list-style-type: none"> • Perform Dry leafy vegetables 	Week 15
23.	<ul style="list-style-type: none"> • Enlist the food that are preserved by dehydration process 	Week 16
24.	<p>Highlight the common adulterants in following foods</p> <ul style="list-style-type: none"> • Baking powder • Butter • Flour • Grains • Milk • Sugar and honey 	Week 17
25.	<ul style="list-style-type: none"> • Name two preservatives used for preservation of fruit squashes • Preparation of Lime Juice • Add preservative • Check the pH of lime juice 	Week 18
26.	<ul style="list-style-type: none"> • Suggest some products that can be preserved by fermentation 	Week 19
27.	<ul style="list-style-type: none"> • Enlist commercial applications of irradiation 	Week 20
28.	<ul style="list-style-type: none"> • Check the pH of mango pickle 	Week 21

29.	<ul style="list-style-type: none"> • Make different cake types (muffins, sponge cake, pound cake, layer cake, cupcake etc.) • Describe Mixing methods of cake, bread and biscuits • Operate oven to maintain temperature and time 	Week 22
30.	<ul style="list-style-type: none"> • Apply for any relevant international jobs. 	Week 23
31.	<ul style="list-style-type: none"> • Make butter at home 	Week 24
32.	<ul style="list-style-type: none"> • Perform cost analysis as per customer demand • Conduct market survey for project estimation 	
33.	<ul style="list-style-type: none"> • Suggest the formula of ice-cream 	Week 25
34.	<ul style="list-style-type: none"> • Develop work ethics 	Week 26

Food technology (preservation and processing)

What is E commerce and how you can make money online - BBCURDU

<https://www.youtube.com/watch?v=9jCJN3Ff0kA>

What Is the Role of Good Manners in the Workplace? By Qasim Ali Shah | In Urdu

<https://www.youtube.com/watch?v=Qi6Xn7yKlIQ>

Hisham Sarwar Motivational Story | Pakistani Freelancer

https://www.youtube.com/watch?v=CHm_BH7xAXk

21 Yr. Old Pakistani Fiverr Millionaire | 25-35 Lakhs a Month Income | Interview

<https://www.youtube.com/watch?v=9WrmYYhr7S0>

Success Story of a 23 Year - Old SEO Expert | How This Business Works | Urdu Hindi Punjabi

<https://www.youtube.com/watch?v=tlQ0CWgszl0>

Failure to Millionaire - How to Make Money Online | Fiverr Superhero Aaliyaan Success Story

<https://www.youtube.com/watch?v=d1hocXWSpus>

Annexure-II

SUGGESTIVE FORMAT AND SEQUENCE ORDER OF MOTIVATIONAL LECTURE.

Mentor

Mentors are provided an observation checklist form to evaluate and share their observational feedback on how students within each team engage and collaborate in a learning environment. The checklist is provided at two different points: Once towards the end of the course. The checklists are an opportunity for mentors to share their unique perspective on group dynamics based on various team activities, gameplay sessions, pitch preparation, and other sessions, giving insights on the nature of communication and teamwork taking place and how both learning outcomes and the student experience can be improved in the future.

Session- 1 (Communication):

Please find below an overview of the activities taking place Session plan that will support your delivery and an overview of this session's activity.

Session- 1 OVERVIEW
Aims and Objectives:
<ul style="list-style-type: none">• To introduce the communication skills and how it will work• Get to know mentor and team - build rapport and develop a strong sense of a team• Provide an introduction to communication skills• Team to collaborate on an activity sheet developing their communication, teamwork, and problem-solving• Gain an understanding of participants' own communication skills rating at the start of the program

Activity:	Participant Time	Teacher Time	Mentor Time
Intro Attend and contribute to the scheduled.			
Understand good communication skills and how it works.			
Understand what good communication skills mean			
Understand what skills are important for good communication skills			
Key learning outcomes:	Resources:		Enterprise skills developed:
<ul style="list-style-type: none">• Understand the communication skills and how it	<ul style="list-style-type: none">• Podium• Projector		<ul style="list-style-type: none">• Communication• Self Confidence

works. <ul style="list-style-type: none"> • Understand what communication skills mean • Understand what skills are important for communication skills 	<ul style="list-style-type: none"> • Computer • Flip Chart • Marker 	<ul style="list-style-type: none"> • Teamwork
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Schedule	Mentor Should do
Welcome: 5 min	Short welcome and ask the Mentor to introduce him/herself. Provide a brief welcome to the qualification for the class. Note for Instructor: Throughout this session, please monitor the session to ensure nothing inappropriate is being happened.
Icebreaker: 10 min	Start your session by delivering an icebreaker, this will enable you and your team to start to build rapport and create a team presentation for the tasks ahead. The icebreaker below should work well at introductions and encouraging communication, but feel free to use others if you think they are more appropriate. It is important to encourage young people to get to know each other and build strong team links during the first hour; this will help to increase their motivation and communication throughout the sessions.
Introduction & On boarding: 20mins	Provide a brief introduction of the qualification to the class and play the “On boarding Video or Presentation”. In your introduction cover the following: 1. Explanation of the program and structure. (Kamyab Jawan Program) 2. How you will use your communication skills in your professional life. 3. Key contacts and key information – e.g., role of teacher, mentor, and SEED. Policies and procedures (user agreements and “contact us” section). Everyone to go to the Group Rules tab at the top of their screen, read out the rules, and ask everyone to verbally agree. Ensure that the consequences are clear for using the platform outside of hours. (9am-8pm) 4. What is up next for the next 2 weeks ahead so young people know what to expect (see pages 5-7 for an overview of the challenge). Allow young people to ask any questions about the session topic.
Team Activity Planning: 30 minutes	MENTOR: Explain to the whole team that you will now be planning how to collaborate for the first and second collaborative Team Activities that will take place outside of the session. There will not be another session until the next session so this step is required because communicating and making decisions outside of a

	<p>session requires a different strategy that must be agreed upon so that everyone knows what they are doing for this activity and how.</p> <ul style="list-style-type: none"> • “IDENTIFY ENTREPRENEURS” TEAM ACTIVITY • “BRAINSTORMING SOCIAL PROBLEMS” TEAM ACTIVITY <p><i>As a team, collaborate on a creative brainstorm on social problems in your community. Vote on the areas you feel most passionate about as a team, then write down what change you would like to see happen.</i></p> <p>Make sure the teams have the opportunity to talk about how they want to work as a team through the activities e.g., when they want to complete the activities, how to communicate, the role of the project manager, etc.</p> <p>Make sure you allocate each young person a specific week that they are the project manager for the weekly activities and make a note of this.</p> <p>Type up notes for their strategy if this is helpful - it can be included underneath the Team Contract.</p>
<p>Session Close: 5 minutes</p>	<p>MENTOR: Close the session with the opportunity for anyone to ask any remaining questions.</p> <p>Instructor: Facilitate the wrap-up of the session. A quick reminder of what is coming up next and when the next session will be.</p>

MOTIVATIONAL LECTURES LINKS.

TOPIC	SPEAKER	LINK
How to Face Problems in Life	Qasim Ali Shah	https://www.youtube.com/watch?v=OrQte08MI90
Just Control Your Emotions	Qasim Ali Shah	https://www.youtube.com/watch?v=JzFs_yJt-w
How to Communicate Effectively	Qasim Ali Shah	https://www.youtube.com/watch?v=PhHAQEGehKc
Your ATTITUDE is Everything	Tony Robbins Les Brown David Goggins's Jocko Willink Wayne Dyer Eckart Tolle	https://www.youtube.com/watch?v=5fS3rj6eIFg
Control Your EMOTIONS	Jim Rohn Les Brown TD Jakes Tony Robbins	https://www.youtube.com/watch?v=chn86sH0O5U
Defeat Fear, Build Confidence	Shaykh Atif Ahmed	https://www.youtube.com/watch?v=s10dzfbozd4
Wisdom of the Eagle	Learn Kurooji	https://www.youtube.com/watch?v=bEU7V5rJTtw
The Power of ATTITUDE	Titan Man	https://www.youtube.com/watch?v=r8LJ5X2ejqU
STOP WASTING TIME	Arnold Schwarzenegger	https://www.youtube.com/watch?v=kzSBrJmXqdq
Risk of Success	Denzel Washington	https://www.youtube.com/watch?v=tbnzAVRZ9Xc

SUCCESS STORY

S. No	Key Information	Detail/Description
1.	Self & Family background	<p>Ahmad, who lives in DG Khan (Punjab), is an example of how hard work and perseverance can reap rich rewards when bidding for projects online. The food recipes work exclusively on an online freelancing platform and he has earned, on average, US\$20,000 per month for the past several months. But this isn't a story of overnight success – Ahmad had to work hard to differentiate himself and stay true to his goal.</p> <p>It was a full year later, in February 2018, when Ahmad finally decided to jump in. He signed up for one of the numerous companies of food processing and preservation that connect with people or companies that have small projects, like food processing, professional recipes.</p> <p>He had already started a small business to help pay for his college education, so he was nervous and apprehensive about the decision. “I gave myself two or three months at most. If I didn't succeed, then I would go back to running the business as it was showing potential,” he says.</p> <p>If at first, you don't succeed, try try again</p>
2.	How he came on board NAVTTC Training/ or got trained through any other source	Certification in food technology from STEPS (NAVTTC partner institute)
3.	Post-training activities	<p>Ahmad's area of expertise is in food processing and preservation. In his first month using modern preservation methods, he pitched mostly for projects centered around food recipes. But it wasn't so simple. In the first few weeks, he didn't hear back from even a single client, despite pitching for dozens of projects.</p> <p>“I needed to understand what worked, so I read blogs, participated in forums, and analyzed profiles of successful food processors. It was an uphill struggle, but I didn't want to give up,” he explains.</p> <p>Ahmad says he understands why clients would be</p>

		<p>apprehensive giving projects to untested food technology. They have hundreds of options to choose from, he explains, and to give a project to someone with no experience requires a strong leap of faith.</p> <p>A slow stream of projects started to come Ahmad's way. Within a few months, he was landing an average of a hundred projects every month, with a large number of repeat clients. He also expanded the range of his professional services by professional recipes, prevention from food spoilage, enhance food nutritional values.</p> <p>But he's had to face his fair share of challenges too. "Sometimes I haven't had connectivity for two days straight," he explains. "That's unthinkable for someone who makes his livelihood on the internet."</p>
4.	Success Traits	<p>Success Traits (characteristics)</p> <p>Good Habits</p> <ul style="list-style-type: none"> • Punctuality • Honesty • Positive attitude <p>Interpersonal skills</p> <ul style="list-style-type: none"> • Determinant • Consistent • Welling worker • Team work • Initiative • Hardworking • Creative • Enthusiastic • Goal oriented • Self-motivated • Communication • Loyalty
5.	Message to others (under training)	<p>Take the training opportunity seriously</p> <p>Impose self-discipline and ensure regularity</p> <p>Make Hard work pays in the end so be always ready for the same.</p>

Note: Success story is a source of motivation for the trainees and can be presented in several ways/forms in a NAVTTC skill development course as under: -

1. To call a passed out successful trainee of the institute. He will narrate his success story to the trainees in his own words and meet trainees as well.
2. To see and listen to a recorded video/clip (5 to 7 minutes) showing a successful trainee Audio-video recording that has to cover the above-mentioned points. *

3. The teacher displays the picture of a successful trainee (name, trade, institute, organization, job, earning, etc.) and narrates his/her story in the teacher's own motivational words.

The online success stories of renowned professional can also be obtained from **Annex-II*

Workplace/Institute Ethics Guide

Work ethic is a standard of conduct and values for job performance. The modern definition of what constitutes good work ethics often varies. Different businesses have different expectations. Work ethic is a belief that hard work and diligence have a moral benefit and an inherent ability, virtue, or value to strengthen character and individual abilities. It is a set of values-centered on the importance of work and manifested by determination or desire to work hard.

The following ten work ethics are defined as essential for student success:

1. Attendance:

Be at work every day possible, plan your absences don't abuse leave time. Be punctual every day.

2. Character:

Honesty is the single most important factor having a direct bearing on the final success of an individual, corporation, or product. Complete assigned tasks correctly and promptly. Look to improve your skills.

3. Team Work:

The ability to get along with others including those you don't necessarily like. The ability to carry your weight and help others who are struggling. Recognize when to speak up with an idea and when to compromise by blend ideas together.

4. Appearance:

Dress for success set your best foot forward, personal hygiene, good manner, remember that the first impression of who you are can last a lifetime

5. Attitude:

Listen to suggestions and be positive, accept responsibility. If you make a mistake, admit it. Values workplace safety rules and precautions for personal and co-worker safety. Avoids unnecessary risks. Willing to learn new processes, systems, and procedures in light of changing responsibilities.

6. Productivity:

Do the work correctly, quality and timelines are prized. Get along with fellows, cooperation is the key to productivity. Help out whenever asked, do extra without being asked. Take pride in your work, do things the best your know-how. Eagerly focuses energy on accomplishing tasks, also referred to as demonstrating ownership. Takes pride in work.

7. Organizational Skills:

Make an effort to improve, learn ways to better yourself. Time management; utilize time and resources to get the most out of both. Take an appropriate approach to social interactions at work. Maintains focus on work responsibilities.

8. Communication:

Written communication, being able to correctly write reports and memos.
Verbal communications, being able to communicate one on one or to a group.

9. Cooperation:

Follow institute rules and regulations, learn and follow expectations. Get along with fellows, cooperation is the key to productivity. Able to welcome and adapt to changing work situations and the application of new or different skills.

10. Respect:

Work hard, work to the best of your ability. Carry out orders, do what's asked the first time. Show respect, accept, and acknowledge an individual's talents and knowledge. Respect's diversity in the workplace, including showing due respect for different perspectives, opinions, and suggestions.