

Model Curriculum

Chief Miller

SECTOR: FOOD PROCESSING
SUB-SECTOR: FOOD GRAIN MILLING
OCCUPATION: PROCESSING
REF ID: FIC/Q1001, V1.0
NSQF LEVEL: 6



Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

FOOD INDUSTRY CAPACITY AND SKILL INITIATIVE (FICSI)

for the

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: '**Chief Miller**'
QP No. '**FIC/Q1001, Version 1.0, NSQF Level 6**'

Date of Issuance: **February 15, 2016**

Valid up to: **July 02, 2016**

* Valid up to the next review date of the Qualification Pack



Authorised Signatory
(Food Industry Capacity and Skill Initiative)

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Chief Miller

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Chief Miller”, in the “Food Processing” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Chief Miller		
Qualification Pack Name & Reference ID. ID	FIC/Q1001, v1.0		
Version No.	1.0	Version Update Date	31/03/2022
Pre-requisites to Training	Graduation in Science (with chemistry)/ Diploma in Milling, 7-10 years of experience in food grain milling		
Training Outcomes	After completing this programme, participants will be able to: <ul style="list-style-type: none"> • Carry out the milling processes for all types of grains • Handle various milling machineries while maintaining process parameters • Plan production schedule • Organize raw materials for production process • Inspect raw materials and finished goods for quality and quantity • Follow and maintain food safety and hygiene in the work environment • Demonstrate troubleshooting skills 		

This course encompasses 5 out of 5 National Occupational Standards (NOS) of “Chief Miller” Qualification Pack FIC/Q1001, Version 1.0 issued by Food Industry Capacity and Skill Initiative”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	Introduction to the training program Theory Duration (hh:mm) 01:00 Practical Duration (hh:mm) 00:00 Corresponding NOS Code Bridge Module	<ul style="list-style-type: none"> Introduce each other and build rapport with fellow participants and the trainer. 	White board/Chart papers, marker
2	Overview of the “Chief Miller” Role Theory Duration (hh:mm) 01:00 Practical Duration (hh:mm) 00:00 Corresponding NOS Code	<ul style="list-style-type: none"> Understanding the roles and responsibilities of chief miller Awareness of the nature and availability of job opportunities 	Laptop/computer white board, marker, projector, chart papers
3.	Introduction to the Food Processing Industry Theory Duration (hh:mm) 01:30 Practical Duration (hh:mm) 00:00 Corresponding NOS Code	<ul style="list-style-type: none"> Define food processing List the various sub-sectors in food processing industry 	Laptop/computer white board, marker, projector, chart papers
4.	Introduction Grain Milling Industry Theory Duration (hh:mm) 04:00 Practical Duration (hh:mm) 01:00 Corresponding NOS Code	<ul style="list-style-type: none"> State the need for food grain milling process State the common methods of milling food grains State the process of milling various types of grains List the terminology used in milling process 	Laptop, white/black board, marker, chart papers, projector, trainer’s guide, student handbook, pictures/charts of different types of grain milling

Sr. No.	Module	Key Learning Outcomes	Equipment Required
5.	Organizational standards and norms Theory Duration (hh:mm) 04:00 Practical Duration (hh:mm) 02:00 Corresponding NOS Code FIC/N1001 FIC/N9004	<ul style="list-style-type: none"> State the roles and responsibilities of chief miller in a commercial grain milling unit State how to conduct yourself at the workplace State the personal hygiene and sanitation guidelines State the food safety and hygiene standards to follow in an organization 	Laptop, white board, marker, chart papers, projector, trainer's guide and student handbook, protective gloves, head caps, aprons, safety goggles, safety boots, mouth masks, sanitizer, safety manual
6.	Prepare and Maintain Work Area and Process Machineries for Grain Milling Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 07:00 Corresponding NOS Code FIC/N1001	<ul style="list-style-type: none"> Identify different equipments used in milling process State the materials and equipments used in cleaning and maintenance of the work area and machineries State the cleaning processes used to clean the work area Demonstrate the use of different tools and machineries used for grain milling Demonstrate the appropriate method for cleaning and maintain a work area Ensure the work area is safe and hygienic for food processing Identify and set the machines and tools required for production in working condition Maintain cleanliness of the process machineries required for production using recommended sanitizers 	Laptop, white board, marker, chart papers, projector, trainer's guide and student handbook, authorized sanitizers, cleansers, all equipments for demonstration
7.	Cereal Chemistry Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 00:00 Corresponding NOS Code FIC/N1002	<ul style="list-style-type: none"> Describe the structure and composition of grain Explain the composition of grains and legumes State the composition and structure of milled grains 	Different types of grains and pulses, charts showing structure and composition of grains

Sr. No.	Module	Key Learning Outcomes	Equipment Required
8.	Food Microbiology Theory Duration (hh:mm) 06:00 Practical Duration (hh:mm) 01:00 Corresponding NOS Code	<ul style="list-style-type: none"> State the types of food microbes State the causes of food spoilage State the process of food spoilage state the criteria to check food spoilage State the need for food preservation State different types of food preservation processes 	Laptop, white board, marker, chart papers, projector, trainer's guide and student handbook, samples of fresh and spoiled food
9.	Preparation for the Milling Process Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 08:00 Corresponding NOS Code FIC/N1002	<ul style="list-style-type: none"> Plan the production schedule as per organizational standards and instructions Organize for raw materials, packaging materials, manpower, equipment and machineries for the scheduled production Identify the raw materials required for production as per production schedule and formation State the methods for storing raw materials for later use Plan the production sequence to maximize capacity, utilization of resources, manpower and machinery Check the conformance of raw material quality to company standards Organize quality raw material as per production process and company standards Check the raw material quality and grade Prepare the raw material for production 	Laptop, white/black board, marker, chart papers, projector, trainer's guide, student handbook
10.	Milling Grains Theory Duration (hh:mm) 08:00 Practical Duration (hh:mm) 22:00 Corresponding NOS Code FIC/N1002	<ul style="list-style-type: none"> Demonstrate the process of milling rice Check the quality of the milled grain during milling Check the conformance of milled grain quality to company standards Explain the process of packaging finished products Describe the process of labelling finished product 	SOP, white/ black board/chart paper, Markers/ computer and projector, trainer guide, student handbook, work flow diagram/ chart, sample of various grains, spatulas, packing wrap rolls, measuring cup and spoons, utensils, digital hygrometer, measurement can, weighing cleaner/

Sr. No.	Module	Key Learning Outcomes	Equipment Required
			grader/ sorters, conditioning machine, de-husk machine, splitter machine, de-stoner, polisher, drier, packaging machine, grinding machine, sifter, bran separator machine, agitator, multi crop decorticator, disinfectants and cleansers, protective gloves, head caps, safety shoes, aprons, mouth cover, safety goggles, food safety manual
11.	Complete documentation and record keeping Theory Duration (hh:mm) 03:00 Practical Duration (hh:mm) 05:00 Corresponding NOS Code FIC/N1003	<ul style="list-style-type: none"> State the need for documenting and maintaining records of raw materials, processes and finished products State the method of documenting and recording the details of raw material to final finished product Document daily records in the ERP system effectively Demonstrate the process of conducting workplace checklist audit 	Laptop, white board, marker, chart papers, projector, trainer's guide and student handbook, logbooks, internal audit register, food safety manual, quality policy etc.
12.	Food Safety, Hygiene and Sanitation Theory Duration (hh:mm) 03:00 Practical Duration (hh:mm) 05:00 Corresponding NOS Code FIC/N9001	<ul style="list-style-type: none"> State the importance of safety, hygiene and sanitation in the baking industry Follow the industry standards to maintain a safe and hygiene workplace Follow HACCP principles to eliminate food safety hazards in the process and products Follow safety practices in the work area 	Laptop, white board, marker, chart papers, projector ,trainer's guide and student handbook, protective gloves, head caps, aprons, safety goggles, safety boots, mouth covers, sanitizer, safety manual ,logbooks etc.
13.	Professional and Core Skills Theory Duration (hh:mm) 05:00	<ul style="list-style-type: none"> Undertake a self-assessment test Identify personal strengths and weaknesses Plan and schedule the work order and manage time effectively to complete the tasks assigned 	Laptop, white/black board, marker, chart papers, projector ,Trainer's guide, Student manual

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Practical Duration (hh:mm) 01:30 Corresponding NOS Code	<ul style="list-style-type: none"> Prevent potential problems from occurring Resolve issues and problems using acquired knowledge and realize the importance of decision making Identify potential problems and make sound and timely decision Improve your reading skills State the importance of listening 	
14.	IT Skills Theory Duration (hh:mm) 04:00 Practical Duration (hh:mm) 07:00 Corresponding NOS Code	<ul style="list-style-type: none"> Identify parts of the computer Use the computer keyboard effectively to type Use computer applications effectively to record day-to-day activities Use the word processor effectively Use the spreadsheet application effectively Use the computer to document day-to-day activities 	Laptop, white/black board, marker, chart papers, projector, Trainer's guide, Student manual
15.	Field Visits Theory Duration (hh:mm) 04:00 Practical Duration (hh:mm) 20:00 Corresponding NOS Code	<ul style="list-style-type: none"> Observe the factory location, layout and safety aspects of food processing Observe the storage facilities for raw materials and finished products Observe the various machineries used in pickle processing Observe the various machineries used in pickle processing Observe the cleaning methods and processes followed to maintain the process machineries and tools Observe the raw materials used and their storage procedures Observe the packaging and storage processes of raw material and finished product Observe the post-production cleaning and maintenance process followed in the industry 	All the tools and equipment listed above must be available at the site of field visit
16.	Revision Theory Duration (hh:mm) 02:00 Practical Duration (hh:mm) 04:00 Corresponding NOS Code	<ul style="list-style-type: none"> Revised the knowledge gained so far 	All the tools and equipment listed above must be available at the time of revision

Sr. No.	Module	Key Learning Outcomes	Equipment Required
17.	Evaluation Theory Duration (hh:mm) 06:00 Practical Duration (hh:mm) 18:00 Corresponding NOS Code	<ul style="list-style-type: none"> Assess the knowledge and skills acquired by the participants 	All the tools and equipment listed above must be available for evaluation
18.	On-the-job Training Theory Duration (hh:mm) 20:00 Practical Duration (hh:mm) 52:00 Corresponding NOS Code	<ul style="list-style-type: none"> Apply the skills and knowledge acquired in the training program in the field 	All the tools and equipment listed above must be available on the site at the time of OJT
	Total Duration 240:00 Theory Duration 86:30 Practical Duration 153:30	Unique Equipment Required: SOP, white/ black board/chart paper, Markers/ computer and projector, trainer guide, student handbook, work flow diagram/ chart, sample of various grains, spatulas, packing wrap rolls, measuring cup and spoons, utensils, digital hygrometer, measurement can, weighing cleaner/ grader/ sorters, conditioning machine, de-husk machine, splitter machine, de-stoner, polisher, drier, packaging machine, grinding machine, sifter, bran separator machine, agitator, multi crop decorticator, disinfectants and cleansers, protective gloves, head caps, safety shoes, aprons, mouth cover, safety goggles, food safety manual.	

Grand Total Course Duration: **240Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by [SSC: Food Industry Capacity and Skill Initiative](#))

Trainer Prerequisites for Job role: “Chief Miller” mapped to Qualification Pack: “FIC/Q1001, v1.0”

Sr. No.	Area	Details
1	Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “FIC/Q1001”, Version 1.0
2	Personal Attributes	An aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training, and pre/post work to ensure competent, employable candidates at the end of the training. Strong communication skills, ability to work as part of a team; a passion for quality and for developing others; well-organized and focused, eager to learn and keep oneself updated with the latest in the mentioned fields.
3	Minimum Educational Qualifications	<ul style="list-style-type: none"> • B.Sc /B.Tech/BE or PG Diploma in Food Engineering/ Grain Milling with 2-3 years of hands on experience in a Grain Milling Unit • M.Sc /M.Tech/ME in Food Engineering/ Grain Milling with 1-2 years of hands on experience in a Grain Milling Unit
4a	Domain Certification	Certified for Job Role: “ <u>Chief Miller</u> ” mapped to QP: “ <u>FIC/Q1001, v1.0</u> ”. Minimum accepted score is 80%
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “SSC/Q1402”. Minimum accepted score is 80 % as per FICSI guidelines.
5	Experience	<ul style="list-style-type: none"> • B.Sc /B.Tech/BE or PG Diploma in Food Engineering/ Grain Milling with 2-3 years of hands on experience in a Grain Milling Unit • M.Sc /M.Tech/ME in Food Engineering/ Grain Milling with 1-2 years of hands on experience in a Grain Milling Unit

Annexure: Assessment Criteria

Assessment Criteria	
Job Role	Chief Miller
Qualification Pack	FIC/Q1001, v1.0
Sector Skill Council	Food Processing

Sr. No.	Guidelines for Assessment
1	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2	The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3	Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre(as per assessment criteria below)
4	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5	To pass the Qualification Pack, every trainee should score a minimum of 70% (overall) in every QP
6	The marks are allocated PC wise; however, every NOS will carry a weight age in the total marks allocated to the specific QP

Assessable Outcome	Assessment Criteria	Total Mark (600)	Out Of	Marks Allocation	
				Theory	Skills Practical
1. FIC/Q1001: Prepare and maintain work area and process machineries for grain milling	PC.1 Prepare, clean and maintain the cleanliness of the work area using approved sanitizers and keep it free from dust, waste, flies and pests	100	25	10	15
	PC2. Ensure that the work area is safe and hygienic for food		10	3	7
	PC3. Dispose waste materials as per defined SOPs and industry requirements		15	5	10
	PC4. Check the working and performance of all machineries and tools used for the pickle making process such as destoners, de-huller, polisher, blender, pulverizer, stone mill / roller mill, screens and sieves, packaging machines etc.		15	5	10
	PC5. Clean the machineries and tools used with approved sanitizers following SOP		15	5	10
	PC6. Place the necessary tools required for process		5	2	3
	PC7. Attend the minor repairs/ faults of all machines, if required		15	5	10
	Total			100	35
2. FIC/Q1002: Prepare for Milling Process and Manage it	PC1. Check the availability of raw materials, packaging materials , equipment availability and manpower		3	1	2
	PC2. Plan daily production sequence		10	2	8
	PC3. Calculate the batch size based on the production order and machine capacity		5	2	3
	PC4. Calculate percentages yield based on the variety and quality of raw material		3	1	2
	PC5. Calculate raw material requirement (considering the process loss) to produce required quantity of finished product(s)		3	1	2
	PC6. Calculate raw materials, packaging materials and manpower requirement for completing the order		3	1	2
	PC7. Check the working and performance of each equipment required for milling process		3	1	2
	PC8. Calculate the process time for effective utilization of machineries		3	1	2
	PC9. Plan batch size considering full capacity utilization of equipments		3	1	2
	PC10. Plan to utilize equipments for multiple products without affecting the quality of		1	0.5	0.5

Assessable Outcome	Assessment Criteria	Total Mark (600)	Out Of	Marks Allocation	
				Theory	Skills Practical
	the finished products, and to optimize production and saving energy				
	PC11.Allot responsibilities and help to assistants and workers		2	0.5	1.5
	PC12.Organise raw materials required for the batch/order from internal or external warehouse		2	1	1
	PC13.Check and ensure the variety and grade of raw material taken for production		2	0.5	1.5
	PC14. Check the conformance of raw material quality to organisation standards, through physical parameters and by referring the quality analysis report from the supplier / internal lab analysis report		3	1.5	1.5
	PC15.Ensure working and performance of required machineries and tools		3	1	2
	PC16. Change production/process flow chart on day-to-basis, based on production plan		3	1	2
	PC17.Co-ordinate with inter department team and ensure continuous supply of raw materials, packaging materials and man power		3	1	2
	PC18.Ensure breakdowns are attended immediately to reduce the down time		3	1	2
	PC19.Ensure on-line production samples are taken following SOP, analyzed and reported immediately		2	1	1
	PC20.Make necessary changes in process/production based on quality report to enhance yield		3	1.5	1.5
	PC21.Take appropriate corrective and preventive actions in case of any non-conformance related to product and process and ensure its immediate implementation		3	1.5	1.5
	PC22.Authorize removal of unused/worn out/ out- dated process machineries from production line and make provisions for installing new/latest machineries		2	0.5	1.5
	PC23.Check and analyze new machineries for food safety and hazards		3	1	2
	PC24.Carry out trials on new machineries and analyze its performance and suitability for the organisation		3	1	2
	PC25.Ensure maintenance of milling unit is in safe and hygienic condition		2	0.5	1.5

Assessable Outcome	Assessment Criteria	Total Mark (600)	Out Of	Marks Allocation	
				Theory	Skills Practical
	PC26.Ensure post production cleaning of work area, machineries, equipment and tools using recommended cleaning agents and sanitizers		5	2	3
	PC27. Ensure repairs/faults of all machines (if any) are attended immediately		6	2	4
	PC28. Ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the SOP or following suppliers instructions/manuals		4	1.5	2.5
	PC29.Plan fumigation of grain mill, arrange for fumigation by communicating with internal department/external agencies and carry out fumigation of entire plant at scheduled time through fumigation technicians		3	1	2
	PC30.Provide training to employees on process, quality, GMP), GHP, HACCP, occupational health and safety, handling storage and distribution (stock rotation based on FEFO/FIFO), etc.		4	1	3
	PC31.Handle legal issues related to food laws and regulations in co-ordination with quality team		3	1.5	1.5
	PC32. Handle quality management system audits for certifications like ISO, HACCP, etc		3	1.5	1.5
	Total		100	35	65
3. FIC/Q1003: Complete documentation and record keeping related to grain milling	PC1. Document and maintain records of details of raw materials and packaging materials as per organizational standards	100	10	6	4
	PC2. Document and maintain record on observations (if any) related to raw materials and packaging materials		5	3	2
	PC3. Load the raw material details in ERP for future reference		5	3	2
	PC4. Verify the documents and track from finished products to raw materials, in case of quality concerns and during quality management system audits		5	3	2
	PC5. Document and maintain records of production plan with details		10	6	4
	PC6. Document and maintain records of process details for entire production in process chart or production log for all products produced		15	9	6

Assessable Outcome	Assessment Criteria	Total Mark (600)	Out Of	Marks Allocation	
				Theory	Skills Practical
	PC7.Document and maintain records of batch size, production yield, wastage of raw materials, energy utilization and final product produced		10	6	4
	PC8. Document and maintain record of observations or deviations		5	3	2
	PC9. Load the production plan and process details in ERP for future reference		5	3	2
	PC10.Verify documents and track from finished product to ingredients, in case of quality concerns and for quality management system audit		5	3	2
	PC11.Document and maintain records of finished products		3	2	1
	PC12.Document and maintain records of the finished product details as per organizational standards		7	4	3
	PC13. Document and maintain record on observations or deviations related to finished products		5	3	2
	PC14. Load the finished product details in ERP for future reference		5	3	2
	PC15.Verify the documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits		5	3	2
	Total		100	60	40
4. FIC/N9001: Food Safety, hygiene and sanitation for processing food products	PC1. Comply with food safety and hygiene procedures followed in the organization	100	5	2	3
	PC2. Ensure personal hygiene by use of gloves, masks ,hair net, ear plugs, boots etc.		6	1	5
	PC3. Ensure hygienic production of food by inspecting raw materials, ingredients, finished products etc for compliance to physical, chemical and microbiological procedures		5	2	3
	PC4. Pack products in appropriate packaging material, label and store them in designated area free from pests, flies etc.		10	4	6
	PC5. Clean, maintain and monitor food processing equipments periodically, using it only for the specified purpose		5	2	3
	PC6. Use safety equipment such as fire extinguisher, eye wash unit, first aid kit when required		10	4	6

Assessable Outcome	Assessment Criteria	Total Mark (600)	Out Of	Marks Allocation	
				Theory	Skills Practical
	PC7. Follow housekeeping practices by having designated area for machines/tools		5	2	3
	PC8. Follow industry standards like GMP, HACCP and product recall		10	4	6
	PC9. Attend training on hazard management to understand type of physical, chemical and microbiological hazards		5	1	4
	PC10. Identify, document and report problems such as rodents and pests to management		5	1	4
	PC11. Conduct workplace checklist audit before and after work to ensure safety and hygiene		5	1	4
	PC12. Document and maintain raw material, process, packaging material to maintain the effectiveness of quality system		4	1	3
	PC13. Determine the quality of food using criteria such as odor, color, taste and best before date and take immediate measures to prevent spoilage		5	2	3
	PC14. Store raw materials, finished products and allergens separately to prevent cross contamination		5	2	3
	PC15. Label raw materials and finished products and store them in different storage areas according to safe food practices		5	2	3
	PC16. Follow stock rotation based on FEFO/FIFO		10	4	6
	Total		100	35	65
5.FIC/N9004: Manage and lead a team	PC1. Ensure that the team is aware of the schedule and job expectations on a daily basis		12	4	8
	PC2. Involve the team in regular meetings to communicate information intended for them		12	4	8
	PC3. Ensure communication to the team on any changes in policies/ processes by the organization through required verbal/ written mechanisms		12	4	8
	PC4. Ensure participation of the team in various engagement initiatives organized by the organization		12	4	8
	PC5. Counsel and address issues among the team for any work related issues		12	4	8
	PC6. Support the manager in deployment of the team as per production schedule		10	4	6

Assessable Outcome	Assessment Criteria	Total Mark (600)	Out Of	Marks Allocation	
				Theory	Skills Practical
	and the organizational norms and guidelines				
	PC7. Ensure periodic training of the team and support the team by delivering trainings		10	3	7
	PC8. Share knowledge of processes, techniques and products with the team to enhance their skill levels		10	4	6
	PC9. Provide feedback to the manager pertaining to performance of the team		10	4	6
	Total		100	35	65
	Grand total	500	500	300	200
	Percentage Weightage		100	60%	40%
	Minimum Pass% to qualify (aggregate):			70%	

