

QUALIFICATION FILE – CONTACT DETAILS OF SUBMITTING BODY

Name and address of submitting body:

Food Industry Capacity & Skill Initiative (FICSI)
Federation House
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Name and contact details of individual dealing with the submission

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List of documents submitted in support of the Qualifications File

1. Career Map of Assistant Lab Technician- Food and Agricultural Commodities - Annexure 1
2. Qualification Pack of Assistant Lab Technician- Food and Agricultural Commodities - Annexure 2
3. List of QP/NOS validating companies – Annexure 3
4. NSDC Human Resource and Skill Requirement study – Annexure 4

QUALIFICATION FILE SUMMARY

Qualification Title	Assistant Lab Technician- Food and Agricultural Commodities (FIC Q7006)		
Body/bodies which will assess candidates	Mettl, Stamp, IQAG, Skills Mantra, Aspiring Mind		
Body/bodies which will award the certificate for the qualification.	Food Industry Capacity & Skill Initiative (FICSI)		
Body which will accredit providers to offer the qualification.	Food Industry Capacity & Skill Initiative (FICSI)		
Occupation(s) to which the qualification gives access	Assistant Lab Technician		
Proposed level of the qualification in the NSQF.	Level 4		
Anticipated volume of training/learning required to complete the qualification.	240 hours		
Entry requirements / recommendations.	Class 12 with certification in laboratory techniques		
Progression from the qualification.	Lab Technician (Level 5)		
Planned arrangements for RPL.	RPL arrangements and policies are under development.		
International Comparability	Not done as yet.		
Formal structure of the qualification			
Title of unit or other component (include any identification code used)	Mandatory/ Optional	Estimated size (learning hours)	Level
FIC/N7016 Prepare and maintain work area and equipments for food lab testing	Mandatory	16	4
FIC/N7017 Prepare for quality analysis and manage housekeeping for food lab activities	Mandatory	32	4
FIC/N7018 Sampling and quality analysis for food lab activities	Mandatory	144	4
FIC/N7019 Complete documentation and record keeping related to performing food lab activities	Mandatory	16	4
FIC/N7020 Food safety hygiene and sanitation for food lab testing	Mandatory	32	Common across levels

Please attach any document giving further detail about the structure of the qualification – e.g. a Curriculum or Qualification Pack.

Give details of the document here:

1. Qualification Pack of Assistant Lab Technician-Food and Agricultural Commodities - Annexure 2

SECTION 1

ASSESSMENT

Name of assessment body:

If there will be more than one assessment body for this qualification, give details.

The assessment bodies include Mettl, Stamp, IQAG and Skills Mantra, Aspiring Mind

Will the assessment body be responsible for RPL assessment?

Yes

Give details of how RPL assessment for the qualification will be carried out and quality assured.

The RPL assessment will be based on the approved Qualification Pack and Assessment Criteria mentioned in the Qualification Pack.

Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, consistent and fair and show that these are in line with the requirements of the NSQF:

Assessment will be done through third parties who will be affiliated to FICSI as an Assessment Body.

The assessment plan will contain the following information:

- What will be assessed, i.e. the competency based on each NOS
- How assessment will occur i.e. methods of assessment
- When the assessment will occur
- Where the assessment will take place i.e. context of the assessment (workplace/simulation)
- Criteria for decision making i.e. those aspects that will guide judgements
- Where appropriate, any supplementary criteria would be used to make a judgement on the level of performance

The assessment would be conducted through theory, viva voce and practical.

Please attach any documents giving further information about assessment and/or RPL.

Give details of the document(s) here:

ASSESSMENT EVIDENCE

Complete the following grid for each grouping of NOS, assessment unit or other component as listed in the entry on the structure of the qualification on page 1.

CRITERIA FOR ASSESSMENT OF TRAINEES
Job Role: Assistant Lab Technician-Food And Agricultural Commodities
Qualification Pack: FIC/Q7006
Sector Skill Council: Food Industry Capacity & Skill Initiative (FICSI)

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 center (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% in every NOS
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

Assessable Outcomes	Assessment Criteria	Total Marks	Out Of	Theory	Skills Practical
1. FIC/N7016 (Prepare and maintain work area and equipments for food lab testing)	PC1. Clean and maintain the cleanliness of the work area using approved sanitizers and keep it free from dust, waste, and spillage		25	10	15
	PC2. Ensure that the work area is safe and hygienic for food analysis		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 process such as weighing scales, ph meter, moisture analyser, oven, water bath, sterilizer, sieve shaker,		15	5	10

	refractometer, tds (total dissolved solvents) meter, equipments for testing packaging materials, etc.				
	PC5. Clean the equipments and glass wares used with recommended sanitizers following specifications and organisation standards		15	5	10
	PC6. Attend minor repairs/faults of equipments, if required		5	2	3
	PC7. Organize glass wares and equipments for analysis		15	5	10
		Total	100	35	65
2. FIC/N7017 (Prepare for quality analysis and manage housekeeping for food lab activities)	PC1. Read and understand the instructions from the food lab technician		2	1.5	0.5
	PC2. Read and understand the standard operating procedures (SOP) for calibration of each equipments		2	1.5	0.5
	PC3. Calibrate equipments like weighing scale, measuring jars, ph meter etc on daily basis		5	2	3
	PC4. Record the reading in the calibration register		2	0.5	1.5
	PC5. Handle and maintain tools (dead weights, calibrated measuring jars) and reagent (standard solutions) used for calibration of equipments following laboratory procedures and standards		3	1	2
	PC6. Maintain list of all equipments along with its calibration frequency		2	0.5	1.5
	PC7. Update the lab technician in advance on external calibration dates, follow up with external labs and ensure external calibration of equipments on time		3	1	2
	PC8. Maintain record/file on external calibration reports		2	0.5	1.5
	PC9. Check the working and performance of all equipments on		4	1	3

regular basis
PC10. Report any malfunction/repairs to the lab technician
PC11. Inform the supplier/manufacturer on the malfunction/repairs and get it repaired immediately
PC12. Maintain list of all equipments along with the details of annual maintenance contract
PC13. Follow up with the annual maintenance contractor and ensure maintenance of all equipments
PC14. Record all details on lab equipment like performance, faults, repairs, annual maintenance etc in the equipment register and in ERP
PC15. Read and understand the standard operating procedures for preparing each reagent
PC16. Weigh required chemicals and measure solvents in calibrated instruments and measuring jars
PC17. Mix solvents and chemicals and maintain required conditions following the procedure for preparing the reagents
PC18. Prepare standards solutions for calibration of equipments
PC19. Switch on the water distillation unit and prepare distilled water
PC20. Ensure availability of distilled water and standard solutions all time
PC21. Store the chemicals, solvents, acids, reagents etc following manufacturer's instructions (from the label) or following laboratory procedures and standards

2	1	1
3	1	2
2	0.5	1.5
4	1	3
4	1	3
2	0.5	1.5
4	1	3
5	2	3
5	2	3
4	1	3
2	0.5	1.5
2	0.5	1.5

PC22. Maintain list of all chemicals, solvents, acids, reagents, glass wares, consumables, equipment spares etc used in the laboratory	3	1	2
PC23. Check the inventory of lab chemicals, glass wares, consumables, equipment spares at regular intervals in the register and ERP and update lab technician on the inventory status	3	1	2
PC24. Prepare purchase requisition for lab chemicals, glass wares, consumables, equipment spares with the approval of superiors, and process requisition	3	1	2
PC25. Ensure and maintain inventory of all lab chemicals, glass wares, consumables, equipment spares etc	3	1	2
PC26. Clean the glassware used for analysis with recommended detergents, disinfectants and sanitizers	2	0.5	1.5
PC27. Clean and maintain equipments used following the maintenance procedures for equipments	2	0.5	1.5
PC28. Read and understand the standard operating procedures (SOP) and checklist for housekeeping	2	1.5	0.5
PC29. Visit the warehouses (raw materials, packaging materials, finished goods), process/production area, packaging area, laboratory at regular intervals and perform checks based on the housekeeping checklist	8	2	6
PC30. Inform the food lab technician in case of any deviation	2	1	1
PC31. Understand the suggested corrective action	2	0.5	1.5
PC32. Ensure to implement the corrective action immediately	2	0.5	1.5

	PC33. File the housekeeping checklist		2	1.5	0.5
	PC34. Maintain records on all documents related to the housekeeping activity		2	1.5	0.5
		Total	100	35	65
3. FIC/N7018 (Sampling and quality analysis for food lab activities)	PC1. Read and understand the sampling instructions from the food lab technician		2	0.5	1.5
	PC2. Sample the raw materials (agricultural produce, ingredients, flavors, emulsifiers, preservatives etc) from the delivery truck/warehouse/storage area following SOP		5	2	3
	PC3. Sample the packaging materials (bottle, cap, crown, can, carton, label, pouch etc) from the delivery truck/warehouse/storage area following SOP		5	2	3
	PC4. Sample production samples from the production line/process line based on the frequency followed by the organisation (for analysis and to maintain production control sample)		5	2	3
	PC5. Sample the finished product(s) from the production storage area/warehouse		5	2	3
	PC6. Sample shelf life sample from the shelf life storage room		5	2	3
	PC7. Collect the pre-shipment samples sent by the vendors from purchase/supply chain department		3	1	2
	PC8. Collect samples from effluent treatment plant following procedures and standards of the organisation		3	1	2
	PC9. Collect samples received from the market such as customer/consumer complaint samples, market samples,		3	1	2

competitor sample			
PC10. Label the samples with details like sample name, date and time of sampling, batch/manufacture /expiry details (as applicable)	3	1	2
PC11. Collect all documents pertaining to incoming lab samples like copy of purchase order, invoice, certificate of analysis etc for verification and records	2	0.5	1.5
PC12. Ensure all documents are provided by the supplier as per organisation standards	2	0.5	1.5
PC13. Transfer the samples to food lab and place in the designated area for analysis	2	0.5	1.5
PC14. Verify the certificate of analysis (coa) against organisation standards	3	1.5	1.5
PC15. Record the sample details in the lab register and file the supplier documents	2	1.5	0.5
PC16. File and maintain all documents related to sample along with the test report	2	1.5	0.5
PC17. Transfer the production control sample and shelf life sample to the control sample/shelf-life sample room	2	0.5	1.5
PC18. Record the sample details in production control sample register and shelf-life sample register, and upload in ERP	2	1.5	0.5
PC19. Monitor and maintain the storage conditions (like temperature, humidity, cleanliness etc) of the control sample/ shelf-life sample room	2	1	1
PC20. Dispose the control sample and shelf-life sample after the control period following disposal procedures and as per organisation standards	2	0.5	1.5

	PC21. Read and understand the standard operating procedures (SOP) for analysis of each sample		2	0.5	1.5
	PC22. Carry out analysis in calibrated equipments following standard operating procedure		7	2	5
	PC23. Perform basic tests on physical parameters like colour, appearance, texture, weight, count etc on food and agricultural commodity samples collected		7	2	5
	PC24. Perform basic chemical analysis like moisture content, bulk density, ph, total soluble solids (tss) using refractometer, etc on food and agricultural commodity samples collected		7	2	5
	PC25. Perform tests on packaging material like measuring dimensions of all packaging materials , checking the printed matter and comparing with standard, checking strength of cartons etc for all samples collected		7	2	5
	PC26. Inform the food lab technician of any discrepancies in the analysis result		2	0.5	1.5
	PC27. Record the results in the quality analysis register		2	0.5	1.5
	PC28. Enter the results in the ERP system		2	0.5	1.5
	PC29. Clean the glassware used with recommended detergents, disinfectants and sanitizers		2	0.5	1.5
	PC30. Clean and maintain equipments used, following maintenance procedures for equipments		2	0.5	1.5
		Total	100	35	65
4. FIC/N7019: (Complete documentation and	PC1. Document and maintain records of all raw materials and packaging materials sampled like place of sampling, sampling procedure,		5	2	3

**record keeping
related to performing
food lab activities)**

<p>details of sample such as supplier information, batch number, receiving date/ date of manufacture, expiry date, supplier quality document, supplier documents (p.o., invoice, certificate of analysis, etc.), condition of the transport vehicle, condition of raw material etc., as per company standards</p>			
<p>PC2. Document and maintain records on raw materials and packaging material analysis such as parameters analyzed, method of analysis, storage of sample, equipments used for analysis, analysis results, certificate of analysis, etc. As per company standards</p>	5	3	2
<p>PC3. Maintain record of observations (if any) related to raw materials, packaging materials</p>	4	2	2
<p>PC4. Load the analysis details in ERP for future reference</p>	3	2	1
<p>PC5. Verify the documents and track from finished product to raw materials, in case of quality concerns and during quality management system audits</p>	3	2	1
<p>PC6. Document and maintain records on analysis of production samples such as sampling stage/sampling area (in the process line), sampling methods and sampling condition, date of manufacture, expiry date, parameters analyzed, method of analysis, equipments used for analysis, analysis results, print of graph/chart obtained, certificate of analysis, etc. As per company standards</p>	8	5	3
<p>PC7. Document and maintain records on analysis of finished products such as batch number, sampling methods and sampling condition, date of manufacture, expiry date, label details, parameters analyzed,</p>	8	5	3

method of analysis, storage of sample, equipments used for analysis, analysis results, print of graph/chart obtained, certificate of analysis, etc. As per company standards
PC8. Document and maintain records on analysis of finished products such as batch number, sample storage conditions, methods and sampling condition, date of manufacture, expiry date, label details, parameters analyzed, method of analysis, equipments used for analysis, analysis results, print of graph/chart obtained, certificate of analysis etc, as per company standards
PC9. Document and maintain records on analysis of shelf-life samples for all products such as batch number, sample storage conditions, methods and sampling condition, date of manufacture, expiry date, label details, parameters analyzed, method of analysis, equipments used for analysis, analysis results, print of graph/chart obtained, certificate of analysis, etc, as per company standards
PC10. Maintain record on observations or deviations (if any)
PC11. Load the analysis details in ERP for future reference
PC12. Verify documents and track from finished product to raw materials, in case of quality concerns and for quality management system audits
PC13. Document and maintain records on analysis of market samples such as product name, sampling location (in market), type of outlet, display condition, storage condition, sampling methods and sampling condition, method of

8	5	3
8	5	3
3	2	1
2	1.5	0.5
3	2	1
5	3	2

<p>transfer of sample to lab, physical condition of sample (package and product), date of manufacture, expiry date, parameters analyzed, method of analysis, equipments used for analysis, analysis results, print of graph/chart obtained, final remarks etc, as per company standards</p>			
<p>PC14. Document and maintain records on analysis of competitors sample from market samples such as product name, sampling location (in market), type of outlet, display condition, storage condition, sampling methods and sampling condition, method of transfer of sample to lab, physical condition of sample (package and product), date of manufacture, expiry date, parameters analyzed, method of analysis, equipments used for analysis, analysis results, print of graph/chart obtained, final remarks etc, as per company standards</p>	5	3	2
<p>PC15. Document and maintain records on analysis of complaint sample (customer/consumer complaint) from market such as name of product, nature of complaint, complainant details, complaint location (in market), condition of the pack (opened/sealed), storage condition, sampling methods and sampling condition, method of transfer of sample to lab, physical condition of sample (package and product), date of manufacture, expiry date, parameters analyzed, method of analysis, equipments used for analysis, analysis results, print of graph/chart obtained, final remarks, root cause analysis report, suggested corrective action, corrective action taken, status of complaint (open/close), methods of closing the complaint etc, as per company standards</p>	5	3	2

	PC16. Maintain record on observations or deviations (if any)		2	1.5	0.5
	PC17. Load the analysis details in ERP for future reference		1	0.5	0.5
	PC18. Verify documents and track from finished product to raw materials, in case of quality concerns and for quality management system audits		2	0.5	1.5
	PC19. Document and maintain records on equipments used for analysis, condition of the equipment, control used for analysis, equipment parameter, equipment performance, time taken for analysis, etc. As per company standards		5	3	2
	PC20. Document and maintain records of equipment calibration such as date of calibration, procedure and method used for calibration, errors/variations observed, calibration readings, internal and external calibration reports, reagents/standards/tools used for calibration condition of the equipment, etc. As per company standards		5	3	2
	PC21. Maintain record of observations or deviations (if any)		4	2	2
	PC22. Load the details in ERP for future reference		3	2	1
	PC23. Verify the documents and track from analysis report to equipment used, in case of quality concerns and for quality management system audits		3	2	1
		Total	100	60	40
5. FIC/N7020 (Food safety, hygiene and sanitation for food lab testing)	PC1. Comply with food safety and hygiene procedures followed in the organisation		5	2	3
	PC2. Ensure personal hygiene by use of gloves, hairnets, masks, ear plugs,		6	1	5

goggles, shoes, etc.
PC3. Ensure hygienic production of food by inspecting raw materials, ingredients, finished products, etc. For compliance to physical, chemical and microbiological parameters
PC4. Clean, maintain and monitor food processing equipment periodically, using it only for the specified purpose
PC5. Use safety equipment such as fire extinguisher, first aid kit and eye-wash station when required
PC6. Follow housekeeping practices by having designated area for materials/tools
PC7. Follow industry standards such as GMP and HACCP and product recall process
PC8. Attend training on hazard management to understand types of hazards such as physical, chemical and biological hazards and measures to control and prevent them
PC9. Identify, document and report problems such as rodents and pests to management
PC10. Conduct workplace checklist audits before and after work to ensure safety and hygiene
PC11. Document and maintain raw material, packaging material, process and finished products for the credibility and effectiveness of the food safety control system
PC12. Determine the quality of food using criteria such as odour, appearance, taste and best before date, and take immediate measures to prevent spoilage

5	2	3
5	2	3
10	4	6
5	2	3
10	4	6
10	5	5
5	1	4
5	1	4
4	1	3
10	2	8

PC13. Store raw materials, finished products, allergens separately to prevent cross-contamination		5	2	3
PC14. Label raw materials and finished products and store them in designated storage areas according to safe food practices		5	2	3
PC15. Follow stock rotation based on FEFO/FIFO		10	4	6
	Total	100	35	65

SECTION 2

EVIDENCE OF NEED

What evidence is there that the qualification is needed?

During the industry interactions carried out while creating occupational maps and prioritization of job roles for Qualification Pack development, the mentioned qualification was indicated as a key requirement by the industry. Governing Council of FICSI shared the final approval for the development of the role. The qualification runs parallel across all sub sectors such as Fruits and Vegetables, Dairy Products, Food Grain Milling, Fish and Seafood etc.

In addition, the NSDC Human Resource and Skill Requirement study has indicated Quality Analysis as an extremely critical and important function with enhanced industry focus on compliance and safety. The study also indicates that this domain will be in great demand, due to focus on exports which require highly stringent quality norms.

Field visits to companies across sub sectors such as Cargill (Oilseeds), UB Group (Alcoholic Beverages), Parle (Bread and Bakery), Hind Agro (Meat and Poultry, Coca Cola (Aerated Beverages), Mother Dairy (Dairy Products and Fruits and Vegetables), Mangala Seafood (Fish and Sea Food), etc. clearly indicated that due to increasing focus on quality norms, there is a demand for skilled manpower for this occupation.

Evidence of the qualification is supported by 36 validations with representation from across sub sectors .The complete list of validating companies has been enclosed as an annexure to the Q file.

What is the estimated uptake of this qualification and what is the basis of this estimate?

As per the NSDC Human Resource and Skill Requirement study, the incremental human resource requirement (annual) in Testing and Quality function, in the food processing sector is expected to be 18,56,000 till 2022.

What steps were taken to ensure that the qualification(s) does/do not duplicate already existing or planned qualifications in the NSQF?

The qualification discussed above is checked for any duplication across sectors. Given the qualification is niche to Food Processing sector, there is no duplication or pre-existing similar qualifications.

What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?

The comments, feedback and suggestions were collected through interaction with industry during December '14 to August'15. The same will be compiled and justifiable changes will be incorporated in the next/updated version of the QP. This QP is set to be revised post 15th September, 2016.

Please attach any documents giving further information about any of the topics above.

Give details of the document(s) here:

- List of QP NOS validating companies - Annexure 3
- NSDC Human Resource and Skill Requirement study – Annexure 4

SECTION 3

SUMMARY EVIDENCE OF LEVEL

Level of qualification: Level 4

Summary of Direct Evidence (from learning outcomes):

The job activities are exhaustively studied and their outcomes are evaluated to understand their mapping with the NSQF framework. The same had been reviewed and validated by sector skill council and industry representatives.

Summary of other evidence (if used):

Assistant Lab Technician-Food and Agricultural Commodities – QP FIC/Q 7006					
Process required	Professional Knowledge	Professional Skills	Core Skills	Responsibility	Level
The job holder is expected to calibrate and maintain lab equipments, prepare re agents in order to achieve quality products. This involves working in familiar, predictable, routine, situation of clear choice such as prepare and maintain work area for food lab testing, calibrate equipments on a daily basis, prepare for quality analysis and manage housekeeping for food lab activities, sampling and quality analysis	The job holder is expected to have factual knowledge of field of knowledge or study. For example, the job holder is expected to have knowledge of types of raw materials, packaging materials, types of products produced in the organization, equipments used in the lab, re-agents required for analysis, procedure for analysis of quality parameters, basic food microbiology, methods for	The job holder is expected to carry out routine and repetitive activities in a narrow range of application, using appropriate rule and tool. For instance, the job holder has to sample raw materials, packaging materials, finished products, etc; label samples, collect all documents related to sampling, monitor storage conditions, understand operating procedures for each sample, perform basic tests and	The job holder is expected to communicate with clarity, have basic arithmetic skills and a basic understanding of political and natural environment. For instance, s/he should be able to note the information communicated ,note the readings of process parameters, write information documents to internal departments/ internal teams, read and interpret the process flow chart for products	The job holder is responsible for only own work and learning. S/he is a skilled worker who carries out activities after reading and understanding the instructions from the food lab technician, such as calibration and maintenance of equipments, preparation of re agents, housekeeping, sampling of products for quality analysis, informing the food lab technician in case of any deviations. Hence, this role qualifies	4

for food lab activities, maintain inventory of all lab chemicals. Since it does not involve several choices to be made even in a familiar context, the role does not qualify for Level 5.	maintaining shelf life samples. Since all the above mentioned areas are related to factual knowledge of field of knowledge, the role qualifies for Level 4.	analysis on samples collected. All these activities are mostly repetitive and have a narrow range of application, hence qualifying the role for a Level 4.	produced, effectively communicate with team members and communicate clearly with cross department teams on the issues faced during process. Hence, this role qualifies for Level 4.	for Level 4. It does not comprise of any supervisory activities.	
Level 4	Level 4	Level 4	Level 4	Level 4	Level 4

SECTION 4

EVIDENCE OF RECOGNITION OR PROGRESSION

What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?

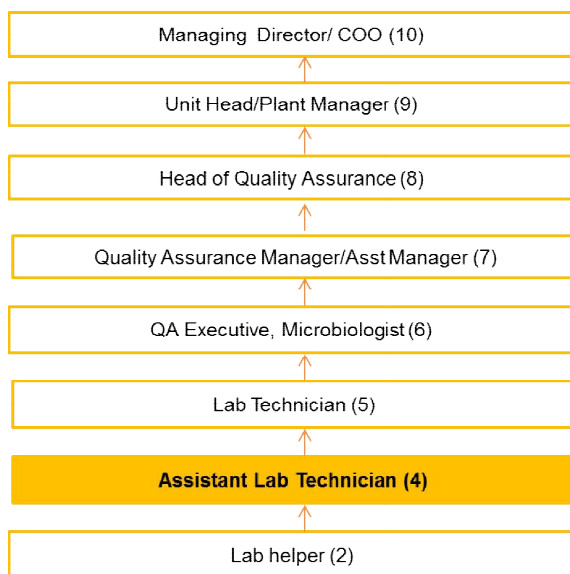
1. Discussing the growth trajectory within each occupation after studying organisational charts of various industry players across small, medium and large scale organizations.
2. Exploring various lateral career opportunities for the discussed qualification
3. Ensuring that there is a clear role up in terms of performance criteria qualification experience and skill requirement from lower NSQF Level to higher levels in the hierarchy.

Please refer to the career path as per Annexure 1 which clearly defines the career path.

Please attach any documents giving further information about any of the topics above.

Give details of the document(s) here:

Annexure 1: Career Map of Assistant Lab Technician-Food and Agricultural Commodities



Annexure 2: Qualification Pack of Assistant Lab Technician-Food and Agricultural Commodities (separate file)

Annexure 3: List of QP/NOS validating companies (separate file)