

CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE

Name and address of submitting body:

Infrastructure Equipment Sector Council
Avik Royale (1st Floor)
No- 6, 50 Feet Main Road,
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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) QP
- 2) MC
- 3) Q file(in the latest format in word file)
- 4) NSQC presentation
- 5) NSQC summary sheet (the last sheet of the QRC summary sheet)
- 6) Industry validation documents(in the format proposed by NSDA)
- 7) Affiliation and Accreditation details
- 8) Detailed report on the employment and training numbers for the job roles submitted
- 9) Line Ministry Approval letter

Model Curriculum to be added which will include the following:

- **Indicative list of tools/equipment to conduct the training**
- **Trainers qualification**
- **Lesson Plan**
- **Distribution of training duration into theory/practical/OJT component**

NSQF QUALIFICATION FILE

Approved in 1st NSQC- NCVET, 11th August 2020

SUMMARY

1	Qualification Title: Transit and Self-Loading Mixer Operator
2	Qualification Code, if any: IES/Q0118
3	NCO code and occupation: NCO-2015/8114.0300
4	Nature and purpose of the qualification (Please specify whether qualification is short term or long term): Nature of Qualification: Qualification Pack. Long Term Purpose of Qualification: To enable candidate to become a Transit and Self-Loading Mixer Operator. This is on industry demand.
5	Body/bodies which will award the qualification: Infrastructure Equipment Sector Council
6	Body which will accredit providers to offer courses leading to the qualification: Infrastructure Equipment Sector Council
7	Whether accreditation/affiliation norms are already in place or not- if applicable (if yes, attach a copy): Yes. This is already an accredited job role. This QP is being revised and updated as per latest requirement.
8	Occupation(s) to which the qualification gives access: Operator Transit and Self-Loading Mixer.
9	Job description of the Occupation: Transit and Self -Loading Mixer operator drives and controls the mixer operations safely and as per schedule. He is responsible for loading the required quantity of aggregates, sand and cement as per the mix design into the drum and discharge the concrete to the desired location at the site after mixing the batched aggregates.
10	Licensing requirements: Must have valid LCV Driving License (LCV) for Transit Mixer Operator HCV License of Self-Loading Mixer Operator.
11	Statutory and Regulatory requirement of the relevant sector (documentary evidence to be provided): Minimum Age -20 years. Experience- Preferably 2 years as in the similar field.
12	Level of the qualification in the NSQF: Level 4
13	Anticipated volume of training/learning required to complete the qualification: 290 hours
14	Indicative list of training tools required to deliver this qualification: PPE: Helmet, gloves, harness, earplugs, goggles, mask, etc. Live transit and self-loading mixer at the nearby project site for practical sessions, tyre pressure gauge, electronic weighing machine, etc.

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15	Entry requirements and/or recommendations and minimum age: 8th Class and preferably with 2 Years of experience in similar field. Minimum age 20 years.		
16	Progression from the qualification (Please show Professional and academic progression): Sr. Transit and Self-Loading mixer operator-> Masteroperator-> Supervisor (Plant & Machinery). Progression will be with experience.		
17	Arrangements for the Recognition of Prior learning (RPL): Presently the industry has a large work force of operators and mechanics who are trained and experienced but not certified as per the NSQF norms. It is proposed to certify them under any of the various models of RPL (Recognition of Prior Learning) program which will go a long way in facilitating their career progression.		
18	International comparability where known (research evidence to be provided): US- Concrete-Mixing-Truck Driver- 900.683-010. The standard is about loading hopper with sand, gravel, cement, and water. Start mixer and, drive the truck, thereafter, unload the hopper.		
19	Date of planned review of the Qualification: 20.03.2022.		
20	Formal structure of the qualification. Mandatory components:		
	Title of component and identification code/NOSs/Learning outcomes.	Estimated size (learning hours)	Level
(i)	Bridge Module Introduction	80	4
(ii)	IES/N0152 Carry out pre-operation checks on transit and self-loading mixer.	28	4
(iii)	IES/N0153 Operate transit and self-loading mixer.	105	4
(iv)	IES/N0154 Perform routine maintenance and troubleshooting of transit and self-loading mixer	49	4
(v)	IES/N7601 Comply with worksite health and safety Guidelines	28	4
	Sub Total (A)	290	
	Optional components		
	Title of component and identification code/NOSs / Learning outcomes	Estimated size (learning hours)	Level
	Employability and Entrepreneurship skills	40	4

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	Sub Total (B)	40	
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	Total (A+B)	330	
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NSQC Approved

SECTION 1

ASSESSMENT

<p>21</p>	<p>Body/Bodies which will carry out assessment: *Confederation of Indian Industries (CII) * Aon Consulting Private Limited</p> <p>Note: IESC is in the process of adding 3 more assessment bodies.</p>
<p>22</p>	<p>How will RPL assessment be managed and who will carry it out? RPL program is designed to assess and certify those personnel with the requisite qualifications and experience. Individuals are screened and assessed, both through theory and practical tests based on the same Assessment Criteria of the approved Qualification Pack. Based on identified skill gaps, candidate undergoes 'bridge training' as applicable. At the end of the short course they are finally assessed and certified.</p>
<p>23</p>	<p>Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF:</p> <p>The emphasis is on 'learning-by-doing' and practical demonstration of skills and knowledge. Assessment papers are developed by Subject Matter Experts (SME) of Assessment Agencies and as per the performance and assessment criteria mentioned in the Qualification Pack. Assessments papers are also checked for various outcome-based parameters such as quality, time taken, precision, tools & equipment requirement, etc. These are audited by IESC officials for consistency and reliability.</p> <p>The assessments are designed with emphasis on hands on work learning process. The technical limitations at the training centres are taken care in theory and viva to assess the conceptual understanding. Criteria such as use of lift to pick heavy objects or selection of fire extinguisher during a fire are also assessed under theory/viva.</p> <p>The assessment agencies are instructed to hire assessors who demonstrate integrity, reliability and fairness. Each assessor must sign a document with assessment agency by that they commit themselves to comply with the rules of confidentiality, conflict of interest, independence from commercial and other interests that would compromise impartiality of assessments. The assessment agencies are instructed to ideally have assessor with minimum 15 years industry experience as an ITI graduate / minimum 10 years' industry experience as diploma engineer and minimum 5 years' industry experience as graduate engineer.</p> <p>The assessors selected by Assessment Agencies are scrutinized and made to undergo training and introduction to IESC Assessment Framework, competency-based assessments, assessors guide etc.</p> <p>The assessors are provided with assessor's guide developed by the Subject Matter Expert of the assessment agency as per the assessment framework. The assessment guides are developed to ensure the maximum possible consistency in the assessment by different assessors and elaborate on the following:</p> <p>*Qualification Pack Structure *Guidance for the assessor to conduct theory, practical and viva assessments</p>

	<p>*Guidance for trainees to be given by assessor before the start of the assessments.</p> <p>*Guidance on assessments process, practical brief with steps of operations practical observation checklist and mark sheet.</p> <p>*Viva guidance for uniformity and consistency across the batch.</p> <p>The assessment by assessment agency will be completely based on the assessment criteria as mentioned in the Qualification Pack. Each NOS in the Qualification Pack (QP) will be assigned a relative weightage for assessment based on the criticality of the NOS- unique (functional)/ common NOS for job roles at the same levels. Therein each Performance Criteria in the NOS will be assigned marks for or practical based on relative importance, criticality of function and training infrastructure.</p> <p>The following tools are proposed to be used for final assessment:</p> <p>Each NOS in the QP will be assigned a relative weightage for assessment based on the functional importance. Further each Performance Criteria in the NOS will be assigned marks based on relative functional importance, which is in turn divided into theory and practical assessment. Of the total marks, practical constitutes 70% and theory 30%.</p> <p><u>Viva/Structured Interview:</u> This tool will be used to assess select conceptual understandings related to practical handling of equipment and procedures with specific tasks at hand; and behavioural aspects of the job role. This will also include questions on tools, equipment, safety and environment related matter.</p> <p><u>Written Test:</u> This will be used to assess conceptual knowledge / understanding and other aspects of the job role which are either not feasible or difficult to assess practically. The written assessment will comprise of: True / False statements, Multiple Choice questions, Matching Type questions.</p> <p>Optical Mark Recognition (OMR)/ Online System for this is preferred.</p>
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Please attach most relevant and recent documents giving further information about assessment and or RPL

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

ASSESSMENT EVIDENCE

Complete a grid for each component as listed in “Formal structure of the qualification” in the Summary.

NOTE: This grid can be replaced by any part of the qualification documentation which shows the same information – i.e. Learning Outcomes to be assessed, assessment criteria and the means of assessment.

Title of Component: Transit and Self-Loading Mixer Operator. QP code IES/Q0118

Outcomes to be assessed/NOSs to be assessed	Assessment criteria for the outcome
<p>1. IES/N0152 Carryout pre – operation checks on transit and self-loading mixer.</p>	<p>PC1. Visually inspect the body for cracks and bearing wears.</p> <p>PC2. Check if tyre inflation pressure corresponds to that prescribed norms of the manufacturer.</p> <p>PC3. Ensure that wheel nuts are firmly tightened as per prescribed norms of the manufacturer.</p> <p>PC4. Check oil levels of engine transmission, radiator coolant and brake.</p> <p>PC5. Check hydraulic oil levels as per the prescribed norms of the manufacturer.</p> <p>PC6. Check water system for leaks and clean water pump filter per the prescribed norms of the manufacturer.</p> <p>PC7. Drain water and sediment from the fuel tank as per operational manual.</p> <p>PC8. Ensure that the mixer drums are clean and free from concrete.</p> <p>PC9. Ensure not to fill the fuel tank while engine is running.</p> <p>PC10. Check battery electrolyte level as per the prescribed norms of the manufacturer.</p> <p>PC11. Check electronic weighing system for any malfunctioning.</p> <p>PC12. Apply grease to all grease nipples as per the prescribed norms of the manufacturer.</p> <p>PC13. Ensure that the area is clear of all personnel and equipment before moving the equipment.</p>

<p>2. IES/N0153 Operate transit and self-loading mixer.</p>	<p>PC14. Ensure driver's seat, steps and handles are always clean and free from any foreign object or grease trails, oil mud and unfastened objects in the cabin.</p> <p>PC15. Ensure proper condition of parking brake, main horn, reverse horn and head light.</p> <p>PC1. Plan and organize the job according to instructions from the supervisor.</p> <p>PC2. Inspect the worksite to identify and loose soil hidden deep trenches or marshy patches where a mixer could get stuck.</p> <p>PC3. Fill water tanks ready for daily use as per organizational standards.</p> <p>PC4. Carry out all inspection and running checks as per organizational standards.</p> <p>PC5. Wear seat belt and adjust seat position to one's comfort.</p> <p>PC6. Start the engine using the starting key.</p> <p>PC7. Ensure parking brake is engaged and electric gear selector is in neutral position before starting the engine.</p> <p>PC8. Select appropriate type of steering mechanism as per the situational requirements.</p> <p>PC9. Load correct proportions of aggregates, cement, water and admixtures as per the production requirements.</p> <p>PC10. Ensure mixer load and operating speed is within specified limits as per the manufacturer's specs.</p> <p>PC11. Adjust the direction of drum rotation for mixing as per requirement.</p> <p>PC12. Adjust the concrete chute to the discharge position.</p> <p>PC13. Discharge concrete to the desired location at site.</p> <p>PC14. Use the emergency stop button to disable all power to the transit mixer in case of a crisis as per operational manual.</p> <p>PC15. Turn off ignition after finishing operations as per the instructions given in the operation manual.</p> <p>PC16. Ensure gear is in neutral position post usage.</p> <p>PC17. Ensure bucket drum and concrete skid is cleaned as per the manufacturer's instruction manual.</p> <p>PC18. Remove attachments after use.</p>
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<p>3. IES/N0154 Perform routine maintenance and troubleshooting of transit and self-loading mixer.</p>	<p>PC19. Ensure that the machine is secured when left unattended.</p> <p>PC20. Maintain a production logbook to record all activities performed.</p> <p>PC21. Report defects precisely to the supervisor if beyond scope of the role.</p> <p>PC1. Assess the right service schedule by tracking machine operating hours.</p> <p>PC2. Read and observe all plates and instructions concerning safety that are attached onto the vehicle.</p> <p>PC3. Clean foot plates, pedals and steps free from mud, dirt, ice and snow at regular intervals.</p> <p>PC4. Check and maintain the tire rims, air pressure, wheel nuts and treads as per manufacturer's indicators.</p> <p>PC5. Replenish coolants, lubricants and fluids everyday as per instructions from the manufacturer.</p> <p>PC6. Grease all greasing pins and pivot points everyday as per instructions from the manufacturer.</p> <p>PC7. Clean and adjust windows mirrors, lights and reflectors daily as per the requirement.</p> <p>PC8. Check battery levels and condition of the terminals.</p> <p>PC9. Adjust alternator belt tension and feed pump while engine is off.</p> <p>PC10. Keep the tools in the appropriate place after use.</p> <p>PC11. Ensure the machine is on firm and level ground before attempting to carry out any maintenance, track machine operating hours to assess the right service schedule.</p> <p>PC12. Turn off the main power from panel completely before carrying out maintenance work.</p> <p>PC13. Ensure that bucket arm is lowered before and maintenance operations.</p> <p>PC14. Lubricate fifth wheel and pinion with grease or equivalent lubrication using a hard bristle brush.</p> <p>PC15. Complete timely and legibly daily/weekly maintenance sheets as provided by the company.</p> <p>PC16. Ensure that no maintenance task on the engine is performed when running or still hot.</p>
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<p>4. IES/N7601 Comply with worksite health and safety guidelines.</p>	<p>PC17. Use appropriate tools while Troubleshooting.</p> <p>PC18. Diagnose the hydraulic problem.</p> <p>PC19. Handle and dispose waste based on environmental guidelines at the workplace.</p> <p>PC20. Follow reporting procedures as laid down by the employer.</p> <p>PC21. Complete all documentation in the prescribed standards in a timely manner.</p> <p>PC22. Report defects precisely to the supervisor if beyond scope of his role.</p> <p>PC1. Comply with safety, health, security and environment related regulations/guidelines at the work site.</p> <p>PC2. Use Personal Protective Equipment (PPE) and other safety gear as applicable to the equipment and the worksite.</p> <p>PC3. Follow safety measures during operations to ensure that the health and safety of self or others (including members of the public) is not at risk.</p> <p>PC4. Carry out operations as per the manufacturer's and worksite related health and safety guidelines.</p> <p>PC5. Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines.</p> <p>PC6. Operate various grades of fire extinguishers, as applicable.</p> <p>PC7. Support in administering basic first aid and report to concerned team members, as required, in case of an accident.</p> <p>PC8. Respond promptly and appropriately to an accident/incident or emergency, within limits of your role and responsibility.</p> <p>PC9. Record and report details related to operations, incidents or accidents, as applicable.</p>
<p>Means of assessment 1</p>	
<p>Means of assessment 2 Add boxes as required.</p>	
<p>Pass/Fail</p>	

NSQF QUALIFICATION FILE

SECTION 2

25. EVIDENCE OF LEVEL.

OPTION A

Title/Name of qualification/component: Transit and self-loading Mixer Operator. Level: 4 Number- IES/QN0118			
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relate to the NSQF level descriptors	NSQF Level
Process	Transit and self-loading Mixer Operator is expected to conduct pre-operation checks on Transit and self-loading Mixer, select the appropriate attachment for the job, drives the transit mixer as per the job and do basic maintenance	The activities identified are the familiar and routine activities for him as these activities are independent of job and worksite he is deployed on. E.g. pre-operational checks, driving, loading and unloading. Considering the outcomes, the job role is pegged at level 4	4
Professional knowledge	Operator is expected to have knowledge of the functioning and operation of Transit and self-loading Mixer Feature/specifications of the various attachment used and knowledge of Transit and self-loading Mixer components, pre-operation checklist and routine maintenance	Considering the in-depth professional and functional knowledge, that a Transit and Self-loading Mixer operator has for mixing operation and maintenance such as grade of materials, components of transit, mixer, basic repairs, etc., this QP is pegged at Level 4.	4
Professional skill	Transit and self-loading Mixer Operator identifies the appropriate attachment for various job like feeding, drum mixing, discharging, material flow, etc. He checks the Transit and self-loading Mixer for operation readiness using pre-operation checklist and conducts the routine maintenance covering lubrication, oil levels, coolant, air filters, motors, tyre, body structure, checks and keep the records as per the operations manual & standard operating procedures.	He is practically engaged in the Transit and self-loading mixing operation and maintenance. The major skills required are driving, inspection, planning, etc. Therefore, the QP is set at level 4.	4
Core skill	Operator is expected to read and understand the various instrument panel, fluid levels and other indicators for pre-operation checks and routine maintenance. He must use appropriate driving speed and follow road safety rules.	Operator must continuously give and receive instructions and guidance from co-workers on-site for starting and stopping the transit mixer hence they are expected to be good in communication skills. Job holder is expected to conduct themselves in ways, which show a basic understanding of working at construction, mining or other sites.	4

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Responsibility	<p>The jobholder is responsible to:</p> <ul style="list-style-type: none"> • Conduct pre-operation checks • Operate and drive transit mixer • Conduct routine maintenance • Comply with worksite health and safety <p>For each work site there can be variations in usage and operation of the Transit Mixer. So, the jobholder based on his own learning and experience, identify appropriate attachment and operation process to maximize the productivity efficiently. He is continuously engaged in the self-learning process and he has the responsibility for own work.</p>	Jobholder is majorly responsible for his own job and self-learning process which justifies the pegging of the QP at level 4 and not solely responsible for learning of others (which is a requirement for Level 5). In his routine activity he is free from supervision (which is a requirement of level 3).	4
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OPTION B

Title/Name of qualification/component: Transit and self-loading Mixer Operator Number: IES/QN0118			Level: 4
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
Process	Transit and self-loading Mixer Operator is expected to conduct pre-operation checks on Transit and self-loading Mixer, select the appropriate attachment for the job, drives the transit mixer as per the job and do basic maintenance.	The activities identified are the familiar and routine activities for him as these activities are independent of job and worksite he is deployed on. E.g. pre-operational checks, driving, loading and unloading. Considering the outcome, the job roles is pegged at level- 4.	4
Professional knowledge	Operator is expected to have knowledge of the functioning and operation of Transit and self-loading Mixer Feature/specifications of the various attachment used and knowledge of Transit and self-loading Mixer components, pre-operation checklist and routine maintenance	Considering the in-depth professional and factual knowledge, which a Transit and self-loading Mixer operator has for mixing operation and maintenance such as grade of materials, components of transit, mixer, basic repairs, etc., this QP is pegged at level- 4.	4
Professional skill	Transit and self-loading Mixer Operator identifies the appropriate attachment for various job like feeding, drum mixing, discharging, material flow, etc. He checks the Transit and self-loading Mixer for operation readiness using pre-operation checklist and conducts the routine maintenance covering lubrication, oil levels, coolant, air filters, motors, tyre, body structure, checks and keep the records as per the operations manual & standard operating procedures.	He is practically engaged in the Transit and self-loading mixing operation and maintenance. The major skills required are driving, inspection, planning, etc. Therefore, the QP is set at level 4.	4

NSQF QUALIFICATION FILE

Core skill	Operator is expected to read and understand the various instrument panel, fluid levels and other indicators for pre-operation checks and routine maintenance. He must use appropriate driving speed and follow road safety rules.	Operator must continuously give and receive instructions and guidance from co-workers on-site for starting and stopping the transit mixer hence they are expected to be good in communication skills. Job holder is expected to conduct themselves in ways, which show a basic understanding of the social and professional environment of working at construction, mining or other sites.	4
Responsibility	The jobholder is responsible to: <ul style="list-style-type: none"> • Conduct pre-operation checks • Operate and drive transit mixer • Conduct routine maintenance • Comply with worksite health and safety For each work site there can be variations in usage and operation of the Transit Mixer. Therefore, the jobholder based on his own learning and experience, identify appropriate attachment and operation process to maximize the productivity efficiently. He is continuously engaged in the self-learning process and he has the responsibility for own work.	Jobholder is majorly responsible for his own job and self-learning process which justifies the pegging of the QP at level 4 and not responsible for learning of others (which is a requirement for Level 5). In his routine activity he is free from supervision (which is a requirement of level 3).	4

SECTION 3

EVIDENCE OF NEED

<p>26</p>	<p>What evidence is there that the qualification is needed?</p> <p>The job role has been formulated based on ‘occupational mapping and functional analysis’ involving manufacturers and customers/ end users of the infrastructure equipment sector products. Further these have been validated by all segments of the industry i.e. small, medium and large customers. The methodology / questionnaire and certificates in support for all have been enclosed. It is an industry demand to keep the QP abreast with the latest equipment features; the same accredited QP is being revised and updated incorporating up-date of the basic equipment</p>
<p>27</p>	<p>What is the estimated uptake of this qualification and what is the basis of this estimate?</p> <p>The Occupational Analysis Report in support of these job roles has considered the industry growth and expected demand over the coming years. These statistics and other details have been covered in depth under the relevant sections of the same.</p> <p>Recommendation from the concerned Line Ministry of the Government/Regulatory Body. To be supported by documentary evidence: Communication attached.</p>
<p>28</p>	<p>What steps were taken to ensure that the qualification(s) does (do) not duplicate already existing or planned qualifications in the NSQF? Give justification for presenting a duplicate qualification</p> <ul style="list-style-type: none"> • NSDC list of Approved and Under-Development QPs was checked prior to commissioning the work • Consultations with Skill Councils for Construction and Mining Sector • NSDC QRC team also confirmed the same • The Qualification is the revision / modification of the existing QP with addition of an attachment on the basic equipment. The QP will now cover the additional attachment (self-loading transit mixer) criteria also along with base version.

NSQF QUALIFICATION FILE

29	<p>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? Specify the review process here</p> <ul style="list-style-type: none">• Employer feedback will be sought post-placement• A formal review is scheduled in two years' time• On industry/ user feedback an internal committee will interact with stake holders prior to proposing the review
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Please attach most relevant and recent documents giving further information about any of the topics above.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

SECTION 4

EVIDENCE OF PROGRESSION

30	<p>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?</p> <p>While designing the national occupational standards, occupational mapping was done on a large sample size and validated across the country. The career progression for roles in each occupation was also analysed and decided, based on industry validation across the country. The current challenges faced by the industry, at large, was also kept in mind. Now the same qualification being modified as per user demand to cover an additional attachment on the base equipment.</p> <p>Show the career map here to reflect the clear progression: Transit Mixer Operator (Level 4*) is modified and replaced as --> Transit and Self-loading Mixer Operator (Level 4) => Senior Transit and Self- Loading Mixer Operator (Level 5) => Master Transit and Self Loading Mixer Operator/ Trainer (Level 6) => Supervisor (Level 7)</p> <p>*Level= NSQF level</p>
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Please attach most relevant and recent documents giving further information about any of the topics above.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.