

CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE

Name and address of submitting body:

Additional Skill Acquisition Programme
A Joint Initiative of Higher Education Department and General
Education Department Government of Kerala
3rd Floor, Trans Towers
Vazhuthacaud,
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695014

Name and contact details of individual dealing with the submission

Name: Dr Veena N Madhavan IAS

Position in the organisation: Chief Executive
Officer, ASAP Address if different from above:
NA

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List of documents submitted in support of the Qualifications File

1. Annexure 1- Affiliation of Skill Training Partners
2. Annexure 2- International Comparability
3. Annexure 3- Model Curriculum
4. Annexure 4- Industry Validation
5. Annexure 5- Job Progression
6. Annexure 6- Internship Plan

Model Curriculum to be added which will include the following:

- **Trainers qualification**
- **Lesson Plan**
- **Distribution of training duration into theory/practical/OJT component**

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1	Qualification Title	Certificate Course in Coding Skills
2	Qualification Code, if any	IT/ASAP/Q009
3	NCO code and occupation	NCO- 2512.0800, Programmer, Engineering and Scientific
4	Nature and purpose of the qualification (Please specify whether qualification is short term or long term)	<ul style="list-style-type: none">• This is a Qualification Pack (QP) containing National Occupational Standards for the course “Certificate Course in Coding Skill ” The proposed course has a syllabus that clearly fills the skill gaps ensuring that the trainee acquire the skills required to meet both the current and future skill demands in their given occupation.• The Curriculum gives special emphasis to the learning coding Skills of the trainee.
5	Body/bodies which will award the qualification	Additional Skill Acquisition Programme, Government of Kerala.
6	Body which will accredit providers to offer courses leading to the qualification	Additional Skill Acquisition Programme, Government of Kerala
7	Whether accreditation/affiliation norms are already in place or not , if applicable (if yes, attach a copy)	Any Vocational Training Provider / PSU / Educational Institution / Industry can seek affiliation/accreditation from Additional Skill Acquisition Programme (ASAP) for delivering vocational training in ASAP Qualifications under NQR. Evaluation of proposals by the interested agencies/institutions will be based on the norms of affiliation fixed for the same which gives importance to the competence in delivering NOS based training by the interested agencies. Final selection of training agencies will be done based on a comprehensive evaluation which also might involve a preliminary audit depending upon risk based assessment. The affiliation/accreditation norms have been included in detail in the document created for the purpose

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		(Annexure 1)								
8	Occupation(s) to which the qualification gives access	Software Engineer/Project Engineer								
9	Job description of the occupation	Individuals at this job are responsible for developing applications and platforms in any language in order to build a robust hack free system. They will be responsible for evaluating the technical performance of algorithmic models on the system on which it is being deployed. They will be responsible for developing, designing, building, testing and deploying programming solutions.								
10	Licensing requirements	NA								
11	Statutory and Regulatory requirement of the relevant sector (documentary evidence to be provided)	NA								
12	Level of the qualification in the NSQF	Level 5								
13	Anticipated volume of training/learning required to complete the qualification	<table border="1"> <tr> <td>Theory classes</td> <td>17.5hours</td> </tr> <tr> <td>Practical Hours</td> <td>102.5 hours</td> </tr> <tr> <td>Internship</td> <td>80hours</td> </tr> <tr> <td>Total</td> <td>200 hours</td> </tr> </table>	Theory classes	17.5hours	Practical Hours	102.5 hours	Internship	80hours	Total	200 hours
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14	Indicative list of training tools required to deliver this qualification	Whiteboard and Markers • LCD Projector and Laptop for presentations • Lab equipped with the following: - • PCs/Laptops • Internet with Wi-Fi (Min 2 Mbps Dedicated) • Chart paper and sketch pens • Latest version of statistical software packages and IDEs • Chart paper, markers.
15	Entry requirements and/or recommendations and minimum age	Students pursuing Engineering Degree and should have completed Five Semesters.
16	Progression from the qualification (Please show Professional and academic progression)	This entry should refer to one or more of the following: - access to other qualifications at the same NSQF level – Not Applicable - access to related qualification(s) at the next NSQF level – Not Applicable
17	Arrangements for the Recognition of Prior learning (RPL)	Candidates applying for RPL will have to remit an application fee. RPL is carried out in three stages: (i) Pre-screening (ii) Assessment (iii) Certification. Initial screening of the candidate based on the application submitted will be done by ASAP. If skill gap is found, a maximum of 40 hours skill training will be provided to candidates prior to attending RPL with a training fee decided by ASAP. Assessment will be carried out by Board of Skill Assessment assigned by Curriculum Committee, ASAP and successful candidates will be awarded certification against the prescribed job role
18	International comparability	International Comparability has been attached as Annexure 2 in detail.
19	Date Of Planned Review Of Qualification	March 2026

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20	Formal Structure of Qualification		
	Mandatory components		
	Title of component and identification code/Nos/Learning Outcome	Estimated size (Learning hours)	Level
	Design Thinking	13 Hrs	5
	Logical Thinking	14 Hrs	5
	Programming	82 Hrs	5
	Community Linking	5 Hrs	5
	Design of Software	6 Hrs	5
	Project Development	80 Hrs	
	Sub Total	200 Hrs.	
	Optional Components		
	Title of component and identification code /NOSs/learning outcomes	Estimated size (Learning hours)	Level
	NIL		
	Sub Total (A+B)	200 Hrs.	5

*Detailed Syllabus with Outcome and Objective attached in Annexure3

*Annexure 4- Industry Validation

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SECTION 1

ASSESSME

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21	<p>Body/Bodies which will carry out assessment: Additional Skill Acquisition Programme empanelled third party which can be either a private party or an independent Board of Skill Assessment of ASAP will be responsible for the conduct of Final Assessment.</p>
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22 How will RPL assessment be managed and who will carry it out?

ASAP will be responsible for conduct of RPL Assessment. Assessors identified by ASAP’s Board of Skill Assessment will be responsible for the conduct of the RPL assessment. RPL theory exam can be conducted at examination hall and practical exam at field. The level of difficulty of question will be more compared to trainees who attend the regular program. The weightage for skill part assessment will be more compared to that of theory part, for the candidates undergoing RPL. A candidate enrolled under RPL is assessed as per the assessment criteria mentioned in the qualification file for the job role. The assessment could include a theory and practical component with a 20:80 weightage respectively. If the candidate clears competency based assessment under the designated Job Role, candidate is awarded Certificate. The candidates eligible for RPL will be oriented about the standardized NSQF framework and will be assessed on the concerned job role.

TABLE 1

TYPE OF ASSESSMENT		WEIGHTAGE	
CONTINUOUS & COMPREHENSIVE EVALUATION	ATTENDANCE	10%	
	STUDENTS INVOLVEMENT	ASSIGNMENT	10%
		INTERNAL EXAM	10%
PRACTICAL/LABWORK/APPRENTICESHIP/HANDS ON EXPERIENCE BY THE INDUSTRY		30%	
SKILL PROFICIENCY TEST BY THE INDUSTRY/ASSESSMENT AGENCY		40%	
TOTAL		100%	

- ATTENDANCE:** Many classes use lectures, discussions, demonstrations, experiments, and student participation as part of the daily learning activities and those who miss these sessions will not be able to compensate for the loss. Regular student participation in daily classroom activities plays a significant role in student’s success. For each course, the student’s attendance will be marked daily and grades will be awarded accordingly.

POINT SCALE	GRADE POINT
Attendance above 90%	10
86 to 90 %	8
80 to 85 %	5
Below 80% (permissible only in the event of condonation)	3

INTERNAL ASSESSMENT & STUDENT INVOLVEMENT:

Assignments: Each Student has the opportunity to complete the assignment according to his/her preferred approach. This might involve reading textbook chapters and assigned reading materials to gain a better understanding prior to completing an assignment or exploring new resources to gain additional information. There shall be no restriction on the resources that the students are allowed to consult or any limit to the number of hours he/she choose to spend on the assignment. Since each student employs his/her own personal learning style, an individual assignment may actually be a fairer measure of the students learning. There are two assignments, one after 25% coverage of the total syllabus and the other after 75% of the total syllabus. Each shall be evaluated and assigned a score. The scores should be marked on the student's assignment sheets by the SDE after evaluation. The scores shall be entered in the student profile twice. The first shall be made on completion of the initial 25% of the syllabus. It will be based on the average score up to that point. The second entry shall be made on completion of 75% of the syllabus. This will be based on the grades awarded for the assignment after the first entry. The average of the two shall be the final score for assignments. Questions for the assignments will be generated from a data bank created for the same. The data bank will have questions which will test the vital portions of the syllabus covered which have a direct bearing in the skill acquisition.

2. **Internal Exam:** there are two internal tests one after completing the 50% of the syllabus and the other after the end of the training course. These test is conducted by the trainer based on the topics covered for the test. Questions are selected at random from the question bank already generated. Of these for each test 50% of the questions are theoretical and in the form of objective type and the rest 50% will be short descriptive questions which will be oriented towards procedure/strategies/ways of doing/ ethics of doing etc., (Process of skill acquisition) The duration of the first test after 50% of the total session is 1 hr. and the second test after completion of the total syllabus is 3hrs. The duration is so fixed to see that coverage of the total learning events. The grades shall be entered in the students profile twice.

The first entry shall be made on completion of the initial 50% of the syllabus and the second entry shall be made on completion of the rest of the syllabus. Total score for internal assessment will be the total of the average grade points secure in the internal tests and assignments.

3. **Board of Skill Assessment:** A Curriculum Committee comprising external academic/industry experts from various sectors meets to discuss and decide upon designing new courses for demanding job roles, revision of curricula, training as well as assessment strategies. The Curriculum Committee will have powers to nominate experts from industry/academia in order to form Sub Committees that will act as Board of Study for the skill courses developed in the concerned sectors for purposes of Content development, content standardization and

assessment. A sub-committee nominated by the Curriculum Committee comprising academic/industry/training experts from the concerned sector of the skill course serves as the Board of Study for that will also handle assessment.

Board of Skill Assessment for Skill Courses is responsible for developing a Question Bank and also the conduct of assessment through assessors. Thus this independent Board of Assessment nominated by the curriculum committee will carry out the third party assessment for each qualification based on general assessment guidelines of ASAP on Outcome based skill training. The respective boards will be entrusted with the responsibility of

- a. Development of question bank/assessment items.
- b. Selection of assessors for conducting assessment in Skill Training Centres.
- c. Monitoring of assessment by the assessors.
- d. Final consolidation of assessment scores for publication by the ASAP Assessment Division.

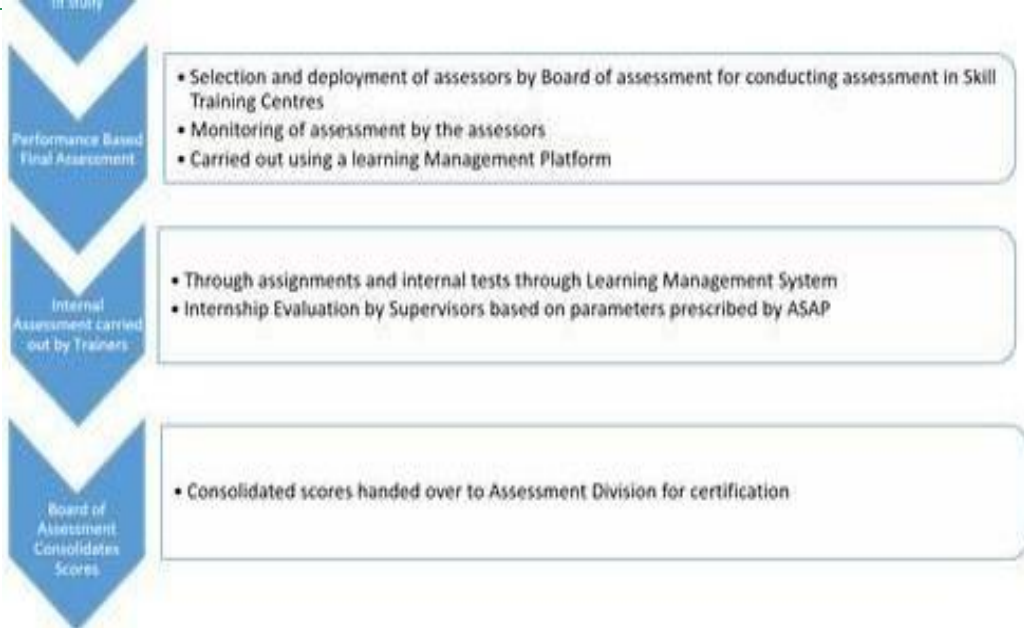
Randomly selected questions from the Question bank developed by the Board will be used for internal assessment. 30% of questions will be replaced with new ones every year and a blue print that elaborates weightage to QP/NOS, degree of difficulty and application type questions will be used for the assessment.

4. **FINAL ASSESSMENT:** Final assessment will be conducted by ASAP empanelled third party (Which can be either a private party or an independent Board of Skill Assessment of ASAP). The questions will be generated randomly from the question bank by the trainer. 40% of the questions are to check trainee's professional knowledge and 50% is to check their professional skills and rest 10% for internship based viva questions.
5. **QUESTION BANK:** A Board of Skill Assessment will develop Question Bank using experts by following prescribed norms. Selected questions will be enlisted in the bank. In case of third party vetting of questions will be done by Board of Skill Assessment. The question bank will have 6 times the requirement of questions for the first year to start with and thereafter 20% questions will be replaced in every year with new ones in each category with the help of experts following the same procedures. The maximum weightage for the test will be 70%.
6. **GENERATION OF QUESTION PAPER:** Each batch will have a unique user id and the trainer will be given access to question bank once for each category of test. They will be given access to the test only at the prescribed hour on the day of assessment. Question paper will be from the question bank at random based on the criteria specified for assessing each competency given in the session assessment evidence. Guidelines will be given to the trainers in terms of evaluation of assignments and internal test.
7. **THE ASSESSMENT PLAN :** Outcome-based assessment to be followed in the skill courses by the Assessment Division will have the following design:
 - I. **Continuous and Comprehensive Skill Assessment (30% Weightage)**
 - Knowledge and application tests carried out at four intervals during a skill course (20 Marks)
 - Attendance and assignments (10Marks)
 - II. **End Assessment – Performance-based (70% Weightage)**
 - Practical test/hands on experience/Skill test in an OJT Centre/SDC – (30 Marks)
 - Skill Proficiency Test (40 Marks)
5. In the End Assessment, knowledge part will be assessed using

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conventional multiple choice questions and skill assessment will be carried out at the venue of training by the assessor identified by Board of Skill Assessment through a performance based assessment. Internship Assessment will be carried out through the internship supervisor at the venue and based on performance criteria. The scores thus obtained by candidates for all the three components after consolidation by the Board of Skill Assessment will be handed over to the Assessment Division of ASAP.

	 <p>6.</p> <p>REDRESSAL OF GRIEVANCES IN ASSESSMENT: Any grievance regarding any of the assessment has to be addressed grievances cell of ASAP. based on the degree grievance ASAP head will choose any one or more of the following</p> <ul style="list-style-type: none"> •Deployment of a quality assurer for third party assessment •Report from the Skill Development Centre Programme Manager •Direct inspection by the concerned officials from ASAP <p>Reassessment</p> <p>The factual details will be submitted to the Chief Executive Officer whose decision will be final.</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>ASAP follows an assessment framework which has got weightage for all the activities in which students get involved during the training program. The components of assessment include Attendance, Internal Assessment and student involvement, Final Assessment. Of these, attendance and internal assessment come under continuous and comprehensive evaluation (CCE). All Assessments with regard to the academic status of the student shall be done in marks and overall assessment will be done in grades. The report card/certificate will state only the overall grade.</p>

Please attach most relevant and recent documents giving further information about assessment and/or RPL.

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

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ASSESSMENT EVIDENCE

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

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

24. Assessment evidences

Title of Component:

Means of assessment1 Internal Assignment and Internal Assessment
Means of assessment 2 Final Assessment
Means of assessment 3 Practical
Means of assessment 4 Viva
Pass/Fail 80-100% - A 60-80% - B 40-60 % - C 20-40% - D Below 20 % - E (Not eligible)

SECTION 2

25. EVIDENCE OF LEVEL

Title/Name of qualification/component: Certificate course in Coding Skills Level: 5			
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
Process	<ul style="list-style-type: none"> • Develop proficiency in computer programming to solve real time problems by utilizing design and logical thinking approaches. • Nurture design thinking approach for problem solving with an orientation towards sustainability. • Ability to understand problems and apply logical thinking practices. • Explore Python programming and its wide scope and develop standard coding practices. • Understand the foundations of database and SQL. • Develop software by following agile methodology and utilizing tools for community linking • Ability to understand industrial level software development through industry interaction and hackathon. 	<p>The individual will learn core aspects in computer programming through practicing design thinking and logical thinking approaches. With the domain knowledge acquired and practical skills of exploring programming language will support individuals to write programs to solve problems. Utilization of agile software development methodology and community support will enable optimal and efficient development of software. Through industrial interaction and hackathon individuals will get an exposure towards real world development of software which will equip them to make clear choice of procedures in familiar and unfamiliar contexts.</p>	5

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Professional knowledge	<ul style="list-style-type: none">● Acquire a comprehensive knowledge about IR 4.0 technologies and opportunities.● Knowledge of basic approaches in design thinking and sustainability.● Understand logical thinking practices towards problem solving● Knowledge of interactive tools for learning programming concepts.● Understand Python programming constructs and coding practices.● Knowledge of open source collaboration platforms and tools● Understanding of Agile software development methodology.	The individual must have knowledge in facts, principles and different constructs in Python programming. Design thinking and logical thinking approach towards teaching programming will enable individuals to learn concepts and principles with ease. Knowledge about IR 4.0 trends together with design thinking approach and coding skills will help individuals to approach problems from varying perspectives.	5
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		Utilisation of community linking tools and agile methodology will improve quality of software developed.	
Professional skill	<ul style="list-style-type: none">• Updating knowledge about trends and opportunities in IR 4.0 technologies.• Orienting towards design thinking and sustainability.• Ability to understand and device solution for a given problem by utilizing practical skills in logical thinking.• Selecting and applying basic Python programming constructs and coding practices to solve the given problem.• Utilizing open source community help for troubleshooting by utilizing online platforms and tools.• Practice and utilize agile software development methodology.	The individual in the role must acquire constructs of Python programming and apply different constructs in varying environments for problem solving. Problem solving skills are induced through design thinking and logical thinking approaches. This knowledge together with systematic development strategies and community support will help in practical problem solving.	5

<p>Core Skill</p>	<ul style="list-style-type: none"> • Utilize design thinking and logical thinking approaches for Problem solving. • Good logical and mathematical Skill. • Understanding of social political and natural environment. • Organization of information, communication and presentation Skill. • Develop software code using python programming language. • Practice agile methodology for Software development. 	<p>The individual must apply his/her software development skills along with a sound understanding of client requirements, technological and regulatory trends. This would enable him/her to build code effectively in line with industry best Practices.</p>	<p>5</p>
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<p>Responsibility</p>	<ul style="list-style-type: none"> ● Getting updated to technological trends in IR 4.0. ● Make decisions on suitable courses of action. ● Apply balanced judgments to different situations. ● Responsibility for output of group and individual development. ● Listen effectively and orally communicate information accurately with attention to details. ● Check your work is complete and free from errors. ● Ask for clarification and advice from open source community. ● Build and maintain positive and effective relationships with clients ● Check that own and/or peers work meets customer requirements ● Plan and organize own work to achieve targets and deadlines. ● Work with colleagues to deliver shared goals. ● Organizing and coordinating Technological events. 	<p>The role demands working in a team to deploy algorithmic models. This may involve helping peers with their work from time to time and providing feedback and advice to help improve the quality of their work. Since this role is likely to have people reporting to it, the individual performing this role is supposed to take responsibility for the output and the development of the entire team.</p>	<p>5</p>
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SECTION 3

EVIDENCE OF NEED

26 **What evidence is there that the qualification is needed? What is the estimated uptake of this qualification and what is the basis of this estimate?**

Need of the qualification:

Coding skills are in demand with the pace of Artificial Intelligence (AI) and machine learning technologies have driven an increase in the number of job roles for software developers.

Coding is often cited now as an essential digital skill and computer code is often the manifestation of a combination of other skills, abilities and knowledge. For instance, successful algorithm design requires information ordering, inductive and deductive reasoning, category flexibility, written expression, complex problem-solving, judgement and many other cognitive skills and abilities.

The world economic forum suggests an increasing demand in the period from 2022 in established roles of Software and Applications Developers. Excellent Coding skill adds a platform for enhancing the skill and cater to the high demand of software developers required in the time span.

http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf.

Machines and algorithms in the workplace are expected to create 133 million new roles, but cause 75 million jobs to be displaced by 2022 according to a new report from the World Economic Forum (WEF) called "The Future of Jobs 2018." The growth of artificial intelligence could create 58 million net new jobs in the next few years adding more emphasis to coding skills in the software industry

<https://www.forbes.com/sites/amitchowdhry/2018/09/18/artificial-intelligence-to-create-58-million-new-jobs-by-2022-says-report/#60728aa24d4b>

27 **Recommendation from the concerned Line Ministry of the Government/Regulatory Body. To be supported by documentary evidences**

Industry recommendation received from the R& D Organisation of the Ministry of Electronics and Information Technology, Government Of India

28	<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> <p>This course is not registered in NQR.</p>
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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. ASAP has a quality management system to monitor all its courses through regular feedback from students, Program Managers and Quality assures. Trainee feedback will be collected at regular intervals starting from the end of 1st to 30th session and there after every 15 sessions. Similar feedback will be collected from Program Managers who manage the courses in Skill Development Centers. These feedbacks are categorized into 3 groups mainly: Acceptable, Requires Improvement and Not Acceptable.</p> <p>Quality assures empanelled by ASAP are people with minimum 5 years' experience and standing in industry. Quality assures are deployed to these places and based on the feedback collected from students and Program Managers on learning outcomes. Corrective actions are suggested by Quality division to Program Managers through Sector heads and Sector Program Managers to effect the required changes.</p> <p>The planned date for review of qualification is 2025 March.</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.

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? Show the career map here to reflect the clear progression.</p> <p>The Career /Occupational Map reflect horizontal and vertical mobility emanating across experience levels.</p> <p>The candidate who successfully completes the course can join as IT industry as Engineer Trainee and with 1 year experience can be confirmed as a Project Engineer .The employee can be promoted to Module lead position with 2 years of experience and finally to a development Manager position with 5 yrs. of experience and excellent appraisal ranking. Job Progression has been attached as Annexure 5</p>
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Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.