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Model Curriculum

QP Name: AR/VR developer

QP Code: MES/Q0509

QP Version: 1.0

NSQF Level: 6

Model Curriculum Version: 1.0

Media & Entertainment Skills Council, 522-524, DLF Tower-A, Jasola, New Delhi - 110025

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Training Parameters

Sector	**Media and Entertainment**
Sub-Sector	**Animation and Gaming**
Occupation	**Game Development**
Country	**India**
NSQF Level	**6**
Aligned to NCO/ISCO/ISIC Code	**NCO-2015/2166.0501**
Minimum Educational Qualification and Experience	**Graduate pass with 2 years of relevant experience** **OR** **Diploma with 4 years of relevant experience** **OR** **12th Pass with 5 years of relevant experience** **OR** **NSQF Level-5 as Technical Artist (ARVR) / Game Artist with one year of relevant experience** **Minimum job entry age 21 years** **For Bachelor Studies: Pursuing Graduation (B. SC.Hons. / Specialization in Virtual / Augmented Reality)**
Pre-Requisite License or Training	**Familiarity with any one High level Programming Language (Scripting language)**
Minimum Job Entry Age	**21 Years**
Last Reviewed On	**05/05/2021**
Next Review Date	**29/12/2025**
NSQC Approval Date	**30/12/2021**
QP Version	**1.0**
Model Curriculum Creation Date	**4/10/2020**
Model Curriculum Valid Up to Date	**29/12/2025**
Model Curriculum Version	**1.0**
Minimum Duration of the Course	**1230 Hours**
Maximum Duration of the Course	**1230 Hours**

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills.

- Describe the concept of 3D technologies
- Describe and Develop VR Applications
- Perform code optimisation routines and use version control on codes
- Comply with workplace health and safety
- Discuss and apply Artificial intelligence & machine learning
- Describe and use Internet of things (IoT)
- Discuss Enterprise blockchain

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
MES/N0516– Perform code optimisation routines and use version control on code NOS Version No.1.0 NSQF Level 6	50:00	100:00			150:00
Code Optimization Routines and Techniques and use of version control	**50:00**	**100:00**			**150:00**
MES/N2513– Artificial intelligence & machine learning NOS Version No.1.0 NSQF Level 6	50:00	100:00			150:00
Apply Python for data science, Artificial intelligence Ethics and Law in data and analysis, Compute vision and image analysis	**50:00**	**100:00**			**150:00**

MES/N2515– Deploy Internet of Things (IoT) NOS Version No.1.0 NSQF Level 6	50:00	100:00			150:00
IoT solutions Customize the remote monitoring solutions Digital transformation with IoT Device management	50:00	100:00			150:00
MES/N2516– Enterprise Block chain NOS Version No.1.0 NSQF Level 6	60:00	120:00			180:00
Foundation of block chain and its application Configuration of Hyperledger fabric	60:00	120:00			180:00
MES/N0104– Maintain workplace health and safety NOS Version No.1.0 NSQF Level 6	30:00	30:30			60:00
Comply with workplace health and safety	30:00	30:30			60:00
Total Duration	240:00	450:00	150:00		840:00

Elective Modules

The table lists the modules and their duration corresponding to the Elective NOS of the QP. Candidates / Students will have to choose at least one option from below mentioned two options.

Option 1: AR Developer

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
MES/N0514– Analyse concepts and characteristics of AR **NOS Version No. NS** **QF Level 6**	**80:00**	**110:00**			**190:00**
Analyse concepts and characteristics of AR	80:00	110:00			190.:00
MES/N0515–Create AR application based on design	**80:00**	**120:00**			**200:00**
Create AR application based on design	80:00	120:00			200.:00
Total Duration	**160:00**	**230:00**			**390:00**

Option 2: VR Developer

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
MES/N0000– Analyse concept of 3D technologies **NOS Version No. 1.0** **NSQF Level 6**	**80:00**	**110:00**			**190:00**
Analyse concept of 3D technologies	80:00	110:00			190.:00
Develop VR application **NOS Version No.1.0** **NSQF Level 6**	**80:00**	**120:00**			**200:00**
Develop VR application	80:00	120:00			200.:00
Total Duration	**160:00**	**230:00**			**390:00**

Module Details

Module 1: Perform code optimization routines and use version control on code

Terminal Outcomes:

- Describe Code Optimization Routines and Techniques
- Explain the Use of Version Control.

Duration: *50:00*	**Duration**: *100:30*
Theory – Key Learning Outcomes **After the successful completion of this module, the Participant will be able to:**	**Practical – Key Learning Outcomes** **After the successful completion of this module, the Participant will be able to:**
• Explain Code Optimization Routines and Techniques. • Explain Object-oriented programming techniques, applications of codes, Software design patterns. • Explain Fixing of codes. • Recall Revise codes. • Describe the operational limitations of version control.	• Perform Applying and fixing codes for various theme and application • Carryout checking and fixing bugs. • Show how to create symbols using codes. • Demonstrate how to use Version Control**,** Identify version control tools. • Show how to handle version control tools. • Demonstrate various optimization techniques: Batching and Pooling.
Classroom Aids:	
Laptop, whiteboard, marker, projector	
Tools, Equipment and Other Requirements	
HP Desktop Computer ,Apple M1 Mac Mini Desktop ,Apple IPad Pro Tab ,Oculus Quest 2 (WIth accessories) - VR HMD ,Television ,Vuforia ,AR SDK ,AR Kit ,ARCore ,Wikitude ,Kudan ,Holo Toolkit,Diary / Notebook ,Pen ,Marker	

Module 2: Artificial intelligence & machine learning

Terminal Outcomes: After the successful completion of this module, the Participant will be able to:

- Explain the application of Python for data science
- Describe and apply Artificial intelligence
- Recall the ethics and Law in data and analysis
- Describe computer vision and image analysis

Duration: *60:00:*	**Duration**: *115:00*
Theory – Key Learning Outcomes After the successful completion of this module, the Participant will be able to:	**Practical – Key Learning Outcomes After the successful completion of this module, the Participant will be able to:**
• Apply Python for data science and explain: Python Basics, Python Lists Functions and Packages, Numpy , Matplotlib , Control flow and Pandas • Describe Artificial intelligence and discuss and apply -Introduction Machine Learning- The Foundation of AI-Text and Speech - Understanding Language Computer Vision - Seeing the World Through AI Bots - Conversation as a Platform • Recall Ethics and Law in data and analysis Recall foundational abilities in applying ethical and legal frameworks for the data profession • Explain Practical approaches to data and analytics problems, including Big Data and Data Science and AI. • Explain Computer vision and image analysis • Explore, manipulate, and analyze images using Python packages for computer vision.	• Demonstrate the application of images using python packages for computer vision • Show how to implement image classification using classical machine learning and deep learning techniques. • Demonstrate the use of data augmentation and transfer learning to create highly-effective convolutional neural networks (CNNs) • Show how to use the classification of images to use object detection and semantic segmentation models. approach to data and analytics problems including big data, data science and AI Demonstrate the technical parameters and operational settings of the version control. • Perform the operations and techniques of the tool. • Demonstrate application of data methods for ethical and legal work in Analytics and AI. • Demonstrate the usage of data augmentation and transfer learning to create highly-effective convolutional neural networks (CNNs) • Demonstrate image classification using classical machine learning and deep learning techniques. • Demonstrate image classification to use object detection and semantic

	segmentation models. ● Show the technical specifications and operational limitations of version control.

Classroom Aids:
Laptop, whiteboard, marker, projector
Tools, Equipment and Other Requirements
HP Desktop Computer ,Apple M1 Mac Mini Desktop ,Apple IPad Pro Tab ,Oculus Quest 2 (WIth accessories) - VR HMD ,Television ,Vuforia ,AR SDK ,AR Kit ,ARCore ,Wikitude ,Kudan ,Holo Toolkit,Diary / Notebook ,Pen ,Marker

Module 3: Deploy Internet of Things (IoT)

Terminal Outcomes: After the successful completion of this module, the Participant will be able to:

- Explain IoT solutions
- Describe Customization of remote monitoring solutions
- Describe Digital transformation with IoT
- Describe Device management

Duration: *60:00*	**Duration**: *150:00*
Theory – Key Learning Outcomes **After the successful completion of this module. The user will be able to:**	**Practical – Key Learning Outcomes** **After the successful completion of this module. The user will be able to:**
• Describe IoT solutions and discuss how to interpret IoT solution for dummies,apply principles to follow for a successful deployment and analyse IoT connectivity and related technologies • Discuss the process of selecting a board for prototyping • Describe the use of digital signage solutions for windows IoT platform • Explain how to run environment locally. • Describe the application of IoT Central, maps and an IoT SaaS solution. • Explain Edge intelligence in a Connected Factory • Discuss how to integrate with visualization tools, analyse Hub device provisioning service • Explain cold path storage and hot path analytics • Explain the examining of automatic device management, use IoT SDKs and developer tools. • Describe Hub device provisioning service	• Perform the hosting of IoT solution accelerator • Show how to scale IoT solution, IoT data and extract insights • Perform the sequencing of IoT Hub primitives and Hub messaging • Perform the hosting of device management with IoT Hub and primitives • perform the examining of automatic device management • Apply IoT SDKs and developer tools • Demonstrate technical parameters and operational settings of the version control. • Perform operations and techniques of the tool. • Perform load test using Device Simulator and configure and monitor IoT devices at scale. • Perform the Customization of the Remote Monitoring solution accelerator • Demonstrate the digital transformation with IoT, host IoT solution accelerator , scale IoT solution, IoT data and extract insights. • Demonstrate the sequence IoT Hub primitives and Hub messaging. • Show how to use IoT Hub and connect MX Chip. • Show how to connect a Pi simulator to IoT Hub, visualize time-series data with Time

	Series Insights.

Classroom Aids:
Laptop, whiteboard, marker, projector
Tools, Equipment and Other Requirements
HP Desktop Computer ,Apple M1 Mac Mini Desktop ,Apple IPad Pro Tab ,Oculus Quest 2 (WIth accessories) - VR HMD ,Television ,Vuforia ,AR SDK ,AR Kit ,ARCore ,Wikitude ,Kudan ,Holo Toolkit,Diary / Notebook ,Pen ,Marker

Module 4: Describe Enterprise Blockchain

Terminal Outcomes: After the successful completion of this module the trainee will be able to:

- Describe the Foundations of BlockChain
- Explain Ethereum
- Explain Hyperledger Fabric

Duration: *50:00*	**Duration**: *100:00*
Theory – Key Learning Outcomes **After the successful completion of this module the participant will be able to:**	**Practical – Key Learning Outcomes** **After the successful completion of this module the trainee will be able to :**
• Describe Foundation of blockchain and its application, Blockchain, Bitcoin and Cryptography, Cryptocurrencies and risks, Consensus algorithms • Describe the Technologies of Blockchain, Programmable Blockchains - Smart Contracts, Decentralized Apps and Types of Blockchain. • Describe Blockchain Synergy with other cutting edge technologies • Explain Business Use cases • Explain Ethereum, Addresses, Keys, Accounts, Wallets, Toolchain Installation, Explain Ethereum. • Explain Embarking Framework, Code walkthroughs - open source projects. • Explain the limitations of current Ethereum release, Future of Ethereum • Describe Security Analysis, Unit testing, IPFS and DApps • HLF Architecture, HLF Runtime Architecture and its Strengths & Advantages, HLF Transaction Flow, HLF governance, Technology Governance • Describe GoLang Primer, Environment Setup, Installation of Hyperledger fabric • Explain the Network, Consensus • Recall the role of System components • Describe Chaincode / Smart Contract, Client Applications, Implementing your HLF Solution	• Design block chain • Design network structure of ethereum • Demonstrate how to set up the private node • Perform HLF runtime • Demonstrate how to install Hyperledger fabric • Show how to configure Hyperledger Fabric • Perform the implementation of Smart Contract / Chaincode • Show how to install and Instantiate chain code • Show how to use Client Application (DApp) • Show how to communicate Transport Layer Security (TLS) • Demonstrate the use of solidity, Remix IDE and Other Tools. • Show how to design a DApp, Popular Token Standards • Show how to design secure upgradable contracts, Design patterns • Show how to Use-Case Introduction • Demonstrate how to Create Hyperledger Fabric Blockchain network. • Install and Instantiate chain code • Deploy Client Application (DApp) • Modify or upgrade Chaincode • Show how to Configure Hyperledger Fabric

	• Demonstrate the process of configuration of hyper ledger fabric.

Classroom Aids:
Laptop, whiteboard, marker, projector
Tools, Equipment and Other Requirements
HP Desktop Computer ,Apple M1 Mac Mini Desktop ,Apple IPad Pro Tab ,Oculus Quest 2 (WIth accessories) - VR HMD ,Television ,Vuforia ,AR SDK ,AR Kit ,ARCore ,Wikitude ,Kudan ,Holo Toolkit,Diary / Notebook ,Pen ,Marker

Module 5: Maintain Workplace Health and Safety

Terminal Outcomes: After the successful completion of this module, the Participant will be able to:

- Discuss the health, safety and security risks prevalent in the workplace and report health and safety issues to the person responsible for health and safety and the resources available.
- Comply with procedures in the event of an emergency
- Discuss the various safety precautions to be taken.

Duration: 23:00	**Duration:** *27:00*
Theory – Key Learning Outcomes **After the successful completion of this module, the Participant will be able to:**	**Practical – Key Learning Outcomes** **After the successful completion of this module, the Participant will be able to:**
• Recall health, safety and security- related guidelines and identify the risks involved. • Maintain correct posture while working and maintain and use the first aid kit whenever required. • report health and safety risks/ hazards to concerned personnel • Recall people responsible for health and safety and able to contact in case of emergency • Illustrate security signals and other safety and emergency signals • Explain the process to identify and report risk. • Enumerate and recommend opportunities for improving health, safety, and security to the designated person • Describe how to report any hazards outside the individual's authority to the relevant person in line with organisational procedures and warn other people who may be affected • complying with procedures in the event of an emergency • Explain the impact of the violation of safety procedures.	• Identify the different types of health and safety hazards in a workplace • Practice safe working practices for own job role • Perform evacuation procedures and other arrangements for handling risks • Perform the reporting of hazard • identify and document potential risks like sitting postures while using the computer, eye fatigue and other hazards in the workplace • Demonstrate the use of Personal Protective Equipment (PPE) appropriately.
Classroom Aids:	
Laptop, whiteboard, marker, projector, Health and Safety Signs and policy	
Tools, Equipment and Other Requirements	
HP Desktop Computer ,Apple M1 Mac Mini Desktop ,Apple IPad Pro Tab ,Oculus Quest 2 (WIth accessories) - VR HMD ,Television ,Vuforia ,AR SDK ,AR Kit ,ARCore ,Wikitude ,Kudan ,Holo Toolkit,Diary / Notebook ,Pen ,Marker	

ELECTIVE 1

Module 6: Analyze concepts and characteristics of Augmented Reality

Terminal Outcomes: After the successful completion of this module, the Participant will be able to:

- Describe the definition of Augmented Reality and History of AR
    - Explain the concept of AR Technologies
- Explain AR Principles and logic implementation

Duration: *80:00*	**Duration**: *110:00*
Theory – Key Learning Outcomes **After the successful completion of this module, the Participant will be able to:**	**Practical – Key Learning Outcomes** **After the successful completion of this module, the Participant will be able to :**
• Describe the history of AR-VR. • Explain the concept of AR Technologies • Recall AR and the Properties of Augmented Reality systems, • Enumerate the technology behind AR, • Describe the challenges in AR design and overview of AR tracking technologies. • Describe AR Principles and logic implementation. • Explain Generic and consistent AR interface – Principles of creating concepts. • Explain how to Read and write Pseudocodes/Algorithms. • Explain the overview of AR design space. • Illustrate the Challenges and opportunities with AR interaction. • Recall Introduction to mobile AR – Advantages and disadvantages of mobile AR – Architecture for mobile AR systems	• Perform creation of flowcharts • Perform the implementation of different gameplay modules • Perform how to read and write Pseudocodes/Algorithms, • Carry out the Debugging of the code to find and fix the bugs related to the project. • Enumerate overlay of the real and digital world – Real-time interaction – Registration and alignment in 3d, Intuitive manipulation and interaction of physical objects intangible AR • Demonstrate Graphical visualization and passive haptic sensation in spatial AR – Real world occlusion in see-through AR, • Perform Various levels of immersion in AR: Non-immersive AR system – Semi-immersive AR system – Immersive AR system • Demonstrate Preparing Hardware for AR: Head-worn display – Computing platform – Complementary displays – Input devices • Conduct Storytelling in AR

Classroom Aids:
Laptop, whiteboard, marker, projector
Tools, Equipment and Other Requirements

HP Desktop Computer ,Apple M1 Mac Mini Desktop ,Apple IPad Pro Tab ,Oculus Quest 2 (WIth accessories) - VR HMD ,Television ,Vuforia ,AR SDK ,AR Kit ,ARCore ,Wikitude ,Kudan ,Holo Toolkit,Diary / Notebook ,Pen ,Marker

Module 7: Create AR application based on design

Terminal Outcomes: After the successful completion of this module, the Participant will be able to:

- Explain how to Design AR Concept
- Describe the Arranging of dataset layers

Duration: *80:00*	**Duration**: *120:00*
Theory – Key Learning Outcomes **After the successful completion of this module, the Participant will be able to:**	**Practical – Key Learning Outcomes** **After the successful completion of this module, the Participant will be able to :**
• Describe how to Design the AR Concept • Discuss the Definition of AR symbols, Themes of real and virtual data, Overview of AR display, image recognition and object recognition and analyse various AR platforms • Explain Tangible AR, spatial AR and see-through AR • Describe the Visualizing the design space and Mobile AR • Explain how to arrange dataset layers • Explain how to Use SDK • Describe how to develop application for each AR platform with their specific SDKs • Explain how to combine layer of thematic data/information sequence the available data • Describe Integration of assets into the application to demonstrate basic features	• Perform the Modelling of game elements with the required parameters and procedures matching the design specification. • Perform the implementation of the User Interface as per Design specification laid out for User and Application information. • Carry out the creation of an AR Application
Classroom Aids:	
Laptop, whiteboard, marker, projector	
Tools, Equipment and Other Requirements	

HP Desktop Computer ,Apple M1 Mac Mini Desktop ,Apple IPad Pro Tab ,Oculus Quest 2 (WIth accessories) - VR HMD ,Television ,Vuforia ,AR SDK ,AR Kit ,ARCore ,Wikitude ,Kudan ,Holo Toolkit,Diary / Notebook ,Pen ,Marker

ELECTIVE 2

MODULE 8: Analyse concept of 3D technologies

Terminal Outcomes: After the successful completion of this module, the Participant will be able to analyses:

- Basic concept of VR Technologies
- Application of Virtual Reality

Duration: **80**:00	**Duration**: *110:00*
Theory – Key Learning Outcomes **After the successful completion of this module, the Participant will be able to:**	**Practical – Key Learning Outcomes** **After the successful completion of this module, the Participant will be able to :**
• Describe the basic concept of VR Technologies • Explain historical and modern overviews and perspectives on virtual reality • Describe the scientific, technical, and engineering aspects of virtual reality systems. • Explain how to evaluate virtual reality from the lens of design. • Apply Virtual Reality • Act as visualization tools • Describe target experience and the interaction of highlights • Implement the experience	• Demonstrate how to apply object-oriented concepts to implement code. • Show how to implement Interaction system and application logic for the Application. • Show how to read and reuse existing code base. • Illustrate the usage of development tools like Game engine and middle ware. • Show how to use version control tools to maintain various versions of the code. • Demonstrate how to present problems in a shared 3D environment that simulate real aspect of the real world. • Show how to use an existing code and its functionalities. • Conduct the measurement of provided requirements and plan for enhancements without breaking existing functionalities. • Show how to enhance the application with modular functionalities.
Classroom Aids:	
Laptop, whiteboard, marker, projector	
Tools, Equipment and Other Requirements	
HP Desktop Computer ,Apple M1 Mac Mini Desktop ,Apple IPad Pro Tab ,Oculus Quest 2 (WIth accessories) - VR HMD ,Television ,Vuforia ,AR SDK ,AR Kit ,ARCore ,Wikitude ,Kudan ,Holo Toolkit,Diary / Notebook ,Pen ,Marker	

MODULE 9: Develop VR application

Terminal Outcomes: After the successful completion of this module, the Participant will be able to:

- Construct VR tool
- Develop VR models

Duration: *80:00*	**Duration**: *120:00*
Theory – Key Learning Outcomes **After the successful completion of this module, the Participant will be able to:**	**Practical – Key Learning Outcomes** **After the successful completion of this module, the Participant will be able to :**
• Explain how to identify, examine, and develop software that reflects fundamental techniques for the design and deployment of VR .experiences. • Describe the working of VR systems. • Define VR catalogue. • Explain image recognition and object recognition • Choose, develop, explain, and defend the use of particular designs for VR experiences. • Evaluate the benefits and drawbacks of specific VR techniques on the human body. • Describe and examine state-of-the-art VR design problems and solutions from the industry and academia.	• Prepare a theme of real and virtual data. • Develop a VR Application in line with specifications. • Create VR/AR experiences that can be viewed on mobile devices and VR headsets. • Create a cross platform VR application. • Show how to work with pre-created images and 3D models to create photorealistic experiences. • Conduct spike testing and rapid proofing of concepts around emerging technologies. • create rapid prototypes of systems in Unity, including asset integration into Unity. • Perform building user interfaces in Unity utilizing diegetic, meta and spatial elements. • Perform integration of assets into the application to demonstrate basic features. • Develop application for each VR platform with their specific SDKs
Classroom Aids:	
Laptop, whiteboard, marker, projector	
Tools, Equipment and Other Requirements	
HP Desktop Computer ,Apple M1 Mac Mini Desktop ,Apple IPad Pro Tab ,Oculus Quest 2 (WIth accessories) - VR HMD ,Television ,Vuforia ,AR SDK ,AR Kit ,ARCore ,Wikitude ,Kudan ,Holo	

Toolkit,Diary / Notebook ,Pen ,Marker

Mandatory Duration: 150:00	**Recommended Duration:** *150:00*
Module Name: On-the-Job Training **Location: On-Site**	
Terminal Outcomes: After the successful completion of On-the-Job Training the participant will be able to acquire the skills to: • Perform code optimisation routines and use version control on codes • Discuss and apply Artificial intelligence & machine learning • Describe and use Internet of things (IoT) • Discuss Enterprise blockchain • Comply with workplace health and safety	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Graduate from any other polytechnic/ reputed institute in the core subject	**AR/VR Developer**	**5**	**Relevant experience required in AR/VR development in the field of Game development.**	**3**	**-**	**-**
OR						
ITI from any other polytechnic/ reputed institute in the core subject	**Relevant trade**	**5**		**3**		
OR						
Diploma from any other polytechnic/ reputed institute in the core subject	**AR/VR Developer**	**5**		**3**		

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "AR/VR Developer" mapped to QP: "MES/Q0509", version 1.0. Minimum accepted score as per SSC guidelines is 80%.	**Recommended that the Trainer is certified for the Job Role: "Trainer", mapped to the Qualification Pack: "MEP/Q2601, v1.0 Trainer" with the scoring of a minimum of 80%.**

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Class XII	**NA**	**5**	**Relevant experience required in AR/VR development in the field of Game development.**	4	**–**	**–**
OR						
Graduation	**AR/VR Developer**	**4**	**Relevant experience required in AR/ VR development in the field of Game development.**	5		

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "AR/VR Developer" mapped to QP: "MES/Q0509", version 1.0. Minimum accepted score as per SSC guidelines is 80%.	**Recommended that the Assessor is certified for the Job Role: "Assessor", mapped to the Qualification Pack: "MEP/Q2701, v1.0 Assessor" with the scoring of a minimum 80%.**

Assessment Strategy

This section includes the processes involved in identifying, gathering and interpreting information to evaluate the learner on the required competencies of the program.

Assessment system Overview:-

Assessment will be carried out by MESC affiliated assessment partners. Based on the results of assessment, MESC certifies the learners. Candidates have to pass online theoretical assessment which is approved by MESC. The assessment will have both theory and practical components in 30:70 ratio. While theory assessment is summative and an online written exam; practical will involve demonstrations of applications and presentations of procedures and other components. Practical assessment will also be summative in nature.

Testing Environment:-

Training partner has to share the batch start date and end date, number of trainees and the job role. Assessment is fixed for a day after the end date of training. It could be next day or later. Assessment will be conducted at the training venue. Question bank of theory and practical will be prepared by assessment agency and approved by MESC. From this set of questions, assessment agency will prepare the question paper. Theory testing will include multiple choice questions, pictorial question, etc. which will test the trainee on theoretical knowledge of the subject. The theory and practical assessments will be carried out on same day. If there are candidates in large number, more assessors and venue will be organized on same day of the assessment.

Assessment			
Assessment Type	Formative or Summative	Strategies	Examples
Theory	Summative	Written Examination	Knowledge of facts related to the job role and functions. Understanding of principles and concepts related to the job role and functions
Practical	Summative	Structured tasks	Presentation
Viva	Summative	Questioning and Probing	Mock interview on topics

Assessment Quality Assurance framework

Only certified assessor can be assigned for conducting assessment. Provision of 100 % video recording with clear audio to be maintained and the same is to be submitted to MESC. The training partner will intimate the time of arrival of the assessor and time of leaving the venue.

Methods of Validation:-

Unless the trainee is registered, the person cannot undergo assessment. To further ensure that the person registered is the person appearing for assessment, id verification will be carried out. Aadhar card number is required of registering the candidate for training. This will form the basis of further verification during the assessment. Assessor conducts the assessment in accordance with the assessment guidelines and question bank as per the job role. The assessor carries tablet with the loaded questions. This tablet is geotagged and so it is monitored to check their arrival and completion of assessment. Video of the practical session is prepared and submitted to MESC. Random spot checks/audit is conducted by MESC assigned persons to check the quality of assessment. Assessment agency will be responsible to put details in SIP. MESC will also validate the data and result received from the assessment agency.

Method of assessment documentation and access

The assessment agency will upload the result of assessment in the portal. The data will not be accessible for change by the assessment agency after the upload. The assessment data will be validated by MESC assessment team. After upload, only MESC can access this data. MESC approves the results within a week and uploads it.