Model Curriculum

MCr Name: Introduction to AI in Logistics

MCr Code:

MCR Version: 1.0

NSQF Level: 3.5

Model Curriculum Version: 1.0

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Training Parameters

Sector	Logistics
Sub-Sector	Generic
Occupation	Generic
Country	India
NSQF Level	3.5
Aligned to NCO/ISCO/ISIC Code	NA
Minimum Educational Qualification and Experience	12th grade pass Or 10th grade pass and pursuing continuous schooling
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	15/03/2024
Next Review Date	15/03/2027
NSQC Approval Date	15/03/2024
MCR Version	1.0
Model Curriculum Creation Date	01/02/2024
Model Curriculum Valid Up to Date	15/03/2027
Model Curriculum Version	1
Minimum Duration of the Course	30 Hrs
Maximum Duration of the Course	30 Hrs

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 will be able to learn about the basics of below Topics:

- Origin & Definition of AI
- How Machines Learn: Three Components of AI
- Trends Accelerating AI
- Challenges & Risks
- Consumer AI
- Enterprise AI
- AI in Retail
- Back Office AI
- AI in Supply Chain and Predictive Logistics
- AI-Powered Customer Experience
- Autonomous Transportation
- Aspects of AI in Logistics
- Technologies widely integrated with AI in Logistics.
- Current Impact of AI in Logistics
- Future of AI in Logistics.

Compulsory Modules

The table lists the modules, their duration and mode of delivery.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
Basics of Artificial Intelligence	**5.3**	**2**			**7.5**
Module 1: Basics of Artificial Intelligence	5.3	2			7.5
AI in Everyday Life	**5.3**	**2**			**7.5**
Module 2: AI in Everyday Life	5.3	2			7.5
Artificial Intelligence in Logistics	**5.3**	**2**			**7.5**
Module 3: Artificial Intelligence in Logistics	5.3	2			7.5
AI Technologies and Aspects in Logistics	**5.3**	**2**			**7.5**
Module 4: AI Technologies and Aspects in Logistics	5.3	2			7.5
Total Duration	**22**	**8**			**30**

Module Details

Module 1: Basics of Artificial Intelligence

Terminal Outcomes:

- Origin & Definition of AI
- How Machines Learn: Three Components of AI
- Trends Accelerating AI
- Challenges & Risks

Duration: 5:30	**Duration: 2:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Define Artificial Intelligence. • Explain the origin and rise of AI with timelines. • Detail AI, machine learning, and deep learning. • Explain how Machines Learn and the three Components of AI. • Detail the trends Accelerating AI • Explain IOT and Big Data • Brief about the challenges & risks associated with usage of AI.	• Get familiar with various AI components in computer. • Perform an exercise on how AI classifies the data by sampling an image. • List down the terminologies and name of applications learned during the day. • Illustrate the 3 stages of AI with examples. • Debate on the possible risks that may arise due to increase in AI technologies.
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Computers with the latest configurations.	

Module 2: AI in Everyday Life

Terminal Outcomes:

- Consumer AI
- Enterprise AI
- AI in Retail

Duration: 5:30	Duration: 2:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain Consumer AI: in Everyday Life • Brief how Ambient Assistance works in devices. • Explain how AI is used to augment core business activities (Enterprise AI) • Describe how AI is Working Smarter & Harder on Behalf of Professionals • Detail how AI enabled Personalized Online Experiences and Self-Learning.	• List down the various devices and wearables integrated with AI seen in everyday Life. • Operate some of the AI associated apps in your smart phone. • List down some of the AI applications used in the fields of Customer Support, input management, Content Discovery, Expert Assist etc.
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Computers with the latest configurations, smartphones.	

Module 3: Artificial Intelligence in Logistics

Terminal Outcomes:

- Back Office AI
- AI in Supply Chain and Predictive Logistics
- AI-Powered Customer Experience
- Autonomous Transportation

Duration: 5:30	**Duration: 2:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain about logistics, its 12 sub sectors and it's activities. • Describe how AI is essential in Logistics. • Elaborate what is Supply chain. • Explain Predictive Logistics and how it's the Next Operational Paradigm. • Explain what RPA is and how it can support back-office processes. • Describe Seeing, Speaking & Thinking AI Logistics Assets. • Explain AI-powered customer Experience with examples like drone-operated last-mile deliveries, etc. • Define Autonomous Transportation and how Deep learning algorithms are integrated with the same.	• Choose a product available in classroom and talk about the logistics involved in it from manufacturing till it came to your hand. • Provide examples with case studies of companies who have become successful by automating their processes with AI. • Play some sample videos of AGVs, Drones operated in inventories/surveillance etc. • Provide an overview of sensing technologies present in today's autonomous vehicles.
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board erase	
Tools, Equipment and Other Requirements	
Computers with the latest configurations and high-speed internet.	

Module 4: AI Technologies and Aspects in Logistics

Terminal Outcomes:

- Aspects of AI in Logistics
- Technologies widely integrated with AI in Logistics.
- Current Impact of AI in Logistics
- Future of AI in Logistics.

Duration: 5:30	Duration: 2:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the major aspects of AI and explain the ones mainly used in Logistics. • Talk about the Technologies integrated with AI and widely used in Indian Logistics. • Brief about the Current Impact of AI in Logistics in terms of automation of processes. • Describe the Future of AI in all the subsectors of Logistics	• Discuss IOT, data analytics, cloud computing, Blockchain, Robotics, and RPA, in what way they are widely integrated with various functions of logistics. • Debate how AI has currently impacted logistics and it's role in the future of logistics. • Perform a brief case study about AI in Logistics.
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Computers with the latest configurations and high-speed internet	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Any Degree		2	Artificial Intelligence			

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for the micro credential: "Introduction to AI in Logistics" mapped to MCr: "LSC/MCr-0001, v1.0". Minimum accepted score is 80%	Recommended that the Trainer is certified for the Job Role: "Trainer (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2601, V2.0". Minimum accepted score is 80%

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Any Degree		2	Artificial Intelligence			

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for the micro credential: "Introduction to AI in Logistics" mapped to MCr: "LSC/MCr-0001, v1.0". Minimum accepted score is 80%	Recommended that the Assessor is certified for the Job Role: "Assessor (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2701, V2.0". Minimum accepted score is 80%

Assessment Strategy

The emphasis is on 'learning-by-doing' and practical demonstration of skills and knowledge based on the performance criteria. Accordingly, assessment criteria for each job role is set and made available in qualification pack.

The assessment papers for both theory and practical would be developed by Subject Matter Experts (SME) hired by Logistics Sector Skill Council or with the LSC accredited Assessment Agency as per the assessment criteria mentioned in the Qualification Pack. The assessments papers would also be checked for the various outcome-based parameters such as quality, time taken, precision, tools & equipment requirement etc.

Each Element/Performance Criteria in the NOS is assigned marks on relative importance, criticality of function and training infrastructure.

The following tools would be used for final assessment:

1. **Practical Assessment:** This comprises of a creation of mock environment in the skill lab which is equipped with all equipment required for the qualification pack. Candidate's soft skills, communication, aptitude, safety consciousness, quality consciousness etc. is ascertained by observation and marked in observation checklist. The outcome is measured against the specified dimensions and standards to gauge the level of their skill achievements.

2. **Viva/Structured Interview:** This tool is used to assess the conceptual understanding and the behavioural aspects with regard to the job role and the specific task at hand. It also includes questions on safety, quality, environment, and equipment etc.

3. **Written Test:** Question paper consisting of MCQs (Hard:25, Medium:50 and Easy: 25) with questions from each element of each NOS.

The written assessment paper is comprised of following types of questions:

i. True / False Statements
ii. Multiple Choice Questions
iii. Matching Type Questions
iv. Fill in the blanks
v. Scenario based Questions
vi. Media based Questions
vii. Identification Questions

References

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do **upon the completion of the training**.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do **upon the completion of a module.** A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
MCr	Micro Credential