For exams January, May and November onwards
For teaching from September 2025 onwards

SPECIFICATION

Learning Resource Network

LRN INTERNATIONAL GCSE

ARTIFICIAL INTELLIGENCE [7923]

Contents

BACKGROUND TO LRN

Learning Resource Network (LRN) is a recognised Awarding Organisation that offers a range of qualifications to candidates, educational institutes, training providers, schools and employers.

LRN is recognised for its high quality qualifications that enable candidates to progress to other areas of study and employment in their designated fields.

In producing its qualifications, LRN uses the experience and expertise of academics, professionals working in the pertinent industries and assessment practitioners with a wealth of best practice and knowledge of validation, verification, delivery and assessment.

MANAGEMENT SYSTEMS

LRN has been awarded international accreditation as part of its quality controls, policies, systems and overall approach to its management systems. These awards are externally validated by the British Assessment Bureau. LRN has achieved accreditation in the form of ISO 9001: Quality Management Systems, ISO 14001: Environment Management Systems and ISO 27001: Information Security Management Systems.

CUSTOMER SERVICE EXCELLENCE

LRN has achieved the prestigious award of Customer Service Excellence. This is in recognition of its customer service practices, approach to managing and dealing with UK and Overseas customer needs, including the diverse needs of its centres.

LRN was the first UK Awarding Organisation to achieve Customer Service Excellence. Following reaccreditation in 2019, LRN received an award for Customer Service Excellence: Compliance Plus, demonstrating that LRN went above and beyond the delivery of its customer service principles.

INTRODUCTION

This specification provides an overview to the LRN International GCSE Artificial Intelligence[1]. This document is suitable for various users, including candidates, centres, administrators, employers, parents/guardians, teachers (and other related staff) and examiners. The specification outlines the key features and administrative procedures required for this international qualification.

OBJECTIVE

The LRN International GCSE Artificial Intelligence is designed to introduce learners to the foundational concepts and applications of Artificial Intelligence (AI). Students will explore both the technical and ethical dimensions of AI systems through a mix of theory, practical tasks, and independent projects.

This qualification introduces learners to the foundational concepts and applications of Artificial Intelligence. It fosters problem-solving, creativity, and critical thinking, equipping learners for further study and careers in technology, data science, and digital innovation.

MODE OF DELIVERY

This qualification has been constructed to be delivered within centres. Centres will need to demonstrate to LRN, through the centre recognition processes, that they have the resources, facilities and competence to deliver. However, centres must be able to demonstrate, in line with LRN's criteria, that they have the means, capability, capacity and resources (including suitably qualified centre staff) to deliver by the method chosen by the centre.

PROGRESSION

The LRN International GCSE Artificial Intelligence has been designed to reflect the wide variation in candidates' origins, levels of education and career aims. Progression opportunities may, therefore, take a variety of paths. Depending on the level of qualification achieved, it may be appropriate for the candidate to progress to:

1. Similar level 2 qualification in Artificial Intelligence;
2. LRN Level 2 Certificate or Diploma in Pre-A Foundation Studies;
3. LRN Level 3 Diploma in Pre-U Foundation Studies;
4. A higher level of any qualification – e.g. A-Level, Diploma
5. Vocationally Related Qualifications

[1] LRN International GCSEs are globally recognised qualifications designed specifically for international candidates and are available outside the United Kingdom. Candidates based in England refer to the Ofqual register.

QUALIFICATION OVERVIEW

PAPER 1:

Number	Subject Content	AO	Exam
1	Foundations of Artificial Intelligence	1 and 3	**Paper 1:** Multiple choice, define/explain key concepts, short structured questions, and extended response question. Duration: 1 hour 45 minutes Weightage: 50%
2	Machine Learning and Data Science	1 and 3	
3	Knowledge Representation and Reasoning	1 and 3	
4	Planning and Autonomous Systems	1 and 3	
5	Ethics, Society and Philosophy of AI	1 and 3	

PAPER 2:

Number	Subject Content	AO	Exam
6	Building and Deploying AI Systems	2 and 4	**Paper 2:** Combined Internal Assessment completed under supervised guided conditions and moderated by the LRN. Weightage: 50%

BREAKDOWN OF ASSESSMENT OBJECTIVES

AO1 – Knowledge and Understanding
Demonstrate knowledge of AI concepts, terminology, tools, and historical context.

AO 2 – Application
Apply AI methods and tools to solve real-world problems in familiar contexts.

AO 3 – Analysis and Evaluation
Analyse the design, effectiveness, and ethical implications of AI systems.

AO 4 – Practical and Project Skills
Design, implement, test, and present AI-related solutions using accessible tools.

ASSESSMENT

The assessment for this qualification consists of a written exam paper (set and marked by the LRN) and a Combined Internal Assessment completed under supervised and guided conditions.

Assessment objectives (AOs)	Weighting	
	Paper 1	Paper 2 (Practical)
AO1	50%	0%
AO2	0%	50%
AO3	50%	0%
AO4	0%	50%

GUIDED LEARNING HOURS

The guided learning hours (GLH) for this qualification are 130. Please note the hours stated are indicative.

ENTRIES CODES

One entry per qualification is sufficient and will cover all the question papers including certification.

PRIVATE CANDIDATES

Centres are advised that private candidates are only to be enrolled with prior agreement and confirmation from LRN.

GRADING

Results are reported, as 9 to 1.

RESULTS

Exam series are in:

- January (results released in March)
- June (results released in August)
- November (results released in January)

RE-TAKES

Whereas candidates can re-take the whole qualification as often as they wish, individual components cannot be re-taken as it is a traditional linear specification.

Please remember, one entry per qualification is sufficient and will cover all the question papers including certification.

CUSTOMER SERVICE STATEMENT

Learning Resource Network (LRN) is committed to ensuring all customers are dealt with promptly and in a professional and helpful manner. In order to guarantee this, we commit to ensuring the following in our day to day interactions with candidates, assessment centres and our stakeholder network:

- All customers will be treated equally and with respect;
- All customer information will only be used in a way which has been agreed in advance, unless we are informed of something that places them or others at risk of harm;
- All customers will be treated by staff in a professional manner.

LRN has arrangements in place to provide a telephone and e-mail helpdesk which will be staffed from 09:00 to 17:00 from Monday to Friday. Furthermore, it will respond to each e-mail, letter or telephone message it receives regarding feedback on its qualifications, centre approvals process or other matters relating to its products and/or services. The timetable for responding is as follows:

- E-mail: 10 working days
- Letter: 10 working days
- Telephone message: 10 working days

DIVERSITY AND EQUALITY

Learning Resource Network (LRN) is committed to ensuring fair and equal access to its qualifications, examinations and support materials. Our Diversity and Equality policy seeks to eliminate unjustifiable discrimination, harassment and/or victimisation and to advance equality of opportunity, thereby ensuring all candidates are treated fairly, in accordance with the protected characteristics of the Equality Act 2010. Specifically, we comply fully with the requirements laid out in the Equality Act 2010. In addition, and within the constraints of this policy, LRN will have due regard for the General data Protection Regulations (GDPR) in the retention of information which is unnecessary.

1	**Foundations of Artificial Intelligence**		
Aim The aim of this unit is to introduce learners to the fundamental concepts of programming, algorithms, and logic that underpin how intelligent systems are designed and operate.			
Learning Outcomes - The learner will		**Assessment Criteria - The learner can**	
1	Be able to apply key programming concepts used in AI.	1.1	Identify common programming concepts such as variables, loops, conditionals, and functions.
		1.2	Describe the purpose of each concept within a basic program.
		1.3	Analyse how programming concepts are used in AI tasks (e.g. decision-making, classification).
		1.4	Apply simple programming concepts to complete AI-related coding activities.
		1.5	Implement modifications to a basic AI program based on a given set of instructions.
		1.6	Explain how specific programming elements contribute to an AI system's function.
		1.7	Use appropriate programming terminology when discussing code.
		1.8	Test a basic program and identify where a concept has been used incorrectly.
2	Be able to identify and apply logical structures and algorithms in simple problem solving exercises.	2.1	Identify common logical structures such as sequence, selection (if/else), and iteration (loops).

		2.2	Apply logical structures to solve basic programming or AI-related problems.
		2.3	Demonstrate simple algorithms such as linear search, sorting, or counting.
		2.4	Construct and complete algorithms to solve defined problems, demonstrating clear and logical step-by-step reasoning.
		2.5	Represent solutions using appropriate formats, such as flowcharts or pseudocode.
		2.6	Explain how a given algorithm works in relation to a specific problem.
		2.7	Detect errors or inefficiencies in a basic algorithm and suggest improvements.
		2.8	Use logical reasoning to trace and verify the steps of a simple algorithm
3	Understand core data types and structures (e.g. lists, graphs).	3.1	Identify core data types such as integers, floats, strings, and Boolean values.
		3.2	Describe the purpose and typical use of each core data type in AI-related tasks.
		3.3	Identify and differentiate between common data structures such as lists, tuples, and dictionaries.
		3.4	Explain how data structures are used to organise and store information in AI systems.
		3.5	Given a defined scenario, explain when and why specific data structures (e.g. lists, graphs) are appropriate for solving the problem.
		3.6	Interpret and manipulate simple data structures using example code or pseudocode.

		3.7	Compare different data types and structures in terms of their function and efficiency.
		3.8	Describe how different data types and structures are used to solve basic problems.

2	**Machine Learning and Data Science**		
Aim The aim of this unit is to develop learners' understanding of how machines learn from data and to provide hands-on experience in training simple models using real-world examples.			
Learning Outcomes - The learner will		**Assessment Criteria - The learner can**	
1	Understand how machines can learn from data.	1.1	Define machine learning as a process of using data to improve performance or make predictions.
		1.2	Describe how data is used to train a machine learning model.
		1.3	Identify the role of input data, features, and labels in the learning process.
		1.4	Explain the difference between training data and test data.
		1.5	Outline the concept of pattern recognition in data sets.
		1.6	Describe the use of algorithms in finding patterns or relationships in data.
		1.7	Describe the role of feedback in improving the accuracy of a machine learning model.
		1.8	Explain real-world applications where machines learn from data, describing how and why machine learning is used (e.g. spam filters, recommendation systems).
2	Be able to prepare and organise small datasets for analysis.	2.1	Identify and collect relevant data from a given source.
		2.2	Format data into a structured layout (e.g. table or spreadsheet).

		2.3	Clean data by detecting and correcting common errors such as missing or duplicate values.
		2.4	Classify data types (e.g. numerical, categorical, text) for appropriate handling.
		2.5	Label columns or fields clearly to aid interpretation.
		2.6	Sort and filter data to highlight relevant patterns or values.
		2.7	Save and organise data in a format suitable for analysis (e.g. CSV, XLSX).
		2.8	Document changes made during the preparation process to ensure traceability and reproducibility.
3	Be able to apply learning techniques using a variety of applications	3.1	Select appropriate machine learning techniques for specific types of problems (e.g., classification, clustering).
		3.2	Use guided tools or software (e.g., Teachable Machine, Scratch AI, or beginner Python libraries) to apply learning algorithms.
		3.3	Train a simple model using labelled data.
		3.4	Test the model using new data and interpret the results.
		3.5	Compare different applications or tools used to apply machine learning techniques.
		3.6	Adjust inputs or parameters to improve performance or accuracy.
		3.7	Present results clearly using charts, tables, or annotated outputs.
		3.8	Reflect on the suitability of the learning technique for the chosen application.

3	**Knowledge Representation and Reasoning**		
Aim The aim of this unit is to explore how knowledge can be structured and used in AI systems to make logical decisions, using rules, decision trees, and visual tools.			
Learning Outcomes - The learner will		**Assessment Criteria - The learner can**	
1	Be able to use simple rule-based systems to represent decisions.	1.1	Define what a rule-based system is and explain its role in AI decision-making.
		1.2	Identify components of a rule-based system, including rules, conditions, and actions.
		1.3	Construct simple IF–THEN rules to represent decision logic.
		1.4	Represent decision processes using rule-based structures such as decision trees or logic tables.
		1.5	Apply rule-based reasoning to solve basic problems or simulate decision-making.
		1.6	Construct logical rule sets and explain how their structure ensures consistent outcomes.
		1.7	Test a simple rule-based system and explain how the outputs relate to the input rules.
		1.8	Analyse the limitations of rule-based systems in managing uncertainty or complex data inputs.
2	Be able to create visual representations of structured data.	2.1	Explain how the choice of visual format enhances the clarity and interpretation of structured data.
		2.2	Use digital tools to produce accurate and meaningful visual representations that support interpretation of datasets.

		2.3	Label graphs and charts clearly, including axes, titles, and legends where appropriate.
		2.4	Organise data to support clarity and ease of interpretation in the chosen visual format.
		2.5	Apply formatting to improve readability (e.g. colour, scale, sorting).
		2.6	Interpret and explain the meaning of trends or patterns shown in the visual data.
		2.7	Compare different visualisations to evaluate which best represents the data.
		2.8	Identify any limitations or potential misrepresentations in a given visual output.
3	Understand how computers use logic to make decisions.	3.1	Define logic in the context of computing and artificial intelligence.
		3.2	Describe how logical operations (AND, OR, NOT) are used to evaluate conditions.
		3.3	Explain how decision-making is guided by evaluating true or false conditions.
		3.4	Identify the role of conditional statements (e.g. IF–THEN–ELSE) in automated reasoning.
		3.5	Interpret logic tables or truth tables to determine outcomes of logical expressions.
		3.6	Describe how multiple conditions can be combined to influence decision-making.
		3.7	Explain how logic is applied in real-world AI systems, using a minimum of three relevant examples.

		3.8	Explain why accuracy and clarity in logical rules are essential for reliable decision-making.

4	Planning and Autonomous Systems		
Aim The aim of this unit is to introduce learners to intelligent agents and autonomous systems, helping them understand how planning and conditional logic guide behaviour in AI environments.			
Learning Outcomes - The learner will		**Assessment Criteria - The learner can**	
1	Be able to apply how AI systems plan certain actions and how they respond within given environments.	1.1	Identify the steps AI systems take to generate a plan based on goals and available actions.
		1.2	Construct a plan using a structured format (e.g. flowchart, pseudocode, decision tree) that clearly and logically communicates the sequence of steps.
		1.3	Apply conditional logic to guide actions based on environmental inputs.
		1.4	Design a basic plan for an AI system to follow in a defined scenario.
		1.5	Explain how changes in the environment may alter or interrupt the planned sequence.
		1.6	Adjust a plan in response to new information or unexpected outcomes.
		1.7	Demonstrate how sensors or input data influence decision-making in autonomous systems.
		1.8	Evaluate how effectively a planned set of actions achieves the intended goal within the given environment.
2	Be able to create simple autonomous routines (e.g. for a virtual robot or agent).	2.1	Design a routine that allows an agent or virtual robot to operate without direct human input.
		2.2	Define clear goals and actions required for the routine.

		2.3	Use control structures such as loops and conditional statements accurately and effectively to guide autonomous behaviour.
		2.4	Incorporate environmental inputs (e.g. sensor data or user interaction) into the routine.
		2.5	Construct the routine using code, pseudocode, or block-based programming tools, demonstrating clear and correct logic.
		2.6	Test the routine to check whether the agent behaves as intended in a simulated environment.
		2.7	Identify and correct errors in logic, sequencing, or response handling.
		2.8	Evaluate the effectiveness and limitations of the routine in achieving the desired outcome
3	Understand how logic and conditions affect automated decisions.	3.1	Identify basic logical operators (e.g. AND, OR, NOT) used in automated decision-making.
		3.2	Describe how conditions are evaluated as true or false in automated systems.
		3.3	Analyse how combining multiple conditions affects decision outcomes.
		3.4	Interpret simple decision rules expressed with logic statements or flowcharts.
		3.5	Explain how automated systems choose actions based on specific conditions.
		3.6	Provide a minimum of three examples of real-world systems where logic affects automated decisions (e.g. traffic lights, thermostats).
		3.7	Identify outcomes when logic conditions are changed or incorrectly applied.
		3.8	Distinguish between correct and incorrect logical reasoning in simple automation scenarios.

5	Ethics, Society and Philosophy of AI		
Aim The aim of this unit is to enable learners to examine the ethical, legal, and societal impacts of artificial intelligence and robotics, and to reflect on philosophical questions around AI's future.			
Learning Outcomes - The learner will		**Assessment Criteria - The learner can**	
1	Understand the ethical issues in the use of AI applications.	1.1	Identify key ethical concerns in AI, such as privacy, bias, discrimination, and transparency.
		1.2	Describe how AI decisions can affect individuals or groups unfairly.
		1.3	Explain the risks of using personal data in AI systems without informed consent.
		1.4	Evaluate the ethical implications of surveillance, facial recognition, and predictive policing.
		1.5	Discuss the potential for AI to reinforce stereotypes or systemic inequality.
		1.6	Describe four real-world cases where ethical concerns in AI have been raised, explaining the nature of each concern.
		1.7	Outline the responsibilities of developers, companies, and users in ensuring ethical AI use.
		1.8	Describe the importance of accountability and explainability in AI decision-making.
2	Understand the social and personal impact of AI systems.	2.1	Identify areas of society affected by AI, such as employment, healthcare, education, and communication.
		2.2	Describe how AI can improve personal convenience and access to services.

		2.3	Explain how AI may contribute to job displacement and changes in the workforce.
		2.4	Analyse how AI systems can influence personal choices (e.g. through recommendation algorithms).
		2.5	Discuss the impact of AI on privacy, personal data, and digital autonomy.
		2.6	Explore how AI may shape human behaviour, relationships, and mental well-being.
		2.7	Describe two positive and two negative effects of AI at both the individual and societal levels, explaining their impact.
		2.8	Reflect on how different groups may be affected unequally by AI technologies.
3	Understand and present different opinions on the risks of AI.	3.1	Identify a range of perceived risks associated with AI, including bias, privacy loss, job displacement, misuse, and loss of control.
		3.2	Describe differing viewpoints on how serious or likely each risk may be.
		3.3	Present arguments from multiple perspectives, such as developers, users, regulators, or the general public.
		3.4	Compare optimistic and cautious views on the future of AI development.
		3.5	Support opinions with examples, evidence, or reference to real-world cases.
		3.6	Communicate views clearly in written or spoken form, using appropriate terminology.
		3.7	Acknowledge uncertainty or disagreement in public and expert debates on AI risks.

		3.8	Reflect on personal views while demonstrating respect for differing opinions.

6	**Building and Deploying AI Systems**		
Aim The aim of this unit is to give learners the opportunity to design, build, and share a working AI-based solution using accessible tools, while developing collaboration, documentation, and presentation skills.			
Learning Outcomes - The learner will		**Assessment Criteria - The learner can**	
1	Understand how AI systems are built, tested, and shared.	1.1	Identify the main stages in building an AI system, including defining the problem, selecting data, choosing a model, and training it.
		1.2	Describe the process of testing an AI model to assess its accuracy and effectiveness.
		1.3	Explain the role of performance metrics such as accuracy, loss, or precision in evaluating models.
		1.4	Explain the importance of using test data separate from training data when evaluating AI models.
		1.5	Describe how AI systems can be deployed, including through web applications, APIs, or cloud-based platforms.
		1.6	Identify factors to consider when sharing AI systems, such as usability, security, and accessibility.
		1.7	Explain the need for documentation and version control when developing and sharing AI systems.
		1.8	Compare four tools or platforms used for building, testing, and sharing AI projects, highlighting their strengths and limitations.
2	Be able to build, test and share an AI system.	2.1	Describe the intended purpose of the AI system and the context in which it will be used.

		2.2	Collect raw data relevant to the AI task.
		2.3	Select appropriate subsets of data to train the AI model.
		2.4	Prepare and format the data for training, ensuring it is structured and clean.
		2.5	Build a simple AI model using an appropriate tool or platform, ensuring logical structure, suitable training data, and basic functionality.
		2.6	Test the model using separate data and record performance outcomes.
		2.7	Evaluate the system's effectiveness based on test results and intended goals.
		2.8	Analyse the model's output and apply targeted refinements to improve performance.
		2.9	Deploy the completed AI system on an accessible platform or medium (e.g., web app, presentation, digital tool), ensuring clear communication and ease of access for users.
		2.10	Provide clear and concise documentation of how the system works and how it should be used, suitable for the intended user.
3	Be able to use web-based tools or platforms to build a functional AI model that performs a defined task with demonstrable input-processing-output capability.	3.1	Select an appropriate web-based tool or platform for building a machine learning model (e.g. Teachable Machine, Scratch with AI extension, Google Colab).
		3.2	Import or upload relevant data to the platform in a supported format.
		3.3	Train a basic model using the platform's features (e.g. image, audio, or text classification).
		3.4	Test the model with new inputs, observe and evaluate the outputs to determine if the model performs as intended.

		3.5	Interpret the results to determine whether the model is functioning as intended.
		3.6	Make adjustments to the model or dataset to improve its performance.
		3.7	Save and export or publish the working model using the platform's tools.
		3.8	Explain how the model was built and describe the purpose for which it was designed.
4	Be able to collaborate and document work effectively in a project format.	4.1	Contribute ideas and tasks as part of a team working on an AI project.
		4.2	Communicate clearly and respectfully with peers during collaborative activities.
		4.3	Use appropriate tools or platforms to share files, code, or progress updates (e.g. shared documents, version control, online folders).
		4.4	Record project steps, decisions, and changes in an organised format (e.g. logs, journals, or progress trackers).
		4.5	Produce clear documentation outlining the project's purpose, process, outcomes, and any challenges encountered.
		4.6	Attribute roles and responsibilities fairly across the team.
		4.7	Reflect on group performance and individual contributions.
		4.8	Present the final project in a format suitable for review or assessment.