

LAPT

LONDON ACADEMY OF PROFESSIONAL TRAINING

CERTIFICATE

ISO 13818 — MPEG-2 Coding of Moving Pictures

ISO Certification Programme



LAPT — London Academy of Professional Training

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Reference IIT-AVS-13818 • ISO IT & Related Technologies

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AT A GLANCE

REFERENCE	IIT-AVS-13818
AWARD	Certificate
ASSESSMENT	430 marks — 258 to pass (60%)
PREREQUISITES	None
VALIDITY	Lifetime
AWARDING BODY	LAPT — London Academy of Professional Training

CURRICULUM

1 Advanced Encoding Techniques 5 chapters · 30 classes105 marks	
• 1 Fundamentals of MPEG-2 Encoding — 6 classes › 1.1 Explore the History and Evolution of MPEG Standards › 1.2 Analyze the Key Components of MPEG-2 Encoding › 1.3 Demonstrate the Encoding Process: From Source to MPEG-2 Stream › 1.4 Evaluate Compression Techniques Used in MPEG-2 › 1.5 Compare MPEG-2 with Other Video Coding Standards › 1.6 Apply Advanced Encoding Techniques to Optimize MPEG-2 Output • 2 Advanced Video Compression Techniques — 6 classes › 2.1 Explore the Fundamentals of MPEG-2 Compression › 2.2 Analyze the Key Parameters of Video Bitrate Control › 2.3 Implement Advanced Encoding Techniques: Quantization and Encoding › 2.4 Evaluate the Impact of Frame Types on Compression Efficiency › 2.5 Compare Techniques: MPEG-2 vs. Other Video Compression Standards › 2.6 Create a Real-Time Encoding Project Utilizing MPEG-2 Techniques • 3 Audio Encoding Strategies in MPEG-2 — 6 classes › 3.1 Explore the Fundamentals of MPEG-2 Audio Encoding › 3.2 Analyze Bit Rates and Compression Techniques in MPEG-2 › 3.3 Examine Audio Formats Supported by MPEG-2 › 3.4 Apply Psychoacoustic Models for Efficient Audio Encoding › 3.5 Implement Error Resilience Strategies in Audio Streams › 3.6 Evaluate Real-World Applications of MPEG-2 Audio Encoding	• 4 Error Resilience and Data Recovery in MPEG-2 Streams — 6 classes › 4.1 Identify Common Error Types in MPEG-2 Streams › 4.2 Analyze the Impact of Errors on Video Quality › 4.3 Explore MPEG-2 Error Resilience Techniques › 4.4 Implement Forward Error Correction (FEC) in Encoding › 4.5 Test Data Recovery Methods in MPEG-2 Streams › 4.6 Evaluate the Effectiveness of Error Resilience Strategies • 5 Practical Applications and Case Studies of MPEG-2 — 6 classes › 5.1 Analyze Historical Case Studies of MPEG-2 Implementations › 5.2 Evaluate the Impact of MPEG-2 on Digital Broadcasting › 5.3 Demonstrate Efficient Encoding Techniques in MPEG-2 › 5.4 Compare MPEG-2 with Modern Compression Standards › 5.5 Identify Challenges and Limitations of MPEG-2 in Current Use › 5.6 Propose Innovative Applications of MPEG-2 in Emerging Technologies
2 Case Studies in MPEG-2 Applications 5 chapters · 6 classes85 marks	
• 1 Fundamentals of MPEG-2 Coding and Its Development — 6 classes › 1.1 Explore the History of MPEG-2 Development › 1.2 Understand the Technical Principles of MPEG-2 Coding › 1.3 Identify Key Components in MPEG-2 Video Compression › 1.4 Analyze the Role of Bitstreams in MPEG-2 Encoding › 1.5 Evaluate Real-World Applications of MPEG-2 in Media › 1.6 Discuss Future Trends and Innovations in MPEG-2 Technology • 2 Understanding MPEG-2 Compression Techniques • 3 Examining MPEG-2 in Broadcast and Streaming Media	• 4 MPEG-2 Implementation in DVD and Blu-ray Technologies • 5 Future Trends and Emerging Applications of MPEG-2

• 1 Fundamentals of Digital Video Representation — 6 classes

- › 1.1 Understand the Basics of Digital Video Representation
- › 1.2 Explore the Structure of MPEG-2 Video Streams
- › 1.3 Analyze Frame Types in MPEG-2 Coding
- › 1.4 Examine Compression Techniques in MPEG-2
- › 1.5 Identify Applications of MPEG-2 in Multimedia
- › 1.6 Implement MPEG-2 Coding in a Simple Video Project

• 2 MPEG-2 Encoding Techniques — 6 classes

- › 2.1 Analyze the Fundamentals of MPEG-2 Encoding Techniques
- › 2.2 Define Key Terms and Concepts in MPEG-2 Coding
- › 2.3 Explore the Role of Compression in MPEG-2 Encoding
- › 2.4 Demonstrate the Process of Bit Rate Control in MPEG-2
- › 2.5 Compare MPEG-2 with Alternative Video Coding Standards
- › 2.6 Apply MPEG-2 Encoding Techniques in Real-World Scenarios

• 3 Motion Compensation and Predictive Coding — 6 classes

- › 3.1 Explore the Fundamentals of Motion Compensation
- › 3.2 Analyze the Role of Predictive Coding in MPEG-2
- › 3.3 Examine the Types of Motion Vectors in Video Coding
- › 3.4 Implement Motion Compensation Techniques in Coding
- › 3.5 Evaluate the Efficiency of Predictive Coding Models
- › 3.6 Apply Motion Compensation in Real-World Video Scenarios

• 4 Transport Stream and Multiplexing in MPEG-2 — 6 classes

- › 4.1 Define Transport Stream in MPEG-2 Context
- › 4.2 Explore the Structure of MPEG-2 Transport Streams
- › 4.3 Identify Multiplexing Techniques Used in MPEG-2
- › 4.4 Analyze the Role of PID in MPEG-2 Transport Streams
- › 4.5 Demonstrate Creating a Simple MPEG-2 Transport Stream
- › 4.6 Evaluate Real-World Applications of MPEG-2 Multiplexing

• 5 Advanced Error Resilience and Quality Control — 6 classes

- › 5.1 Analyze the Fundamentals of Error Resilience in MPEG-2
- › 5.2 Explore Techniques for Error Detection in Moving Pictures
- › 5.3 Implement Advanced Error Correction Strategies for MPEG-2
- › 5.4 Evaluate the Impact of Bit Rate on Quality Control
- › 5.5 Apply Quality Measurement Techniques in MPEG-2 Coding
- › 5.6 Design a Quality Control Plan for MPEG-2 Video Streams

• 1 Fundamentals of Project Management in Audio-Visual Technologies — 6 classes

- › 1.1 Define Key Concepts in Project Management for Audio-Visual Industries
- › 1.2 Identify the Stages of Project Management Life Cycle in AV Projects
- › 1.3 Explore Roles and Responsibilities of a Project Manager in AV Technologies
- › 1.4 Analyze Stakeholder Engagement Strategies in Audio-Visual Projects
- › 1.5 Develop Effective Communication Plans for AV Project Teams
- › 1.6 Evaluate Project Management Tools and Software for Audio-Visual Technology

• 2 Stakeholder Engagement and Communication Strategies — 6 classes

- › 2.1 Identify Key Stakeholders in Audio-Visual Projects
- › 2.2 Analyze Stakeholder Interests and Influence
- › 2.3 Develop Effective Communication Strategies for Stakeholders
- › 2.4 Create a Stakeholder Engagement Plan
- › 2.5 Implement and Monitor Stakeholder Communication
- › 2.6 Evaluate the Impact of Stakeholder Engagement on Project Outcomes

• 3 Planning and Risk Management for Audio-Visual Projects — 6 classes

- › 3.1 Identify Key Components of a Project Plan for Audio-Visual Production
- › 3.2 Assess Risks and Challenges Associated with Audio-Visual Projects
- › 3.3 Develop Strategies for Mitigating Risks in Audio-Visual Projects
- › 3.4 Create a Contingency Plan for Common Audio-Visual Project Risks
- › 3.5 Evaluate the Impact of External Factors on Project Planning
- › 3.6 Implement Project Management Tools to Enhance Audio-Visual Project Outcomes

• 4 Resource Management in Audio-Visual Production — 6 classes

- › 4.1 Assess Resource Needs for Audio-Visual Projects
- › 4.2 Identify Key Stakeholders in Resource Management
- › 4.3 Develop a Resource Allocation Plan for Productions
- › 4.4 Monitor Resource Utilization During Production
- › 4.5 Evaluate Resource Efficiency Post-Production
- › 4.6 Implement Strategies for Resource Optimization

• 5 Evaluating Project Success and Continuous Improvement — 6 classes

- › 5.1 Define Success Criteria for Audio-Visual Projects
- › 5.2 Apply Evaluation Techniques for Project Outcomes
- › 5.3 Analyze Stakeholder Feedback Mechanisms
- › 5.4 Conduct Root Cause Analysis for Project Challenges
- › 5.5 Implement Continuous Improvement Strategies in Project Management
- › 5.6 Present Lessons Learned to Enhance Future Projects

• 1 Understanding MPEG-2 Standards and Quality Metrics — 6 classes

- › 1.1 Define MPEG-2 Standards and Their Importance in Media
- › 1.2 Identify Key Components and Functions of MPEG-2 Coding
- › 1.3 Explain the Role of Quality Metrics in MPEG-2 Evaluation
- › 1.4 Analyze Different Types of Quality Metrics Used in MPEG-2
- › 1.5 Assess the Impact of MPEG-2 Quality Metrics on User Experience
- › 1.6 Apply Quality Assurance Techniques to Evaluate MPEG-2 Outputs

• 2 Quality Assurance Processes in MPEG-2 Implementation — 6 classes

- › 2.1 Identify Key Quality Assurance Principles in MPEG-2
- › 2.2 Analyze Quality Metrics Relevant to MPEG-2 Implementation
- › 2.3 Evaluate Common Quality Assurance Methods in Video Compression
- › 2.4 Implement a Quality Assurance Plan for MPEG-2 Projects
- › 2.5 Assess the Effectiveness of Quality Assurance Processes in MPEG-2
- › 2.6 Develop Continuous Improvement Strategies for MPEG-2 Quality Assurance

• 3 Evaluating Audio-Visual Quality in MPEG-2 Applications — 6 classes

- › 3.1 Analyze the Importance of Audio-Visual Quality in MPEG-2
- › 3.2 Identify Key Parameters for Evaluating MPEG-2 Quality
- › 3.3 Evaluate Compression Artifacts in MPEG-2 Applications
- › 3.4 Apply Subjective Evaluation Techniques for MPEG-2 Quality
- › 3.5 Implement Objective Measurement Tools for MPEG-2 Audio-Visual Quality
- › 3.6 Design a Quality Assurance Framework for MPEG-2 Systems

• 4 Identifying Common Quality Challenges in MPEG-2 Streams — 6 classes

- › 4.1 Analyze MPEG-2 Stream Characteristics
- › 4.2 Identify Common Artifacts in MPEG-2 Streams
- › 4.3 Evaluate Causes of Quality Degradation
- › 4.4 Assess Impact of Bitrate on Stream Quality
- › 4.5 Explore Quality Assurance Techniques for MPEG-2
- › 4.6 Implement Solutions for Common Quality Challenges

• 5 Advanced Quality Assessment Techniques for MPEG-2 Systems — 6 classes

- › 5.1 Analyze Quality Metrics for MPEG-2 Video
- › 5.2 Evaluate Compression Artifacts in MPEG-2 Streams
- › 5.3 Implement Visual Quality Assessment Techniques
- › 5.4 Compare Objective Measurement Methods for MPEG-2
- › 5.5 Conduct Subjective Quality Testing and Analysis
- › 5.6 Apply Quality Assessment Techniques to Real-World MPEG-2 Scenarios