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COURSE BROCHURE

AI for Medical Diagnostics Training Course: Imaging and Pathology

9 – 13 May 2027
Muscat

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Registered in the United Kingdom and Saudi Arabia

AI for Medical Diagnostics Training Course: Imaging and Pathology

Ref: 91_2304 **Date:** 9 – 13 May 2027 **Location:** Muscat **Fees:** 6500 GBP

AI for Medical Diagnostics is a 1-week training course on imaging and pathology for radiologists, pathologists, laboratory managers and diagnostic service leads, in which each participant prepares a diagnostic AI acceptance dossier for one algorithm in their department. Detection, triage and quantification algorithms now arrive with scanners, slide scanners and analysers, and diagnostic services must prove they perform on local patients. Jupiter Prime Training delivers AI for Medical Diagnostics for diagnostic specialists.

Why AI for Medical Diagnostics Matters Now

Three pressures meet in diagnostic departments. Reporting backlogs in radiology and histopathology keep growing while specialist numbers lag behind demand. Vendors bundle detection and prioritisation algorithms into picture archiving and laboratory systems, often with evidence gathered on populations unlike the local one. Referring clinicians and patients expect faster turnaround without missed findings. A service that tests algorithms carefully shortens reporting times and catches subtle disease earlier; one that switches them on blindly risks missed cancers, false alarms and eroded trust. The course draws on ISO/IEC 42001 Artificial Intelligence Management System and the NIST AI Risk Management Framework AI RMF.

Who Gains Most from AI for Medical Diagnostics

- Reporting specialists who read scans, slides and results alongside algorithm outputs
- Leads who set worklist priorities and turnaround targets for diagnostic services
- Laboratory scientists who verify analyser rules and autovalidation logic
- Quality officers who run discrepancy meetings and diagnostic audits
- Informatics leads who connect algorithms to imaging and laboratory systems

Diagnostic departments gain most when a radiologist or pathologist, a laboratory or imaging manager and a quality officer attend together.

AI for Medical Diagnostics Capabilities

The emphasis is on evidence: whether an algorithm detects what matters, on which patients, and how its output reaches the report.

- Calculate sensitivity, specificity and predictive values from a local test set — the decision to accept an algorithm
- Design a local validation study with an agreed reference standard — diagnostic quality committees
- Test worklist prioritisation for missed urgent findings — reporting specialists and referring clinicians
- Assess digital pathology and laboratory algorithms for pre-analytical variation — laboratory managers
- Specify discrepancy review and performance monitoring after go-live — quality and safety officers
- Communicate algorithm limits in diagnostic reports — referring clinicians and patients

Key AI for Medical Diagnostics Terms

- Sensitivity — the share of patients with the target condition that an algorithm correctly flags as positive.
- Specificity — the share of patients without the condition that an algorithm correctly reports as negative.
- Reference standard — the best available method used to decide the true diagnosis when testing an algorithm.
- Receiver operating characteristic ROC curve — a plot of true against false positive rates across thresholds, summarised by the area under the curve.
- Whole slide imaging — digitisation of glass pathology slides at high resolution so they can be viewed and analysed on screen.
- Autovalidation — rule-based or model-based release of laboratory results without manual review when set criteria are met.

AI for Medical Diagnostics Day by Day

Day 1: The Diagnostic AI Landscape

- Detection, Triage and Quantification Algorithms — Matching Tools to Diagnostic Questions
- Imaging and Laboratory Integration Points — Where Outputs Enter the Report
- Vendor Evidence Packs — Reading Study Populations and Reference Standards
- Reporting Backlog and Turnaround Mapping — Choosing Where AI Helps First
- Reader and Algorithm Roles — Second Reader, Concurrent or Triage Use

Day 2: Measuring Diagnostic Accuracy

- Confusion Matrix, Sensitivity and Specificity — Interpreting Accuracy Claims
- ROC Curves and Operating Thresholds — Balancing Missed Findings and False Alarms
- Prevalence and Predictive Values — Local Positive Rates in Practice
- Reference Standard Selection — Biopsy, Follow-Up or Expert Panel
- Local Validation Study Design — Sample Size and Case Mix

Day 3: Imaging, Pathology and Laboratory Use Cases

- Chest and Mammography Detection Algorithms — Screening and Emergency Pathways
- Whole Slide Imaging Analysis — Mitotic Counts and Tumour Grading Support
- Laboratory Autovalidation and Delta Checks — Safe Result Release
- Pre-Analytical and Scanner Variation — Effects on Algorithm Performance
- Worklist Prioritisation — Urgent Finding Escalation and Reporting Order

Day 4: Oversight, Monitoring and Accountability

- Discrepancy Meetings for Algorithm Findings — Learning From Disagreements
- Performance Drift Monitoring — Scanner Upgrades and Population Change
- ISO/IEC 42001 Controls for Diagnostic Services — Management Accountability
- NIST AI RMF Measure and Manage Functions — Diagnostic Risk Treatment
- Report Wording for AI-Assisted Findings — Clinician and Patient Clarity

Day 5: Practising the Diagnostic AI Acceptance Dossier

- Use Case and Integration Summary — Applying Day 1 Mapping
- Accuracy Results on Local Cases — Applying Day 2 Metrics
- Specialty Workflow Findings — Applying Day 3 Use Case Checks
- Monitoring and Discrepancy Plan — Applying Day 4 Oversight Methods
- Diagnostic AI Acceptance Dossier — Sign-Off by the Quality Committee

Applying AI for Medical Diagnostics After the Course

- Assemble a retrospective local test set for one algorithm and calculate its sensitivity and specificity against the agreed reference standard
- Add algorithm findings to the next discrepancy meeting agenda and record where readers and the algorithm disagreed

AI for Medical Diagnostics Questions FAQ

What is AI for Medical Diagnostics and why does it matter now?

AI for Medical Diagnostics is the use of algorithms to detect, prioritise and quantify findings in scans, slides and laboratory results. It matters now because these tools ship with diagnostic equipment, and services must prove local accuracy.

Which roles gain most from AI for Medical Diagnostics?

Radiologists, pathologists, laboratory managers and diagnostic service leads gain most. You benefit if you report with algorithm support, set worklist priorities, verify laboratory rules or run diagnostic quality audits.

How does AI for Medical Diagnostics differ from a general clinical AI course?

AI for Medical Diagnostics centres on accuracy evidence in imaging, pathology and laboratory work. A general clinical AI course covers bedside tools such as decision support; this one covers reference standards, thresholds and local validation of diagnostic algorithms.

What do you bring back from AI for Medical Diagnostics?

You bring back a diagnostic AI acceptance dossier for one algorithm. It holds local accuracy results, workflow findings and a monitoring plan for your quality committee.

AI for Medical Diagnostics: The Way Forward

The diagnostic AI acceptance dossier first informs whether an algorithm may support live reporting, and in which role. Reporting specialists, laboratory managers and quality officers use it to agree thresholds and review routines. After the first scanner upgrade or case-mix change, revisit its accuracy results, because diagnostic algorithms are sensitive to equipment and population shifts.