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COURSE BROCHURE

# AI and Wearable Healthcare Technologies Training Course

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**jupiterprime.uk**

info@jupiterprime.uk

Registered in the United Kingdom and Saudi Arabia

# AI and Wearable Healthcare Technologies Training Course

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AI and Wearable Healthcare Technologies is a 1-week training course for clinical leaders, digital health managers and biomedical engineers, in which participants draft a wearable remote monitoring pilot protocol for one patient cohort. Smartwatches, patches and connected rings now capture heart rhythm, oxygen saturation and activity around the clock, and health systems must decide which signals deserve clinical action. The course is delivered by Jupiter Prime Training.

## Why AI and Wearable Healthcare Technologies Matters Now

Three groups are pulling wearables into care pathways. Patients with heart failure, diabetes or chronic lung disease want to be monitored at home rather than readmitted; clinicians want earlier warning of deterioration without another flood of alarms; and payers and employers, from hospital groups to industrial sites with lone workers, want evidence that remote monitoring changes outcomes. Organisations that get this right shorten stays and catch decline earlier. Those that get it wrong buy devices that nobody reviews, or trust algorithms validated on the wrong population. Algorithm oversight draws on ISO/IEC 42001 AI management systems and the NIST AI Risk Management Framework NIST AI RMF.

## Who Gains Most from AI and Wearable Healthcare Technologies

- Leaders who design chronic disease and post-discharge care pathways
- Leaders responsible for virtual wards and remote monitoring hubs
- Leaders who evaluate medical devices, sensors and their integration with clinical records
- Leaders accountable for patient data protection and consent
- Leaders who run innovation portfolios and decide which digital health pilots scale

A health organisation gains most when a clinician, a biomedical engineer and a digital health manager attend together, because device choice, alert rules and staffing of the monitoring hub must be decided as one design.

## AI and Wearable Healthcare Technologies Capabilities

Participants leave able to judge whether a wearable signal and the algorithm behind it are fit to change a clinical decision for a defined group of patients.

- Assess wearable sensor accuracy for heart rate, rhythm, oxygen saturation and movement — device procurement committees
- Design an early warning alert pathway with escalation thresholds — virtual ward clinicians
- Test whether an algorithm's validation population matches the intended cohort — clinical safety officers
- Specify biosignal data quality rules for wear time, motion artefact and gaps — biomedical engineering teams
- Weigh patient privacy, consent and data-sharing options — data protection leads and patients
- Build outcome and workload measures for a monitoring cohort — executive sponsors deciding on scale-up

## Key AI and Wearable Healthcare Technologies Terms

- Remote patient monitoring — collecting physiological data from patients outside hospital so clinicians can review and act on it.
- Photoplethysmography PPG — an optical method used by many wearables to estimate pulse, rhythm and oxygen saturation through the skin.
- Early warning score — a combined score from vital signs that flags patients at rising risk of deterioration.
- Motion artefact — distortion in a biosignal caused by body movement, a common source of false alerts.
- Alert fatigue — reduced clinician response caused by frequent alarms that rarely require action.
- Software as a medical device — software intended for a medical purpose that is regulated as a device in its own right.

## AI and Wearable Healthcare Technologies Day by Day

## Day 1: Wearables in Modern Care Pathways

- Wearable Device Landscape: Watches, Patches, Rings and Smart Textiles — Use Fit
- Virtual Wards and Hospital-at-Home Models — Bed Capacity and Readmission Choices
- Chronic Disease Monitoring Needs — Heart Failure, Diabetes and Respiratory Cohorts
- Occupational and Sports Health Wearables — Lessons From Non-Clinical Settings
- Patient Experience and Digital Literacy — Enrolment and Wear-Time Adherence

## Day 2: Biosignals and Data Quality

- Photoplethysmography and Single-Lead ECG — Rhythm Detection Strengths and Limits
- Continuous Glucose Monitoring Streams — Trend Interpretation and Alert Settings
- Motion Artefact and Signal Gap Handling — Data Usability Rules
- Device Interoperability With Clinical Records — Integration and Data Flow Choices
- Sensor Accuracy Benchmarking Against Reference Devices — Procurement Evidence

## Day 3: AI Analytics for Early Deterioration

- Machine Learning Early Warning Models — Sensitivity Versus Alarm Burden
- Atrial Fibrillation Detection Algorithms — Confirmation and Referral Pathways
- Fall and Activity Recognition — Older Adult and Lone Worker Safety
- Personalised Baselines and Trend Alerts — Chronic Patient Escalation Rules
- Alert Triage Dashboards for Monitoring Hubs — Staffing and Response Times

## Day 4: Clinical Validation, Safety and Privacy

- Clinical Validation Study Design — Population Fit and Performance Metrics
- Software as a Medical Device Classification — Evidence Expected Before Use
- ISO/IEC 42001 and NIST AI RMF — Algorithm Oversight and Bias Checks
- Patient Consent and Health Data Protection — Sharing, Retention and Access
- Cybersecurity of Connected Medical Wearables — Device and Cloud Risks

## Day 5: Practising the Wearable Remote Monitoring Pilot Protocol

- Cohort Selection and Inclusion Criteria — Who Benefits From Monitoring
- Device and Algorithm Shortlist Scoring — Accuracy, Usability and Integration
- Escalation Protocol and Clinical Responsibility Map — Who Acts on Alerts
- Outcome, Cost and Workload Metrics — Evidence for Scale-Up Decisions
- Wearable Remote Monitoring Pilot Protocol — Cohort, Devices, Alerts and Measures

## Applying AI and Wearable Healthcare Technologies After the Course

- Benchmark two shortlisted wearables against reference measurements on a small staff or volunteer group, recording accuracy, wear time and motion artefact rates.
- Run a tabletop test of the escalation protocol with virtual ward clinicians, using sample alert streams to check thresholds, response times and alarm burden.

## AI and Wearable Healthcare Technologies Questions FAQ

### What are AI and wearable healthcare technologies, and why do they matter now?

They are body-worn sensors combined with algorithms that turn continuous biosignals into clinical alerts and trends. They matter now because health systems are moving care into the home and need earlier warning of deterioration without overwhelming staff.

### Which roles gain most from AI and wearable healthcare technologies?

Clinical pathway leaders, virtual ward managers, biomedical engineers, data protection leads and digital health innovation teams gain most. You learn to judge devices, algorithms and alert rules from a shared clinical and technical viewpoint.

## How does AI and wearable healthcare technologies differ from a general AI in healthcare course?

It concentrates on body-worn sensors and remote monitoring. Instead of imaging or hospital operations, you work on photoplethysmography, glucose streams, motion artefact, early warning models and the escalation protocols that decide who responds to an alert.

## What do you bring back from AI and wearable healthcare technologies?

You bring back a pilot protocol for one patient cohort. It sets inclusion criteria, shortlists devices and algorithms, defines alert thresholds and responsibilities, and lists the outcome and workload measures that will decide whether monitoring scales.

## AI and Wearable Healthcare Technologies: The Way Forward

The wearable remote monitoring pilot protocol first informs which patient cohort and which device are enrolled. Clinical leads, biomedical engineers and digital health managers use it to agree alert thresholds and responsibilities. After the first cohort completes monitoring, revisit the false alert rate and wear-time adherence, because they show whether the algorithm or the patient experience needs attention before scale-up.