



COURSE OVERVIEW AI0145

Certified Artificial Intelligence Practitioner (CAIP)

(CertNexus-CAIP Exam Preparation Training)

Course Title

Certified Artificial Intelligence Practitioner (CAIP) *(CertNexus-CAIP Exam Preparation Training)*

Course Date/Venue

December 22-26, 2025/Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE

Course Reference

AI0145

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

Course Description



This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.



This course is designed to provide participants with a detailed and up-to-date overview of Certified Artificial Intelligence Practitioner (CAIP). It covers the AI and ML solutions for business problems, following a machine learning workflow and formulating a machine learning problem; selecting appropriate tools and platforms, data collection and initial data exploration; the data transformation and engineering features and feature engineering for machine learning; and the exploratory data analysis and visualization, training a machine learning model (fundamentals) and evaluating and tuning machine learning models.



Further, the course will also discuss the linear regression, forecasting models and classification models using logistic regression and k-nearest neighbour; the clustering models, decision trees and random forests, support-vector machines (SVMs) and artificial neural networks (ANNs); the deep learning model tuning and advanced applications; and the ethics, privacy and responsible AI in model building.





During this interactive course, participants will learn the machine learning models, automating the ML process (MLOps) and maintaining models in production and securing ML pipelines and mitigating risks; integrating models into business processes and finalising model handoff and lifecycle management; the future of AI and emerging trends and measuring value; and the key performance indicators (KPIs) for AI initiatives, change management and scaling AI solutions across enterprise.

Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Get prepared for the next CAIP Exam and have enough knowledge and skills to pass such exam in order to get the Certified Artificial Intelligence Practitioner (CAIP) from CertNexus
- Identify AI and ML solutions for business problems, follow a machine learning workflow and formulate a machine learning problem
- Select appropriate tools and platforms and apply data collection and initial data exploration
- Discuss data transformation and engineering features and feature engineering for machine learning
- Carryout exploratory data analysis and visualization, training a machine learning model (fundamentals) and evaluating and tuning machine learning models
- Build linear regression and forecasting models and classification models using logistic regression and k-nearest neighbour
- Build clustering models, decision trees and random forests, support-vector machines (SVMs) and artificial neural networks (ANNs)
- Employ deep learning model tuning and advanced applications as well as ethics, privacy and responsible AI in model building
- Deploy machine learning models, automate the ML process (MLOps), maintain models in production and secure ML pipelines and mitigating risks
- Integrate models into business processes, finalize model handoff and lifecycle management and discuss the future of AI and emerging trends
- Apply measuring value, key performance indicators (KPIs) for AI initiatives and change management and scaling AI solutions across enterprise

Exclusive Smart Training Kit - H-STK®



*Participants of this course will receive the exclusive “Haward Smart Training Kit” (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspects and considerations of artificial intelligence for business solutions heads, technology solutions managers, IT quality and control managers, IT professionals and software developers, data analysts and data scientists, business leaders and project managers, risk, compliance and other technical staff.



CertNexus-CAIP Certificate(s)

- (1) CertNexus-CAIP certificates will be issued to participants who successfully passed the CertNexus-CAIP exam.



- (2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course



Certificate Accreditations

Haward's certificates are accredited by the following international accreditation organizations:

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British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

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The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Training Fee

US\$ 5,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Exam Fee

US\$ 490 per Delegate + **VAT**.



Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



Dr. Hazim Ibrahim, PhD, MSc, MBA, BSc, CAIP, is a **Senior IT Specialist** with over **30 years** of extensive experience. His expertise widely covers **Artificial Intelligence, Digitalization, Digital Transformation** Strategy & Implementation, **VMware Virtualization** (ESXi, vCenter, vGPU, VCF), **IT Maintenance**, Say2000i, IP Phone, National Address & ID Automation, **Electricity Distribution Network, Customs Network & Maintenance, LAN & WAN Network, UYAP Network, Network Routing Protocols, Multicast Protocols, Network Management Protocols, Microsoft Enterprise Systems, Microsoft Servers, Microsoft Hyper-V, Microsoft Exchange, Microsoft 365 Cloud Services** (Exchange Online, Teams, OneDrive), **Microsoft Azure & Hybrid Active Directory** Environments, **VMware Events, VMware ESXi/vCenter, Enterprise Infrastructure & Virtualization, Data Center Infrastructure, Data Center Architecture & Digital Transformation** Projects, Mission-critical IT Systems, **Data Center Design & Management, File Server & Corporate Document** Management, ERP (SAP) & Oracle Database Systems, Oracle OVM, Oracle DB, Active Directory, SAP ERP, VMware vSphere 6.0 Installation & Configuration, Microsoft Windows Server 2012 R2, Microsoft Exchange Server 2012, Red Hat Linux Administration, AutoCAD, GIS ArcView, **WiMAX Broadband Wireless** System, TT Intranet & ADSL Network, TT Web & Voicemail, Off-site ATM Network, **Mobile & Wireless Networks** and **Digital Signal Processing**.

During his career life, Dr. Hazim is worked in significant positions like the **CEO, Chairman of the Board, Managing Director, Non-executive Chairman, Director of Research, Professor & Dean, Chief Scientist, Assistant Scientist, Associate Professor, AI Technology Innovations Advisor, Senior Advisor, Teaching Assistant, IT Consultant** and **Senior Instructor/Trainer** from various companies such as Generabia (FZC), RayaCX, SUMMIT Holding, Adjunct Professor American University, Technology Innovation and Entrepreneurship Center (tieg), Microsoft Corporation, Information Technology Industry Development Agency (ITIDA), ICT Minister for the Technology Development Sector, Faculty of Computers and Information, UAE University, IBM research Center (Arabic NLP) and Department of Systems & Biomedical Engineering.

Dr. Hazim has a **PhD in Applied Pattern Recognition** and **Artificial Intelligence**, a **Master's of Business Administration in Finance**, a **Master's** degree in **Applied Mathematics** and a **Bachelor's** degree in **Systems Engineering**. Further, he is a **Certified Instructor/Trainer**, a Certified Artificial Intelligence Practitioner (**CAIP**) and a **Verified Data Science Professional (DAT102x)**. He has further presented and published various awards and journals and delivered numerous training courses and workshops internationally.



Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Practical Workshops & Work Presentations
- 30% Hands-on Practical Exercises & Case Studies
- 20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1: Monday, 22th December 2025

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Identifying AI & ML Solutions for Business Problems The Hierarchy of Data – Making Raw Data Useful • Big Data Characteristics and Implications • Data Mining and Extraction of Insights • Selecting Appropriate Business Applications for AI/ML
0930 – 0945	Break
0945 – 1030	Following a Machine Learning Workflow The Machine-Learning Model and Overall Workflow • Data-Science Skillsets versus Traditional IT Skillsets • Concept Drift and Transfer Learning Considerations • Planning and Implementing the ML Workflow
1030 – 1130	Formulating a Machine Learning Problem Defining the Business Problem in ML Terms • Difference Between Traditional Programming and ML • Supervised versus Unsupervised Learning – What Fits the Business Case • Randomness, Uncertainty and Outcomes in ML Models
1130 – 1215	Selecting Appropriate Tools & Platforms Open-Source versus Proprietary AI/ML Tools • Hardware Requirements – CPU versus GPU, Cloud Platforms • Setting Up Tool-Chains (e.g., Anaconda, Jupyter) • Guidelines for Selecting and Configuring an ML Tool-Set
1215 – 1230	Break
1230 – 1330	Data Collection & Initial Data Exploration Identifying and Sourcing ML Datasets (Structured, Unstructured) • Data Quality Issues: Missing Values, Duplicates, Noise • Understanding Data Structure (Categorical, Numerical, Text, Images) • Guidelines for Selecting Datasets Aligned to Business Outcomes



1330 – 1420	Data Transformation & Engineering Features Data Transformation Techniques (Normalization, Standardization, Log, Etc.) • Encoding Categorical Data and Representing Numerical Data • Working with Different Data Formats: Audio, Text, Video, Image • Ethics, Privacy and Governance in Data Collection and Feature Engineering
1420 – 1430	Recap Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day One

Day 2: Tuesday, 23th December 2025

0730 – 0830	Feature Engineering for Machine Learning Recognizing the Impact of Data Quality and Size on Algorithm Performance • Feature Construction: Creating New Features, Dimensionality Reduction • Handling Missing Values, Outliers, Skewness and Kurtosis • Feature Selection Techniques and Business-Risk / Ethics Considerations
0830 - 0930	Exploratory Data Analysis & Visualization Descriptive Statistics: Central Tendency, Variability, Distributions • Correlation Analysis and Interpreting Relationships Between Features • Visualisation Tools: Histograms, Boxplots, Scatterplots, Heat Maps, Geographic Maps • Best Practices for Communicating Insights from EDA to Stakeholders
0930 – 0945	Break
0945 – 1100	Training a Machine Learning Model (Fundamentals) Setting Up Experiments: Hypothesis, Train/Validate/Test Splits, Cross-Validation • Algorithm Selection: Supervised versus Unsupervised; Regression versus Classification versus Clustering • Model Generalization, Over-Fitting versus Under-Fitting, Bias-Variance Tradeoff • Iterative Model Tuning: Hyperparameters, Regularization, Feature Scaling
1100 – 1215	Evaluating & Tuning Machine Learning Models Model Performance Metrics (For Regression: MSE, MAE, R ² ; For Classification: Accuracy, Precision, Recall, F1, AUC) • Validation Techniques: K-Fold, Leave-P-Out, Hold-Out Sets • Hyperparameter Optimisation: Grid Search, Randomized Search, Bayesian Methods • Business Risks and Ethical Concerns in Training and Tuning ML Models
1215 – 1230	Break
1230 – 1330	Building Linear Regression & Forecasting Models Linear Regression Using Linear Algebra: Cost Functions, Normal Equation • Regularised Regression (Ridge, Lasso, ElasticNet) • Iterative Approaches: Gradient Descent, Learning Rate, Convergence Issues • Time-Series Forecasting: Univariate Models, Multivariate Models



1330 – 1420	Building Classification Models Using Logistic Regression & k-Nearest Neighbour <i>Training Binary Classification with Logistic Regression: Decision Boundary, Cost Functions • Classification Using k-Nearest Neighbour: Parameter k, Distance Metrics, Pros/Cons • Multi-Class Classification Approaches (One-Vs-Rest, One-Vs-One) • Evaluating Classification Models: Confusion Matrix, ROC/PRC, Thresholds</i>
1420 – 1430	Recap <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow</i>
1430	<i>Lunch & End of Day Two</i>

Day 3: Wednesday, 24th December 2025

0730 – 0830	Building Clustering Models <i>k-Means Clustering: Algorithm, choosing k, Limitations • Hierarchical Clustering: Dendrograms, Linkage Methods, Stopping Criteria • Evaluating Clustering: Silhouette Score, Davies-Bouldin Index • Use-Cases in Business: Customer Segmentation, Anomaly Detection</i>
0830 – 0930	Building Decision Trees & Random Forests <i>Decision Tree Models: Splitting Criteria (Gini, Entropy), Tree Depth, Pruning • Random Forests: Ensemble Learning, Bagging, Feature Importance • Over-Fitting Control in Tree-Based Models, Interpretability Issues • Business Application Examples and Deployment Considerations</i>
0930 – 0945	<i>Break</i>
0945 – 1100	Building Support-Vector Machines (SVMs) <i>SVM for Classification: Kernel Trick (Linear, Polynomial, RBF), Margin Maximization • SVM for Regression: Support Vector Regression Concepts • Parameter Tuning: C, Gamma, Kernel Selection • Advantages, Limitations and When SVM Is Appropriate in Business Contexts</i>
1100 – 1215	Building Artificial Neural Networks (ANNs) – Introduction <i>Multi-Layer Perceptrons (MLP): Architecture, Activation Functions, Backpropagation • Convolutional Neural Networks (CNN): For Image/Vision Tasks, Layers, Filters • Recurrent Neural Networks (RNN) and LSTM: For Sequential/Time-Series/Text Data • Training Deep Networks: Epochs, Batch Size, Regularization (Dropout, Early Stopping)</i>
1215 – 1230	<i>Break</i>
1230 – 1330	Deep Learning Model Tuning & Advanced Applications <i>Transfer Learning, Fine-Tuning Pre-Trained Models • Hyperparameter Tuning for Deep Nets: Learning Rate Schedulers, Optimizers (Adam, SGD) • Handling Large Datasets and GPU/TPU Acceleration • Business Use-Cases: Computer Vision, NLP, Autonomous Systems</i>

1330 – 1420	Ethics, Privacy & Responsible AI in Model Building <i>Ethical Concerns: Bias, Fairness, Transparency, Accountability • Data Privacy Regulations (e.g., GDPR) and Governance in ML Models • Risk Assessment Throughout Model Lifecycle • Communicating Results and Implications to Stakeholders</i>
1420 – 1430	Recap <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow</i>
1430	Lunch & End of Day Three

Day 4: Thursday, 25th December 2025

0730 – 0830	Deploying Machine Learning Models <i>Model Deployment Strategies: Batch versus Online versus Real-Time • Model Serving: REST APIs, Micro-Services, Cloud Deployment (AWS, Azure, GCP) • Containerisation (Docker/Kubernetes) and Scaling • Security Concerns in Deployment: Access Control, Data in Transit, Data at Rest</i>
0830 – 0930	Automating the ML Process (MLOps) <i>CI/CD for ML: Pipelines for Data Ingestion, Model Retraining, Deployment • Monitoring Pipelines, Logging, Alerting, Version Control for Models/Data • A/B Testing, Shadow Deployment, Blue-Green Deployment for Models • Ensuring Reproducibility and Traceability of ML Workflows</i>
0930 – 0945	Break
0945 – 1100	Maintaining Models in Production <i>Model Degradation, Data Drift, Concept Drift, Retraining Triggers • Performance Monitoring: Key-Performance Indicators for Models (Latency, Accuracy, Resource Usage) • Feedback Loops, User Interaction, Logging Predictions and Outcomes • Governance and Auditing of Operationalized ML Systems</i>
1100 – 1215	Securing ML Pipelines & Mitigating Risks <i>Securing Data Pipelines: Ingestion, Transformation, Storage • Model Security: Adversarial Attacks, Data Poisoning, Model Inversion • Business Continuity and Disaster Recovery for ML Systems • Ethical Oversight and Documentation of Deployed Models</i>
1215 – 1230	Break
1230 – 1330	Integrating Models into Business Processes <i>Embedding Models into Decision-Making Processes, User Workflows • Stakeholder Communication: Translating Model Output into Actionable Business Insights • Change Management, User Adoption, Training Operations Teams • KPI Tracking and Measurement of Business Impact from AI Solutions</i>
1330 – 1420	Finalising Model Handoff & Lifecycle Management <i>Handoff Documentation: Model Specifications, Performance Logs, Governance Policies • Versioning: Model, Data, Environment, Code • Lifecycle Management: Retirement, Archiving, Reuse • Reviewing Business Impact, Lessons Learned, Continuous Improvement</i>
1420 – 1430	Recap <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow</i>
1430	Lunch & End of Day Four



Day 5: Friday, 26th December 2025

0730 – 0830	Capstone Project Introduction Define a Business Problem for Capstone (Industry-Specific Scenario) • Outline ML Workflow: From Problem Formulation Through Deployment • Select Dataset, Identify Features, Design Modelling Approach • Plan Evaluation, Deployment and Business Impact Measurement
0830 – 0930	Capstone Execution (Hands-On) Data Preparation: Cleaning, Transformation, Feature Engineering • Model Training: Select Algorithm(s), Tune Hyperparameters • Model Evaluation: Choose Metrics, Perform Validation • Deployment Plan: How the Model Will Be Operationalised in the Business Context
0930 – 0945	Break
0945 – 1100	Review of Key Concepts & Exam Preparation Recap Major Domains: Understanding AI/ML Problems, Feature Engineering, Training/Tuning, Operationalisation (Per Exam Blueprint) CertNexus+1 • Sample Exam Questions and Discussion • Review Vocabulary, Formulas, Algorithm Properties, Metrics • Exam-Taking Strategies: Time Management, Reading Questions, Eliminating Distractors
1100 – 1215	Future of AI & Emerging Trends Advances in Deep Learning, Reinforcement Learning, Generative Models (GANs, Transformers) • Edge AI, Federated Learning, AI in IoT/Industry 4.0 • Ethical AI, AI Governance Frameworks, Regulation Trends • Preparing Organisations for AI Maturity: Culture, Process, Skills
1215 – 1230	Break
1230 – 1345	Business Impact & ROI of AI Solutions Measuring Value: Cost Reduction, Revenue Uplift, Time-to-Insight • Key Performance Indicators (KPIs) for AI Initiatives • Case Studies: Successful AI Deployments Across Industries • Change Management and Scaling AI Solutions Across Enterprise
1345 – 1400	Course Conclusion Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

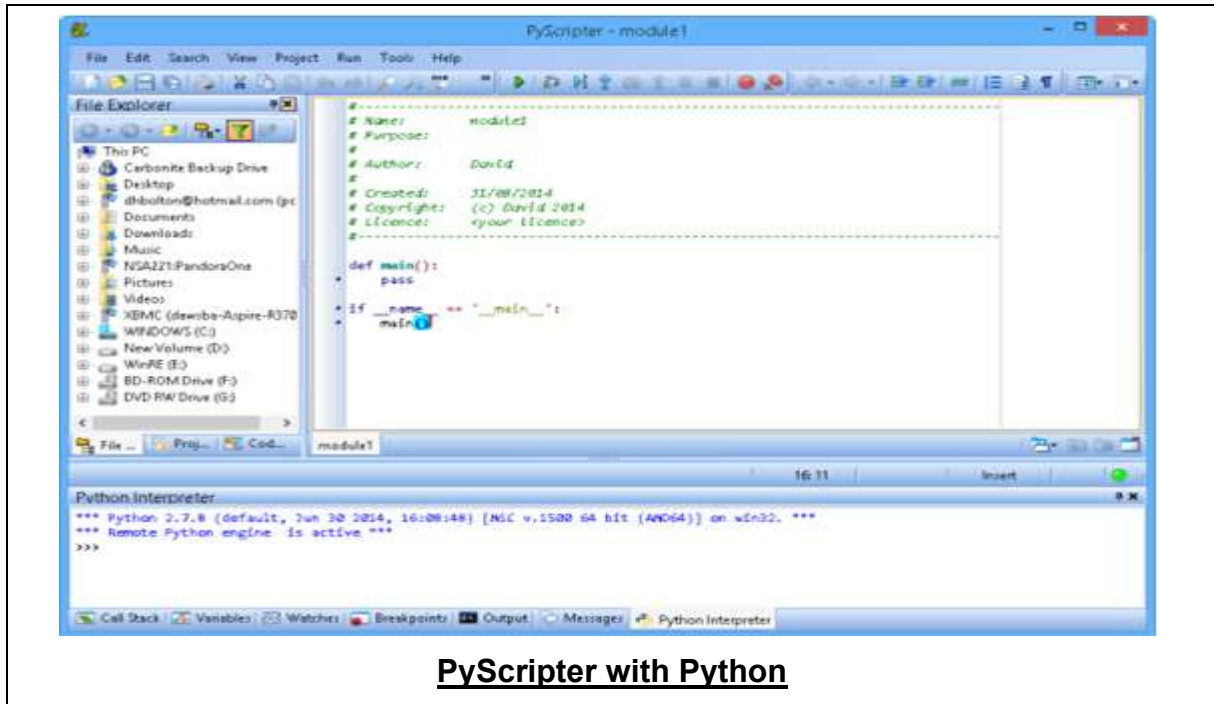
MOCK Exam

Upon the completion of the course, participants have to sit for a MOCK Examination similar to the exam of the Certification Body through Haward's Portal. Each participant will be given a username and password to log in Haward's Portal for the MOCK Exam during the 60 days following the course completion. Each participant has only one trial for the MOCK exam within this 60-day examination window. Hence, you have to prepare yourself very well before starting your MOCK exam as this exam is a simulation to the one of the Certification Body.



Simulator (Hands-on Practical Sessions)

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using “PyScripter with Python” and “MS-Excel” application.



PyScripter with Python

Course Coordinator

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