COURSE OVERVIEW IT0036
Big Data & Artificial Intelligence

Course Title
Big Data & Artificial Intelligence

Course Date/Venue
Session 1: June 23-27, 2025/Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
Session 2: October 05-09, 2025/Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE

Course Reference
IT0036

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Description

This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.

This course is designed to provide participants with a detailed and up-to-date overview of Big Data & Artificial Intelligence. It covers the big data and how AI complements big data for smart decision-making; the big data architecture and AI pipelines and data collection, storage and processing for AI; the AI and big data in business transformation and AI the algorithms for big data processing.

Further, the course will also discuss the data wrangling and preprocessing for AI in big data, AI in predictive data analytics and natural language processing (NLP) for big data; the real-time AI analytics with Apache Spark, AI in big data for cybersecurity and deep learning for big data; the AI-powered recommendation systems, computer vision and AI for big data and AI-driven healthcare and big data analytics; and the AI in financial and stock market analysis, big data and AI in IoT (Internet of Things) and AI for big data automation and decision-making.

During this interactive course, participants will learn the AI-powered robotics for industrial automation, predictive maintenance of machines, quality control and defect detection and supply chain and logistics optimization; the AI-powered business intelligence and data visualization and cloud computing and AI for big data; the AI and big data in 5G and edge computing, AI for autonomous systems and robotics, AI in augmented and virtual reality (AR/VR) and AI in quantum computing for big data; and the AI bias and fairness in big data processing, privacy laws (GDPR, CCPA) and AI compliance, AI and Deepfake detection and responsible AI development for big data.

Course Objectives

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

- Apply and gain an in-depth knowledge on big data and artificial intelligence
- Discuss big data and how AI complements big data for smart decision-making
- Describe big data architecture and AI pipelines and apply data collection, storage and processing for AI
- Illustrate AI and big data in business transformation including AI algorithms for big data processing
- Carryout data wrangling and preprocessing for AI in big data, AI in predictive data analytics and natural language processing (NLP) for big data
- Apply real-time AI analytics with Apache Spark, AI in big data for cybersecurity and deep learning for big data
- Recognize AI-powered recommendation systems, computer vision and AI for big data and AI-driven healthcare and big data analytics
- Employ AI in financial and stock market analysis, big data and AI in IoT (Internet of Things) and AI for big data automation and decision-making
- Carryout AI-powered robotics for industrial automation, predictive maintenance of machines, quality control and defect detection and supply chain and logistics optimization
- Apply AI-powered business intelligence and data visualization and cloud computing and AI for big data
- Identify AI and big data in 5G and edge computing, AI for autonomous systems and robotics, AI in augmented and virtual reality (AR/VR) and AI in quantum computing for big data
- Apply AI bias and fairness in big data processing, privacy laws (GDPR, CCPA) and AI compliance, AI and Deepfake detection and responsible AI development for big data

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 big data and artificial intelligence for beginners in computer vision, python enthusiasts, AI and machine learning enthusiasts, software developers, engineers and other technical staff.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. 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.

- 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.

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. George Chel, PhD, MSc, BSc, Prince2, CISCO-CCNA, CISCO-CCENT, is a **Senior Communication & Telecommunications Engineer** with over **20 years** of extensive experience within the **Petrochemical**, **Oil & Gas** and **Power** industries specializing in **Fiber Optics** Technology, **Access Network** Planning, **Fiber Optics Transmission**, **Fiber Optic Cables** Construction, **Optical Drivers & Detectors**, **Fiber Optic** Termination, **Fiber Optic Cables** Installation, **Fiber Optics** System Design, **Media Converters**, **Fiber Optic** Systems Testing, **Optical Fibers** Technologies, **Opto-Electronics**, **Data Networking**, **Access Networks**, **Optical Networks**, DWDM, DSL, FTTH, GPON, **Wireless & Mobile Networks**, **Telecom** Technologies, **Core Network** Technologies, Broadband Architectures & Services, **Analogue & Digital Communications**, **IP Networking**, **Network Automation**, Software Defined Networking (**SDN**), Network Function Virtualization (**NFV**), Internet of Things (**IoT**), Converged Connectivity & Hybrid Access, RF Electronics & Digital Communications, **Communications Systems** Analysis, **Network Security**, **Computer Networks** Modelling & Simulation, **Data Networks & Communications**, **Networking Technology**, Networking Concepts, I**CT Systems** Management & Strategy, Strategic Information Systems, Wireless Access Points, Analogue & Digital Electronics, **Circuit Analysis**, **Circuit Design**, Electromagnetics, WiMAX Broadband Wireless System, Networking Design & Configurations, Practical **Industrial Data Communications & Telecommunications**, **Industrial Data Communication** Systems, Effective **Telecoms Strategies**, Integrated Electro-Optic Devices & Systems, **Telecom**, **Datacom & Network**, **EtherNet** Maintenance and Troubleshooting, Synchronous Digital Hierarchy (**SDH**), IP Telephony Design (**IPTD**) and LTE Technology (**WiMax**) Skills. He is currently the **Core Technologies Section Manager** of Hellenic Telecommunications Organization wherein he is responsible for managing, carrying, conducting, leading and participating in projects relating to the design, evaluation and trial of new aggregation/core network services & systems projects.

During his career, Dr. Chel has gained his practical and field experience through his various significant positions and dedication as the **Deputy Manager**, **Project Manager**, **Lab Section Head**, **Deputy Section Head**, **Program Leader**, **Access Technologies Senior Expert**, **Access Network Development Engineer**, **Telecom Engineer**, **Technical Engineer**, **Senior Expert**, **Senior Technical Instructor/Lecturer**, **Part-Time Lecturer**, **Development Engineer**, **R&D Engineer** and **Research Programmes Engineer**, **Post-Doctoral Research Associate** and **Teaching & Laboratory Assistant** from the Hellenic Telecommunication Organization – Deutsche Telekom Group, Fixed Access Shared Service Center – Deutsche Telekom Technology, OTE Academy, Athens Metropolitan College and Imperial College London.

Dr. Chel has a **PhD** in **Photonics**, **Optical Communications & Opto-Electronics** from the **Imperial College London**, **UK**, a **Master** degree in **Medical Physics & Clinical Engineering** from the **University of Sheffield**, **UK**, a **Bachelor** degree in **Physics** from the **University of Crete**, **Greece** and a **Graduate Diploma** in **Management** from the **University of London**, **UK**. Further, he is a **Certified Instructor/Trainer**, a **Registered PRINCE2 Project Management Practitioner**, a **Cisco Certified Network Associate Routing** and **Switching** (**CCNA**) and a **Cisco Certified Entry Networking Technician** (**CCENT**). Moreover, he is an author of many books, technical publication at high-profile scientific journals and conferences and deliver numerous trainings, courses, workshops, seminars and conferences 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.

Course 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.

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

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Understanding Big Data & AI*** *What is Big Data? Characteristics (Volume, Velocity, Variety, Veracity, Value) • How AI Complements Big Data for Smart Decision-Making • The Evolution of AI & Big Data in Industry • Key AI Technologies: Machine Learning, Deep Learning, NLP, Computer Vision*
0930 – 0945	*Break*
0945 – 1030	***Big Data Architecture & AI Pipelines*** *Understanding Data Lakes, Data Warehouses, & Data Pipelines • AI Model Deployment in Big Data Architectures • Role of ETL (Extract, Transform, Load) in AI Systems • Cloud-Based AI & Big Data Solutions (AWS, Azure, Google Cloud)*
1030 – 1130	***Data Collection, Storage, & Processing for AI*** *Structured versus Unstructured Data in AI • Data Storage Solutions: Hadoop Distributed File System (HDFS), NoSQL Databases • Real-Time versus Batch Processing: Apache Kafka, Spark Streaming • Challenges in Handling Large-Scale AI Data*
1130 – 1230	***AI & Big Data in Business Transformation*** *How AI & Big Data Drive Business Insights • Case Studies: AI in Healthcare, Finance, Manufacturing • Challenges in AI Adoption in Large Enterprises • Ethical Considerations & Responsible AI Practices*

1230 – 1245	*Break*
1245 – 1330	***Introduction to AI Algorithms for Big Data Processing*** *Supervised, Unsupervised, & Reinforcement Learning in Big Data • Decision Trees, Neural Networks, & Deep Learning Overview • Role of AI in Data Cleaning & Preprocessing • AI-Based Anomaly Detection in Large Datasets*
1330 – 1420	***Hands-On: Setting Up a Big Data & AI Environment*** *Installing Hadoop & Spark for Big Data Processing • Setting Up Python, TensorFlow, & Scikit-Learn for AI • Working with Jupyter Notebook for AI & Data Science • Connecting AI Models to Big Data Sources*
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

0730 – 0830	***Data Wrangling & Preprocessing for AI in Big Data*** *Handling Missing Values in Large Datasets • AI-Powered Data Cleaning & Normalization • Feature Engineering & Dimensionality Reduction • Handling Streaming Data with Apache Kafka*
0830 – 0930	***AI in Predictive Data Analytics*** *Machine Learning for Predictive Analytics • Using AI to Identify Trends & Patterns in Big Data • AI-Based Time Series Forecasting for Business Decision-Making • Case Study: AI-Powered Sales Forecasting in E-Commerce*
0930 – 0945	*Break*
0945 – 1100	***Natural Language Processing (NLP) for Big Data*** *Overview of NLP in Ai-Powered Big Data Applications • AI-Based Sentiment Analysis from Social Media Data • Named Entity Recognition (NER) in Large-Scale Text Processing • AI in Speech-To-Text & Language Translation*
1100 – 1230	***Real-Time AI Analytics with Apache Spark*** *Introduction to Apache Spark MLlib for AI Model Training • AI in Distributed Data Processing with Spark • Implementing AI-Based Real-Time Fraud Detection • Case Study: AI for Real-Time Stock Market Analysis*
1230 – 1245	*Break*
1245 – 1330	***AI in Big Data for Cybersecurity*** *AI for Detecting Anomalies & Cyber Threats • AI in Fraud Detection for Banking & E-Commerce • Using AI for Network Intrusion Detection • AI in Identity Verification & Biometric Authentication*
1330 – 1420	***Hands-On: Machine Learning on Big Data*** *Implementing AI-Powered Data Cleaning with Python • Training an AI Model for Customer Behavior Analysis • Running AI Algorithms on Apache Spark MLlib • AI-Driven Sentiment Analysis on Social Media Data*
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 Two*

Day 3

0730 – 0830	***Deep Learning for Big Data*** *Difference Between Machine Learning & Deep Learning • Overview of Neural Networks & Deep Learning Frameworks • AI in Image Recognition & Object Detection with Big Data • Using GPUs & TPUs for Deep Learning in Big Data Applications*
0830 – 0930	***AI-Powered Recommendation Systems*** *How AI Powers Personalized Recommendations (Netflix, Amazon) • Collaborative Filtering versus Content-Based Filtering • AI in Customer Segmentation & Targeted Advertising • Case Study: AI for Personalized News Feed on Social Media*
0930 – 0945	*Break*
0945 – 1100	***Computer Vision & AI for Big Data*** *AI-Based Object Detection & Image Classification • AI-Powered Facial Recognition in Large Datasets • AI in Satellite Image Processing for Geospatial Analysis • Case Study: AI for Automated Defect Detection in Manufacturing*
1100 – 1230	***AI-Driven Healthcare & Big Data Analytics*** *AI in Disease Diagnosis & Predictive Healthcare Analytics • AI-Based Drug Discovery Using Big Data • AI in Medical Image Analysis (MRI, X-Rays) • Case Study: AI in Covid-19 Detection & Predictive Modeling*
1230 – 1245	*Break*
1245 – 1330	***AI in Financial & Stock Market Analysis*** *AI-Powered Algorithmic Trading • Using AI for Credit Risk Assessment • AI in Cryptocurrency & Blockchain Analytics • AI-Based Market Sentiment Analysis*
1330 – 1420	***Hands-On: Building a Deep Learning Model for Big Data*** *Implementing a Neural Network for Image Classification • Training an AI Model for Fraud Detection in Banking Data • Building An AI-Powered Recommendation System with Big Data • Deploying a Deep Learning Model on Cloud Infrastructure*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the T were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Three*

Day 4

0730 – 0830	***Big Data & AI in IoT (Internet of Things)*** *How AI Processes IoT-Generated Big Data • AI-Powered Predictive Maintenance in IoT • AI-Based Smart Grid Optimization in Energy Sector • Case Study: AI in Smart Cities & Autonomous Vehicles*
0830 – 0930	***AI for Big Data Automation & Decision-Making*** *AI-Based Process Automation in Businesses • AI in Automating Data Processing & ETL Pipelines • AI in Automated Decision-Making in Banking & Insurance • Case Study: AI for Real-Time Fraud Prevention in Digital Banking*
0930 – 0945	*Break*
0945 – 1100	***AI in Smart Manufacturing & Industry 4.0*** *AI-Powered Robotics for Industrial Automation • AI in Predictive Maintenance of Machines • AI-Based Quality Control & Defect Detection • AI for Supply Chain & Logistics Optimization*

1100 – 1230	***AI-Powered Business Intelligence & Data Visualization*** *AI for Real-Time Big Data Visualization • AI-Based Business Intelligence Dashboards • AI-Powered KPI Prediction & Optimization • AI for Decision Support in Large Organizations*
1230 – 1245	*Break*
1245 – 1330	***Cloud Computing & AI for Big Data*** *Cloud-Based AI Model Deployment (AWS, Azure, Google Cloud) • AI for Serverless Computing & Edge AI • AI in Federated Learning for Secure Data Processing • AI-Powered Data Analytics with BigQuery*
1330 – 1420	***Hands-On: Automating AI Workflows with Big Data*** *Using AI for Automated Data Cleaning in Hadoop • Implementing AI-Based Predictive Maintenance Model • Building an AI-Powered Real-Time Dashboard for Analytics • Deploying AI on Cloud for Scalable Data Processing*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the T were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Four*

Day 5

0730 – 0930	***Future Trends in AI & Big Data*** *AI & Big Data in 5G & Edge Computing • AI for Autonomous Systems & Robotics • AI in Augmented & Virtual Reality (AR/VR) • AI in Quantum Computing for Big Data*
0930 – 0945	*Break*
0945 – 1230	***AI Ethics, Privacy, & Security Challenges*** *AI Bias & Fairness in Big Data Processing • Privacy Laws (GDPR, CCPA) & AI Compliance • AI & Deepfake Detection • Responsible AI Development for Big Data*
1230 – 1245	*Break*
1245 – 1345	***Final Hands-On Capstone Project*** *Building An AI-Powered Big Data Analytics System • Deploying AI for Automated Decision-Making • AI-Powered Predictive Analytics on Large Datasets • Course Wrap-Up & Future Learning Paths*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about t Topics that were Covered During the Course*
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-

Course Coordinator

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