COURSE OVERVIEW TM0115
Basic Data for Manufacturing and Production Management

Course Title
Basic Data for Manufacturing and Production Management

Course Date/Venue
July 28-August 01, 2025/Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference
TM0115

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 delegates with a detailed and up-to-date overview of Basic Data for Manufacturing and Production Management. It covers the importance and types of manufacturing; the differences between production and operations management, role of production managers and key performance indicators (KPIs); the manufacturing processes and techniques and data in manufacturing and production; the manufacturing planning and control (MPC) including the components of MPC and the role of data in MPC; the industry 4.0, smart manufacturing and IoT; and the role of big data in manufacturing and cyber-physical systems.

Further, the course will also discuss the principles of data collection and data analysis techniques, data management systems, performance measurement and metrics; the qualitative and quantitative forecasting methods, time series analysis and demand forecasting models; the importance and key components of production planning and control (PPC) and its role in supply chain management; the purpose of master production scheduling (MPS); and the steps to develop an MPS and data requirements for MPS.

During this interactive course, participants will learn the material requirements planning (MRP), capacity planning and management and production scheduling techniques; the inventory management, inventory control techniques, supply chain strategies, demand management and sales and operations planning (S&OP); the warehouse and logistics management, quality management, process improvement techniques and statistical process control (SPC); the decision-making models and techniques and data for root cause analysis; and the emerging trends in manufacturing data management covering AI and machine learning, digital twins and blockchain for supply chain transparency.

Course Objectives

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

- Apply and gain a basic knowledge on data for manufacturing and production management
- Discuss the importance and types of manufacturing including the differences between production and operations management, role of production managers and key performance indicators (KPIs)
- Carryout manufacturing processes and techniques and review data in manufacturing and production
- Recognize manufacturing planning and control (MPC) including the components of MPC and the role of data in MPC
- Interpret industry 4.0, smart manufacturing and IoT, role of big data in manufacturing and cyber-physical systems
- Explain the principles of data collection and apply data analysis techniques, data management systems, performance measurement and metrics
- Carryout qualitative and quantitative forecasting methods, time series analysis and demand forecasting models
- Discuss the importance and key components of production planning and control (PPC) and its role in supply chain management
- Explain the purpose of master production scheduling (MPS), the steps to develop an MPS and data requirements for MPS
- Apply material requirements planning (MRP), capacity planning and management as well as production scheduling techniques
- Employ inventory management, inventory control techniques, supply chain strategies, demand management and sales and operations planning (S&OP)
- Apply warehouse and logistics management, quality management, process improvement techniques and statistical process control (SPC)
- Carryout decision-making models and techniques and use data for root cause analysis
- Discuss the emerging trends in manufacturing data management covering AI and machine learning, digital twins and blockchain for supply chain transparency

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 basic data for manufacturing and production management for production planners, manufacturing engineers, operations supervisors and managers, material planners and controllers, inventory managers, procurement officers, data analysts in manufacturing, quality assurance and control personnel and those who are involved in manufacturing, production planning, and operations.

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 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

Haward's 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**. 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.

- 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:

Mr. **Drag Zic** is a **Senior Management Consultant** with over **30 years** of training and industrial experience. His expertise lies extensively in the areas of **Leading Effective Meetings**, **Leadership & Business**, **Presentation** Skills, **Decision Making** Skills, **Communication** Skills, **Negotiation** Skills, **Coaching & Mentoring**, **Economics & Governance in Climate Change, Performance** Management, **Customer Service** Management, **Critical Thinking & Creativity**, **Quality** Management, **Risk** Management, **Data Management** Systems, **R&D** and **Research** Management, **Project** Management, **Planning**, **Budgeting & Cost Control**, **Document** Management, **Record** Management and **Contract** Management. Further, he is well-versed in Analytical & Chemical Laboratory Management, Statistical Analysis of Laboratory Data, Statistical Method Validation & Laboratory Auditing, Sample Development & Preparation in Analytical Laboratory, Data Analysis Techniques, Laboratory Quality Management (ISO 17025), Applied Research & Technology, Basic Geology, Quality Assurance Assessment, Quantified Risk Assessment (**QRA**) as well as in Seismic Monitoring Systems, Seismological Software (4di, Xmts, OptiNet and ErrMap), Data Analysis, Rock Mass Stability Analysis, Seismic Budget Planning & Productivity Improvement Analysis, HazMap, ISO Standards as well as Balance Scorecard. He is currently the **Director** & **Principal Consultant** of **DRAMI** wherein he is responsible in formulating and executing the plans for applied research and technology transfer.

During Mr. Zic's career life, he had occupied several significant positions as the **Programme Manager**, **Managing Member**, **Rock Engineering Manager**, **Contract Manager**, **Consultant/Lecturer**, **Mine Seismologist**, **Data Analyst** and **Assistant Analyst** from different international companies.

Mr. Zic is a **Professional Natural Scientist**, has a **Bachelor** degree in **Geology**, a **Diploma** in **Management Development Programme** and currently enrolled for **Phd** in **Wits University**. Further, he is a **Certified Instructor/Trainer**, a **Certified Trainer/Assessor** by the **Institute of Leadership & Management** (**ILM**) and an active member of various professional engineering bodies internationally like the European Geosciences Union (**EGU**), the Canadian Institute of Mining (**CIM**), the Project Management South Africa (**PSMA**), the European Association of Geoscientists and Engineers (**EAGE**), the South African Council for Natural Scientific Professions (**SACNASP**), the International Society for Rock Mechanics (**ISRM**) and the South African Geophysical Association (**SAGA**). He has further delivered numerous trainings, workshops, conferences and seminars internationally.
(**SMRP**), **Certified Project Management Professional** (**PMI-PMP**), **Certified Six Sigma Black Belt**, **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**), **Certified Construction Projects Contractor**, **Certified Energy Auditor** and a **Chartered Engineer**. Moreover, he is an active member of **American Society for Quality**, Project Management Institute (**PMI**), **Body of Certified Energy Auditors** and **Technical Chamber of Greece**. He has further received various recognition and awards and delivered numerous trainings, seminars, courses, workshops and conferences internationally.

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, 28th of July 2025***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Overview of Manufacturing Systems*** *Definition and Importance of Manufacturing • Historical Evolution of Manufacturing Systems • Types of Manufacturing (Discrete, Process, Hybrid) • Key Challenges in Modern Manufacturing*
0930 – 0945	*Break*
0945 – 1045	***Production Management Fundamentals*** *Definition and Objectives • Differences between Production and Operations Management • Role of Production Managers • Key Performance Indicators (KPIs)*
1045 – 1130	***Manufacturing Processes & Techniques*** *Job, Batch, Mass, and Continuous Production • Overview of Lean Manufacturing • Process Flow Diagrams • Product-Process Matrix*
1130 – 1230	***Data in Manufacturing & Production*** *Definition of Manufacturing Data • Types of Data: Operational, Tactical, Strategic • Importance of Data-Driven Decision Making • Challenges in Data Collection and Management*
1230 – 1245	*Break*
1245 – 1330	***Basics of Manufacturing Planning & Control (MPC)*** *Basics of MPC Systems • Components of MPC: Planning, Execution, Control • The Role of Data in MPC • MPC in Different Manufacturing Environments*
1330 – 1420	***Industry 4.0 & Digital Transformation*** *Definition of Industry 4.0 •Smart Manufacturing and IoT • Role of Big Data in Manufacturing • Cyber-Physical Systems*
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, 29th of July 2025***

0730 – 0830	***Principles of Data Collection*** *Types of Manufacturing Data (Quantitative, Qualitative) • Data Collection Techniques: Manual vs. Automated • Common Data Collection Tools • Ensuring Data Integrity*
0830 - 0930	***Data Analysis Techniques*** *Descriptive, Predictive, and Prescriptive Analytics • Statistical Methods for Data Analysis • Data Visualization Techniques • Tools for Data Analysis (e.g., Excel, Power BI)*
0930 – 0945	*Break*
0945 – 1100	***Data Management Systems*** *Database Management Systems (DBMS) • ERP Systems in Manufacturing • Data Warehousing Concepts • Best Practices for Data Security*

1100 – 1215	***Performance Measurement & Metrics*** *Key Performance Indicators (KPIs) • Overall Equipment Effectiveness (OEE) • Production Throughput and Cycle Time • Quality Metrics and Defect Rates*
1215 – 1230	*Break*
1230 – 1330	***Forecasting in Manufacturing*** *Importance of Forecasting • Qualitative and Quantitative Forecasting Methods • Time Series Analysis • Demand Forecasting Models*
1330 – 1420	***Practical Exercises with Data Tools*** *Hands-on with MS Excel for Data Analysis • Introduction to Power BI Dashboards • Simulating Data Trends and Forecasting • Group Activity: Analyze Sample Production 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: ***Wednesday, 30th of July 2025***

0730 – 0830	***Production Planning & Control (PPC)*** *Definition and Importance • PPC in Different Manufacturing Settings • The Role of PPC in Supply Chain Management • Key Components of PPC*
0830 – 0930	***Master Production Scheduling (MPS)*** *Purpose and Importance of MPS, • Steps to Develop an MPS • Data Requirements for MPS • MPS in Make-to-Order vs. Make-to-Stock Environments*
0930 – 0945	*Break*
0945 – 1100	***Material Requirements Planning (MRP)*** *Basics of MRP • Bill of Materials (BOM) Structure • Inventory Records and Planning • MRP Output and Action Messages*
1100 – 1215	***Capacity Planning & Management*** *Definition and Importance • Rough-Cut Capacity Planning (RCCP) • Capacity Requirements Planning (CRP) • Balancing Capacity with Demand*
1215 – 1230	*Break*
1230 – 1330	***Production Scheduling Techniques*** *Forward and Backward Scheduling • Gantt Charts and Scheduling Boards • Scheduling in Job Shop vs. Flow Shop • Scheduling Software Tools*
1330 – 1420	***Case Study & Exercises*** *Case Study: PPC in a Medium-Sized Manufacturer • Interactive Exercises on MRP Calculations • Group Discussion on PPC Challenges • Application of PPC Software*
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 Three*

Day 4:	Thursday, 31st of July 2025
0730 – 0830	***Fundamentals of Inventory Management*** *Types of Inventory (Raw Materials, WIP, Finished Goods) • Inventory Functions and Costs • ABC Analysis and Inventory Categorization • Inventory Turnover and Stockout Analysis*
0830 – 0930	***Inventory Control Techniques*** *Reorder Point (ROP) Systems • Economic Order Quantity (EOQ) Models • Safety Stock Calculation • Just-in-Time (JIT) Inventory Systems*
0930 – 0945	*Break*
0945 – 1100	***Supply Chain Fundamentals*** *Definition and Components of Supply Chain • Supply Chain Strategies (Push vs. Pull) • The Role of Data in Supply Chain Management • Key Supply Chain Metrics*
1100 – 1215	***Demand Management & Sales & Operations Planning (S&OP)*** *Demand Forecasting Techniques • Collaborative Planning, Forecasting, and Replenishment (CPFR) • S&OP Process Steps • Data Integration in S&OP*
1215 – 1230	*Break*
1230 – 1330	***Warehouse & Logistics Management*** *Warehouse Layout and Operations • Data-Driven Warehouse Management • Transportation and Distribution Planning • Use of Warehouse Management Systems (WMS)*
1330 – 1420	***Interactive Supply Chain Simulation*** *Simulation Game on Inventory Management • Analyzing the Impact of Data-Driven Decisions • Group Discussion on Real-World Supply Chain Challenges • Software Demonstration: Supply Chain Simulation Tools*
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 Four*

Day 5:	Friday, 01st of August 2025
0730 – 0830	***Quality Management*** *Definition and Importance • Key Quality Concepts: TQM, Six Sigma, Lean • Role of Data in Quality Improvement • Quality Costs and Performance Indicators*
0830 – 0930	***Process Improvement Techniques*** *Lean Manufacturing Principles • Six Sigma Methodology (DMAIC) • Value Stream Mapping (VSM) • PDCA (Plan-Do-Check-Act) Cycle*
0930 – 0945	*Break*
0945 – 1100	***Statistical Process Control (SPC)*** *Basics of SPC • Control Charts for Variables and Attributes • Process Capability Analysis • Interpreting SPC Results*
1100 – 1215	***Data-Driven Decision-Making*** *Importance of Data-Driven Culture • Decision-Making Models and Techniques • Using Data for Root Cause Analysis • Case Studies of Successful Implementations*

1215 – 1230	*Break*
1230 – 1345	***Emerging Trends in Manufacturing Data Management*** *Role of AI and Machine Learning • Digital Twins and Simulation • Blockchain for Supply Chain Transparency • Future Trends and Innovations*
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*

Practical Sessions

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

Course Coordinator

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