Program Organisers:

環宇 培训顾问 Universal Training and Consultancy

Collabrating Organisation:

商廈 CMA TRAINING 廠商會培訓中心

Industry 4.0 Implementation Roadmap & Data Management

（外國專家教授工業 4.0 實施藍圖及數據管理）

15 & 16 October 2019 - Hong Kong

Introduction

In best practice manufacturing, we pursue concurrent improvement in all dimensions of performance through actions affecting both the shopfloor and the support structure. **Industry 4.0 endeavors to make the latest developments in control, communication, and information technology** useful in manufacturing, from sensors and actuators on production equipment to high-level analytics applied to both engineering and management.

This course **walks through the Industry 4.0 technology stack from new processes and machine controls to data analytics, and provides a management and technology strategy with concrete steps** to achieve the goal of harnessing the new tools to **improve all dimensions** of **manufacturing performance,** including **productivity, quality, and delivery**.

此課程獲政府創新及科技基金
資助 **2/3** 學費，名額只限 **30** 人

This program is approved by the government New Technology Training Funding

This takes the organization beyond the automation of previously known methods and allows you to learn new, more powerful ones. This not only makes it more effective as solving today's routine problems but also **enhances its ability to respond to sudden changes in the business environment** or **natural disasters** that may hurt its capacity or create new opportunities.

Course Benefits:

- ✓ Benchmark the latest state of industry 4.0 implementation of leading companies like Bosch, Kärcher, Trumpf, ABB, Audi & Siemens in 2019
- ✓ Introduce latest industry 4.0 data analytical platforms like RapidMiner, KNIME & WEKA; analytical programming languages like "R" and Python; and visualization tools like Tableau & Power BI
- ✓ Establish a realistic Industry 4.0 implementation roadmap in the pursuit of their company's strategy, including various stages of development - Virtual Reality (VR) in production line design, robot programming and training, connected Automated Guided Vehicles (AGVs) & Pick-To-Light technology
- ✓ Leverage in-house talent and recruit the external talent needed to follow the roadmap
- ✓ Organize small-scale, pilot projects to validate and quantify benefits in manufacturing / industrial engineering, quality management, production control, and other manufacturing support functions
- ✓ Skillfully purchase technology that works for their companies and that employees can use

Course Content:

Day One

- The promises of Industry 4.0 and the practices of actual factories.
- Group discussion: The current state of the participants' factories.
- **Benchmark the latest state** of industry 4.0 implementation of leading companies like **Bosch, Kãrcher, Trumpf, ABB, Audi & Siemens** in 2019 (including the key elements of their software architecture, from sensors, RFID, microcontrollers, & integration middleware to the use of **Apache-Hadoop clusters for big storage & retrieval**)
- Control technology in 4.0 Manufacturing - including CNC, PLC, microcontrollers, digital twin, sensors and actuators
- Human-Machine Interfaces, including control panels, mistake-proofing, usability engineering
- Industry 4.0 Manufacturing Execution Systems: How data acquisition, work instructions, RFID, Kanbans & Travelers connect together
- Group discussion: Expectations from embedded controllers, supervisory controllers (SCADA), and Manufacturing Execution Systems (MES)
- Shared data infrastructure: pulling data from multiple systems with a common information model, in-memory databases, data warehouses, data lakes, and document databases.

Day Two

- Overview of data science and how it differs from statistics
- Introduce industry 4.0 data **analytical platforms like RapidMiner, KNIME & WEKA; analytical programming languages like "R" and Python; and visualization tools like Tableau & Power BI**
- **Innovative process mining tool – Celonis Snap**, it automatically extracts a process from an even log
- Data preparation: Detection and correction of errors and missing entries, resolution of inconsistencies and integrity violations, extraction of information encrypted in IDs, structuring of information in free text comments, development of a shared information model.
- Examples of Analysis of Quantities: Demand structure, master data management, allocation of products to lines, formation of product families,...
- Group discussion: Case studies
- Examples of Analysis of Quality and Engineering Data
- Group discussion: Case studies
- Presentation of results in charts, tables, infographics, A3s, slides, or reports
- Overview of analysis tools, including logistic regression, induction trees, kernel density estimation, boosting, bagging, random forests, neural networks, deep learning… The point is for the students to know about these techniques and where to find out more.
- Strategy to manage knowledge and develop corporate resourcefulness - that is, the ability to respond to, rebound from, or leverage events like natural disasters or sudden changes in the business environment.
- **Your industry 4.0 roadmap**: Leveraging Industry 4.0 to improve manufacturing performance and enhance responsiveness, including various stages of development - **Virtual Reality (VR) in production line design, robot programming and training, connected Automated Guided Vehicles (AGVs) & Pick-To-Light technology that dramatically reduces production cost**

Who should attend

CEO & managers from any manufacturing business who wish the gain the latest knowledge and development of industry 4.0 & pursuit to transform current operation to the 4.0 standard.

Expert Instructor – Mr. Michel Baudin

Mr. Michel Baudin has 31 years of industrial experience, including 25 years of consulting in lean implementation, both in new plant setup and in the transformation of existing plants.

Since 1987, Michel has consulted for such clients as **Honda of America, Dell Computer, Canon Virginia, Boeing, Raytheon, Unilever, MetalEurop, the CIADEA automotive group, Hoechst, Raider Motors**, and others on lean manufacturing implementation, providing advice both on "Brownfield" conversions of existing facilities and "Greenfield" projects setting up new ones. He has also helped high-technology companies like **Hewlett Packard, Intel, Motorola, Winbond, and National Semiconductor** on production scheduling, process transfer from R&D to production, and computer system architecture for manufacturing applications.

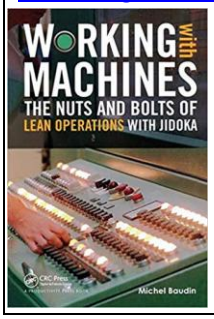
Over the years, Michel has:

- ✓ Helped Terra Nova in design of a new plant in 2007 in Isbergues, France. The plant started production in 2011.
- ✓ Helped design of a new truck body plant for Becema in 2008 in Kaluga, Russia.
- ✓ Helped design of an aircraft assembly line for the MC-21 for Irkut in 2009 in Irkutsk, Russia.
- ✓ Introduced the cell concept to a large aerospace machine shop
- ✓ Designed assembly lines for laser printers, military radios, and motorcycle engines
- ✓ Set up a consolidation center for automotive parts
- ✓ Developed a simple heijunka algorithm for sequencing electronics assembly
- ✓ Adapted the wage system to lean at a German manufacturer practicing piecework
- ✓ Designed a production scheduling system for semiconductors

Since 1995, he has provided various manufacturing training programs and these programs have been offered to the public through UC Berkeley extension, the University of Dayton's Center for Competitive Change, and have been used in house by **Honda, Boeing, Canon, Raytheon, Applied Materials, VDO, Siemens**, and others. He taught lean manufacturing workshops to over thousand of engineers and managers in the US, Europe, and China

His prior industrial experience includes being a director of the Menlo Park Technology Center of Teknekron Corporation, leading a group at Schlumberger / Fairchild that designed, tested, and supported maintenance management, production scheduling, and quality control software that is in use in semiconductor factories; giving technical support for CIM installations in Japan (Consilium corporation) ; and implementing the OPT scheduling system in two General Motors factories.

Mr. Baudin is author of four books, Lean Logistics (2005), Lean Assembly (2002), both from Productivity Press, Manufacturing Systems Analysis(1990) from Prentice Hall, & his fourth book "Working with Machines" (2007), as well as 24 articles and papers in various journals since 1977.



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Comments from past consulting clients / workshop participants:

“Knowledgeable and informative. Very satisfied with the simulation which can find out the problem step by step. Also very experienced trainer, worthwhile to try this course ”
- Mr. Li, LEM China

“Good and dense training, not only for new project - or plant managers, but also a good summary for more senior ones, who wish to recall the subjects and improve efficiency in the macro/micro layout design.”
- Ms. Dupuy, Sandvik China

"Over the past two and a half years, Michel Baudin has made a remarkable contribution to our operations, both by consulting on projects and by teaching his short but comprehensive course on lean manufacturing to my entire management and technical team. As our work statement doubled during that period, we were able to meet this challenge while remaining millions of dollars under budget, by applying the innovative concepts he introduced."
- David Bass, Plant Manager, Boeing Portland

"I have spent numerous hours with Michel Baudin learning myself and have found his style to be straightforward and have also found his desire to teach deeply rooted in his heart. I have found his knowledge to be deep and well rounded."
- Terry Mumaw, Manager, Aluminum Machining,Honda engine plant in Anna, OH

"The speakers have materials that could benefit many. I learned new concepts that we can use in our company."
- Bob Paquette, Raytheon

"Michel Baudin is flexible and tailors his presentation on the fly to suit the specific needs of the audience."
- Tom Berghan, Korry Electronics

"Everything I wanted to know, and more…"
- John Ryan, Binks Sames Corp

"Outstanding seminar that provided me with real data to take back to my facility."
- Bill Jordon, Lean Manufacturing Manager, Stabilus, Inc.

"Very glad I made it here. I have placed great tools in my toolbox."
- Luis M. Garcia, Director of Continuous Improvement, Aerosoles

"The thought process was really going as you mentioned cells and organization! I got plenty of ideas."
- Jamie Larsen, Production Manager, Kool Star

"Excellent ideas are presented in an easy-to-understand manner. I will use them immediately."
- Tony DiFruscia, HR director, Crane Valves

"Excellent material and presentation."
- David Prigel, Allied Signal

Workshop Information:

Dates:	15 & 16 October 2019 9:30 a.m. - 5:00 p.m.	**Medium of Instruction:**	English
Venue:	CMA Training Center, 23/F, CMA Building, 64 Connaught Road, Central		
Course Fee:	▪ **Regular Fee:** * HK$4,980 (includes training materials) ▪ **Early-birds** paid before 27 September **or CMA / BDC members** registered will be entitled to a **FREE copy** of the trainer's publication book "Working with Machine" ▪ 3 or more early birds paid will be entitled to an extra 10% group discount. **TRAINING SUBSIDY: 2/3 of the course fee <$3,320> will be funded by the government** **ACTUAL FEE PAID: HK$1,660 ONLY! (Seats Limited to 30 Only)**		
Training Subsidy Application:	Companies should submit subsidy application with trainee's HKID card to the government at **least 2 weeks before** the training date. Late application will not be considered. ◆ Application form **(FORM 2A)** can be downloaded at: https://rttp.vtc.edu.hk/tc/form-library ◆ Government Subsidy Enquiry: (852) 3907-6660 / 3907-6681 rttp@vtc.edu.hk		

Enrolment Procedures:

■ To enroll, please **REGISTER ONLINE (http://www.cma.org.hk/tc/registration/156)** or return the enrollment form by **EMAIL to ser1@cma.org.hk** or **FAX to 3421-1092 or 2815-4836** for seat reservation.

■ Crossed cheque made payable to **"Universal Training & Consultancy Ltd"** should be sent to – Flat C, 15/F, Alpha House, 27-33 Nathan Road, TST, Kowloon for seat **confirmation**.

Program Enquiry: ☎ 2542-8635

ENROLMENT FORM

(*Please delete whichever inappropriate)

Training Program	Industry 4.0 Implementation Roadmap & Data Management		CMA
Fee	HK$4,980 / HK$4,482 (Office Use Only)	Duration	15 & 16 October 2019

Participants Name(s)	Position	Email
1. (Mr/Mrs/Ms*)		
2. (Mr/Mrs/Ms*)		
3. (Mr/Mrs/Ms*)		

Contact Person		Position	
Contact Tel		Contact E-mail	
Company Name		CMA / BDC Member No (if any)	
Mailing Address			

IMPORTANT:
- ◆ Enrolment fee is not refundable unless course organizer is notified of your withdrawal at least 5 working days before the course commences.
- ◆ An applicant may nominate a person to attend the course on his/her behalf
- ◆ Course organizer reserves the right to change the venue and / or time as necessary