



TWIMS
TOYOTA WESSELS INSTITUTE
FOR MANUFACTURING STUDIES

MANAGING TECHNOLOGIES

The Future of Manufacturing

EXECUTIVE SHORT COURSE



Price: R14 058 | Date: 9-11 April 2025 | Venue: TWIMS Campus

Course Overview

The Future of Manufacturing course considers how manufacturing is presently being disrupted by emerging technologies; how the future of manufacturing could potentially be shaped by these technologies; and the likely implications of these changes for both the South African and the broader African manufacturing sector. The course is exploratory in design and applies a range of strategic tools to interrogate and engage with disruptive markets and social and technological forces that are reframing the future of manufacturing globally.

In the first part of the course, we introduce course participants to a set of innovation tools and then explore the rapid rise of the range of “Industry 4.0” disruptors that are presently challenging manufacturing business models. These include the Internet of Things (IoT) and industrial IoT, the use of “big data”, machine learning and artificial intelligence (AI), additive manufacturing (3D printing), the use of new nano-technology-based materials and the rapidly emerging meta-verse, which is being driven by virtual reality advancements. We consider the consequences of these technology disruptions for markets and the value chains that supply them and explore how the range of technology disruptions are likely to frame how manufacturing is organised. Will manufacturing remain organised in the same way, or are new platform-based business models likely to emerge? Is the South African and broader African manufacturing sector closeted from these technology developments, or will changes occur in the same manner as being observed in developed economy markets?

The second part of the course starts with immersion experiences in TWIMS’ Management Sandbox, which has a state-of-the-art “Industry 4.0” demonstration line encompassing Industrial IoT, Virtual and Augmented Reality, Big Data Analytics and Machine Learning, and 3D printing. On completion of the immersion, course participants are allocated to project teams to work on the application of their learnings. Using opportunities and challenges facing firms represented within the course, the teams prepare presentations to a “mock” board advocating for company resource deployment in response to a technology disruptor. Once teams have presented their findings, a consolidation session exploring the strategic consequences of the material covered for participating companies completes the course.

Who Should Attend

Senior manufacturing managers and executives and public-sector executives with manufacturing portfolios. The executive short course will be taught at a post-graduate level.

Learning Outcomes

Participants will secure a greater understanding of emerging manufacturing disruptions, and the use of strategy tools to respond to emerging technology opportunities and challenges. Participants who successfully complete the course will earn a TWIMS Future Manufacturing course completion certificate.

Course Facilitator -Dr Kruschen Govender and Prof Justin Barnes

Dr Kruschen Govender:

Kruschen is the TFG Head of Future Manufacturing at TWIMS. He is responsible for guiding and developing the Institute’s Future Manufacturing curriculum. Kruschen is an interdisciplinary scholar working at the nexus of innovation and sustainable development. His research interests include systems thinking, sustainability theories, emerging technologies, design thinking, and business model innovation. His Postdoctoral/PhD research explored circular design and cyber-physical systems in the context of emerging economies.

In addition to his roles at TWIMS, Kruschen is a Co-Founder at Think Ecological Design – a sustainability strategy and innovation studio. Previously, he has held positions as a Postdoctoral Research Fellow at Cranfield University (UK) and the University of KwaZulu-Natal. He has developed and managed multidisciplinary consulting projects for an array of clients such as South African government agencies, multilateral development organisations, large corporates and SMMEs.



Prof Justin Barnes:

This course is facilitated by Professor Justin Barnes, TWIMS’ Manufacturing Ambassador. Justin has worked in the South African manufacturing sector since 1995. All his qualifications are from the University of Natal, including his BA Hons (Geography), MSocSci (Development Studies), and PhD (Development Studies – industrial specialisation).

Justin has developed strategies for numerous major South African firms and has advised several national governments on their industrial and trade policies. Over the last seven years, he has been exploring the impact of digital technology disruptions on the formulation of firm-level and supplychain strategies in several manufacturing sectors and complex value chains. Justin has published extensively on the manufacturing sector, and his expertise has led him to work in over 30 countries.



Course Framework

Day

Key Focus Points

1

Strategising for disruption

- Understanding global drivers of change within manufacturing
- Understanding disruption and its relationship to strategy
- Identifying and applying strategic tools to engage with technology disruption
- Understanding the influence of Industry 4.0 technologies on manufacturing

2

From strategy to experience

- Understanding the integrated impact of technology disruption on manufacturing ecosystems
- Understanding disruption opportunities and challenges for countries such as SA
- Experiencing a selection of advanced manufacturing technologies

3

Responding to disruption

- Considering disruption in a specific manufacturing context, and articulating strategic responses to opportunities and challenges
- Creating a business plan to engage with technology disruption.

Course Cost

The course costs R14 058 per participant. This is fully inclusive of all refreshments, teas and includes lunch over the three days, as well as stationery. The cost excludes accommodation.

Venue and Accommodation

The course is run at the TWIMS Campus, 74 Everton Road, Kloof. Each day starts at 8:30 and concludes at 16:30. Accommodation is available on-site at an additional cost. Please visit the TWIMS website (www.twimsafrica.com) for further details.

Applications

Participation is limited to 25 executives. Application for participation can be made online at

www.twimsafrica.com.

Masterclass/Executive Short Course enquiries can be directed to thobeka.mthembu@twimsafrica.com

TWIMS reserves the right to accept only those applicants who are likely to benefit from the course and who can make a full contribution to group activities.



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