



Future Manufacturing

TWIMS EXECUTIVE DEVELOPMENT PROGRAMME

Is your organisation ready for technology disruption?

TWIMS campus, 25-28 May 2021

Course overview:

TWIMS' Future of Manufacturing course focuses on applying a range of strategic tools to engage with potentially highly disruptive market, social and technology forces that are re-framing the manufacturing sector's development trajectory. Over the course of the first two days, we explore the rapid rise of the Internet of Things (IoT), industrial IOT, and the use of "big data". We also analyse additive manufacturing and new material developments, and explore the rapid advancement of machine learning, artificial intelligence, and self-adapting robotics. We reflect on the consequences of these technology disruptions for developed and developing markets, as well as a range of Global Value Chains. Critically, how is manufacturing likely to be reorganized? What types of new manufacturing business models are emerging? Is South African (and broader African) manufacturing closeted from these developments, or will local changes occur in the same manner as observed internationally?

The third day of the course is an immersion and preparation day. Participants are exposed to the future manufacturing technology disruptions through an immersion experience and are then organized into syndicate teams where they prepare for "board presentations" that are delivered on the final day. The "board presentations" are meant to mimic a real-world event. Syndicate teams are expected to advocate for, and position a company's strategic response to, one of the major technology disruptors unpacked. The application of learning is focused on in these "board presentations", using a set of concrete opportunities and challenges based on the firms represented within the course. The course is completed with an interrogation of the lessons from each of the presentations and further discussion on the consequences of the material covered for the future of manufacturing.

Learning outcomes:

Participants will secure a greater understanding of emerging manufacturing disruptions, and the use of a variety of strategic tools to respond to emerging technology opportunities and challenges.

Who should attend?

Senior manufacturing managers and executives, and public-sector executives with manufacturing portfolios. The course will be taught at a post-graduate level and so executives should preferably have a graduate-level qualification. Participants who successfully complete the course will earn a TWIMS Future Manufacturing course completion certificate.

Certification:

Participants who attend all 4 days of the course, and who successfully complete the assignment, will earn a TWIMS Future of Manufacturing certificate.

Venue and accommodation:

The course is run at the TWIMS campus, 74 Everton Road, Kloof. Each day starts at 09:00 and concludes at 16:30. Accommodation is available on-site at an additional cost. Visit the TWIMS website (www.twimsafrica.com) for further details.



Course Framework:

Course	Key Focus Points
Day 1	<ul style="list-style-type: none">• Course introduction: Unpacking manufacturing technology disruptions• Structuring a response to disruption: Strategic tools to engage with rapid change• The internet of things, industrial internet of things and use of “big data”
Day 2	<ul style="list-style-type: none">• Machine learning, Artificial Intelligence, and self-adapting robotics• Additive manufacturing, and advanced materials• New manufacturing business models, and methods of business organisation
Day 3	<ul style="list-style-type: none">• Immersion experience – use of TWIMS management sandbox; visit to organization using disruptive technologies• Preparation for board presentations
Day 4	<ul style="list-style-type: none">• Board presentations covering the various technology disruptors• Learning consolidation: Defining appropriate strategic responses, and exploring social, ethical and sustainability consequences

Course facilitators

The course is co-facilitated by Prof. Justin Barnes, Associate Professor at the Gordon Institute of Business Science and TWIMS’ Executive Director, and Dr Kruschen Govender, the TFG Head of Future Manufacturing at TWIMS.



Prof. Justin Barnes is an Associate Professor at the Gordon Institute of Business Science and TWIMS’ Executive Director. Justin has worked in the South African manufacturing sector since 1995. All of his qualifications are from the University of Natal, with his BA Hons (Geography) completed cum laude in 1994, his MSocSci (Development Studies) completed cum laude in 1995 and his PhD (Development Studies – industrial specialisation), completed in 2001. Justin has developed strategies for numerous firms, and he has advised several national governments on their industrial and trade policies. Most recently he has been exploring the impact of digital technologies on the formulation of firm-level strategies and broader industrial policy. Justin has published extensively, and his expertise has led him to work in over 30 countries.



Kruschen recently completed a post-doctoral fellowship at Cranfield University in the UK and has had visiting fellowships at universities in Norway and Germany. He has a cross-disciplinary Civil Engineering PhD from UKZN, specialising in circular economy, sustainable design and innovation management. Kruschen also has a MSocSci (Development Studies), and a BSocSci Hons (Economic History, Development Studies). Working at the nexus of sustainable industrial development and innovation, his interests include systems and design thinking, sustainability, business model innovation, and disruptive technologies. Professionally, Kruschen has consulted in venture design, strategy, product management and entrepreneurship.

Course cost:

The course costs R20,000 per participant. This is fully inclusive of all refreshments, teas, and lunches over the course of the four days, as well as stationery. The cost excludes accommodation.

Covid-19 mitigation steps:

TWIMS follows strict protocols to mitigate the threat of Covid-19. We use an 80-seater auditorium for the class to ensure adequate social distancing is observed at all times; everyone on campus is temperature checked daily; all venues are sanitized daily; food and beverages are prepared safely; and the wearing of masks is strictly enforced while on campus.

Applications:

Participation is limited to 32 executives. Application for participation can be made online at www.twimsafrica.com. TWIMS reserves the right to only accept applicants who are likely to benefit from the course and who can make a full contribution to group activities.



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