Innovation & Creativity for Scientists/Engineers

Masterclass

COURSE PROSPECTUS
2022-2023
Talent. Invention. Resourceful. Creativity. And, of course, Innovation. These are highly evocative words we associate with the highest levels of human performance. Indeed, individuals and organisations that invest in acquiring these capabilities put themselves in the best position to create competitive advantage, grow and impact the direction of their fields.

But innovation does not just happen. Individuals and teams need to acquire specific tools, apply specific rules in their work, and be disciplined enough to make it happen. It is essential that individuals develop certain personal capabilities, processes and resources that permit ideas to be captured and concepts developed into new innovations in a systematic and organised fashion. This is what this course is about.

**Course Aims, Delivery Strategy and Learning Outcomes**

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**Aims**

This unique course has been developed by an expert team of innovation scholars, engineers and scientists. It is for individuals working or considering careers in new product development, irrespective of industry. The aim is to equip participants with tools and metrics for creating and managing every facet of innovation, from ideation, through to prototyping, and commercialisation.

The course focuses on the link between personal, team and organisational creativity, team structure, and innovation, with a specific emphasis on the role of collaboration in successful innovation.

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**Course Delivery Strategy**

The course is designed to be modular in structure and consists of 8 one-hour lectures. Participants can also opt to take the course flexibly to fit around other commitments. As much possible, a case study approach using real-life examples is adopted. Participants are encouraged to spend an adequate amount of time in directed private study, which is provided at the end of each lecture slide.

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Who is this for?

Engineering professionals and scientists working in R&D, new product development, innovation management, technical marketing, new product commercialisation, and new product and technology management.
Learning Outcomes

Upon completion, participants will be able to

- Develop an understanding of what ‘innovation’ and ‘creativity’ mean, and why they are essential for personal and corporate survival and growth
- Gain deep insights into the creative and innovation processes and their different elements, including the factors that make individuals more or less creative
- Develop a thorough understanding of the relationship between individual creativity, entrepreneurship, and innovation, and acquire tools and processes to enable you translate ideas into innovations,
- Understand and develop the personal and organisational qualities that engender individual, team and organisational creativity and innovation
- Acquire tools for planning, managing and delivering innovations against a context of uncertainty. Apply the principles, processes and issues associated with the development of new offerings and how they are adopted by customers
- Become appraised about the effective management of creativity and innovation

Who is this course for?

This course is designed for professionals with an engineering, technical or scientific background who are planning to work or already work within or manage, lead or finance R&D, new product development, innovation and prototyping/invention. Typical job roles include:

- New Product Development Scientist
- Formulation Scientist/Manager/Associate
- Technical Product Manager
- R&D Project Manager
- Research Engineer
- Product Engineer/Scientist
- Product Commercialisation Manager

Typical sectors include pharmaceuticals, biotechnology, medical devices, consumer goods (cosmetics and food sector), automotive engineering, energy, chemicals and materials, electronics, and information technologies. Professionals who work for government, academia, finance and the charitable sector whose roles involve funding of innovation will also find this course highly rewarding.

Course Delivery Team

Enosh Mwesigwa PhD MBA - Course Manager/Key Contact

Enosh is currently a Technical product Manager at a leading chemicals supplier based in the UK. He holds a PhD in pharmaceutical sciences (University College London) and an MBA from University of Warwick, UK.

Course Tutors

The teaching team is broadly drawn and includes experts from academia, the chemical industry as well as management consultants at leading consultancy firms. All our tutors work or have worked with leading organisations, such as IBM, BASF, Astra Zeneca, Coca Cola and Warwick University, among others.
This introductory module introduces and reviews the key concepts of innovation, creativity and invention within the context of organisations. You will learn about:

- An innovation challenge (how creative are you?)
- Key terms and definitions (creativity, innovation, invention, NPD…)
- Current conceptions of creativity and innovation
- Innovation imperative, processes and models
- Critical review of current NPD approaches

Upon completion, you will:

- Be able to map out different definitions and types of innovation, and identify the relationship between innovation and organisational performance
- Grasp the challenges of managing and delivering innovation and identify opportunities for change within your context
- Understand the key themes for managing creativity and innovation effectively.
The Organising for Personal, Team and Company Innovation module takes matters up another notch - with the aim of developing in you the specific qualities needed to make innovation work within your context. The content delivered includes:

- Creativity revisited and reviewed
- Individual and organisational characteristics of creative and innovative teams (a framework for scientists and engineering teams)
- Promoting individual creativity (personal capabilities, processes and techniques)
- Team and organisational creativity
- Leadership and creativity (skills and strategies for leading creative teams and work)

Upon completing this module, you will:

- Acquire the tools and know-how you need to develop and inculcate the requisite creative juices, within the personal and also the organisational team context so that you can participate creatively as a leader, manager or team member
- Effectively manage, measure and profit from personal, team and organisational creativity, and more importantly, learn how to remove impediments to creativity and creative thinking.
- Become appraised of the management tools for creative thinking, decision-making and problem solving
3. **Enabling, Delivering and Ensuring Creativity and Innovation Work**

This penultimate module is designed to bring it all together. It will equip participants with the innovation know-how, i.e. the specific tools and skills required to introduce, deliver and ensure innovation works in teams and organisations. The content includes:

- Driving innovation success: 7 rules of innovation
- Winning innovation strategies, structures and processes
- Strategies for tracking innovation: how to manage, measure and leverage innovation
- Innovation diagnostics and action plan

Upon completing this module, you will be able to:

- Develop an understanding of innovation, its difficulties and the key themes for managing innovation successfully
- Connect the dots between individual and team creativity, and organisational innovation, and appreciate the determinants of personal and team innovation
- Create the required culture and environment that support individual and team creativity, innovation, and entrepreneurship
- Acquire the know to exploit knowledge, IP and innovation networks for maximal enterprise value capture. Gain the tools for auditing organisational innovation process
4. Summary and Conclusions

This module reviews and consolidates the key themes in this course, with a specific focus on the key influences on innovation management and success factors. The content delivered is in the form of checklists and tools to take away, including:

- Framework for searching and recognising innovation opportunities
- Framework for assessing risk and recognising uncertainty
- Individual creativity and team innovation action plans

Bibliography


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