INNOVATION AND TECHNOLOGY MANAGEMENT

Certification in Technology Innovation Management

Course Code: IT_FIV_I_01/25

Duration: 60 Hours

Delivery Format: Hybrid

Target Audience:

- Working professionals in product development, R&D, and innovation teams.
- Mid-level and senior managers responsible for digital transformation and business growth.
- Technical leads, engineers, and project managers seeking to improve product development outcomes.

Program Objectives:

- To equip working professionals with the essential concepts, frameworks, and tools to manage, drive, and lead technology innovation projects.
- To emphasize practical applications and industry-relevant insights on managing innovation lifecycles, product development, and digital transformation.
- To enable participants to differentiate between various types of innovation and understand their impact on competitive strategy.
- To empower participants to apply Technology Readiness Levels (TRLs) principles to evaluate technology maturity and make informed decisions.
- To provide skills to drive digital transformation initiatives by aligning culture, leadership, and technology.

- To train participants in utilizing the Forge Innovation Handbook (FIH) for product development, customer discovery, and problem validation.
- To enable implementation of effective project management methodologies and tracking of innovation outcomes.

Detailed Syllabus

Module 1 (9 hours): Introduction to Technology Innovation

Objective: To understand the key types of innovation (incremental, disruptive, radical) and their role in competitive advantage, recognize the difference between closed and open innovation models, and learn the stages of the technology life cycle and how innovations diffuse into the market.

Topics:

- Fundamentals of Technology Innovation – Key concepts, definitions, and industry relevance
- Types of Innovation – Disruptive, Incremental, and Radical Innovations
- Closed vs. Open Innovation – Internal R&D vs. external collaboration, crowdsourcing, and knowledge sharing
- Technology Life Cycle – Stages, development paths, and growth curves of technologies
- Diffusion of Innovations Theory – Adoption of technology in industrial settings, factors affecting diffusion

Activities:

- Lectures and interactive discussions on innovation concepts.
- Case study analysis of disruptive innovation in various industries.

Assessments:

- Quiz on innovation types and models.
- Short report on a chosen company's innovation strategy (closed vs. open).

Module 2 (9 hours): Technology Readiness Levels (TRLs) and Project Management

Objective: To assess the maturity of a technology using TRLs, understand how TRLs guide decision-making and risk management in industrial projects, and learn project management methodologies suited for innovation projects.

Topics:

- Technology Readiness Levels (TRLs) – Concept, definitions, and how they are used in industry
- Challenges at each TRL Stage – Practical considerations, technical challenges, and risk factors
- Stakeholder Engagement and Risk Management – Strategies for engaging key stakeholders
- Performance Measurement & KPIs – Tracking progress using time-to-market, ROI, and user adoption
- Project Management for Innovation – Agile, Scrum, and Lean methodologies adapted for innovation projects

Activities:

- Detailed lectures on TRLs and their application.
- Real-world analysis of TRL transitions for breakthrough technologies through case studies.

Assessments:

- Assignment: Develop a TRL-based roadmap for a hypothetical technology or product.
- Quiz on project management methodologies for innovation.

Module 3 (9 hours): Digital Transformation & Industrial Innovation

Objective: To develop strategies for managing digital transformation within an organization, understand the key role of leadership, culture, and processes in successful transformation, and explore the role of enabling technologies such as IoT, AI, and Big Data in driving innovation.

Topics:

- Digital Transformation – Definition, industry impact, and transformation case studies
- Drivers of Digital Transformation – Emerging trends, pressures, and business needs
- Role of Leadership & Culture – Aligning leadership, skills, and cultural shifts for transformation

- Key Technologies in Industrial Innovation – Role of IoT, AI, Big Data, and Cloud in smart factories
- Frameworks for Digital Transformation – Digital maturity models and change management
- Workforce Development – Reskilling and upskilling for a digitally capable workforce

Activities:

- Case study analysis on digital transformation at an industrial manufacturer using IoT and AI.
- Group activity to design a framework for digital transformation for a mid-sized factory.

Assessments:

- Presentation of a digital transformation framework for a given scenario.
- Short essay on the role of leadership and culture in successful digital transformation.

Module 4 (9 hours): Product Management & Forge Innovation Handbook (FIH) in Technology Innovation

Objective: To master the principles of product management in a technology-driven context, understand and apply Forge's tools (including the Forge Innovation Rubric and Value Proposition Canvas), and gain knowledge of product lifecycle management (PLM) and intellectual property rights (IPR).

Topics:

- Product Management Fundamentals – End-to-end product development, from ideation to commercialisation
- Technology Roadmapping & Portfolio Management – Managing multiple product innovation initiatives
- Product Lifecycle Management (PLM) – Stages from idea, development, launch, and phase-out
- Forge Innovation Handbook (FIH) – Tools for product development:
- Product Innovation Hypothesis
- Forge Innovation Rubric (FIR)
- Problem Validation & Customer Discovery
- Challenge Brief

- Value Proposition Canvas (VPC)
- Minimum Usable Product (MUP) Concept Generation & Assessment
- Intellectual Property Rights (IPR) – Strategies for protecting and monetizing IPR

Activities:

- Group activity on applying the Forge Innovation Rubric (FIR) to a new product idea.
- Case study on a successful product launch and the role of the Value Proposition Canvas (VPC).

Assessments:

- Practical application of FIR and VPC to a new product concept.
- Short report on IPR strategies for a technology product.

Module 5 (24 hours): Capstone Project: 4-Day Bootcamp

Objective: To guide participants through a structured process of project ideation, design, development, validation, and final presentation, enabling them to conceptualize and present a viable capstone project.

Topics:

- Problem Discovery & Ideation
- Solution Design & Prototyping
- Validation & Iteration
- Finalization & Project Showcase

Activities:

- Intensive workshops on design thinking, ideation, and prototyping.
- Collaborative team work on a chosen innovation project.

Assessments:

- A group project applying all concepts, from technology assessment to digital transformation
- Culminating in a final presentation to a panel of evaluators