(10) Management of Technology - BMGT4013

<table>
<tr><td>1.</td><td colspan="4">Name of Course</td><td colspan="2">Management of Technology</td></tr>
<tr><td>2.</td><td colspan="4">Course Code</td><td colspan="2">BMGT4013</td></tr>
<tr><td>3.</td><td colspan="4">Name(s) of academic staff</td><td colspan="2"></td></tr>
<tr><td>4.</td><td colspan="4">Rationale for the inclusion of the course/module in the programme</td><td colspan="2">Core:
Technology and innovation are key resources for corporate profitability and growth. They not only provide the foundation for the production of goods and services but also define and shape the way firms operate. Managed properly, technological innovations are a primary source of competitive advantage for firms; they also enhance the economic well being of a nation and anchor its global competitiveness. The challenge of how best to manage technology and innovation has expanded beyond its traditional home in departments like strategic management, engineering and R&D, to the point where it now permeates the practice of management in modern firms. Organizations are increasingly turning to technological innovations to enable new products, to enter new markets, to improve quality and customer service, and to create and retain customer loyalty. In addition, managers now face an accelerating pace of innovation in the technologies supporting internal operational and managerial processes.</td></tr>
<tr><td>5.</td><td colspan="4">Semester and Year offered</td><td colspan="2">1/2</td></tr>
<tr><td rowspan="3">6.</td><td>Total Student Learning Time (SLT)</td><td colspan="4">Face to Face</td><td>Total Guided and Independent Learning</td></tr>
<tr><td rowspan="2">L = Lecture
T = Tutorial
P = Practical
O= Others</td><td>L</td><td>T</td><td>P</td><td>O</td><td rowspan="2">Guided = 42
Independent = 84
Total = 126</td></tr>
<tr><td>28</td><td>14</td><td>0</td><td>0</td></tr>
<tr><td>7.</td><td colspan="4">Credit Value</td><td colspan="2">3</td></tr>
<tr><td>8.</td><td colspan="4">Prerequisite (if any)</td><td colspan="2">None</td></tr>
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9.	Objectives: Introduce students to tools and concepts they will need to: • Assess the prospects and managerial implications of emerging technologies; • Identify and evaluate opportunities to gain competitive advantage through innovation; • Develop a strategy for deploying new technologies; • Understand how to appropriate the value of the technologies being deployed; • Nurture the innovative capabilities of the firm.
10.	Learning outcomes: At the completion of the subject, students should be able to perform the following tasks: • To understand the range, scope and complexity of issues and problems in managing technology and innovation • To develop the ability to strategically anticipate changes in high technology • To gain insight into organisational technological factors and their role in strategy development • To learn the complexity of managing technology implementation through product development, marketing, operations and human resource management practices • To understand the management needs in order to develop, acquire, adopt and/or assimilate technology
11.	Transferable Skills: The role of the technology management function in an organization is to understand the value of certain technologies for the organization. Continuous development of technology is valuable as long as there is a value for the customer and therefore the technology management function in an organization should be able to argue when to invest on technology development and when to withdraw. Technology Management is set of management disciplines that allow organizations to manage its technological fundamentals to create competitive advantage. Typical concepts used in technology management are technology strategy (a logic or role of technology in organization), technology mapping (identification of possible relevant technologies for the organization), technology road mapping (a limited set of technologies suitable for business), technology project portfolio (a set of projects under development) and technology portfolio (a set of technologies in use).

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12.	Teaching-learning and assessment strategy A variety of teaching and learning strategies are used throughout the course, including: • Lecture sessions • Tutorial sessions • Case Studies • Student-Lecturer discussion • Collaborative and co-operative learning • Workshops and Training Seminars • Independent study Assessment strategies include the following: • Ongoing quizzes • Midterm tests • Performance Assessment (Participation, project, Assigned exercises) • Case Presentations
13.	Synopsis: The aim of this course is to provide students with an understanding of the ways in which technology is brought to market. It does this by focusing on key technology management topics from the standpoint of an established business as well as new entrepreneurial ventures. Strong emphasis is placed on frameworks and methods that are both theoretically sound and practically useful. It will provide students with both an understanding of the issues and the practical means of dealing with them in an engineering context.
14.	Mode of Delivery: Face to Face • Lecture sessions • Tutorial sessions
15.	Assessment Methods and Types: The assessment for this course will be based on the following: Coursework **50%** Quizzes 10% Assignments 10% Project 10% Mid-Semester Exam 20% Final Examination **50%.** **Total** **100%**

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16. Mapping of the course/module to the Programme Aims

The individual course is mapped to the programme aims using a scale of **one** to **five** where (one being the least relevant/related and five being the most relevant/ related).

A1	A2	A3	A4	A5	A6
4	3	5	2	2	2

17. Mapping of the course/module to the Programme Learning Outcomes

The learning outcomes of this course are mapped to the eight MQF domains using a scale of **one** to **five** where (one being the least relevant/related and five being the most relevant/ related).

LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11	LO12
2	2	2	2	4	4	2	2	2	4	5	2

18. Content outline of the course/module and the SLT per topic

WEEK	Details	SLT			
		L	T	Indep.	Total
WEEK 1	**Introduction to Technology Management** • Concept and meaning of technology, Evolution and growth of technology • role and significance of management of technology • Impact of technology on society and business • Forms of technology process technology and product technology	2	1	6	9
WEEK 2, 3	**Competitive Advantages through New Technologies** • Product development • Scientific breakthrough to marketable product • Role of Government in Technology Development, linkage between technology • Development and competition • Managing research and development (R&D) • Managing Intellectual Property	4	2	12	18

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	WEEK 4, 5	**Technological Forecasting** • Exploratory: Intuitive • Extrapolation, Growth Curves Technology Monitoring • Normative: Relevance Tree • Morphological Analysis, • Mission Flow Diagram	4	2	12	18
	WEEK 6, 7	**Technology Assessment** • Technology Choice • Technological Leadership and Follower ship • Technology Acquisition • Meaning of Innovation and creativity Innovation management	4	2	12	18
	WEEK 8	**Technology Strategy** • Concept, types, key principles • Framework for formulating technology strategy • Technology forecasting: techniques and application	2	1	6	9
	WEEK 9, 10	**Technology Diffusion and Absorption** • Rate of Diffusion • Innovation Time and Innovation Cost • Speed of Diffusion • Project management in adoption and implementation of new technologies	4	2	12	18
	WEEK 11	**Technology Transfer Management** • Technology transfer-process • Outsourcing strategic issues • Joint ventures • Technology sourcing	2	1	6	9
	WEEK 12, 13	**Human Aspects in Technology Management** • Integration of People and Technology • Organizational and Psychological Factors • Organizational Structure	4	2	12	18
	WEEK 14	**Social Issues in Technology Management** • Technological Change and Industrial Relations • Technology Assessment and Environmental Impact Analysis	2	1	6	9

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		Total	28	14	84	126
19.	**Main references supporting the course**: Margaret A. White and Garry D. Bruton, (2007) *The Management of Technology and Innovation: A Strategic Approach*, South Western Publication					
	Additional references supporting the course: • Robert A. Burgelman, Clayton M. Christensen, Steven C Wheelwright. (2009). *Strategic Management of Technology and Innovation*. Cengage Learning, (4th Edition). • Frederick Betz. (2003). *Managing Technological Innovation: Competitive Advantage from Change*. Wiley, (2nd Edition) • Publication. • Norma Harrison, Danny Samson. (2005). *Technology Management:Text and International Cases.* McGrawHill, (2nd Edition) , McGraw Hill					
20.	**Other additional information** All related subject materials will be available to the students during the period of the course					