

COURSE OUTLINE

University of Malta
University of Potsdam
Teesside University
University of Turku



AIMS AND STUDY UNITS DESCRIPTIONS

Course commencing October 2011 or later

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CREATIVITY, INNOVATION, FORESIGHT AND ENTREPRENEURSHIP

by
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UNIVERSITY OF MALTA

Learning Objectives:

On successfully completing this programme students will be expected to:

- Develop an understanding of the role of creativity, innovation management, entrepreneurship and futures studies for value creation and competitiveness
- Contribute to the development of corporate strategy by integrating, synthesizing and applying theories, concepts and methodological skills from the fields of entrepreneurship, creativity, innovation management and futures studies.
- Analyze and reflect upon normative approaches to the strategic development of organizations and the behaviour which underpins their successful implementation.
- Reflect on theory and practice to develop initiatives to achieve changes in organizational culture and behaviour which will enhance competitiveness and equip organisations for future challenges.
- Develop an awareness for future research issues and future-open thinking in order to deal with uncertainty in the business environment, to become aware of risks and to create opportunities to overcome them.
- Take on leadership roles with motivation which will enable a heightened understanding and capacity to design and implement action-oriented strategies to overcome organisational challenges

Introduction

This Masters Program will emphasize the transfer of skills and knowledge, the ability to adapt to new contexts and situations and the importance of creativity, innovation, foresight and entrepreneurship to make optimal use of resources and to increase economic and strategic advantage on an organizational level.

The aim of the program is to deliver a joint Master degree between four European Universities. The program offers the opportunity to develop high competencies in the areas of Creativity, Entrepreneurship, Innovation Management and Futures Studies. The main aim of the program is the integration and practical application of the core subjects, from different perspectives, in corporations and institutions. The program is offered as a Blended Learning concept, which allows participants a maximum of flexibility with four face-to-face sessions, one week long per semester at each partner institution.

The development of skills related to creativity, innovation, foresight and entrepreneurship in education and training facilitates the strengthening of human resources and adds value to both individuals and the organizations within which they operate. This translates into increased competitiveness, because a successful organizational strategy that incorporates creativity, innovation, foresight and entrepreneurship implies increased efficiency and cheaper products, processes and services which are more cost-effective than those offered by competitors.

Creativity, innovation, entrepreneurship and foresight

There is a strong visible link between the four new disciplines of *creativity, innovation, entrepreneurship and foresight*. Creative ideas feed the innovation process. Innovation management provides strategy for the implementation of creative ideas that are considered to be feasible and which add value and competitiveness. Creativity involves the use of the imagination and an attitude directed towards the future. Foresight involves the creation of scenarios and a leap towards the future which is uncertain. The creation of future visions requires skills and competence related to all the other disciplines covered in this Masters Program, namely creativity, innovation management and entrepreneurship.

Innovation involves the application of new ideas and skills. Innovation usually concerns products, services and processes. Innovation management does not only encourage 'innovation' as in technical or R & D development. Innovation management gauges impact assessment and sustainability of innovation, managing both the demand and supply variables over medium to long-term time-frames, while also exploring ancillary opportunities within a wider context.

Innovation management identifies innovation opportunities and facilitates their implementation. As Tidd, Bessant and Pavitt (2001) state, it involves

developing both the ability to scan for signals about change and a readiness to move into new areas – and let go of old ones. Above all it suggests that the primary task is one of managing knowledge – developing and building distinctive competence in particular fields, adapting and absorbing new and different knowledge sets when it becomes necessary and moving out of particular knowledge areas when they become redundant (p.

Entrepreneurship should not only be considered as an area where people are encouraged to set up their own business, although this is an important aspect which should not be neglected as new start-ups are essential for a healthy economy and subsequent increased employment opportunities.

Entrepreneurship involves cultivating an attitude to recognize opportunities and to take risks – this requires the skill of creativity and it allows for the generation of alternatives, possibilities and an ability to search for multiple ways in which to recognize, develop and implement ideas and projects.

Entrepreneurship comprises a broad array of activities. Starting any sort of association that brings something that people did not think possible into a community counts as entrepreneurship. A broader interpretation of the concept of entrepreneurship involves the acquisition of skills and competencies which are valuable to foster the entrepreneurial spirit both for those who intend to start their own business and for those in employment. There are social entrepreneurs, civic entrepreneurs and commercial entrepreneurs. Most people will benefit by adopting a basic set of entrepreneurial practices in their working lives and, where possible, applying them to the social, civic and commercial institutions within which they are active.

Flores and Gray draw attention to the decline of careers which, as traditionally perceived, constitutes the principal economic challenge facing the working majority. This necessitates new thinking about individuals' economic lives. The result is a shift in the concept of entrepreneurship from that of an individualistic way of life motivated by financial gain towards the recognition of opportunities and acting upon them with commitment and creativity.

Peter Drucker maintains that 'Innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or a different service.'¹

Foresight involves taking a leap into the distant future to create scenarios and visions. We can design, create and work towards our own scenarios and visions in an attempt to act now either to arrive at a desirable future or to mitigate unfavorable circumstances.

¹ *Ibid.*, p. 17.

A number of foresight methodologies are available and applied mainly in the areas of policy (ICT, science and technology, environment and energy) and in private organisations (corporate foresight). The design of novel and desirable future scenarios draws on the skills of creativity as it involves the generation of novel ideas and possibilities. The implementation of policies to arrive at a desirable future scenario requires knowledge of strategic innovation.

Education and Training – the ‘habit of learning’

Education and training are valuable to develop the ‘habit of learning’ which can counteract resistance to change. This resistance may be overcome through education and training in the appropriate skills (creativity, innovation, entrepreneurship and foresight) together with strategically planned communication concerning the organizations’ rationale for change which innovation necessarily brings in its wake.²

There is no learning without reflection. Educating and training people at all levels in the skills of creativity, innovation, foresight and entrepreneurship allows for increased reflection and improved decision making, autonomy, flexibility, responsibility and the ability to deal with change. This implies a move against out-dated pedagogies towards education and training that incorporates practical issues which include autonomous self-development and maturity to foster the appropriate skills, attitudes and dispositions.

Conclusion

Present action determines future destiny – a destiny which may be designed and created and which should lead towards economic prosperity if the right choices are made. Creativity, innovation, entrepreneurship and foresight play an important role in this process.

There is no doubt that people are an organization’s most valuable asset. A two-fold strategy can be adopted to foster creativity, innovation, foresight and entrepreneurship within organizations which involves:

- Ensuring that organizational structures and processes optimize the skills and attitudes of all staff;
- Developing the potential of all staff through education and training.

How can this be done? It is essential that all those who are involved – regardless of their position within the organization – need to have a good understanding of creativity, innovation, foresight and entrepreneurship and to understand:

- Exactly what is involved in the situation;
- What kind of behaviour should be fostered;
- What supports and what inhibits creativity, innovation, foresight and entrepreneurship in the organization.

Foresight and innovation management are essential in today’s constantly changing scenario and the skills related to creativity and entrepreneurship enable future creation. *“Innovative organisations are known for producing creativity on demand and implementing breakthrough results.”*³

² *Ibid.*, p. 329.

³ <http://www.aptt.com/innovationindex.htm>

PROGRAMME OF STUDIES
ALL STUDY-UNITS ARE COMPULSORY

SEMESTER 1		Total ECTS: 32
IOT 5024	Creativity: Psychological perspectives Ms. Leonie Baldacchino, University of Malta	4 ECTS
IOT 5101	Creativity: Idea generation, methods and applications Ms. Shirley Pulis Xerxen (Co-ordinator), University of Malta	6 ECTS
IOT 5102	Innovation Management Dr. Dana Mietzner (Co-ordinator) et al, University of Potsdam	12 ECTS
IOT 5104	Design and Innovation Ms. Shirley Pulis Xerxen, University of Malta	4 ECTS
IOT 5105	How can we explore the future? Dr Juha Kaskinen (Co-ordinator) et al, Finland Futures Research Centre, University of Turku	6 ECTS
SEMESTER 2		Total ECTS: 30
IOT 5011	Creativity and innovation in the media Dr. Brenda Murphy, University of Malta	4 ECTS
IOT 5103	Patent Management/IPR Dr. Dana Mietzner (Co-ordinator) et al, University of Potsdam	4 ECTS
IOT 5106	Futures research methods Dr Juha Kaskinen (Co-ordinator) et al, Finland Futures Research Centre, University of Turku	8 ECTS
IOT 5108	Introduction to Entrepreneurship Ms. Leonie Baldacchino, University of Malta	4 ECTS
IOT 5111	Research processes and methods Dr. Dana Mietzner (Co-ordinator) et al, University of Potsdam	10 ECTS
SEMESTER 3		Total ECTS: 28
IOT 5107	Futures Research in Practice Dr Juha Kaskinen (Co-ordinator), Finland Futures Research Centre, University of Turku	6 ECTS
IOT 5109	Business Enterprise and Entrepreneurial Behaviour Mr. Roy Fewster (Co-ordinator), Teesside University	8 ECTS
IOT 5110	Business Opportunities: From Ideas to Action Mr. Roy Fewster (Co-ordinator), Teesside University	8 ECTS
IOT 5113	The application of creativity and innovation to digital technologies Dr. Sandra M. Dingli and Dr. Brenda Murphy, University of Malta	6 ECTS
SEMESTER 4		Total ECTS: 30
IOT 5130	Dissertation	30 ECTS
		TOTAL ECTS: 120

CREATIVITY STUDY UNITS (20 ECTS)

IOT 5011	Creativity and innovation in the media Dr. Brenda Murphy, University of Malta	4 ECTS
IOT 5024	Creativity: Psychological perspectives Ms. Leonie Baldacchino, University of Malta	4 ECTS
IOT 5101	Creativity: Idea generation, methods and applications Ms. Shirley Pulis Xerxen (Co-ordinator), University of Malta	6 ECTS
IOT 5113	The application of creativity and innovation to digital technologies Dr. Sandra M. Dingli and Dr. Brenda Murphy, University of Malta	6 ECTS

INNOVATION STUDY UNITS (20 ECTS)

IOT 5102	Innovation Management Dr. Dana Mietzner (Co-ordinator) et al, University of Potsdam	12 ECTS
IOT 5103	Patent Management/IPR Dr. Dana Mietzner (Co-ordinator) et al, University of Potsdam	4 ECTS
IOT 5104	Design and Innovation Ms. Shirley Pulis Xerxen, University of Malta	4 ECTS

FORESIGHT (20 ECTS)

IOT 5105	How can we explore the future? Dr Juha Kaskinen (Co-ordinator), Finland Futures Research Centre, University of Turku	6 ECTS
IOT 5106	Futures research methods Dr Juha Kaskinen (Co-ordinator), Finland Futures Research Centre, University of Turku	8 ECTS
IOT 5107	Futures Research in Practice Dr Juha Kaskinen (Co-ordinator), Finland Futures Research Centre, University of Turku	6 ECTS

ENTREPRENEURSHIP (20 ECTS)

IOT 5108	Introduction to Entrepreneurship Ms. Leonie Baldacchino, University of Malta	4 ECTS
IOT 5109	Business Enterprise and Entrepreneurial Behaviour Mr. Roy Fewster (Co-ordinator), Teesside University	8 ECTS
IOT 5110	Business Opportunities: From Ideas to Action Mr. Roy Fewster (Co-ordinator), Teesside University	8 ECTS

RESEARCH METHODS (10 ECTS)

IOT 5111	Research processes and methods Dr. Dana Mietzner (Co-ordinator) et al, University of Potsdam	10 ECTS
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DISSERTATION (30 ECTS)

IOT 5130	Dissertation	30 ECTS
		Total 120 ECTS

IOT 5011	Creativity and innovation in the media
Type:	Lectures, seminars, blended learning and workshop
ECTS Value:	4 ECTS
Method of Assessment:	Assignment: 100%
Pre-requisite study units:	nil
Result:	Percentage Mark and Grade
Lecturer:	Dr. Brenda Murphy, University of Malta

Learning Objectives:

- To understand the significant historical developments and impacts on a broader social and cultural context.
- To be familiar with significant media models and understand their application
- To recognise and utilise creative strategies to address some of the core issues that emerge as a result of a highly media dependent society.

Description:

The aim of this study unit is to:

- Provide a historical and theoretical overview of the various media and their complementary core media elements such as advertising, public relations, journalism and film in contemporary society
- Introduce core models which are useful in interrogating the function of these media
- Examine some case studies where creative strategies have been used in addressing or resolving an issue in the core media elements
- Highlight how media industries exist within a market led economy
- Examine how the media portrays the social and cultural aspects of our world
- Explore how *creativity* and *innovation* could be utilised to address some of the issues and concerns around ‘portrayal’ and ‘representation’

Readings:

- de Bono, E. (1973). *Lateral thinking: Creativity step by step*. NY: Perennial Library.
- de Bono, E. (1992). *Serious creativity: Using the power of lateral thinking to create new ideas*. NY: Harper Business.
- Dingli, S. M. (2002). *Creative thinking: An indispensable asset for a successful future*. Malta University Press.
- Green, A. (2006). *Effective personal communication skills for public relations (PR in Practice)*. London: Kogan Page.
- Green, A. (2007). *Creativity in public relations (PR in practice)*. London: Kogan Page.
- Hall, S. (2001). *Representation: Cultural representations and signifying practices*.
- Holbrook, D. (1994). *Creativity and popular culture*. Rutherford; London: Fairleigh Dickinson University Press ; Associated University Press.
- Jones, J. P. (Ed.) (1999). *The advertising business: Operations, creativity, media planning, integrated communications*. Thousand Oaks, Calif.: Sage Publications.
- McNair, B. (2002). *Striptease culture, sex media and the democratization of desire*. London: Routledge.
- McNair, B. (2003). *News and journalism in the UK (Communication and society)*. London: Routledge.
- Williams, K. (1998). *Get me a murder a day!: History of mass communication in Britain*.

IOT 5024	Creativity: Psychological perspectives
Type:	Lectures, workshops and blended learning
ECTS Value:	4 ECTS
Method of Assessment:	Reflective diary: 30% Examination: 70%
Pre-requisite study units:	nil
Result:	Percentage Mark and Grade
Lecturers:	Ms. Leonie Baldacchino University of Malta

Learning Objectives:

Students who complete this study unit are expected to demonstrate an understanding of the various psychological processes that underlie creativity and of the manner in which creativity results from interplay between these psychological processes, personal characteristics and contextual factors.

Description:

This study unit is designed to provide students with in-depth knowledge of the various psychological processes that mediate the relationship between the individual and contextual factors involved in creativity. Students will learn about the typical characteristics of creative people and how creativity is influenced by environmental factors. They will explore the relationship between creativity and various psychological components including motivation, perception, intelligence and memory.

Topics to be covered include the following:

Introduction: Historical Overview and Definitions

A brief historical overview of creativity will introduce students to the central concepts which will be explored in further detail throughout this study unit.

The Creative Process, the Creative Product, the Creative Person and the Creative Environment

A discussion of the creative process will focus on the stages involved in creativity and will lead to a definition of what constitutes a creative product. The characteristics of creative people will be described together with the environmental influences on creativity to help students understand that creativity results from interplay between personal traits and external factors. This will shed light onto the issue of nature and nurture as applied to creativity.

The Psychological Components of Creativity

Students will develop in-depth knowledge of the various psychological processes that mediate the relationship between the individual and contextual factors involved in creativity. They will explore the relationship between creativity and various psychological components including intelligence, sensation, perception, attention, memory, learning, problem solving, motivation, emotions, personality and the self.

Creativity and Mental Health

The relationship between mental illness and creative response will be explored. Psychological conditions, brain damage, self-destructive behaviour and psychiatric disturbances will be analysed in view of their connection to creativity. Students will be guided towards an understanding of the link between well-being and creativity, with particular emphasis on self-disclosure, self-regulation, depression, stress and adaptation.

Creativity Testing and Creativity Research

The various ways of conceptualizing creativity for measurement purposes will be outlined and the salient issues pertaining to the measurement of creativity (creativity tests), including problems of reliability and validity, will be discussed. An overview of the areas of research in the creativity domain, including cognitive research, clinical research, developmental research and psychometric research, will be investigated.

Reading list:

- Amabile, T. (1996). *Creativity in context*. Oxford: Westview Press.
- Choi, J. (2004). Individual and contextual predictors of creative performance: The mediating role of psychological processes. *Creativity Research Journal*, 16(2-3), 187-199.
- Csikszentmihalyi, M. (1997). *Creativity: Flow and the psychology of discovery and invention*. NY: Harper Perennial.
- Gardner, H. (2006). *Multiple intelligences: New horizons*. NY: Perseus Book Group.
- Hughson, N. & Hughson, R. (2003). *Psychology of creativity*. Arizona: Amazing Books.
- Runco, M. (2004). Creativity. *Annual Review of Psychology* (55), 657-687.
- Sternberg, R. (1999) (Ed.). *Handbook of creativity*. UK: Cambridge University Press.
- Sternberg, R. (2003). *Wisdom, intelligence, and creativity synthesized*. UK: Cambridge University Press.
- Walton, A. (2003). The impact of interpersonal factors on creativity. *International Journal of Entrepreneurial Behaviour and Research*, 9(4), 146-162.
- Weisberg, R. (1993). *Creativity: Beyond the myth of genius*. NY: W.H. Freeman.

IOT 5101	Creativity: Idea generation, methods and applications
Type:	Lectures, seminars, blended learning and workshop
ECTS Value:	6 ECTS
Method of Assessment:	Assignment: 100%
Pre-requisite study units:	nil
Result:	Percentage Mark and Grade
Lecturer:	Ms. Shirley Pulis Xerxen (Co-ordinator), University of Malta

Learning Objectives:

On completion of this study unit students will be expected to:

- Understand the importance of creativity and how it can be generated
- Understand the role that perception plays in the process of thinking and of creativity
- Learn to apply tools and methods (including Edward de Bono's Lateral Thinking, Six Thinking Hats, DATT and CoRT tools) which will enable them to generate new ideas and to broaden their perception
- Be proficient in the application of various creative thinking methodologies and to understand the variety of situations to which they may be applied

Description:

This study unit offers a variety of perspectives on creativity with particular emphasis on the de Bono thinking methods. Students will gain an understanding of the implications of creativity and its applications. The unit is designed to provide opportunities for the students to apply the tools of creative thinking.

Emphasis will be placed on the variety of uses for these methodologies and on the practical application of the tools learnt. Students will be expected to understand the importance of skill acquisition (as opposed to knowledge or understanding) where such methodologies are concerned.

The topics which this study unit will cover include the following:

- An introduction to creativity
- The importance of perception
- Edward de Bono's tools and methods:
 - Lateral thinking
 - Six thinking hats
 - DATT and CoRT
- Other generic creativity tools and applications (eg. TRIZ, SCAMPER and CPS)
- Mind mapping

Serious Creativity and Lateral Thinking

Understanding the logic of creativity does not itself make you more creative. But it does make you aware of the necessity for creativity. It also explains the design of certain creative techniques and shows why apparently illogical techniques are actually quite logical within the logic of patterning systems. Above all, understanding the logic of creativity motivates a person to do something about creativity.

(de Bono, 1993: 5)

The great focus on developing creative thinking tools and skills across the world indicates a broadly shared view that creativity and innovation are crucial to success within the emerging global knowledge community.

Lateral thinking, in contrast to logical or rational thinking, is unpredictable and unconventional – thinking outside the box. In de Bono's words lateral thinking 'emphasizes the searching for different approaches and different ways of looking at things.' (de Bono, 1993: 54). He further suggests that lateral thinking skills can be learnt and that there are specific techniques that can facilitate this acquisition.

DATT (Direct Attention Thinking Tools) and CoRT (Cognitive Research Trust)

Edward de Bono's *DATT (Direct Attention Thinking Tools)* and *CoRT (Cognitive Research Trust)* are thinking programmes specifically designed for use in business management (DATT) and education (CoRT). They consist of a number of thinking tools that are simple but which, when used effectively, can be very powerful. The tools help to make thinking performance more deliberate, more structured, more organised and more effective. Correct use of the thinking tools helps to avoid wrong decisions.

Knowledge of the DATT and CoRT thinking tools will help students to improve the quality of their thinking, become team leaders and be prepared to accept new responsibilities. It will help them to broaden their perception, to take more effective decisions and to tackle problem solving in a more structured manner.

Six Thinking Hats

The Six Thinking Hats are often used to analyse a topic, to generate a number of perspectives and to resolve conflicts. They are a convenient way of putting Parallel Thinking into practice - this is very different from argument. The hats and colours are designed to make Parallel Thinking a practical process that can be remembered and easily put to use. With the Six Hats method it is possible to separate the different aspects of thinking instead of trying to do everything at once. The Six Hats method may therefore be used as a 'release' from the argumentative mode as it lays out all views side by side in parallel and provides possibilities for designing a way forward.

Reading List

- Buzan, Tony (2004). *Mind Maps at Work*.
- de Bono, Edward. *DATT Programme*.
- de Bono, Edward (1990). *Simplicity*.
- de Bono, Edward (1991). *Conflicts: A Better Way to Resolve Them*.
- de Bono, Edward (1992). *The Five Day Course in Thinking*.
- de Bono, Edward (1993). *Teach Your Child How To Think*.
- de Bono, Edward (1993). *Serious Creativity*.
- de Bono, Edward (1996). *Sur/Petition*.
- de Bono, Edward (2000). *Six Thinking Hats*.

IOT 5102	Innovation Management
Type:	Lectures, seminars, group learning and blended learning
ECTS Value:	12 ECTS
Method of Assessment:	Examination: 50% Assignment: 50%
Pre-requisite study units:	nil
Result:	Percentage Mark and Grade
Lecturers:	Dr. Dana Mietzner (Co-ordinator) et al, University of Potsdam

Learning Objectives:

Students will be expected to acquire basic and advanced knowledge about the theories, methods and concepts in different areas of innovation management and R&D Management for application in SMEs and in larger companies. Participants will be expected to acquire knowledge about the success factors of innovations, the establishment of a systematic innovation process, the organization of innovation management and the integration of strategic foresight activities in the innovation process. The course concept includes the development of problem solving competencies. Furthermore, the course aims to encourage the development of capabilities for the acquisition of complex, interdisciplinary coherences. The potential and possibilities of method implementation for practical issues will be discussed. Through the implementation of case studies as team work sessions, participants will be expected to improve their social competencies.

Description:

The topics to be covered in this study unit include the following:

- Requirements and job possibilities for innovation managers
 - Significance of innovation in competition
- Theoretical Models
 - Definitions of the term innovation, technology, R&D
 - Innovation behavior of companies
- Success factors of innovations
 - Measurement of success
 - Success factors in empirical studies
 - New product study
 - Design of the innovation process
- Innovation process
 - Phases and milestones
 - Steering committee
 - Assessment and evaluation of innovation

- Innovation process in practice
 - Assessment of innovation
 - Company examples
 - Consultancy case

- Closed innovation
 - Intrapersonal level
 - Interpersonal level
 - Organizational level
 - Intrapersonal level
 - Interpersonal level

- Open innovation – actors, network management, external environment and innovation system
 - Theoretical background of the open innovation approach
 - Open innovation – actors
 - Open innovation – network management
 - Concept of customer integration (lead user concept, tool kits, online communities/ weblogs)

- Open innovation - external environment, innovation systems
 - National innovation systems
 - Regional innovation systems
 - Cluster approaches

- New topics
 - “Open beyond source”
 - Discussion of innovative products and services, inspired by the open innovation phenomena

Reading list:

- Afuah, A. (2000): How much do your competitors' capabilities matter in the face of technological change? *Strategic Management Journal*, 21.
- Burgelman, R.A., Christensen, C., Wheelwright, S.C. (2003). *Strategic management of technology and innovation*. 4th ed. McGraw-Hill/Irwin.
- Chesbrough, H.W. (2003). *Open innovation: The new imperative for creating and profiting from technology*. Boston: Harvard Business School Press.
- Chesbrough, H.W. (2007): The market for innovation: Implications for corporate strategy. *California Management Review*, 49(3), 45–66.
- de Bono, E. (1990). *Lateral thinking for management*.
- de Bono, E. (1996). *Serious creativity*. Harper Collins.
- de Bono, E. (2000). *The six thinking hats*.
- Gemünden, H.G., Salomo, S., Hölzle, K. (2007). Role models for radical innovations in times of open innovation. *Creativity and Innovation Management*, 16(4), 408-421.
- Goodman, M. (1995). *Creative management*.
- Lichtenthaler, U., Holger E. (2007). External technology commercialization in large firms: results of a quantitative benchmarking study. *R&D Management* 37(5), 383–397.
- Lumsdaine, E., Lumsdaine, M. (1994). *Creative problem solving: Thinking skills for a changing world*.
- Tidd, J., Bessant, J., Pavitt, K. (2005). *Managing innovation: Integrating technological, market and organizational change*, 3rd Edition.
- Tushman, M.L., Anderson, P. (1997). *Managing strategic innovation and change. A collection of readings*. Oxford University Press

IOT 5103	Patent Management/IPR
Type:	Lectures, seminars, group learning and blended learning
ECTS Value:	4 ECTS
Method of Assessment:	Examination: 60% Assignment: 40%
Pre-requisite study units:	nil
Lecturers:	Dr. Dana Mietzner (Co-ordinator) et al, University of Potsdam

Learning Objectives:

The aim of this study unit is the development of relevant competencies in the area of patents/IPR (Intellectual Property Rights). Students will be expected to learn to evaluate company needs in the area of patents/IPR and to communicate their interest to patent agents.

Description:

The topics to be covered in this study unit include the following:

Elements of Intellectual Property Rights

- Rights relating to patents, utility patents, design patents
- Trademark rights
- Fair Trade Law

Patents and Patent Management

- Requirements of patentability and exceptions of patentability
- Application procedure in Europe
- Establishment and development of strategic portfolios
- Elongation of the duration of a patent
- Supplementary Protection Certificate (SPC) and data protection
- Freedom-to-operate
- Patent monitoring
- Patent infringement in Europe and USA

Licences

- Types of licences
- Rights and liabilities of licensor and licensee
- Typical IP regulations in licence contracts
- License strategies
- IP regulations in other forms of cooperation

Reading list:

- Gibbs, A., Dematteis, B. (2008): *Patent Quality Management. Implementing a System for Creating Value*, Wiley & Sons
- Heines, H.M. (2007). *Patents for Business: The Manager's Guide to Scope, Strategy, and Due Diligence*, Praeger Publishers Inc., U.S.
- Jolly, A., Philpott, J. (eds) (2007). *The Handbook of European Intellectual Property Management. Developing, Managing and Protecting your Company's Intellectual Property*, Kogan page, London
- Megantz, R.C. (2002). *Technology Management Developing and Implementing Effective Licensing Programs*, John Wiley & Sons
- O'Connell, D. (2008). *Inside the Patent Factory: The Essential Reference for Effective and Efficient Management of Patent Creation*, Wiley & Sons

IOT 5104	Design and innovation
Type:	Lectures, workshops and blended learning
ECTS Value:	4 ECTS
Assessment:	Assignment: 100%
Pre-requisite study units:	nil
Result:	Percentage Mark and Grade
Lecturer:	Ms Shirley Pulis Xerxen, University of Malta

Learning Objectives:

By the end of the study unit students will be expected to:

- Exhibit an increased awareness of design and innovation
- Understand the principles, procedures and processes of design
- Develop an insight into innovation directed towards creating a more socially, economically and environmentally sustainable future
- Recognise opportunities to apply theory and techniques to evaluate new designs.

Description:

The study unit explores how innovation is generated where design is concerned. It will foster discussion and reflection on how ideas are developed and how designs and inventions are translated into products. Some of the questions that will be tackled include:

- What motivates an individual to invent?
- What leads to the success or failure of a new design?
- How do markets shape the design and innovation process?
- How is design geared towards a more sustainable future?

Reading List:

Bruce M., & Bessant J. (2002). *Design in business – Strategic innovation through design*. Pearson Education Ltd. ISBN 0 273 64374 6.

Stamm, von B. (2008). *Managing Design, Innovation and Creativity*, Wiley.

Reading Material, including articles and papers will be available online.

IOT 5105	How can we explore the future?
Type:	Lectures, workshops and blended learning
ECTS Value:	6 ECTS
Method of Assessment:	Assignment: 40% Examination: 60%
Pre-requisite study units:	nil
Result:	Percentage Mark and Grade
Lecturer:	Prof Juha Kaskinen (Co-ordinator) et al , Finland Futures Research Centre, University of Turku

Learning Objectives:

The study unit will cover basic knowledge of futures studies. Students will be expected to learn about the history of futures studies and to become familiar with different theories and ways of value thinking in futures studies. Students will become familiar with the ethical foundations of futures studies. On completing this course students will understand the various terms of futures studies as well as the historical and philosophical background to this field of knowledge.

Description:

Futures studies is a field of knowledge characterized by interdisciplinary. This study unit offers an introduction to the knowledge field of futures studies. Futures research in Finland focuses on visionary knowledge regarding alternative futures and the challenges included in them. Futures research offers futures-oriented information to back up decision-making in the public and private sectors.

This blended learning module consists of various learning methods which include collaborative study, independent study, blended learning (using virtual learning environment, videoconferencing, etc.) and traditional lecturing. Students will be expected to meet in their study group participating in lectures as well as in group work and discussions. Students will be expected to read the study materials and to write independent self study assignments.

Topics to be covered in this study unit include the following:

- Introduction: What is Futures Studies?
- Values, time and social transition.
- Systems thinking and complexity, Delphi as a Futures Studies method
- Futures Studies concepts, tools and working methods.
- Futures Studies methods – Scenarios

Individual and group assignments are based on the course literature (Collection of articles, handouts).

Book exam on: Bell, W. (1997). Foundations of Futures Studies, Volumes I and II. London, Transaction Publishers.

Reading List:

- Masini, E. B. (1982). Reconceptualizing futures: A need and a hope. *World Futures Society Bulletin*. November/December.
- Masini, E. B. (1993). Why futures studies? Terminology and development. *Grey Seal, London*, 54-137.
- Masini, E. B. (1993). Why futures studies? Why think about the future today? *Grey Seal, London*, 53.
- Bell, W. (1997). Values in Utopia thought. In W. Bell. *Foundations of futures studies, Volume 2*, (pp. 7-65). United Kingdom, Transaction Publishers.
- Rubin, A. (2001). *Futures studies as a field of knowledge and as scientific work*.
- Schwartz, P. (1996). The art of long view. Planning for the future in an uncertain world. *Anatomy of a New Driving Force: the Global Teenager, USA*, 118-135.

IOT 5106	Futures research methods
Type:	Lectures, workshops and blended learning
ECTS Value:	8 ECTS
Method of Assessment:	Assignment: 40% Report: 60 %
Pre-requisite study units:	How can we explore the future?
Result:	Percentage Mark and Grade
Lecturer:	Dr Juha Kaskinen (Co-ordinator) et al, Finland Futures Research Centre, University of Turku

Learning Objectives:

On completion of this study unit students will be able to understand and to use various methodologies and methods in futures studies. They will achieve an understanding of the main theories and methods of the field. Students will specifically be expected to have gained a comprehensive understanding of the Delphi method, Scenarios, Environmental Scanning, Soft Systems Methodology and Foresight. The aim of this study unit is to allow students the possibility to achieve readiness to understand and use various methodologies and methods in futures studies.

On completion of this study unit students will be expected to be capable of building scenarios and of understanding the scenario process as a whole.

Description:

This blended learning study unit consists of various learning methods which include collaborative study, independent study, blended learning (using virtual learning environment, webcasting, etc.) and traditional lecturing. Students are expected to meet in their study group, participate in lectures and in group work and discussions. Students will be expected to read the study materials and to write independent self study assignments.

Topics to be covered in this study unit include the following:

- An overview of Futures Studies methods
- Systems Thinking and methodology
- Delphi method
- Environmental scanning
- Integrated use of various Futures Research methods

Students will, moreover, conduct an in-depth scenario exercise and write a report based on this exercise.

Reading list:

Bell, W. (1997). *Foundations of Futures Studies, Volumes I and II*. London, Transaction Publishers.

Articles and lecture notes:

Checkland, P. (1999). A 30-year retrospective. In P. Checkland & J. Scholes (Eds.) *Soft systems methodology in action* (pp. 3-61). John Wiley & Sons.

Malaska, P. (1991). Economic and social evolution: The transformational dynamics approach. In E. Laszlo (Ed.). *The new evolutionary paradigm. The world futures general evolution studies. Volume 2* (pp. 131-155). Gordon and Breach Science Publishers S.A., New York.

May, G. H. (1996). Managing, planning and creating the future. In *The future is ours. Foreseeing, managing and creating the future* (pp. 157-204). Westport, CT: Praeger.

May, G. H. (1996). Foreseeing the future. In *The future is ours. Foreseeing, managing and creating the future* (pp. 113-155). Westport, CT: Praeger.

Tapio, P. (2002). Methodological questions. In *The limits to traffic volume growth*. Finnish Society for Futures Studies. Acta Futura Fennica, number 8 (pp. 56-74).

IOT 5107	Futures research in practice
Type:	Lectures, workshops and blended learning
ECTS Value:	6 ECTS
Method of Assessment:	Assignment: 100 %
Pre-requisite study units:	IOT 5105 - How can we explore the Future? IOT 5106 - Futures Research Methods
Result:	Percentage Mark and Grade
Lecturer:	Dr Juha Kaskinen (Co-ordinator) et al, Finland Futures Research Centre, University of Turku

Learning Objectives:

On completion of this study unit students will be expected to be capable of using one or more of the methods of Futures Studies in order to solve a scientific problem. They will be expected to have learnt how to argue in a scientific manner, to assess scientific argumentation and to evaluate research. They will be expected to be able to use multidisciplinary points of view in their research and to take advantage of inter-, trans- and multidisciplinary research methods and viewpoints.

Description:

The aim of this study unit is to give students a deeper understanding of the rhetoric of futures studies relating to various methodological approaches. The idea is to study some methods in depth, to learn how to design scientific inquiry and to argue for methodological choices. The aim is to deepen and broaden the student's concept of method-based and methodological scientific discussion. Independent work will be conducted by the students in the form of written reports.

The study unit will be conducted by means of virtual lectures, literature assignments and individually produced report assignments. Some of the work will be done individually.

To complete the study unit students will be expected to:

1. write independent self study assignments
2. actively participate in the interactive discussions
3. actively participate in the group interactive discussions
4. prepare and submit the final report individually

These four tasks need to be completed and where required submitted by the deadlines stipulated for students to successfully complete the study unit.

Reading List:

Individual and group assignments are based on the course literature (collection of articles).

Tapio, P. and Hietanen, O. (2002). *Epistemology and public policy: using a new typology to analyse the paradigm shift in Finnish transport futures studies*. Futures 34 (2002).

Aaltonen, Mika & Sanders Irene T. (2006) *Identifying Systems' New Initial Conditions as Influence Point for the Future*. Foresight. The journal of futures studies, strategic thinking and policy. Vol. 8, No. 3.

Malaska, Pentti and Virtanen, Ilkka (2005) *Theory of Futuribles*. Finnish Future Society. Futura 2-3/ 2005.

IOT 5108	Introduction to Entrepreneurship
Type:	Lectures, workshops and blended learning
ECTS Value:	4 ECTS
Method of Assessment:	Online Postings: 15% Examination: 85%
Pre-requisite study units:	nil
Result:	Percentage Mark and Grade
Lecturer:	Ms. Leonie Baldacchino, University of Malta

Learning Objectives:

On completion of this study unit students are expected to demonstrate a thorough understanding of the basic concepts and research trends in the field of entrepreneurship.

Description:

This interactive study unit is designed to introduce students to the world of entrepreneurship and to stimulate their thoughts and reflection on the fundamental issues and research trends in the field. This introductory course constitutes the foundations upon which the subsequent study units in this Entrepreneurship module will be built.

The various definitions and conceptualizations of entrepreneurship are first discussed with reference to case studies of well-known successful entrepreneurs. The discovery and exploitation of entrepreneurial opportunities is then outlined, with emphasis on the importance of going beyond simply reacting to change in the environment to the deliberate instigation of intended change in the creation of new opportunities. The central role of social capital in entrepreneurship is then investigated, with discussions focusing not only on traditional networking models but also on the implications of the emergence of new digital technologies in the creation and maintenance of social and professional relationships.

The issue of nature and nurture as applied to entrepreneurship is explored through a debate on whether entrepreneurs are born or made. The extant literature on entrepreneurial personality and entrepreneurial cognition is reviewed, together with an overview of the skills and competencies of entrepreneurs. The various factors which contribute to start-up success are then outlined, with particular emphasis on the crucial role of creativity and innovation in overcoming the various challenges that entrepreneurs are exposed to in the early stages of their business ventures. The study unit is concluded with an overview of social and sustainable entrepreneurship and with an introduction to business planning.

Reading List:

- Barringer, B. R., & Ireland, R. D. (2006). *Entrepreneurship: Successfully launching new ventures*. NY: Pearson Prentice Hall.
- Baum, R., Frese, M., & Baron, R. (Eds.) (2006). *The psychology of entrepreneurship (SIOP Organizational Frontiers Series)*. PA: Lawrence Erlbaum Associates.
- Bessant, J., & Tidd, J. (2007). *Innovation and entrepreneurship*. NY: John Wiley and Sons.
- Birley, S., & Muzyka, D. (Eds.) (2000). *Mastering entrepreneurship*. NY: FT Prentice Hall.

- Burns, P. (2007) *Entrepreneurship and small Business*. Basingstoke: Palgrave Macmillan. Carter, S., & Jones-Evans, D. (Eds.) (2000). *Enterprise and small business: Principles, practice and policy*. London: FT Prentice Hall.
- Johnson, S. (2006). *Who moved my cheese?* Utah: Spencer Johnson Partners.
- Kirby, D. A. (2003). *Entrepreneurship*. London: McGraw Hill.
- Lumsdaine, E., & Binks, M. (2006). *Entrepreneurship from creativity to innovation: Effective thinking skills for a changing world*. Oxford: Trafford Publishing.
- Robinson, A. G., & Schroeder, D. M. (2006). *Ideas are free*. SF: Berrett-Koehler Publishers Inc.
- Wickham, P. A. (2005). *Strategic entrepreneurship*. London: FT Prentice Hall.

Further readings in electronic format will be provided format throughout the course.

IOT 5109 Business Enterprise and Entrepreneurial Behaviour

Type: Lectures, workshops and blended learning

ECTS Value: 8 ECTS

Method of assessment: Assignment 100%

Pre-requisite study units: IOT5108 Introduction to Entrepreneurship

Result: Percentage mark and grade

Lecturers: Mr. Roy Fewster (Co-ordinator) et al,
Teesside University

Learning Objectives:

On completion of this study unit students are expected to be able to:

- Critically examine their own competences, identity and practices with regard to entrepreneurial behaviour and enterprise development.
- Critically examine the relationship between entrepreneurial behaviour and existing patterns of practice in organizations, institutions and wider structures
- Evaluate the conditions and activities that influence the degree of entrepreneurial behaviour in an organizational context and critique normative approaches to the creation of corporate and social entrepreneurship.
- Develop a critical understanding of the process of being entrepreneurial in the creation of a plan for a new venture from an innovative idea.

Description:

Creativity and innovation can produce new knowledge and the practice of entrepreneurship can turn those ideas and innovations into actions that stimulate business growth and development. The practice of entrepreneurship is not limited to an elite group of celebrity entrepreneurs; entrepreneurial behaviour can be found in many organizational settings, including SMEs, corporate organizations and the public sector.

The aim of this study unit is to explore the practice of entrepreneurship and entrepreneurial behaviour from the perspective that this is the catalyst which converts novel ideas, creativity and innovations into feasible future business strategies.

The study unit will explore entrepreneurial behaviour in different organizational contexts, e.g. the entrepreneurial individual running their own business, the corporate entrepreneur, the entrepreneur in the public sector, social entrepreneurship and the practice and development of personal entrepreneurial behaviour. Theory, concepts and extant research will be supported by case studies and the experiences of practicing entrepreneurs.

Topics covered in this study unit include:

- The entrepreneurial learning process and the creation of new forms of knowledge.
- Experimental behaviour, risk, and reward.
- The role of motivation, attitude towards entrepreneurial behaviour, and achievement in entrepreneurial performance.
- Antecedent factors influencing entrepreneurial performance; culture, the environment, social capital, human capital.
- Entrepreneurship as a complex social process, social constructionism and perceptions of reality.
- Barriers to the development of entrepreneurial behaviour within organisations.

Indicative Reading List:

- Alvarez, A.A., & Busenitz, L. W. (2001). The entrepreneurship of resource-based theory. *Journal of management*, 27, 755-775.
- Burke, G., Clarke, L. et al (2008) *Growing your Business*. London: Routledge.
- Burns, P. (2008) *Corporate Entrepreneurship*. Basingstoke: Palgrave Macmillan.
- Carter, S. & Jones-Evans, D., (Eds.) (2006). *Enterprise and small business: Principles, practice and policy*. London: FT Prentice Hall.
- Davidson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, 18.
- Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology* 78(6), 1360-1380.
- Kirby, D. A. (2003). *Entrepreneurship*. London: McGraw Hill.
- Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review* 23(2), 242.
- Rae, D. (2007) *Entrepreneurship*. Basingstoke: Palgrave Macmillan
- Wickham, P. A. (2005). *Strategic entrepreneurship*. London: FT Prentice Hall.

IOT 5110	Business Opportunities: From Ideas to Action
Type:	Lectures, workshops and blended learning
ECTS Value:	8 ECTS
Method of assessment:	Presentation: 30% Assignment: 70%
Pre-requisite study units:	IOT 5108 Introduction to Entrepreneurship IOT 5109 Entrepreneurship and Entrepreneurial Behaviour
Result:	Percentage mark and grade
Lecturers:	Mr. Roy Fewster (Co-ordinator) et al, Teesside University

Learning Objectives:

On completion of this study unit students are expected to be able to:

- Demonstrate a comprehensive, detailed and critical understanding of the processes involved in entrepreneurship in multiple contexts and from different perspectives.
- Synthesize disparate concepts and theory into a coherent overview of entrepreneurship in practice.
- Conceptualize, identify, design and integrate a range of processes used in the creation, sustainability, development and growth of an enterprise, e.g.
 - Strategic awareness, sense-making and foresight
 - Networking and relationship building
 - Generating and evaluating opportunities
 - Innovation and experimentation
 - Designing and planning enterprise practice
 - New venture, project and value creation
- Engage in academic discussion and argument and demonstrate an understanding of the complexity involved in the discovery, evaluation and exploitation of a new business opportunity, idea or innovation.

Description:

The aim of the study unit is to explore the processes of entrepreneurship involved in the discovery, evaluation and exploitation of business opportunities. This follows a logical sequence from the recognition of an opportunity from creative or innovative ideas, the emergence of a feasible planned activity and the implementation of the plan.

The study unit explores two perspectives on business planning. That of traditional theory in business and management which utilises rationality, logical frameworks and analysis to predict an uncertain future in an attempt to control it and that practiced by many successful entrepreneurs which utilises heuristic experimental learning, the management of risk and the exploitation of available resources to control an unpredictable future thus minimising the need to predict it.

Topics covered in the study unit include:

- The discovery or recognition of business opportunities.
- Evaluating opportunities and the emergence of a new venture.
- Environmental scanning.
- Enterprise development and the underlying processes of causation and effectuation.
- Sensemaking and sensegiving.
- The role of story/narrative in simplifying complex ideas.
- Emotional intelligence.
- Stakeholder theory and managing performance.
- The pyramid principle: logic in effective communication.

Indicative Reading List:

- Baron, R. (2006). Opportunity recognition as pattern recognition. *Academy of Management Perspectives*. February 2006.
- Burke, G., Clarke, L. et al (2008) *Growing your Business*. London: Routledge.
- Burns, P. (2007) *Entrepreneurship and small Business*. Basingstoke: Palgrave Macmillan.
- Carter, S. & Jones-Evans, D., (Eds.) (2006). *Enterprise and small business: Principles, practice and policy*. London: FT Prentice Hall.
- Eckhardt, J. T., & Shane S. A. (2003). Opportunities and entrepreneurship. *Journal of Management* 29(3).
- Fuller, T., & Lewis, J. (2003). Relationships mean everything. *British Journal of Management* 13(4), 317-336.
- Kirby, D. A. (2003). *Entrepreneurship*. London: McGraw Hill.
- Kurtz, C. F., & Snowden, D.J. (2003). The new dynamics of strategy: Sense-making in a complex and complicated world. *IBM Systems Journal* 43(3).
- Lounsbury, M. & Glynn, M. A. (2001). Cultural entrepreneurship: Stories, legitimacy, and the acquisition of resources. *Strategic Management Journal*, 22, 545-564.
- Rae, D. (2007) *Entrepreneurship*. Basingstoke: Palgrave Macmillan
- Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management review*, 26(2).
- Shepherd, D.A., & DeTienne, D.R. (2005). Prior knowledge, potential financial reward, and opportunity identification. *Entrepreneurship Theory and Practice*, 29(1).
- Weick, K.E. et al. (2005). Organizing and the process of sensemaking. *Organization Science*, 16(4).
- Welter, F & Smallbone, D. (2006) Exploring the role of trust in entrepreneurial activity. *Entrepreneurship Theory and Practice* July 2006
- Wickham, P. A. (2005). *Strategic entrepreneurship*. London: FT Prentice Hall.
- Wiklund, J., & Shepherd, D. (2003). Aspiring for and achieving growth: The moderating role of resources and opportunities. *Journal of Management Studies*, 40(8).

IOT 5111	Research processes and methods
Type:	Lectures, seminars, group learning and blended learning
ECTS Value:	10 ECTS
Method of Assessment:	Assignment: 75% Examination: 25%
Pre-requisite study units:	nil
Lecturers:	Dr. Dana Mietzner (Co-ordinator) et al, University of Potsdam

Learning Objectives:

On completion of this study unit students are expected to demonstrate an improvement of their theoretical-analytical capabilities and to develop a deeper understanding of empirical research in innovation management, creativity and entrepreneurship. Students will implement an own research project in order to apply theoretical knowledge and to develop a deep understanding of a selected research process.

Description:

- Participants get an overview of research methods (e.g. case study research, focus groups, interview design, listening, questioning, and questionnaires) and identify the strengths and limitations of each method.
- Participants will explore how to design a research process und to select a suitable research method
- Participants will explore research issues in the area of innovation management, foresight, creativity or entrepreneurship
- Students will have the possibility to participate in current research projects at the Centre of Entrepreneurships and Innovation at the University of Potsdam (BIEM-CEIP)

Reading list:

General reading list:

- Burton, G., Carrol, G., Wall, S. (2002): *Quantitative Methods for Business and Economics*, Second Edition, Pearson Education Limited, Essex
- Cunningham J.B. (1993): *Action Research and Organizational Development*, Praeger Publishers, London.
- Denzin N.K, Lincoln Y.S. (1994): *Handbook of Qualitative Research*, SAGE Publications, Thousand Oaks [et al.]
- Dual J., Hak, T. (2008): *Case Study Methodology in Business Research*, Butterworth-Heinemann, Oxford
- Ghuri P., Gronhaug K. (2005): *Research Methods in Business Studies, A Practical Guide*, Third Edition, Pearson Education Limited, Essex.
- Greenwood D.J., Levin M. (2007): *Introduction to Action Research*. Social Research for Social Change, Second Edition, Sage Publications.
- Patton Quinn, M.(1990): *Qualitative Evaluation and Research Methods*, Second Edition, Sage Publication, Newberry Park [et al.]
- Yin R.K. (2003): *Case Study Research, Design and Methods*, Third Edition, Thousand Oaks.

Further literature will depend on current research issues and will be communicated during the course.

IOT 5113 The application of creativity and innovation to digital technologies

Type: Lectures, workshops and blended learning

ECTS Value: 6 ECTS

Method of Assessment: Classwork: 25%
Assignment: 75%

Pre-requisite study units: nil

Result: Percentage Mark and Grade

Lecturer: Dr. Sandra M. Dingli and Dr. Brenda Murphy
University of Malta

Learning Objectives:

- To understand the principles of network economics which drive the innovation process and innovation diffusion in ICT industries and markets respectively
- To develop predictions of the take-up of new ICT products through innovation diffusion modelling
- To apply a longitudinal perspective of the development of past and future products and to develop industry trajectories.

Students will be expected to learn about the relevance of creativity and innovation in connection with digital technologies and to apply idea generation techniques to enhance their approach to both their own learning and to the environments in which they operate.

Description:

Creativity is a multidisciplinary concept that is extremely relevant in today's context where dealing with the accelerated rate of technological, social and cultural change has necessitated new ways of thinking and acting. Creative ideas feed the innovation process which involves the implementation and often the commercialization of new products, services or processes.

This study unit looks at the development of the ICT industry and the process of creativity and innovation. The content is based on cutting-edge research on the network economy and the effects of digitisation and convergence as the broad innovation streams in the industry. Topics to be covered include:

Topic 1: Technology driven creativity: The case of convergence and digitisation

1. New technological environments
2. Digitisation and innovation
3. Convergence and innovation as antecedents of innovation
4. Evolution of ICT products
5. Evolution of ICT networks
6. ICT challenges

Topic 2: ICT industry's transformation through innovation

1. Broadcasting sector
2. Internet search engines
3. Online marketplace sector
4. Providers of IT solutions
5. Publishing sector
6. Telecommunications sector

Topic 3: Evolution of creativity and implications for ICT

1. Survival of innovative ideas and ICT products (variation, retention, selection)
2. ICT evolutionary processes and ecology (natural selection, probability, complexity)
3. Creativity and genetic analogies (gradual innovation, punctuated innovation)
4. Sources of ICT creativity (isolated population, dynamic innovation)

Topic 4: ICT product creativity

1. ICT product levels and creative design
 - Product levels and consumer attributes
 - Following, predicting and creating trends
 - Detecting latent demand
2. New product development
 - Idea generation
 - Internal ideas
 - External ideas
 - Concept and development testing
3. Extending product life cycles through creativity
 - Product life cycles
 - Product extension strategies

Topic 5: ICT network dynamics

1. Innovation diffusion
2. Innovation standards and generations
3. Lock-in and innovation
4. 'Versioning' innovations
5. Critical mass
6. Network effects
7. Innovation evolution versus revolution

Topic 6: A road map to ICT growth

The road map synthesizes how ICT companies excel at the process of innovation.

1. Identify prospective opportunities.
2. Assess the potential of selected opportunities.
3. Begin the iterative process of execution.

Topic 7: ICT case study: Google's creativity and innovation centres

1. Creating a creative environment
2. Incubating innovation
3. Encouraging multiple cultures and diversity
4. Attracting the right personnel
5. Managing the innovation process

Topic 8: Innovation and new digital technologies

1. Digital technology and the accelerated rate of change
2. Identifying creativity and innovation in new digital technologies
3. Applying creativity tools to new digital technologies

Reading List:

- Burgelman, R. A., Christensen, C. M., & Wheelwright, S. C. (2003). *Strategic management of technology and innovation*. McGraw-Hill/Irwin.
- Christensen, C. M. (1997). *The innovator's dilemma: When new technologies cause great firms to fail*. Boston, Mass.: Harvard Business School Press.
- Christensen, C. M. (1999). *Innovation and the general manager*. Homewood, Ill.: Richard D. Irwin.
- Christensen, C. M., Scott D. A., & Roth, E. A. (2004). *Seeing what's next: Using the theories of innovation to predict industry change*. Boston: Harvard Business School Publishing.
- Christensen, C. M., & Raynor, M. E. (2003). *The innovator's solution: Creating and sustaining successful growth*. Boston: Harvard Business School Press.
- de Bono, E. (1993). *Serious creativity: Using the power of lateral thinking to create new ideas*.
- Inouye, A. S., Blumenthal, M. S. & Mitchell, W. J. (2003). *Beyond productivity: Information, technology, innovation, and creativity* (available on line).
- Managing for Eternity. *The CEO Refresher, USA*, 8(1.1), 2000.
- McCraw, T. K. (2007). *Prophet of innovation: Joseph Schumpeter and creative destruction*. Cambridge, Mass.: Harvard University Press.
- McCraw, T. (2006). Schumpeter's business cycles as business history. *Business History Review*, 80: 231-261.
- McGee, J., Sammut-Bonnici, T. (2002). Network industries in the new economy. *European Business Journal*, 14, 116-32.
- Tidd, J., Bessant, J., & Pavitt, K. (2005). *Managing innovation: Integrating technological, market and organizational change*.
- Websites: www.facebook.com; [twitter](https://twitter.com), [Second Life](https://www.secondlife.com), [YouTube](https://www.youtube.com), [TED](https://www.ted.com), [Learning](https://www.learning.com), www.diggit.com, etc.

IOT 5130	Dissertation
Type:	Research Seminar and dissertation
ECTS credits:	30 ECTS
Method of Assessment:	Dissertation and oral examination
Result:	Percentage Mark and Grade
Lecturers:	Various All partners

Learning Objectives:

Students completing the dissertation will be able to:

- Communicate complex professional and academic issues to both specialists and layperson
- Formulate and analyze complex scholarly issues independently, systematically and critically
- Critically appraise various methods of analysis
- Work as a member of a community of learners and independently
- Continue own competence development and specialization

Description:

The overall aim of the dissertation is to allow students to unify and extend their understanding of the subject as developed in the taught part of the programme by pursuing an independent research project on a chosen topic. Students completing the dissertation will be expected to demonstrate the following:

- A detailed understanding of a particular idea of relevance to their degree.
- An in-depth knowledge of the relevant literature on the subject matter of the dissertation.
- An ability to undertake sustained critical analysis.
- An ability to conduct research.
- An understanding of research work, including research ethics.

The workload is approx. (600 – 800) hours.

In addition to submission of dissertation, students are also required to attend a one week Research Seminar at one of the partner universities.