**TID7101: Technology Innovation and R&D Principles**

**Short description**

Technology innovation and R&D principles is to effectively manage the research, invention, design, development, production, transfer and use of technology within an organization. This subject brings together knowledge from engineering and research disciplines

**Course objectives:**

The goal of Technology Innovation and R&D principles is to be able apply manufacturing technology to organizations, manage research, invent, develop, produce and sell products in an organisation.

**Learning objectives:**

By the end of the course the student should be able to;

1. Understand and apply manufacturing technology to organizations
2. Understand marketing strategies for organization development
3. Competently apply research and development information to a high tech industry

**Methods of course delivery:**

The teaching of students will be conducted through;

Lectures, tutorials, short classroom exercises, case studies, group discussions among the students and projects aimed at solving real life problems.

**Method of assessment**

Assessment will be done through coursework which will include Home assignments, class room and take home tests, project work and presentations and a written examination. Course work will carry a total of 40% and written examination carries 60%. Coursework marks will be divided into; Assignments 5%, Tests 10% and Project Work 25%.

**Detailed Course content**

The framework of innovation, Models of science, invention and innovation (4 hours). Manufacturing technology of high technology industry (4 hours); Role of research and development in high tech enterprises(4 Hours) practices of research and development organizations in high technology industry (4 hours); alliance and collaboration of research and development organizations (4 hours); core technology of high tech industry; technology life cycles (4 hours); strategic partnership between university, industrial and governmental research and development organizations (4 hours); macro- and micro- innovation (4 hours); culture and leadership in innovation and innovative organizations (4 hours). Guest Lectures (5 hours). Intellectual Property and Patents. Practical Hours (15)

**Basic reading list/references**

1. [Robert S. Friedman](http://search.barnesandnoble.com/booksearch/results.asp?ATH=Robert+S%2E+Friedman), [Desiree M. Roberts](http://search.barnesandnoble.com/booksearch/results.asp?ATH=Desiree+M%2E+Roberts), [Jonathan D. Linton](http://search.barnesandnoble.com/booksearch/results.asp?ATH=Jonathan+D%2E+Linton); 2008*, Principle Concepts of Technology and Innovation Management: Critical Research Models*, IGI Global, ISBN-13: 9781605660387; ISBN: 1605660388
2. Tidd, J. Bessant, J. and Pavitt, K 2005, *Managing Innovation: Integrating Technological, Market and Organizational Change*, 3rd, John Wiley and Sons
3. Sigvald Harryson; 1998, *Japanese Technology and Innovation Management: From Know-How to Know-Who;* Edward Elgar Publishing; 1 Ed edition, ISBN-10: 1858987687, ISBN-13: 978-1858987682.
4. Margaret A. White and Garry D. Bruton, 2007*, The Management of Technology and Innovation; A strategic Approach;* South-Western Publishing Co., ISBN10: 0324144970, ISBN13: 9780324144970.
5. *Strategic Management of Technology and Innovation;* Report of the Asian Productivity Organisation Top Management Forum on Strategic Management of Technology and Innovation, ©APO 2007, ISBN: 92-833-7063-5.