MCEN90011 Manufacturing Systems

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	This subject is not offered in 2011.
Time Commitment:	Contact Hours: 36 hours lectures, 8 hours tutorials and 7 hours of labs Total Time Commitment: 120 hours
Prerequisites:	Prerequisites as follows -

Subject	Study Period Commencement:	Credit Points:
MCEN30017 Mechanics & Materials	Semester 1	12.50

Corequisites:	N/A
Recommended Background Knowledge:	N/A
Non Allowed Subjects:	436401 Design & Manufacturing 1 436402 Design and Manufacturing 2

Subject	Study Period Commencement:	Credit Points:
MCEN30009 Engineering Design & Processes 1	Not offered 2011	12.50
MCEN30001 Engineering Design & Processes 2	Not offered 2011	12.50

Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unitwebsite: http://www.services.unimelb.edu.au/disability/
Contact:	Alan Smith **ajrs@unimelb.edu.au (mailto:ajrs@unimelb.edu.au)**
Subject Overview:	This subject is primarily concerned with manufacturing processes, and production systems, including traditional and advanced technologies. Technology can be defined as the application of science to provide society and its members with those things that are needed or desired. Manufacturing is the essential factor that makes technology possible. Economically, manufacturing is an important means by which a nation creates material wealth. Wherever possible this subject takes a quantitative approach based on engineering science. The subject also provides valuable links to mechanical engineering design and an understanding of engineering materials. Topics covered in this subject may include principles, performance characteristics and process selection of manufacturing processes (machining, metal forming, casting and moulding processes, finishing operations and fabrication methods; ceramics and powder metallurgy; electronic products; nanofabrication); and, manufacturing systems and manufacturing support systems (flexible manufacturing, lean manufacturing, quality systems, Toyota Production System, materials requirements planning, automation).
Objectives:	On completion of this subject students should be able to: • explain the effect of the relevant variables on the performance of various processes and their process capabilities; • perform basic analyses of for 'classical' and practical turning operations; forming, casting and welding;

	• list and explain in-depth the function of the major components of manufacturing systems and how they interact with engineering design and clients; • analyse the efficiency of some basic productive systems;
Assessment:	Two 2-hour end-of-semester examinations (65%).Three laboratory assignments throughout semester, not exceeding 2,000 words per student (20%).One assignment not exceeding 2,000 words per student (10%) due in week 10 of the semester, one in-class test (5%) during week 7 of the semester.Students must obtain a mark of at least 50% for all continuing assessment tasks for admission to the written examinations.
Prescribed Texts:	Groover, M.K., Fundamentals of Modern Manufacturing – materials, processes and systems, 3rd edition, Wiley (to be confirmed closer to the introduction date)
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	On completion of this subject students should have the following skills: • Ability to apply knowledge of science and engineering fundamentals • Ability to undertake problem identification, formulation, and solution • Ability to utilise a systems approach to complex problems and to design and operational performance • Capacity for creativity and innovation • Ability to communicate effectively, with the engineering team and with the community at large • Ability to manage information and documentation
Related Majors/Minors/ Specialisations:	Master of Engineering (Mechatronics)