UNIVERSITI TEKNOLOGI MARA

MMS351: INDUSTRIAL MANUFACTURING

Course Name (English)	INDUSTRIAL MANUFACTURING APPROVED
Course Code	MMS351
MQF Credit	3
Course Description	The course covers the various manufacturing processes and technology employed in the production of metallic and non metallic products usually employed in industries. Student will be exposed to various manufacturing processes, joining and machining process in the production of a product.
Transferable Skills	Self management skill Communication skill Team work skill Leadership skill
Teaching Methodologies	Lectures, Case Study, Tutorial, Presentation
CLO	CLO1 Understand manufacturing processes and technology employed in manufacturing industries. CLO2 Understand the technical design concept and quality assurance in the respective process. CLO3 Select suitable manufacturing processes and/or technology for a particular product. CLO4 Work in team and complete the project in professional manner.
Pre-Requisite Courses	No course recommendations

Topics
1. 1.0 Overview of Manufacturing Technology 1.1) 1.1 Role of Manufacturing in Nation's Economy
2. 2.0 Traditional Machining 2.1) 2.1 Introduction to Traditional Machines 2.2) 2.2 Machining Operations 2.3) 2.3 Metal Cutting Process 2.4) 2.4 Chip Formation 2.5) 2.5 Cutting Tools 2.6) 2.6 Machinability
3. 3.0 Non-Traditional Machining (NTM) 3.1) 3.1 Electrochemical Machining (ECM) 3.2) 3.2 Electrical-Discharge Machining (EDM) 3.3) 3.3 Ultrasonic Machining (USM) 3.4) 3.4 Electron-Beam Machining (EBM) 3.5) 3.5 Other NTM Processes
4. 4.0 Computer Numerical Control (CNC) Machining 4.1) 4.1 Introduction to CNC 4.2) 4.2 Programming Codes 4.3) 4.3 Machining Centres 4.4) 4.4 Applications
5. 5.0 Jigs and Fixtures Design 5.1) 5.1 Different between Jigs and Fixtures 5.2) 5.2 Principle of Location 5.3) 5.3 Principle of Clamping 5.4) 5.4 Design Features of Jigs and Fixtures 5.5) 5.5 Drill Jigs, Milling Fixtures, Turning Fixtures, Grinding Fixtures

6. 6.0 Technology of Joining 6.1) 6.1 Welding Processes: Fusion Welding, Resistance Welding, Solid-State Welding, etc. 6.2) 6.2 Welding Design and Process Selection 6.3) 6.3 Other Joining Processes: Soldering, Brazing, Adhesive Bonding, Riveting and Fastening
7. 7.0 Technology of Surface Treatment 7.1) 7.1 Surface Cleaning and Treatment: Tumbling, Degreasing, Chemical Cleaning, Case Hardening and Hard Facing 7.2) 7.2 Coating and Finishing: Electro-plating, Enamel Coating and Painting

Assessment Breakdown	%
Continuous Assessment	40.00%
Final Assessment	60.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	Assignment which related with manufacturing processes and technology	10%	CLO1 , CLO2 , CLO3 , CLO4
Case Study	Case study to the related industry	10%	CLO1 , CLO2 , CLO3 , CLO4
Test	Test 1	10%	CLO1 , CLO2 , CLO3
Test	Test 2	10%	CLO2 , CLO3

Reading List

Recommended Text

- **Mikell P. Groover 2010, *Principles of Modern Manufacturing*, 4th Ed., John Wiley & Sons [ISBN: 0470505923]**

Reference Book Resources

- **Serope Kalpakjian,Steven R. Schmid 2013, *Manufacturing Engineering and Technology*, 7th Ed., Prentice Hall [ISBN: 0133128741]**
- **John A. Schey 2000, *Introduction to manufacturing processes*, 3rd Ed., McGraw-Hill Science/Engineering/Math [ISBN: 0070311366]**
- **K. C. JAIN,A. K. CHITALE 2010, *TEXTBOOK OF PRODUCTION ENGINEERING*, PHI Learning Pvt. Ltd. [ISBN: 8120335260]**
- **R. K. Rajput 2007, *A Textbook of Manufacturing Technology*, Firewall Media [ISBN: 8131802442]**
- **E. Paul DeGarmo,J. T. Black,Ronald A. Kohser 2003, *Materials and Processes in Manufacturing*, Wiley [ISBN: 0471656534]**

Article/Paper List: This Course does not have any article/paper resources

Other References: This Course does not have any other resources