


Sub.	Course Description – توصيف مقرر دراسي	الموضوع	 <b>كليات المعرفة</b> ALMAAREFA COLLEGES
Date		التاريخ	

Course Code & No	IE344		رقم المقرر ورمزه
Course Name	Manufacturing Processes – II		اسم المقرر
Credit Hours	3 (3+1+1)		عدد الساعات المعتمدة
Pre-requisite	IE-343		المتطلب السابق

<b>General Description</b>	توصيف عام
Part specification and geometrical Tolerance; Cutting mechanics; Process-capability analysis and Decision; optimization of cutting variables for machining operations; Process planning; Principles of NC (Numerical Control), and CNC (Computer NC); Assembly design; Non-traditional machining.	

<b>Course Objectives</b>	أهداف المقرر
To gain detailed knowledge of metal removal manufacturing processes and decide on optimal sequences and parameters of operations.	
<b>By the end of the course, each student should be able To</b> <ul style="list-style-type: none"> <li>• Recognize the removal processes types and the influencing operation parameters</li> <li>• Calculate and analyze optimal processing parameters and the process capability.</li> <li>• Design and plan the process plans</li> <li>• Develop CNC program codes</li> </ul>	

<b>Course Outlines</b>	مفردات المقرر
<ul style="list-style-type: none"> <li>• Material removal operations (Turning; Boring; Shaping; Drilling; and Milling)</li> <li>• Tool materials</li> <li>• Part specification, Geometry, and Assembly techniques</li> <li>• Dimensional and Geometrical Tolerances</li> <li>• Optimization of cutting variables for machining operations</li> <li>• Finishing operations: Grinding; Hopping; Lapping</li> <li>• Non-traditional machining</li> <li>• Process design and planning: Process-capability analysis; Decision Trees; and Types of Process planning</li> <li>• Introduction to computer aided manufacturing (CAM)</li> <li>• Principles of NC (Numerical Control), and CNC (Computer NC)</li> </ul>	

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References	المراجع
<p><b>Required Textbooks</b>  Manufacturing Engineering and Technology. Serope Kalpakjian, Steven R. Schmid. Sixth Edition (SI). Prentice Hall: Singapore, latest edition. ISBN-13: 978-981-06-8144-9</p> <p><b>Essential References Materials</b></p> <ul style="list-style-type: none"> <li>• Azapagic, A., A. Emsley, and I. Hamerton, Polymers, the Environment and Sustainable Development, Wiley, West Sussex, UK, latest edition.</li> <li>• ASM Handbook, Vol. 8 Mechanical Testing and Evaluation, ASM International, Materials Park, OH, latest edition</li> <li>• Updated PowerPoint slides and handouts for each topic (prepared by the course instructor and uploaded to the course Web Site)</li> </ul>	