



**The University of Jordan**  
**School of Engineering**  
**Industrial Engineering Department**  
**Fall 2019/2020**

Course name:	Manufacturing Processes-2/ Metal Cutting		
Course code:	IE 0936411		
Credits hours	3		
Contact hours& room\office hours	12:30-14:00 Monday , Wednesday, 9:00-10:00 Sunday, Tuesday, and Thursday		
Course instructor's name, E-mail, and phone:	Assoc. Prof. Sa'ed A. Musmar		
	s.musmar@ju.edu.jo 5355000 ext. 22930		
Course Coordinator:	NA		
Text book:	Manufacturing Engineering and Technology SI 7 edition, 2014, by Kalpakjian& Schmid, Prentice Hall.		
Other reference(s):	<ol style="list-style-type: none"> <li>1. Mikel Groover, Principles of Modern Manufacturing, 4th Edition</li> <li>2. Production Engineering, K.C Jain &amp; A.K Chitale, y,</li> <li>3. Manufacturing technology II, P.N Rao,</li> <li>4. Metal cutting Principles by M.C. Shaw</li> <li>5. Metal cutting and machine tools by Boothroyd</li> <li>6. Production Technology by R.K. Jain and S.C. Gupta.</li> <li>7. Workshop Technology – B.S.Raghu Vamshi – Vol II</li> <li>8. Production Technology by H.M.T. (Hindustan Machine Tools).</li> </ol> <p>Journals</p> <ol style="list-style-type: none"> <li>1. Trans. of the ASME</li> <li>2.. Materials and Manufacturing Processes</li> </ol>		
Course Description:	Fundamentals of material removal processes, cutting tools, cutting fluids, mechanics of chip formation and types of chips: Merchant's theory for determining different forces involved in the orthogonal cutting, power consumption, different material removal processes, turning, drilling, shaping, milling, grinding, broaching, planning, reaming, vibration and chatter in material removal processes. (2014/2015 course catalogue description)		
Providing Department:	Industrial Engineering		
Prerequisite Course:	Manufacturing Process-1/metal forming (IE 0936311)		
Course type	Mandatory		
Assessment Methods:	Method	Weight %	Date
	Exam	20	
	Mid Exam	30	
	Final Exam	50	
Course Learning Outcomes:	#	After successful completion of this course, the student will be able to	SO
	CLO1	1. Understand the importance of manufacturing processes on daily life	4
	CLO2	Understand the various material removal processes	1
	CLO3	The ability to select proper machining	1

		parameters for a specific product; selection of machining conditions for turning, milling, grinding, drilling, etc.		
Brief list of topics	Week #	Topic		
	1	Introduction.		
	2-5	Elementary treatment of metal cutting theory (Fundamentals of material removal processes, cutting tools, cutting fluids, mechanics of chip formation and types of chips: Merchant's theory for determining different forces involved in the orthogonal cutting and power consumption).		
	6-7	Milling Process Principles of working – principal parts and operations performed		
	8-9	Shaping and Planning Principles of working – principal parts – specifications, operations performed, machining time calculations.		
	10	Drilling: Principles of working, specifications, types, and operations performed		
	11	Grinding: Theory of grinding – classification of grinding machines		
	12-14	Introduction to Nonconventional Machining		
Important Notes:	<ul style="list-style-type: none"> <li>• Do not hesitate to ask questions</li> <li>• You are required to bring a notebook and take notes in classes.</li> <li>• Students are expected to attend every class session and they are responsible for all material, announcements, schedule changes, etc., discussed in class.</li> <li>• Discuss the assignments among yourselves</li> <li>• Don't Cheat; direct copying of others work will NOT be allowed or tolerated and will result in a reduction of grade. If you are found to be cheating in any way, on an exam or assignment, even signing the roll sheet for another student, you will be given an "F" for the course. There will be no exceptions.</li> <li>• All cases of academic dishonesty will be handled in accordance with university policies and regulations. JU policy requires the faculty member to assign ZERO grade (F) if a student misses 15% of the classes that are not excused, and 20% of the classes that are excused</li> <li>• Students are expected to be ready to take a quiz any time they have a class. There will be no make-up quizzes or home works.</li> <li>• Any students with disabilities who need accommodations in this course are encouraged to speak with the instructor as soon as possible to make appropriate arrangements for these accommodations.</li> </ul>			
<b><i>The B.Sc. in industrial Engineering program enables students to achieve, by the time of graduation the following program learning outcome (SOs)</i></b>				
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	
3	an ability to communicate effectively with a range of audiences	7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic,			

	environmental, and societal contexts	
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