

# Bachelor of Science in Engineering – Manufacturing Engineering Concentration

## Worksheet & Pre-requisites—2016-17

Students must also attempt the Fundamentals of Engineering (FE) exam twice

Course #	Course title	Credits	Off'rd	Pre-requisites
<b>CORE</b>				
ENGL 3120	Writing in the Sciences	3	F	ENGL 2010
ENGR 1000	Engineering Success Skills	1	F	
ENGR 1030	Computer Assisted Design using SolidWorks	3	F/S	
ENGR 2010	Statics	3	F	ENGR 1010, MATH 1210
ENGR 2030	Dynamics	3	S	ENGR 2010 & PHYS 2210
ENGR 2140	Strength of Materials	3	S	ENGR 1030, 2010 MATH 1220
ENGR 2145	Strength of Materials lab	1	S	ENGL 2010 Co-req ENGR 2140
ENGR 2250	Electric Circuits	3	S	MATH 2250 & PHYS 2220/2225
ENGR 2255	Electric Circuits Lab	1	S	ENGL 2010 Co-req ENGR 2250
ENGR 3000	Thermodynamics	3	F	PHYS 2220
ENGR 3010	Material Science Engineering	3	F	CHEM 1210/1215, MATH 1210
ENGR 3015	Material Science Engineering lab	1	F	co-req: ENGR 3010
ENGR 3030	Technical Project Management	3	S	ENGR 3045
ENGR 3050	Fluid Mechanics	3	S	ENGR 3000
ENGR 3055	Fluid Mechanics Lab	1	S	Co-req ENGR 3050
ENGR 4025	Engineering Capstone Design Lab I	3	F	ENGR 3030
ENGR 4030	Electronics	3	F	ENGR 2250 & 2255
ENGR 4035	Electronics Lab	1	F	Co-req ENGR 4030
ENGR 4060	Manufacturing	3	F	ENGR 3010 & 3015
ENGR 4085	Engineering Capstone Design Lab II	3	S	ENGR 4025
MATH 1040 or 2040	Statistics or Business Statistics	4	F/S/Su	"C" or better in MATH 1010
MATH 1220	Calculus II	4	F/S	"C" or better in MATH 1210
MATH 2210	Calculus III	4	F/S	"C" or better in MATH 1220
MATH 2250	Linear Algebra & Diff Equations	4	F	MATH 1210 & MATH 1220
PHYS 2210	Physics for Scientists & Engineers I	4	F/S	MATH 1210 Co-req-PHYS 2215
PHYS 2215	Physics for Scientists & Engineers I Lab	1	F/S	Co-req PHYS 2210
PHYS 2220	Physics for Scientists & Engineers II	4	F/S	PHYS 2210/15 & MATH 1220
PHYS 2225	Physics for Scientists & Engineers II Lab	1	F/S	Co-req PHYS 2220
<b>Manufacturing Engineering Concentration</b>				
CCET 2690	Fundamentals of Manufacturing	3	F	ENGR 1030
CCET 3680	CNC Design	3	S	CCET 2690 & MATH 1060
CCET 4690 or CCET 4790	CNC Software and Applications or Computer Integrated Manufacturing (CIM)	3	F or S	CCET 3680 or CCET 2690, 3680, 4690
Manufacturing Electives	<i>Choose one of the following elective classes</i>	3		
ENGR 2170	Programming for Engineers	3	F	MATH 1210
ENGR 4000/4005	Mechatronics & Lab	4	S	ENGR 2030, 4030 & 4035
ENGR 4010	Heat Transfer	3	F	ENGR 3050/55, MATH 2250
ENGR 4050	Structural Analysis	3	F	ENGR 2140/45
ENGR 4300	Vibrations	3	S	ENGR 2140, 2030, MATH 2250
ENGR 4200	Advanced Electronic Systems Architectures	3	F	ENGR 4030
<b>EDGE Requirement</b>				
EDGE 1010	Becoming an Engaged Learner	1	F/S/Su	
EDGE 30XX	Project Proposal and Planning	1	F/S/Su	EDGE 1010
EDGE 40XX	Project Reporting and Reflection	1	F/S/Su	EDGE 30XX
<b>GENERAL EDUCATION</b>				
ENGL 1010	Intro to Academic Writing	3	F/S/Su	
ENGL 2010	Intermediate Writing	3	F/S/Su	
<b>MATH 1210</b>	<b>Calculus I</b>	4	F/S/Su	"C" or better in MATH 1050 & 1060
American Institution		3	F/S/Su	
LM 1010	Information Literacy	1	F/S/Su	
CSIS 1000	Intro to Computer Apps & Internet	3	F/S/Su	
FINE ARTS		3	F/S/Su	
<b>HUMANITIES:ENGR 1010</b>	<b>Engineering in the 21<sup>st</sup> Century</b>	3	F/S	
SOCIAL SCIENCE		3	F/S/Su	
LIFE SCIENCE		3	F/S/Su	
<b>PHYS SCI: CHEM 1210/15</b>	<b>Principles of Chemistry I/Lab</b>	5	F/S/Su	MATH 1050 or H.S. chemistry
			123 total	41 upper division