

College of Basic and Applied Sciences — Upper Division Form 2019-2020
(Requires 128 total credit hours)

Student name _____ Student # _____
 Major **Mechatronics Engineering** Minor **Optional**
 Concentration **N/A** E-mail _____

Instructions: For students graduating in Summer 2019 or later. One (1) copy signed by major advisor (and minor advisor if minor is completed) should be filed with the Graduation Analyst in DSB 120 three semesters prior to graduation. An Intent to Graduate form must be submitted with this form.

General Education	Course	Semester	Grade	Notes	Credit Hours
COMMUNICATION (9 hours)	ENGL 1010				3
	ENGL 1020				3
	COMM 2200				3
HISTORY (6 hours) Choose two: HIST 2010, HIST 2020, HIST 2030					3
					3
HUMANITIES AND/OR FINE ARTS (9 hours) Choose 1: ENGL 2020, 2030, or HUM 2610. Choose 2 with different prefixes: ANTH 2210, ART 1030 or 1920, DANC 1000, HIST 1010, 1020, 1110, 1120, MUS 1030, PHIL 1030, THEA 1030					3
					3
					3
MATHEMATICS (3 hours) Choose one: MATH 1010, 1530, 1630, 1710, 1720, 1730, 1810, 1910				MATH 1910 is required for major	3 of 4
NATURAL SCIENCES (8 hours) Choose two different subjects: ASTR 1030/1031, BIOL 1030/1031, BIOL 1110/1111, BIOL 2010/2011, BIOL 2020/2021, CHEM 1010/1011, CHEM 1030/1031, CHEM 1110/1111 , GEOL 1030/1031, GEOL 1040/1041, PGEO 1030, PHYS 1110, PHYS 2010/2011, PHYS 2110/2111 , PSCI 1030/1031, PSCI 1130/1131				*see major courses for required sequences/pre-requisites; CHEM 1110/1111 recommended	4
				*see major courses for required sequences/pre-requisites; PHYS 2110/2111 recommended	4
SOCIAL/BEHAVIORAL SCIENCES (6 hours) Choose two different subjects: AAS 2100, ANTH 2010, ECON 2410, ECON 2420, EMC/JOUR/RIM 1020, GEOG 2000, GS 2010, HLTH 1530/1531, PS 1010, PS 1005, PSY 1410, RS 2030, SOC 1010, 2010, WGST 2100					3
					3
Hours Required					41

Major Courses (2.0 GPA required)	Course	Semester	Grade	Notes	Credit Hours
Engineering Fundamentals	ENGR 1100			Pre: MATH 1730	3
Introduction to Materials Science and Engineering	ENGR 2210			Pre: CHEM 1110/1111	3
Introduction to Engineering Design	ENGR 2100				3
Statics	ENGR 2110			Pre: MATH 1910, ENGR 1100, PHYS 2111	3
Dynamics	ENGR 2120			Pre: ENGR 2110, MATH 1920	3
Electrical Circuit Analysis I	ENGR 2130			Pre: ENGR 1100, MATH 1910, PHYS 2121	3
Electrical Circuit Analysis II	ENGR 3510			Pre: ENGR 2130, MATH 3120	3
Digital Circuits Fundamentals	ENGR 3520			Pre: ENGR 2130, CSCI 1170	3
Electronics and Instrumentation	ENGR 3530			Pre: ENGR 3510	3
Introduction to Feedback Control	ENGR 3540			Pre: ENGR 2120, 3510, 3520, 3530, MATH 3120	3
Fluid Mechanics	ENGR 3550			Pre: ENGR 2120, MATH 3110	3
Mechanics of Materials	ENGR 3560			Pre: ENGR 2210, ENGR 2110, MATH 1920	3
Kinematics and Dynamics of Machinery	ENGR 3590			Pre: ENGR 2120, CSCI 1170	3
Technical Project Management and Soft Skills	ENGR 3915			Pre: Junior/Senior	3
Engineering Economy	ENGR 3970			Pre: Junior/Senior	3

Major requirements continued from previous page

FE Exam Preparation	ENGR 4500			Pre: Sr. standing, POD Fall only	1
Topics in Mechatronics Engineering	ENGR 4501				3
Programmable Logic Controllers and Networks	ENGR 4510			Pre: ENGR 3520, 3530	3
Electrical Power and Machinery	ENGR 4520			Pre: ENGR 3510	3
Controls and Optimization	ENGR 4530			Pre: ENGR 3520	3
Mechatronic System Design	ENGR 4580			Pre: ENGR 3550, 3590	3
Automation System Design	ENGR 4590			Pre: ENGR 4580 & ENGR 4510	3
Hours Required					64

Supporting and Elective Courses					
Course	Semester	Grade	Notes		Credit Hours
CSCI 1170 – Computer Science I			MATH 1730 with a C(2.0) or higher, ACT MATH of 26, or Calculus Placement test with satisfactory score		4
MATH elective					3
MATH 1910 – Calculus I			Pre-req: MATH 1730 with a C(2.0) or higher, ACT MATH of 26, or Calculus Placement test with satisfactory score; must earn a grade of C(2.0) or higher; 3 credits count in general education		1 of 4
MATH 1920 – Calculus II			Pre: MATH 1910 with a C(2.0) or higher		4
MATH 3110 – Calculus III			Pre: MATH 1920		4
MATH 3120 – Differential Equations			Pre: MATH 1920 with a C(2.0) or higher		3
CHEM 1110/1111 – General Chemistry			Pre: high school chemistry; credits counted in general education		0
PHYS 2110/2111 – Calculus Based Physics I			Pre: MATH 1910 with a C(2.0) or higher, credits counted in general education		0
PHYS 2120/2121 – Calculus Based Physics II			Pre: PHYS 2110/2111, MATH 1920 with a C(2.0) or higher		4
Hours Required					23

Optional Minor – Mechatronics Engineering does NOT require a minor, but a Math minor is encouraged (If a Math minor is chosen, ALL COURSES USED TO FULFILL MATH MINOR REQUIREMENTS MUST BE COMPLETED WITH A GRADE OF C(2.0) OR BETTER).					
Course	Semester	Grade	Notes		Credit Hours
Hours Required					
Signed:					
	Minor Advisor				Date

1. Degrees require a minimum of 120 semester hours (12 of the last 18 at MTSU) with a 2.0 GPA, a minimum of 42 upper-division hours (30 at MTSU) with a 2.0 GPA, and a minimum of 60 senior college hours.
2. Learning Support courses count toward the 120-hour requirement and the overall GPA.

Signed:		
	Major Advisor	Date