MECHATRONICS 2
COURSE CODE: 6211
STUDENT PROFILE

STUDENT'S NAME:	**TEACHER'S NAME:**
School Year/Semester:	**Grade:**
Begin Date:	**Date Completed:**

Directions: Document student's progress using the applicable rating scales below: Enter date of completion under the appropriate column.

0 - Has not received instruction in this area / **no experience or knowledge of this task (N/A)**
1 – Can apply and perform **independently (80-100)**
2 – Can perform the task completely with **limited supervision (70-79)**
3 – Requires additional instruction and or **close supervision (60-69)**

A. SAFETY		**0**	**1**	**2**	**3**
1	Review school safety policies and procedures.				
2	Review classroom safety rules and procedures.				
3	Review safety procedures for using equipment in the classroom.				
4	Identify major causes of work-related accidents in office environments.				
5	Demonstrate safety skills in an office/work environment.				
B. STUDENT ORGANIZATIONS		**0**	**1**	**2**	**3**
1	Identify the purpose and goals of a Career and Technology Student Organization (CTSO).				
2	Explain how CTSOs are integral parts of specific clusters, majors, and/or courses.				
3	Explain the benefits and responsibilities of being a member of a CTSO.				
4	List leadership opportunities that are available to students through participation in CTSO conferences, competitions, community service, philanthropy, and other activities.				
5	Explain how participation in CTSOs can promote lifelong benefits in other professional and civic organizations.				
C. TECHNOLOGY KNOWLEDGE		**0**	**1**	**2**	**3**
1	Demonstrate proficiency and skills associated with the use of technologies that are common to a specific occupation				
2	Identify proper netiquette when using e-mail, social media, and other technologies for communication purposes.				
3	Identify potential abuse and unethical uses of laptops, tablets, computers, and/or networks.				

4	Explain the consequences of social, illegal, and unethical uses of technology (e.g., cyber bullying; piracy; illegal downloading; cyberbullying; licensing infringement; inappropriate uses of software, hardware, and mobile devices in the work environment).				
5	Discuss legal issues and the terms of use related to copyright laws, fair use laws, and ethics pertaining to downloading of images, photographs, Creative Commons, documents, video, sounds, music, trademarks, and other elements for personal use.				
6	Describe ethical and legal practices of safeguarding the confidentiality of business-related information.				
7	Describe possible threats to a laptop, tablet, computer, and/or network and methods of avoiding attacks.				
D. PERSONAL QUALITIES AND EMPLOYABILITY SKILLS		**0**	**1**	**2**	**3**
1	Demonstrate punctuality.				
2	Demonstrate critical thinking and problem-solving skills				
3	Demonstrate initiative and self-direction.				
4	Demonstrate integrity.				
5	Demonstrate work ethic.				
6	Demonstrate conflict resolution skills.				
7	Demonstrate listening and speaking skills.				
8	Demonstrate respect for diversity.				
9	Demonstrate customer service orientation.				
10	Demonstrate teamwork.				
E. PROFESSIONAL KNOWLEDGE		**0**	**1**	**2**	**3**
1	Demonstrate global or “big picture” thinking.				
2	Demonstrate career and life management skills and goal-making.				
3	Demonstrate continuous learning and adaptability skills to changing job requirements.				
4	Demonstrate time and resource management skills.				
5	Demonstrates information literacy skills.				
6	Demonstrates information security skills.				
7	Demonstrates information technology skills.				
8	Demonstrates knowledge and use of job-specific tools and technologies.				
9	Demonstrate job-specific mathematics skills.				
10	Demonstrates professionalism in the workplace.				
11	Demonstrates reading and writing skills.				
12	Demonstrates workplace safety.				

F. PROGRAMMABLE LOGIC CONTROLLERS (PLC)		0	1	2	3
1	Describe the function and purpose of a programmable logic controller (PLC).				
2	Compare hardwired and PLC systems.				
3	Identify the numbering systems, e.g., binary, hexadecimal, base 10.				
4	Analyze Boolean logic.				
5	Describe the purpose of the various power supplies used within a PLC.				
6	Construct input/output (I/O) circuits.				
7	Define the function of the PLC processor module.				
8	Describe the interrelations between analog, digital, and input/output components.				
9	Demonstrate the features of relay ladder logic instruction categories.				
10	Demonstrate the principles used to correlate PLC hardware components to software instructions.				
11	Convert and program a PLC using a converted ladder diagram.				
12	Troubleshoot problems in a PLC circuit using a given diagram.				
G. ELECTRICAL INDUSTRIAL CONTROLS		**0**	**1**	**2**	**3**
1	Analyze diagrams and schematics with symbols for electrical circuits.				
2	Identify operation of relays in a circuit.				
3	Identify the different types of transformers used in a control system.				
4	Construct control systems using fuses, breakers, and circuit protection/interrupters,				
5	Identify and properly connect and terminate conductors in electrical circuits.				
6	Identify Motor Control Panel (MCC).				
7	Construct a basic motor start/stop circuit.				
8	Identify and construct proper conduits.				
H. FLUID POWER (PNEUMATICS)		**0**	**1**	**2**	**3**
1	Demonstrate pneumatic system safety.				
2	Calculate the physical characteristics and compressibility of gasses (Pascal's Law, Boyle's Law, and Bernoulli Law).				
3	Describe the pneumatic transmission of energy.				
4	Identify types of compressors.				
5	Analyze the principles of compressor operation and compressed-air treatment.				
6	Construct pneumatic systems from components and schematic symbols.				
7	Demonstrate the ability to read, construct, and interpret fluid				

	power symbols as well as fluid power diagrams.				
8	Identify the various configurations of directional control valves (DCV).				
9	Demonstrate correct installation and maintenance as well as preventive maintenance techniques for fluid power systems using schematic diagrams.				
10	Troubleshoot and repair fluid power systems using schematic diagrams.				