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|  | Fundamental Mechatronics Principles (UFMFKT-30-1)  Group Presentations/Report - Component A |

The group assessment and Peer Assessment are worth 75% (“Presentations – Component A”), and the individual assessment is worth 25% (“Exam-Component B”).

Group Assessment and Peer Assessment (75%)

Blackboard online submission (group submission)/ in-person presentation:

* Task: Designing a Mechatronic System:

Summary: In the final project, you will work in groups of three students to design a mechatronic system that addresses a real-world problem or application of your choice. You will integrate your knowledge of mechanical, electronic, control, and computer engineering to create a functional mechatronic system. The project will culminate in a group presentation, a final group report, and an individual reflective report. Some example scenarios for mechatronic systems that you can consider for your final project are highlighted at this repository (<https://github.com/Mosayeb-Davoudi/Coursework_Materials.git>

* List of Deliverables:

Group Presentation (20%):

Present your mechatronic system design to the class. Explain the problem it addresses, the components used, and how they interact. Emphasize the interdisciplinary nature of mechatronics in your presentation. (10 minutes presentation+10 minutes answering to questions)

Final Group Report (40%):

Submit a comprehensive report documenting your mechatronic system design (word limit 2500). Include the following sections:

* Introduction: Problem statement and objectives.
* System Design: Detailed explanation of the components, sensors, actuators, and control strategies used.
* Implementation: Circuit diagrams, programming code (if applicable), and any simulations conducted.
* Results and Testing: Describe the performance of your mechatronic system, including any challenges faced and solutions applied.
* Conclusion: Reflect on the success of your design and suggest improvements for future iterations.

Individual Reflective Report (15%):

Write an individual reflective report that discusses your role in the group project, your contributions, the challenges you encountered, and how you overcame them. Reflect on your understanding of mechatronics and how the project enhanced your knowledge and skills.

* Learning Outcomes Assessed:
* Demonstrate an understanding of mechatronics principles and interdisciplinary integration.
* Apply knowledge of sensors, actuators, controllers, and programming to design a functional mechatronic system.
* Collaborate effectively in a group to create and present a project.
* Reflect on personal learning and growth throughout the project.
* Method of Assessment:

Assessment will be based on the group presentation, the final group report, and the individual reflective report. The assessment criteria include:

* Creativity and innovation in the mechatronic system design.
* Effective integration of mechanical, electronic, control, and computer engineering concepts.
* Clarity and quality of the presentation and final group report.
* Demonstrated understanding of the role of each group member in the reflective report.

Note: the full marking criteria is available at: <https://github.com/Mosayeb-Davoudi/Coursework_Materials.git>

* Why Assess This Coursework?

Assessing this coursework allows you to apply theoretical concepts to real-world scenarios, fostering practical skills and interdisciplinary thinking. It promotes collaborative learning, critical thinking, and problem-solving abilities. Additionally, the reflective report encourages students to assess their own learning process and growth, enhancing their self-awareness and metacognitive skills.