## ME 190 – Research Paper Assignment Fall 2015

The purpose of this assignment is to give you an opportunity to study in depth how a control system is designed for, or integrated into a mechatronic system.

You will work with one other student to put together an oral presentation that summarizes an academic paper that describes a mechatronic system which includes a control system. Your presentation (10 minutes of content and 5 minutes of Q & A) will explain the background of the problem, present the mathematical modeling, simulation, experimentation, and conclusions described in the paper as well as what you learned in the process of the assignment. You will present your findings to the class later in the semester. The rubric below gives more detail about what your presentation must include and how it will be scored.

You have broad latitude for selecting the paper that you will present, though you will need to get approval from your instructor before you make your final selection. Consider papers that may further your work on the term project, projects in other classes, or extra-curricular interests. Places to look for suitable papers include, but are not limited to:

Google Scholar: <https://scholar.google.com/>

IEEE Xplore Digital Library: <http://ieeexplore.ieee.org/Xplore/home.jsp> (if you are on campus, you can access the full text of papers for free)

The SJSU Library: <http://library.sjsu.edu/> . The Library has access to many on-line journals (see especially the Engineering Village database). Don’t forget that the Library also has many older works in print! If you come across a paper in a journal or database that our Library does not provide full text access to, you may be able to order it via Inter-Library Services. See <http://library.sjsu.edu/interlibrary-services/interlibrary-services-formerly-interlibrary-loan>

See your instructor if you need help getting started or searching for an appropriate paper.

**Process for Completing the Term Project**

1. Find a classmate to work with, and begin brainstorming subject areas or topics to search for a suitable paper.
2. By 9/3/15, enter the names of your team members and the bibliographic citations for your top three choices for potential papers to present in the Google Sheet at:

<https://docs.google.com/a/sjsu.edu/spreadsheets/d/1HYVoq4n7X-tRbGk3GGdovjHht7MlgZDndeI0aLEKt90/edit?usp=sharing>

For example of a bibliographic citation:

Foo, E., & Goodall, R. M. (2000). Active suspension control of flexible-bodied railway vehicles using electro-hydraulic and electro-magnetic actuators. *Control Engineering Practice*, *8*(5), 507-518.

You can capture a citation easily from Google Scholar. Click on the ‘Cite’ link.

1. Get approval from your instructor for your paper and dive in!
2. By 9/24/15, submit a first draft of your presentation to the Canvas Assignment
3. Give your presentation during the week of 10/27/15
4. Submit your final presentation slides to Canvas including any modifications since your presentation.

**Notes on the assignment:**

1. Your Power Point slides must be laid out using the Assertion-Evidence style. For information on Assertion-Evidence and a template to get you started, see: <http://www.writing.engr.psu.edu/assertion_evidence.html>
2. Both members of the team need to speak during the presentation.
3. Plan for 10 minutes to present the content of your talk and allow 5 minutes for Q & A afterwards.
4. Make sure that you have a laser pointer with you when you give the presentation.

**Scoring Rubric[[1]](#footnote-1) for ME 190 Research Paper Presentation**

**1. Introduction/Overview** 10 (scale) x 1 = / 10 points

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| Score | Performance Criterion |
| 10 | Delivered a concise, complete, and compelling *overview* of what the paper is all about. |
| 7 – 9 | Mostly delivered a concise, complete, and compelling *overview* of what the project is all about. |
| 5 – 6 | Somewhat delivered a concise, complete, and compelling *overview* of what the project is all about. |
| 1 – 4 | Missed key elements or did not adequately deliver a concise, complete, and compelling *overview* of what the project is all about. |
| 0 | Much pertinent information missing or section was entirely overlooked. |

Comments:

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**2. Description of the Problem or Design Challenge** 10 (scale) x 1 = / 10 points

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| Score | Performance Criterion |
| 10 | Description of the problem or design challenge is fully and specifically articulated and illustrated, so it is clear to the audience what the nature of the problem is. |
| 7 – 9 | Description of the problem or design challenge is largely and mostly articulated and illustrated specifically, so it is clear to the audience what the nature of the problem is. |
| 5 – 6 | Description of the problem or design challenge is somewhat articulated. Missing some specificity or clarity. |
| 1 – 4 | Description of the problem or design challenge lacks in completeness and/or specificity. |
| 0 | Description of the problem or design challenge is inadequately articulated. |

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**3. Description of System Modeling and Control System Design** 10 (scale) x 1.5 = / 15 points

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| Score | Performance Criterion |
| 10 | System modeling and control system design is well-elucidated and well-explained. |
| 7 – 9 | System modeling and control system design is mostly well-elucidated and mostly well-explained. |
| 5 – 6 | System modeling and control system design is somewhat elucidated and somewhat explained. |
| 1 – 4 | System modeling and control system design explanation lacks in elucidation and explanation. |
| 0 | System modeling and control system design is inadequately articulated. |

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**4. Results** 10 (scale) x 1.5 = / 15 points

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| Score | Performance Criterion |
| 10 | Results (simulation and/or experimental) are well-articulated and well-illustrated. |
| 7 – 9 | Results (simulation and/or experimental) mostly address what is needed and are mostly well-articulated and illustrated. |
| 5 – 6 | Results (simulation and/or experimental) somewhat address what is needed and are somewhat well-articulated and illustrated. |
| 1 – 4 | Results (simulation and/or experimental) are lacking in clarity or are not well-articulated. |
| 0 | Results (simulation and/or experimental) are missing. |

Comments:

**5. Conclusions** 10 (scale) x 1 = / 10 points

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| Score | Performance Criterion |
| 10 | Conclusions and/or findings are fully explained and are well-articulated. |
| 7 – 9 | Conclusions and/or findings are mostly explained and are mostly well-articulated. |
| 5 – 6 | Conclusions and/or findings somewhat explained and are somewhat well-articulated. |
| 1 – 4 | Conclusions and/or findings not well explained and/or are not well-articulated. |
| 0 | Conclusions and/or findings are missing. |

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**6. What was learned through this assignment** 10 (scale) x 1 = / 10 points

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| Score | Performance Criterion |
| 10 | What was learned through this assignment is fully explained and are well-articulated. |
| 7 – 9 | What was learned through this assignment is mostly explained and are mostly well-articulated. |
| 5 – 6 | What was learned through this assignment is somewhat explained and are somewhat well-articulated. |
| 1 – 4 | What was learned through this assignment is not well explained and/or not well-articulated. |
| 0 | What was learned through this assignment is missing. |

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**7. Overall Presentation Elements** 10 (scale) x 1 = / 10 points

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| Score | Performance Criterion |
| 10 | Presentation used the Assertion-Evidence approach very well; slides were well organized and clear; the title slide is attractively laid out, contains a descriptive title consistent with the title of the paper, the date of the presentation, and the names of the presenters; presenters spoke, so that all in the audience could hear clearly, stood and faced the audience, and made eye contact/established rapport with the audience; presenters were dressed professionally; presenters responded knowledgeably when asked questions. |
| 7 – 9 | Presentation used the Assertion-Evidence approach mostly well; slides were mostly well-organized and mostly clear; presenters mostly spoke with adequate volume and made eye contact/established rapport with the audience; presenters were dressed professionally; presenters responded mostly well when asked questions. |
| 5 – 6 | Presentation missed some key elements of the A-E approach and/or lacked some in organization or clarity; slides missed some of the required elements; presenters may not have spoken with adequate volume or made sufficient eye contact/established rapport with the audience; appearance may have lacked professionalism; presenters may not have responded knowledgeably when asked questions. |
| 1 – 4 | Presentation missed many aspects of or did not use the A-E approach or lacked significantly in organization and/or clarity; volume, eye contact, and/or rapport with the audience was significantly lacking; presenters lacked professionalism in appearance; presenters significantly lacked knowledge of the subject as evidenced by answers or lack of answers when asked questions |
| 0 | Presentation was unacceptable. |

Comments:

1. Adapted from “RUBRIC for ORAL PRESENTATION EVALUATION” by Prof. Nikos Mourtos [↑](#footnote-ref-1)