

**- Systems Engineering & Technical Management -  
2019/2020 Assessment Report**

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**programs (i.e. DSSEMadMS Eng specialty).**

**2**

**2.1**

**The mission of the DMSEMadMS Eng SEM specialty is to equip graduates with the knowledge and skills to address complex multidisciplinary problems involving the design, modeling, analysis, and management of technological systems that employ a combination of devices, software, hardware, firmware, materials, and humans for such diverse purposes as communications, energy engineering, healthcare, transportation or manufacturing. The dual major and graduate curriculum provides engineering students with design viewpoints and methodologies that emphasize system integration, and with subject matter and tools for m**

**3**

**31**

**331**

**tagged level, and the evidence indicates that there is sufficient data and an adequate assessment methodology already in place, and therefore there is no reason to question the results obtained**

**If the faculty did not take this last course of action and implement curriculum changes, the data from the direct assessments is analyzed and the faculty come up with a plan for continuous improvement, which specifies what changes will be implemented to the curriculum to improve outcome performance**

**In addition to direct assessment measures, indirect assessment of the student outcomes is performed on an annual basis through a senior exit survey**

**The results of the direct and indirect assessment, as well as the conclusions of the faculty discussion at the Closing the Loop meeting are included in the annual SEM Assessment Report, which is reviewed by the Department Chair and the Director of Assessment for the university. The suggested changes to the curriculum are presented and discussed with all the department faculty at the annual Convocation meeting in Fall, as well as with the EERE Industry Advisory Boards. If approved, these changes are implemented in the curriculum and submitted to the University Curriculum Planning Commission (if catalog changes are required) for the following academic year.**

**The sections below describe the 2019-20 tagged assessment activities and detail the performance of students for each of the assessed outcomes. The tables report the number of students performing at a developing level, accomplished level, and exemplary level for each performance criteria, as well as the percentage of students performing at an accomplished level or above.**

### **3.3.3**

**The sections below describe the 2019-2020 tagged assessment activities and detail the performance of students for each of the assessed outcomes. The Tables report the number of students performing at a (1) developing level, (2) accomplished level, and (3) exemplary level for each performance criteria, as well as the percentage of students performing at an accomplished level or above (i.e., 2 or 3).**

### **3.3.4**

**This outcome was assessed in SEM 421/521 – Systems Engineering in Fall 2019 by means of a substantial final project which consisted of a presentation and paper:**

**For the final project (paper and presentation), students selected a recent article or industry case involving a serious issue related to a product or service pertaining to the course (eg. defect, technical issue, reliability problem, supply chain problem, etc). Students analyzed the issue, explored how the problem could have happened and developed a set of recommendations based on course learning. The project contained a quantitative component (eg. data analysis, modeling survey, interviews).**

**15 students were assessed in Fall 2019 using the performance criteria listed in the table below. The minimum acceptable performance level was to have above 80% of the students performing at the accomplished or exemplary level in all performance criteria.**

**Table(a)1 summarizes the results of this targeted assessment. Table(a)1 summarizes the results of this targeted assessment. The results indicate that the minimum acceptable performance level of 80% was met on all performance criteria for this program outcome, that is, 80% of students were able to apply systems engineering methods to practical problems involving one or more engineering disciplines.**

**Outcome(a): ability to apply systems engineering methods to practical problems involving one or more engineering disciplines**



## **4**

**This section describes the changes resulting from the assessment activities carried out during**

SEM422/522 Course Project Rubric

Presented: \_\_\_\_\_ Term: \_\_\_\_\_ Inst: \_\_\_\_\_  
Instructor: James Eastman

Criteria	1 (Poor)	2 (Fair)	3 (Good)	4 (Excellent)
1. Problem Statement	Does not clearly state the problem.	States the problem but lacks detail.	Clearly states the problem with some detail.	Clearly states the problem with sufficient detail.
2. Data Collection	Does not collect any data.	Collects some data but it is incomplete.	Collects data that is mostly complete.	Collects data that is complete and accurate.
3. Data Analysis	Does not analyze the data.	Attempts to analyze the data but the analysis is flawed.	Analyzes the data using appropriate methods.	Analyzes the data using appropriate methods and draws conclusions.
4. Conclusion	Does not provide a conclusion.	Provides a conclusion but it is weak.	Provides a conclusion that is supported by the data.	Provides a conclusion that is well-supported and clearly stated.
5. Presentation	Presentation is poor and difficult to read.	Presentation is fair but has some issues.	Presentation is good and clear.	Presentation is excellent and professional.
6. Writing Style	Writing is unclear and contains many errors.	Writing is fair but contains some errors.	Writing is clear and mostly free of errors.	Writing is clear, concise, and free of errors.
7. Grammar and Mechanics	Contains many grammatical and mechanical errors.	Contains some grammatical and mechanical errors.	Contains few grammatical and mechanical errors.	Contains no grammatical and mechanical errors.

## SEM421/521 Project Management HW Rubric

Date Presented \_\_\_\_\_

Team \_\_\_\_\_

Instructor: James Eastham

	1 Developing	2 Competent	3 Exemplary	Score
<u>Organization</u>	<input type="checkbox"/> Does not follow organized pattern	<input type="checkbox"/> Well organized <input type="checkbox"/> Easy to follow <input type="checkbox"/> Contains summary <input type="checkbox"/> Follows clear logical pattern	<input type="checkbox"/> Competent plus additional organization methods	
<u>Project Schedule</u>	<input type="checkbox"/> Poor/ Unclear Precedents or Dependents	<input type="checkbox"/> Good/ Clear schedule, precedents or dependents	<input type="checkbox"/> Good/ Clear problem schedule AND precedents AND dependents	
<u>Work Breakdown Structure</u>	<input type="checkbox"/> Poor/ Unclear WBS	<input type="checkbox"/> Good implementation of WBS	<input type="checkbox"/> Good implementation of WBS AND <input type="checkbox"/> Clear WBS numbering and organization	
<u>Resource Allocation</u>	<input type="checkbox"/> Missing incomplete, or incorrect resource allocation or charts	<input type="checkbox"/> Good assignment of resources <input type="checkbox"/> Good resource allocation charts	<input type="checkbox"/> Good assignment of resources AND reports/charts AND additional resource insight	
<u>Cost Estimation</u>	<input type="checkbox"/> Missing incomplete, or incorrect cost analysis	<input type="checkbox"/> Correct break even analysis <input type="checkbox"/> Correct IRR <input type="checkbox"/> Correct IRR Minth <input type="checkbox"/> Good answer to part d	<input type="checkbox"/> Competent plus additional graphs or insights	
<u>Additional Analysis</u>	<input type="checkbox"/> Limited implementation of additional learning	<input type="checkbox"/> Some implementation of additional learning	<input type="checkbox"/> Many additional examples (eg costs, dashboards, critical tasks, % complete, mini reports)	
			<b>Total</b>	