

Standing Requirements

Program Mission Statement

To graduate engineers with the knowledge and skills to assume leading roles in cybersecurity for aerospace, aviation, and related industries.

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Standing Requirements

Program Outcomes

DB_MS Cyber Security Engineering Outcome Set

Outcome

Outcome	Mapping
DB_MSCybE_SO_A (Fundamentals) Ability to apply fundamental cybersecurity engineering professional practices to analyze, design, and implement security-critical systems.	No Mapping
DB_MSCybE_SO_B (Advanced Concepts) Ability to apply knowledge of advanced topics in cybersecurity engineering.	No Mapping
DB_MSCybE_SO_C (Communications) Ability to communicate effectively on issues pertaining to cybersecurity.	No Mapping

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2017-2018 Assessment Cycle

Assessment Plan

Measures

DB_MS Cyber Security Engineering Outcome Set

Outcome

Outcome: DB_MS_CyE_SO_A (Fundamentals)

Ability to apply fundamental cybersecurity engineering professional practices to analyze, design, and implement security-critical systems.

- ▼ **Measure:** Graduating Student Survey (program administered)
Program level Indirect - Survey

Details/Description:

Each graduating student from the MSCyE program will be asked to complete the survey shown below using an online survey tool (e.g. Survey Monkey). Students' responses are collected at the end of the semester of graduation for the individual student. Survey responses are evaluated and averaged at the end of the spring semester for the academic year.

Sample Survey:

Circle your assessment of the how well your degree prepared you for the below competencies:

Demonstrate capability to apply fundamental cybersecurity engineering concepts to real-world problems related to security-critical systems.

1) Poor 2) Fair 3) Good 4) Very Good 5) Excellent

Demonstrate capability to apply advanced cybersecurity engineering concepts to real-world problems.

1) Poor 2) Fair 3) Good 4) Very Good 5) Excellent

Have the ability to communicate effectively on

issues pertaining to cybersecurity.
 1) Poor 2) Fair 3) Good 4) Very Good 5) Excellent

Criterion for Success: Using this mean of assessment, the criterion for success (student attainment of the outcome) for each of the outcomes will be whether or not the average result from all responses is greater or equal to 3 (average $\geq 3 \rightarrow$ success).

Timeframe of Data Collection: Annually (will use Spring 2016 graduate survey)

Key/Responsible Personnel: Program Coordinator

▼ **Measure:** Rubric-based Direct Assessment of Student Work
Course level Direct - Student Artifact

Details/Description: In assessing student attainment of an outcome, the course instructor assesses each student on her/his performance and the quality of course deliverables. The following are some examples of material that might be used: in-class test, quizzes, etc.; individual and team projects; written reports; delivered software or documentations; individual oral presentations; team presentations and reviews; peer evaluations. Artifacts will be accessed as meeting a particular attribute for an outcome using a rubric. For each attribute, it will be scored as “unsatisfactory”, “satisfactory”, or “excellent” as per the description provided in the rubric. The percentage of student artifacts meeting the satisfactory or excellent performance level will be assessed for each attribute. The average of the attribute assessment scores will be taken to determine the overall performance for the outcome

Criterion for Success: Assessment at the artifact level, if the artifact’s assessment fails to attain the 75% performance at satisfactory or excellent, the instructor will need to reassess their learning outcome and course materials applicable toward the generation of that artifact. Assessment at the course level, if the average assessment over all artifacts show that less than 75% of the work is either satisfactory or

excellent, changes to the course must be made as it has failed to attain the program outcome. Assessment at the program outcome level is addressed at two levels: If the mean assessment scores over all directly assessed courses for a program outcome are less than 75% performance at satisfactory or excellent, then the department graduate faculty must meet to discuss changes to the program's curriculum and/or pedagogy to address the inability to attain the program outcome. If the assessment results from the Capstone / Thesis courses are less than 75% performance at satisfactory or excellent, then the department graduate faculty must meet to discuss changes to the program's curriculum and/or pedagogy to address the inability to attain the program outcome.

Timeframe of Data Collection:
Key/Responsible Personnel:

Throughout Fall and Spring Term
Assessment Coordinator, Indicator Course Instructors, and program faculty for annual review.

Outcome: DB_MSCybE_SO_B (Advanced Concepts)

Ability to apply knowledge of advanced topics in cybersecurity engineering.

- ▼ **Measure:** Graduating Student Survey (program administered)
Program level Indirect - Survey

Details/Description:

Each graduating student from the MSCybE program will be asked to complete the survey shown below using an online survey tool (e.g. Survey Monkey). Students' responses are collected at the end of the semester of graduation for the individual student. Survey responses are evaluated and averaged at the end of the spring semester for the academic year.

Sample Survey:

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Have the ability to communicate effectively on issues pertaining to cybersecurity.

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Criterion for Success:

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Timeframe of Data Collection:

Annually (will use Spring 2016 graduate survey)

Key/Responsible Personnel:

Program Coordinator

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Course level Direct - Student Artifact

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Timeframe of Data Collection:
Key/Responsible Personnel:

Throughout Fall and Spring Term
Assessment Coordinator, Indicator Course Instructors, and program faculty for annual review.

Outcome: DB_MSCybE_SO_C (Communications)

Ability to communicate effectively on issues pertaining to cybersecurity.

▼ **Measure:** Graduating Student Survey (program administered)
Program level Indirect - Survey

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Timeframe of Data Collection: Annually (will use Spring 2016 graduate survey)
Key/Responsible Personnel: Program Coordinator

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Timeframe of Data
Collection:
Key/Responsible
Personnel:

Throughout Fall and Spring Term

Assessment Coordinator, Indicator Course
Instructors, and program faculty for annual review.

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