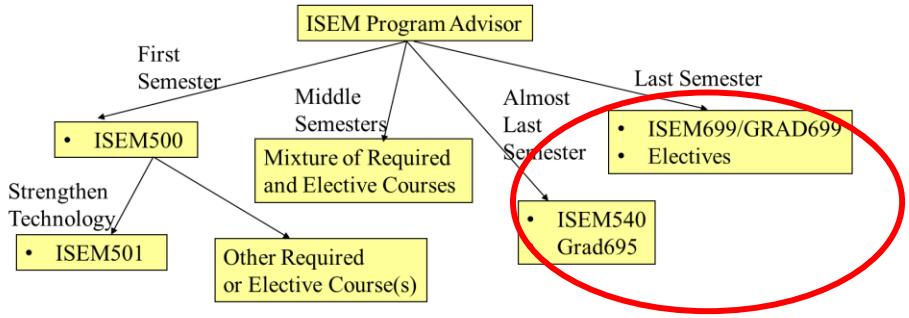
# ISEM CAPSTONE AND PREPARING FOR GRADUATION

## Important Suggestions in the last 3-4 Semesters (see Figure1):

- Carefully read the ISEM documents in Stage1 and Stage2 and make sure that you are pursuing a specialization of your choice. Please consult with your Faculty Advisor if you need help.
- Choose a topic for your Capstone Study and what do you plan to do (Applied Project or Research Thesis) as explained in the Capstone Overview given below.
- Ask the Registrar to run a Degree Audit to make sure that you can graduate when you want to.
- You must take Capstone Courses (Grad695 and ISEM699/Grad699) towards the end of your studies (after completing 24 Semester hours)
- You cannot take Grad695 and Grad699/ISEM699 in the same semester.




**Important Suggestions and Guidelines**:

- You cannot take more than one online course in a semester on student visa
- Please take as many required courses as quickly as possible so that you can graduate at your scheduled times.

**ISEM Required Courses (15 semester hours + 6 semester hours of Capstone)**

ISEM 500 Strategic IS Planning, Engineering & Management
ISEM 502 User Centered Design or ISEM530 or ISEM565 or CISC520
ISEM 540 Architecture and Integration of Modern Enterprises
MGMT 510 Business Strategy and Management Principles
MGMT 511 Digital and Global Enterprises or PMGT510 or ANLY500
GRAD 695 Research &Writing and GRAD 699/ISEM 699 Master's Thesis or Research Project

Figure1: ISEM Course Planning Decision Tree

IMPORTANT: You cannot take Grad695 and Grad699/ISEM699 in the same semester.

## Overview of the Capstone Program

Capstone studies (6 semester hours of research thesis or practical projects) are a unique characteristic of the Graduate programs at Harrisburg University. The 6 semester hours of work concludes the Master's degree and helps the students to synthesize their knowledge and gain further insights through research investigation or practical exploration. The Capstone studies consist of the following:

GRAD 695 Research Methodology and Writing
and
ISEM 699 Applied Project in ISEM or GRAD 699 Graduate Thesis

**GRAD 695 Research Methodology and Writing** (3 semester hours)
Prerequisites: Completion of at least 18 graduate semester hours
Description: This course guides the student to develop and finalize a selected research problem and to construct a proposal that effectively establishes the basis for either writing a thesis or launching an experiential capstone project. The course provides an overview of strategies for effective problem investigation and solution proposal. Research methodology is studies and applied as part of suggesting a solution to a problem. Writing and formatting techniques are also explored and applied as a communication tool for cataloging the investigation and recommending the solution.

**GRAD 699 Graduate Thesis** (3 semester hours)
Prerequisites: GRAD 695 and the permission of instructor
Description: In consultation with the advisor, the student conducts research designed in GRAD 695 to address a problem as identified in the solution proposal.

**ISEM 699 Applied Project in ISEM** (3 semester hours)
Prerequisites: GRAD 695 and permission of instructor
Description: This course allows the student to pursue an area of interest that is within the broad scope of ISEM. A faculty member will supervise this study.

Figure2 shows a conceptual view of the Capstone courses (Grad695 and Grad699/ISEM699). After taking Grad695, a student interested in a research career, possibly leading to a Doctorate, enrolls in Grad699 while a student interested in becoming a practitioner enrolls in ISEM699.

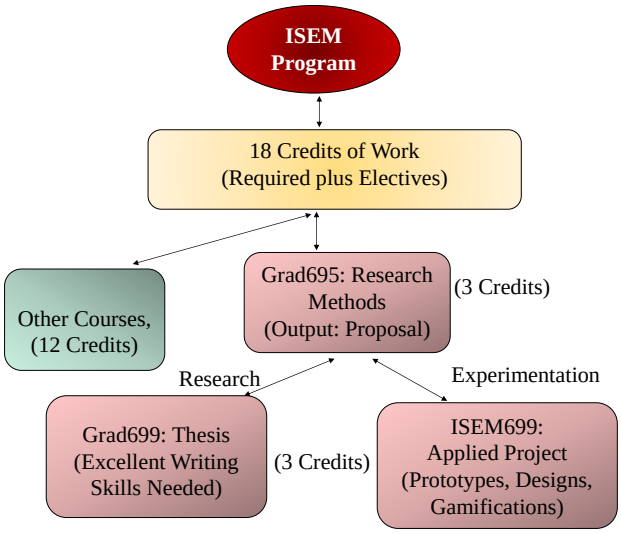


Figure 2: A Conceptual View of the Capstone

The main advantages of this structure are the following:

- The students select a topic of study in Grad695 and then develop a proposal for a thesis or applied project in Grad695. They also learn the discipline and principles of conducting research or experimental studies in this course. A 25 pages written proposal is the output of Grad695. This prepares the students to conduct the needed research and experiments needed in 699.
- The proposal developed in Grad695 is the input to Grad699/ISEM699 – it provides a starting point for further studies and allows the students to take additional courses that could augment their knowledge of the chosen subject matter.
- The students select Grad699 or ISEM699 based on their interests and career goals. Most students in CPT select ISEM699 and select a topic that is somewhat related to their CPT assignment. In fact, CPT students are required to select a topic area in Capstone that is related to their work assignment.
- Grad699 requires excellent writing skills because the thesis produced at the end of Grad699 is a 50+ page document that clearly and strongly has to propose a problem and justify a solution approach. ISEM699 requires skills in developing prototypes, designing solutions and producing gamifications.

Thus the Capstone allows the students to pursue scholarly studies or gain more in-depth practical knowledge of the topics that are of interest and value to the students.

## Grad695 and Grad699/ISEM699: Practical Considerations

**GRAD695:**

This course establishes a basis for the experiential capstone in graduate studies. It provides an overview of strategies for effective problem investigation and solution proposal. Exhibit1 shows the key questions that are used as a starting point of this course. Research methodology is studied and applied as part of suggesting a solution to a problem. Writing and formatting techniques are

explored and applied as a communication tool for cataloging the investigation and recommending the solution. After taking this course, the students must be able to:

- Develop a solid proposal for research thesis or applied project
- Conduct research or applied projects successfully with minimal supervision
- Report results of the research and applied project in a format that is externally publishable

**Exhibit 1: Key Questions to Guide the Capstone Projects and Categories of Applied Projects**

Any research or practical investigation problem should attempt to answer the following key questions:

- What is the problem? A short and succinct statement of the problem that is being researched or investigated
- Why it should be solved? Who cares if the problem is solved or not. Who could possibly benefit from this effort.
- Why it has not been solved? This basically is a survey of literature and evaluation of other efforts.
- What is your solution approach? This identifies the main contribution of the work.
- What are the expected results? This specifies the output produced (a working demo, a research paper, a technical report)

<u>Categories of Applied Projects for Capstone (i.e., types of applied projects):</u>

a. Project initiated by the CPT employer
b. Detailed design of a particular solution (gamified)
c. Building a prototype that could be later expanded into a Product/Service
d. Recommendations of guidelines/procedure/methodologies/tools for challenging situations
e. Thorough study of a technical area to develop a technical and scholarly survey of the topic (current situation, future directions)