SCIS GRADUATE THESIS/PROJECT GUIDE

Processes, Advising, and Content

Database Technologies
Information Assurance
Information Technology Management
Software Engineering
Systems Engineering
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1.0 INTRODUCTION

One of the best ways to showcase your academic achievement is the culminating applied research Thesis/Project project that is required of all School of Computer & Information Sciences (SCIS) graduate students to fulfill the requirements for the Master of Science degree. While it may seem daunting to some, the Thesis/Project is one of the best ways for you to demonstrate your mastery of your content area as well as to show your ability to independently identify a worthy problem or question to investigate and address. Successful completion of the Thesis/Project does more than complete degree requirements. It signals to others your capability, integrity, perseverance and dedication to define and complete a complex endeavor.

The Thesis/Project is a culminating academic effort. It integrates the knowledge you have accumulated during your program and allows you to demonstrate your ability to integrate your epistemological philosophy with the body of knowledge that serves as the foundation for your field. Taking the time to develop and write a thoughtful well articulated Thesis/Project paper can serve as a career enhancement by creating a building block that you can leverage in the workplace to launch new efforts, explore options, or enhance and improve existing programs.

Whether you choose to conduct a study to explore a work related issue, spring board your Thesis/Project from one of the Practicum programs, or delve into a theoretical investigation, you will find that the effort will help you hone your abilities to identify and solve problems through a systematic research process that can address both theoretical and practical problems in professional, academic, and personal settings.

1.1 HOW THE THESIS/PROJECT FITS WITH THE CURRICULUM

Your curriculum was designed to provide you with a variety of competencies. Figure 1 below is a picture of your degree program.

![Curriculum Map](image)

*Figure 1: Generic Curriculum Map for MS in Database Technologies, Information Assurance, Information Technology Management, Software Engineering, and Systems Engineering*

1.1.1 CURRICULUM

In each program listed above, you begin your program by taking a course that introduces core competencies that provide you with the foundation of both content and academic knowledge designed to prepare you for the rest of your program. The assignments in Information Technology Concepts emphasize the required research, writing, and critical analysis to navigate successfully the rest of the program. You begin your graduate program with a holistic view of systems and by developing your foundational academic abilities. The core courses are designed to facilitate your development.
You take the next core course, IT Research Methods, after you have taken four of your degree courses. By combining the academic skills you learned in the first core course and practiced in your degree program courses with the content knowledge you developed in your degree courses, you will begin to develop ideas about applied research based projects. The IT Research Methods course introduces you to research design and methodologies most appropriate to Information Technology problems. You will develop the skills to identify suitable problems or areas to investigate. As a part of the class, you will practice developing a Thesis/Project proposal. Many students use the work from IT Research Methods to propel them towards their Thesis/Project. Many students modify the work started in MSCC 697, and many decide to find a different topic or problem area. The goal of the class is to help you learn how to evaluate ideas and move them towards an appropriate Thesis/Project.

The final core course, Enterprise Architecture, is not directly related to the Thesis/Project process, but does help you build a framework that allows you to see your knowledge area in the context of the larger Information Technologies field.

Each degree program requires a Thesis/Project for completion. In the Thesis/Project class you are required to complete a Thesis/Project proposal and secure an advisor who approves your proposal. By the end of the 8-week term, you will have a comprehensive proposal that insures you will be able to complete your Thesis/Project within six (6) months after the end of the term. If you are one of the students who (with an advisor in place) continued working on your proposal after your IT Research Methods course, you will be able to obtain approval at the beginning of your Thesis/Project course allowing you to focus on the completion of your Thesis/Project.

The Thesis/Project process may feel a bit confusing to you early on. This guide is designed to help you navigate the path to execute successfully this important component of your graduate education.

1.2 PROCESS

In MSCC 697, IT Research Methods, you learn about research methods, and you learn the Thesis/Project process for the School of Computer & Information Sciences.¹

While writing a Thesis/Project may seem confusing and complex, if we break down the effort and show how each step leads to the next and builds a foundation for a solid investigation, it will be more understandable. Following is a representation of the Thesis/Project process. We will look at each step in the following sections.

¹ This guide covers requirements for the MS in Database Technologies, Information Assurance, Information Technology Management, Software Engineering, and Systems Engineering. Refer to the MScSED Thesis guide for information specific to the joint degree program with the National University of Ireland-Galway
Figure 2: Thesis/Project process flow

1. Write Idea Paper
2. Identify Thesis/Project Advisor

Step 1: Problem, Context, Literature Review

Step 2: Develop Research Design and Identify Methods

Step 3: Write Proposal

Step 4: Thesis/Content Advisor Approves Proposal

Step 5: Conduct Research/Project

Step 6: Analyze Results

Step 7: Develop Conclusions

Step 8: Write Thesis/Project Report

Step 9: Present Thesis/Project Report

Step 10: Thesis/Project Approval

Figure 2: Thesis/Project process flow
2.0 Thesis/Project Proposal

2.1 The Idea Paper - Initial Problem Context and Literature Review

The first step in the process is to start with an idea. Typical ideas come from work and literature. In your area, what are the interesting problems? As you took courses, what was interesting? What did you want to investigate in more depth? Looking closer at these problem areas and by conducting a literature review will help you narrow down your topic. By reviewing literature from a variety of sources, you will define your topic and formulate your Thesis/Project idea. Before you write your proposal, consider the following areas.

2.1.1 Domain
Write a description or setting of the domain that relates to the proposed problem. This serves as an orientation for you and your advisor. Think about a proposed title of the project.

2.1.2 Problem
Write a very clear and concise “statement of the problem.” Any reader should be able to read your Thesis/Project statement and clearly understand the problem you are trying to solve.

2.1.3 Context
Write a rationale of the need or importance of the study. Provide the context surrounding your investigation and problem statement. State the relevance of the study. State how it contributes to the field of study or body of knowledge. Evidence from the literature supports the rationale. At this point, you should have one or two sources to support this initial concept.

2.1.4 Methodology
Consider your “best guess” on the methodology you think you might use to solve this problem or hypothesis test – e.g., survey, qualitative interview, descriptive statistics, etc. This is a best guess, and it will most likely change as you develop your proposal. In this topic, list the resources needed to conduct the study as well as identifying the deliverables that your study will produce.

2.1.5 Summary
Use the Idea Paper as a tool to request a Thesis/Project advisor. Using this tool, you can clearly communicate with a Thesis/Project advisor so they can determine if they are the best advisor for your topic and approach, and they can help you adjust your project based on what you provided.

2.2 Literature Review

The literature review builds the foundation of your project. In it, you will identify what other researchers have done in the field. What have they written about the problem you want to address? What are the theoretical frameworks? What are the questions to be answered? How have others answered the questions? Often you will find that a researcher will propose future research built on their work. This is an opening for your work. Other researchers will propose a theory, tool or mechanism that should be explored and tested. Your project does not require you to explore new and uncharted territories. Rather, look for something you can build on incrementally.

The literature review is far more than a list of sources or a brief summary of the articles and books you have read. It is a comprehensive evaluation of the body of literature that applies to your problem. A well written literature review will include the seminal writings in your subject area that apply to your topic. It will be organized around...
the relevant themes. It will include solid resources that share findings based on sound research practices. The use of trade journals, popular press, and textbooks is discouraged. A well written textbook is a good example of a literature review. The textbook author brings together the work of the leaders of a particular area and shares what they have written. So a textbook can be a source for getting you started, but unless the textbook is the result of original work of the author, your literature review should only use the textbook to seek out the original works referenced by the textbook author.

2.3 DEVELOP RESEARCH AND DESIGN AND IDENTIFY METHODS

The literature review is the foundation of most research projects. Your literature review should help you understand what questions need to be answered regarding your problem. These questions will help you design your methods. Will you build a prototype, design a network, or create another artifact to learn about the problem or answer your questions? Will you need to survey a group of users? Do you need to interview a few individuals in depth to answer your questions?

2.4 INSTITUTIONAL REVIEW BOARD (IRB)

If your research requires you to use human subjects, you will need to submit an application for the Institutional Review Board. This board reviews your project and the instruments you will use to insure all human subjects are treated ethically. This is a required step in the process. Once your Thesis/Project proposal is approved, you can submit the application to the IRB. Your Thesis/Project advisor must approve your IRB proposal for you to receive approval from the board.

You can find more information about the IRB and the process at the web site of the Office of Academic Review (http://www.regis.edu/regis.asp?scnt=ars&p1=agr&p2=irb)
2.5 **Thesis/Project Proposal Rubric**

Your Thesis/Project advisor approves your proposal. Use the following rubric to assess your readiness. Your Thesis/Project advisor will assess each of the elements to insure you are ready to begin your project. Your Thesis/Project advisor is agreeing that you will complete your Thesis/Project and presentation within six months when he/she approves your proposal. Your advisor will not approve your proposal if there are missing elements because that is an indicator that you will not successfully complete the project in the allotted time.

<table>
<thead>
<tr>
<th></th>
<th><strong>Excellent</strong></th>
<th><strong>Good</strong></th>
<th><strong>Fair</strong></th>
<th><strong>Poor</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thesis/Project Title</strong></td>
<td>Title clearly identifies Thesis/Project study focus</td>
<td>Title mostly identifies Thesis/Project study focus</td>
<td>Title needs work</td>
<td>Thesis/Project study title is missing</td>
</tr>
<tr>
<td><strong>Rationale</strong></td>
<td>Rationale is clear and concise</td>
<td>Rationale is clear. Could be improved through more direct and concise discussion.</td>
<td>Rationale is provided and needs work to support Thesis/Project study</td>
<td>Rationale is missing or does not support Thesis/Project study</td>
</tr>
<tr>
<td><strong>Literature</strong></td>
<td>Literature review is clearly articulated, includes seminal work, and supports Thesis/Project study.</td>
<td>Literature review may have some missing bodies of work or require revision to be clearly articulated and concise.</td>
<td>Literature review is missing seminal literature and does not clearly support Thesis/Project study. Writing needs to improve for a clear and concise articulation of the relevant body of knowledge</td>
<td>Literature review does not support the Thesis/Project study or is missing.</td>
</tr>
<tr>
<td><strong>Problem Statement</strong></td>
<td>Problem statement is at the beginning of the proposal and clearly explains the purpose of the Thesis/Project study</td>
<td>Problem statement explains the purpose of the study, but is not at the beginning of the proposal or could be articulated more clearly, so that the purpose of the study is clear.</td>
<td>Problem statement is not prominent and does not clearly articulate the purpose of the study</td>
<td>Missing or inappropriate problem statement.</td>
</tr>
<tr>
<td><strong>Questions</strong></td>
<td>Appropriate research questions, objectives and hypotheses are defined and clearly articulated</td>
<td>Research objectives, questions, and hypothesis are included and can use some tightening up.</td>
<td>Research questions, hypothesis or objectives are missing or need significant work.</td>
<td>Research questions, hypothesis and/or objectives are missing</td>
</tr>
<tr>
<td><strong>Significance</strong></td>
<td>Study significance is clearly defined and explains the context and value added to industry</td>
<td>Context of the study needs more discussion to establish the significance of the study</td>
<td>Significance is not clearly defined and context of study is lacking.</td>
<td>Study significance is not addressed</td>
</tr>
<tr>
<td>Methodology</td>
<td>Research design</td>
<td>Research design is clearly explained and the project approach shows how the research methodology fits with the study objectives</td>
<td>Research design is defined and research methodology matches the design. Discussion needs some work</td>
<td>Research design and methodology do not match or the discussion does not show how the methodology directs the design.</td>
</tr>
<tr>
<td>References</td>
<td>Bibliography</td>
<td>Study supported by at least 5 relevant sources that include seminal sources.</td>
<td>Good set of resources that could include more relevant sources</td>
<td>Missing relevant sources that support Thesis/Project study.</td>
</tr>
<tr>
<td>Schedule</td>
<td>Project Schedule that shows deliverables of the study and subsequent Thesis/Project paper</td>
<td>Project schedule shows meaningful deliverables for artifacts and study phases.</td>
<td>Schedule needs additional deliverables to be included</td>
<td>Schedule lacks meaningful deliverables for study, artifacts and Thesis/Project paper.</td>
</tr>
<tr>
<td>Coherence</td>
<td>Coherence and language</td>
<td>Proposal is well written, concise, and thorough.</td>
<td>Proposal is well written but could use some work to tighten up language and flow</td>
<td>Minor grammatical errors and occasional lack of coherence</td>
</tr>
</tbody>
</table>
3.0 THESIS/PROJECT PAPER

The following sections briefly introduce the required elements in your Thesis/Project paper. A rubric is presented for each element. Use the following rubrics to communicate with your advisor about your Thesis/Project. How the paper is structured depends on the methodology and research design. The following sections are not to be construed as a template.

3.1 PROBLEM IDENTIFICATION

The introduction of your paper describes the context and domain of the problem. This section will typically run three to four pages. You should be able to use the introduction from your proposal and with some adjustments, use the problem and context discussion in your Thesis/Project paper. This is where you indicate the significance of your project. Why is this worth looking into, who will be interested in the results, and how will they use them. For example, an investigation into a help center trouble ticketing system that provides fast and reliable response time and excellent customer satisfaction to understand why it is so successful would be useful to other organizations that need to improve their help desk operation.

3.1.1 INTRODUCTION RUBRIC

<table>
<thead>
<tr>
<th></th>
<th>EXCELLENT</th>
<th>GOOD</th>
<th>FAIR</th>
<th>POOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rationale</td>
<td>The rationale is clear and concise. Depth makes it easy to understand for reader. The rationale supports the problem statement. The purpose for the study is clearly identified.</td>
<td>The rationale is clear. Could be improved through more direct and concise discussion. There is adequate depth and detail, and the rationale supports the problem statement.</td>
<td>While the rationale is addressed, and supports the study, there is a lack of sufficient detail.</td>
<td>The rationale is missing or does not support Thesis/Project study.</td>
</tr>
<tr>
<td>Background and rationale of Thesis/Project study</td>
<td>The problem statement is at the beginning of the study and clearly explains the purpose of the Thesis/Project study. The problem statement drives the discussion</td>
<td>The problem statement explains the purpose of the study, but is not at the beginning of the proposal or could be articulated more clearly, so that the purpose of the study is clear.</td>
<td>The problem statement is not prominent and does not clearly articulate the purpose of the study</td>
<td>The problem statement is missing or inappropriate. It does not fit the rationale and context of the study.</td>
</tr>
<tr>
<td>Problem Statement</td>
<td>Appropriate research questions, objectives and hypotheses are defined and clearly articulated</td>
<td>Research objectives, questions, and hypothesis are included and can use some tightening up.</td>
<td>Research questions, hypothesis or objectives are missing or need significant work.</td>
<td>Research questions, hypothesis and/or objectives are missing</td>
</tr>
<tr>
<td>Questions</td>
<td>The study significance is clearly defined and explains the context and value added to industry</td>
<td>The context of the study needs more discussion to establish the significance of the study</td>
<td>The significance is not defined clearly and the context of study is lacking.</td>
<td>The study significance is not addressed or inappropriate.</td>
</tr>
</tbody>
</table>
### Coherence

| Coherence and language | The introduction is well written, concise, and thorough. | The introduction is written well but could use some work to tighten up language and flow. | Minor grammatical errors and occasional lack of coherence detract from the introduction and readability. | The introduction contains significant grammatical and/or structural errors making it difficult to read and comprehend. |

### 3.2 Literature Review

The literature review is an expansion of what you used in your proposal. It is "re" view or "look again" at what has already been written about the topic as compiled by you. Using critical analysis, the literature review is defined by your research objective, which serves as the guiding concept. It is *not just a descriptive list of the material available, or a set of summaries*. However, the literature review provides background for your problem, by putting your problem into historical perspective, and it shows how others handled similar problems in the past.

Your purpose is to convey to your reader what knowledge and ideas have been established on a topic including what their strengths and weaknesses might be.

### 3.2.1 Literature Review Rubric

<table>
<thead>
<tr>
<th>Research Objectives</th>
<th>EXCELLENT</th>
<th>GOOD</th>
<th>FAIR</th>
<th>POOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literature review is tied to the research objectives</td>
<td>The literature review is clearly tied to the research objectives. It is clear how the articles and concepts apply to the objectives.</td>
<td>The literature review is tied to the research objectives. Most concepts are focused and supportive.</td>
<td>The literature review is loosely related to the research objectives. Some concepts are focused and supportive.</td>
<td>The literature review does not relate to the research objectives. Concepts are unfocused and/or not supportive.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Critical Analysis</th>
<th>EXCELLENT</th>
<th>GOOD</th>
<th>FAIR</th>
<th>POOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>The literature review represents a balanced fair view. The author conscientiously presents and evaluates literature of multiple perspectives in a clear, focused and unbiased manner. The writing demonstrates analysis and evaluation of the resources.</td>
<td>The literature review represents a balanced fair view.</td>
<td>The literature review represents a fair view. While the author presents and evaluates the literature of multiple perspectives, some perspectives may be missing. The writing represents analysis and evaluation of the resources.</td>
<td>The literature review is spotty. The author leaves out crucial perspectives leading to a biased representation. Evidence of analysis and evaluation is weak.</td>
<td>The literature review lacks evidence of analysis and evaluation. Crucial perspectives are not included.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comprehensive</th>
<th>EXCELLENT</th>
<th>GOOD</th>
<th>FAIR</th>
<th>POOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>The literature review is exhaustive including enough detail to indicate that it represents the body of knowledge.</td>
<td>A reasonable set of resources are included, but an important source may be missing.</td>
<td>Seminal and important resources are missing from the review</td>
<td>The set of resources is inadequate.</td>
<td></td>
</tr>
</tbody>
</table>
3.3 METHODOLOGY

The methodology includes the following required elements. It is a discussion of what you did. It will not be a repeat of what you submitted in your proposal. It will be a detailed discussion of the steps you took, the people who were involved, and where you conducted the study. Not all elements of the methodology will be in every project so you need to consider thoughtfully if these elements are required in your paper. Remember, one purpose of the methodology section is so that another person can repeat the investigation you conducted for your Thesis/Project.

3.3.1 PARTICIPANTS
If you are using human subjects, describe them in detail. Who are they? How were the selected? For example, if you surveyed a number of users of a system that you developed, explain the relevant details of the those who were targeted as well as the relevant details of who responded. Remember, as the researcher, it is your responsibility to protect the anonymity of your participants, so do not reveal identifying information about any of your participants.

3.3.2 PLACE
Explain where you conducted the investigation. Good research practice requires you to not share the names of organizations, but to rather describe them. For example, a study utilizing Regis University as the place might be referred to as a private Midwestern university. This helps protect the anonymity of participants. When you use the name of your company, for example, you will be required to have signed authorization from appropriate individuals that your Thesis/Project can be published with the name.

3.3.3 INSTRUMENTS AND MATERIALS
Describe the materials and resources you used. If you conducted a survey (instrument), explain it in detail. Describe the questions, explain the scale for responses.

3.3.4 PROCEDURE
Detail the steps you took to conduct your study. This is a detailed discussion.

3.3.5 DATA ANALYSIS
Explain how you analyzed the data you gathered. This is a detailed discussion of the process you used to understand the data you gathered. How you do this depends on the methodology and research design.
### 3.3.6 Methodology Rubric

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participants</strong></td>
<td>Appropriate participants are described, clearly and all pertinent demographic information is provided to allow study replication. Participant anonymity is protected.</td>
<td>Appropriate participants are described well. There may be some missing demographic information. Participant anonymity is protected.</td>
<td>Demographic information is missing. Appropriate participants are not described well. Participant anonymity is protected.</td>
<td>Appropriate participants are not described and inappropriate participants are included. Participant anonymity is not protected.</td>
</tr>
<tr>
<td>Describe people who participated in the study</td>
<td>The environment and place are described with appropriate detail and description to enable study replication.</td>
<td>The environment and place are described well; however, some detail may be missing.</td>
<td>The environment and place are described, but the detail is inadequate.</td>
<td>The environment and place are not described.</td>
</tr>
<tr>
<td><strong>Place</strong></td>
<td>All materials and instruments are described with sufficient detail to enable study replication.</td>
<td>Although all materials and instruments are described, but detail may be lacking.</td>
<td>Not all materials and instruments are described.</td>
<td>No materials or instruments are described.</td>
</tr>
<tr>
<td>Describe the place and environment of the study</td>
<td>Procedures are provided with sufficient detail to enable study replication.</td>
<td>Procedures are described but may lack some detail.</td>
<td>Important steps are missing from the procedures.</td>
<td>Procedures are not described.</td>
</tr>
<tr>
<td><strong>Instruments and Materials</strong></td>
<td>Procedures are provided with sufficient detail to enable study replication.</td>
<td>Procedures are described but may lack some detail.</td>
<td>Important steps are missing from the procedures.</td>
<td>Procedures are not described.</td>
</tr>
<tr>
<td>Describe instruments (surveys, improvements, etc.) and materials used to conduct the study</td>
<td>Appropriate analysis for analyzing data is provided for the research questions. Each research question is included in the data analysis. Reliability and validity are adequately addressed.</td>
<td>Analysis fits research questions. Some detail is missing from the description of analysis. Reliability and validity are addressed but may need some improvements.</td>
<td>Analysis misses some research questions or some data analysis is not appropriate for research questions. Reliability and validity are not addressed.</td>
<td>Data analysis is not described.</td>
</tr>
<tr>
<td><strong>Procedures</strong></td>
<td>The methodology is well written, concise, and thorough.</td>
<td>The methodology is written well but could use some work to tighten up language and flow.</td>
<td>Minor grammatical errors and occasional lack of coherence detract from the methodology and readability.</td>
<td>The methodology contains significant grammatical and/or structural errors making it difficult to read and comprehend.</td>
</tr>
<tr>
<td>Describe the process and steps taken to complete the study</td>
<td>The environment and place are described with appropriate detail and description to enable study replication.</td>
<td>The environment and place are described well; however, some detail may be missing.</td>
<td>The environment and place are described, but the detail is inadequate.</td>
<td>The environment and place are not described.</td>
</tr>
<tr>
<td><strong>Data Analysis</strong></td>
<td>All materials and instruments are described with sufficient detail to enable study replication.</td>
<td>Although all materials and instruments are described, but detail may be lacking.</td>
<td>Not all materials and instruments are described.</td>
<td>No materials or instruments are described.</td>
</tr>
<tr>
<td>Explain how data was analyzed to produce results</td>
<td>Appropriate analysis for analyzing data is provided for the research questions. Each research question is included in the data analysis. Reliability and validity are adequately addressed.</td>
<td>Analysis fits research questions. Some detail is missing from the description of analysis. Reliability and validity are addressed but may need some improvements.</td>
<td>Analysis misses some research questions or some data analysis is not appropriate for research questions. Reliability and validity are not addressed.</td>
<td>Data analysis is not described.</td>
</tr>
<tr>
<td><strong>Coherence</strong></td>
<td>The methodology is well written, concise, and thorough.</td>
<td>The methodology is written well but could use some work to tighten up language and flow.</td>
<td>Minor grammatical errors and occasional lack of coherence detract from the methodology and readability.</td>
<td>The methodology contains significant grammatical and/or structural errors making it difficult to read and comprehend.</td>
</tr>
<tr>
<td>Coherence and language</td>
<td>The methodology is well written, concise, and thorough.</td>
<td>The methodology is written well but could use some work to tighten up language and flow.</td>
<td>Minor grammatical errors and occasional lack of coherence detract from the methodology and readability.</td>
<td>The methodology contains significant grammatical and/or structural errors making it difficult to read and comprehend.</td>
</tr>
</tbody>
</table>

### 3.4 Results and Objective Evaluation

In the results section, you describe exactly what you found. How you do this will depend on the methodology and research design.
3.4.1 RESULTS RUBRIC

<table>
<thead>
<tr>
<th></th>
<th>EXCELLENT</th>
<th>GOOD</th>
<th>FAIR</th>
<th>POOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensive</td>
<td>All research questions are addressed with sufficient detail.</td>
<td>All research questions are addressed. Some may not be thoroughly addressed.</td>
<td>Some research questions are not addressed or the presentation is unclear.</td>
<td>Research questions are not addressed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Devoid of Interpretation</td>
<td>Results are communicated without interpretation and discussion. Results are communicated with an occasional interpretative comment.</td>
<td>Results are accompanied by interpretation</td>
<td>Results are not shared.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coherence</td>
<td>The results are well written, concise, and thorough.</td>
<td>The results are written well but could use some work to tighten up language and flow.</td>
<td>Minor grammatical errors and occasional lack of coherence detract from the results and readability.</td>
<td>The results contain significant grammatical and/or structural errors making it difficult to read and comprehend.</td>
</tr>
</tbody>
</table>

3.5 DISCUSSION

In the discussion, you interpret the results. These are your findings. Explain what the survey data means. For example, if you set out to answer a question about how developers migrate from one development methodology to the next and you conducted a survey to answer related questions, you would then show how the survey responses answer the questions. You will also use previous research to validate your findings. If you find from your survey results that developers move easily from a structured development approach to an agile development approach when certain elements are in place, you will also show how your findings fit with the previous research such as indicating that this was the same as the findings in other studies, which you will cite. Your findings do not need to confirm previous findings, but if they do not, you have identified an area for further research. You will also identify unanswered questions in your discussion section. Finally, do not forget to identify the limitations of your study. A more obvious limitation would be that the study participants are specific to a certain environment so the findings from your work cannot be generalized to other groups. However, there will be other limitations such as the system configuration, methods used, or unique circumstances that may have been unexpected.
### 3.6 Paper Structure

The preceding sections are the required elements of a Thesis/Project; however, not all projects will fit neatly into the sections as outlined above. There may be a need to expand the results section, for example, into two or three sections or a need to combine other sections. The project approach may dictate a slightly different structure. You need to assess this and work with your advisor to ensure you are developing a solid supportable structure for your paper.

### 4.0 Roles

There are three major roles in the Thesis/Project process.

#### 4.1 Thesis/Project Advisors

The Thesis/Project advisor approves the Thesis/Project proposal, reviews the process and paper along the way at specific intervals as defined by the advisor and/or student. They provide content and methodology advise. They are the main point of contact for the student for assistance and guidance.

#### 4.2 Thesis/Project Class Facilitator (Faculty of Record)

The Thesis/Project class facilitator serves as the second signature of approval on the Thesis/Project. Once your advisor signs your Thesis/Project paper, you send your paper to the faculty of record who schedules your presentation. The Faculty of Record routes the paper for the final approval signature. The faculty of record signs the paper and submits the grade change from In Progress/No Pass (IPN) to Pass on behalf of the student.

### Analysis

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis interprets all results. It is comprehensive, thorough, and thoughtful.</td>
<td>Analysis interprets results. It is comprehensive but may require more detail.</td>
<td>Results do not support all interpretations.</td>
<td>Analysis does not interpret results.</td>
</tr>
</tbody>
</table>

### Integrated Literature Review

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>All findings are supported by literature citations.</td>
<td>Findings are integrated with literature citations. Some citations may be weak.</td>
<td>Not all findings are supported by literature citations. Many citations may be weak.</td>
<td>There is no integrated literature review.</td>
</tr>
</tbody>
</table>

### Limitations and Future Research

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion identifies any limitations of the study and recommends remedies. Future research and implications for practice are identified and described.</td>
<td>Discussion identifies some study limitations. Future research and implications for practice may be identified.</td>
<td>Future research and implications for practice are identified, but study limitations are not addressed.</td>
<td>Neither, future research, implications for practice nor limitations are addressed.</td>
</tr>
</tbody>
</table>

### Coherence

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>The discussion is well written, concise, and thorough.</td>
<td>The discussion is written well but could use some work to tighten up language and flow.</td>
<td>Minor grammatical errors and occasional lack of coherence distract from the discussion and readability.</td>
<td>The discussion contains significant grammatical and/or structural errors making it difficult to read and comprehend.</td>
</tr>
</tbody>
</table>
4.3 STUDENT

You, the student are responsible for defining and managing your own Thesis/Project. You are responsible for conducting the literature review, the study, analyzing the data and writing up the results and findings. It is your responsibility to insure your paper conforms to APA guidelines and SCIS writing guidelines. Editing the paper for grammar and cohesiveness is your responsibility. The paper is a reflection of you. Your advisor will point out patterns of errors, but you are responsible for the output.
5.0 THESIS/PROJECT PROCESS FLOW CHART

START

MSCC 610 – IT Concepts Plus 4 Degree Program Courses

MSCC 697 – IT Research Methods

1 Program Elective Plus 3 General Electives

MSCC 630 -Enterprise Architecture

MSxx 698 Thesis Class

SUCCESSFUL COMPLETION

6 Months

NO PASS

Proposal Approved by Thesis Advisor?

PASS

NO

WHAT CONSTITUTES THESIS COMPLETION?

1. Presentation of completed Thesis Report
2. Thesis Advisor Approval
3. MSxx 698 Thesis Facilitator (Ranked Faculty) Approval
4. Second Ranked Faculty Approval

Figure 3 – Thesis/Project process flow with timeline.
6.0 Thesi/Project Approval

1. Student sends MS Word doc of thesis draft

2. Thesis Advisor reviews Thesis paper against Thesis Rubric
   - No: Thesis Advisor Forwards
   - Yes: 698 Faculty of Record reviews against Thesis Rubric

3. Student forwards to 698 Faculty of Record for review
   - No: 698 Faculty Forwards
   - Yes: Presentation Scheduled

4. 698 Faculty of Record reviews against Thesis Rubric
   - No: 698 Faculty Forwards
   - Yes: 698 Faculty changes student grade to Pass

5. Student Presentation Scheduled
   - No: Presentation Complete?
   - Yes: 698 Faculty changes student grade to Pass

6. Ranked Faculty Review
   - No: Ranked Faculty Forwards
   - Yes: PDF sent to Student with request for e-authorization forms

7. Forward to Assistant Dean’s Office

8. PDF sent to Student with request for e-authorization forms

9. Student submits statement of authenticity, non-proprietary and/or authorization to publish forms to SCIS

10. 698 Faculty changes student grade to Pass

11. Assistant Dean’s office sends forms and PDF to library and/or notify library

12. Student graduation application processed

END

Figure 4: Graduate Thesis/Project Approval process
APPENDICES

APPENDIX A: SAMPLE IDEA PAPER

APPENDIX B: SAMPLE ANNOTATED BIBLIOGRAPHY

APPENDIX C: SAMPLE LITERATURE REVIEW

APPENDIX D: SAMPLE PROPOSAL

QUALITATIVE SAMPLE
QUANTITATIVE SAMPLE
DESIGN SCIENCE SAMPLE