CAPSTONE STUDIES – A GUIDE FOR ISEM STUDENTS

Executive Summary

The 36 semester hour graduate program in Information Systems Engineering and Management (ISEM) is designed to educate the leaders who can plan, engineer/re-engineer, and manage the systems needed to support the modern digital enterprises. Graduate studies in ISEM cut across the following three active areas of work:

- **Information Systems**: latest technologies and approaches (e.g., web-based components, mobile computing and wireless communications, business intelligence, emerging technologies)
- **Systems Engineering**: systems thinking and emphasis on systems instead of individual components; enterprise architectures consisting of people, processes and technologies
- **Management**: business strategies, entrepreneurship, planning, integration, security, governance, global enterprises, agile enterprises

This document gives an overview of the Capstone Studies (6 semester hours of research thesis or practical project) that conclude the Master’s degree in ISEM at HU. The Capstone helps the student to synthesize their knowledge and gain further insights through research investigation or practical exploration. The student has to take GRAD 695 (Research Methodology and Writing) before enrolling in ISEM 699 (Applied Project in ISEM) or GRAD 699 (Graduate Thesis). The Capstone courses are typically taken in the last two semesters of the ISEM Program, as shown in Figure 1 (the red circle). The objective of this document is to answer the frequently asked questions about the Capstone and provide information about the structure, guidelines, supervising faculty and topics of research and practical investigations.

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**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

**Figure 1: ISEM Program Planning Details**
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
- **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.

Figure 2 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.
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. Exhibit 1 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)

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

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)

GRAD 699 Graduate Thesis (3 semester hours)
Prerequisites: GRAD 695
Description: In consultation with the advisor, the student will conduct research to address a problem as identified in GRAD 695.

ISEM 699 Applied Project in ISEM (3 semester hours)
Prerequisites: GRAD695
Description: This course allows the student to pursue a practical area of interest that is within the broad scope of ISEM. A faculty member will supervise this study.

Course Philosophy and Approach:

• The primary objective of this course is to help the students complete the Experiential Capstone (MS Thesis or Applied Project). requirements
• The main deliverable of this course is a well written and solid MS Thesis or Applied Project Report.
• The starting point is the final version of your proposal from GRAD 695
• Our meetings will be discussion of your work, creation of a research culture, and answering any question. There will be no lectures.
• We will use the Discussion Forum as our main means of discussion and feedback (very similar to what we did in GRAD 695 course). It is best for everyone to start their own thread for better tracking of discussions.
Key Faculty and List of Topics

The following exhibits show the key faculty involved, a list of research/applied project topics since 2015, and a broad list of areas of studies.

Exhibit 1: Key Faculty (Listed by first name)

Fulltime Faculty:
- Amjad Umar, Ph.D (Univ of Michigan), aumar@harrisburgu.edu, Research Interests: Computer Aided Planning, Engineering and Management; Next Generation Enterprises (NGEs); Enterprise Architectures and Integration; AI Applications in Business; Strategic Intelligence; Smart Enterprises, Cities and Communities; Mobile Computing and Wireless Communications; Information Security Management;
- Farooq Anjum, Ph.D., (University of Maryland), FAnjum@harrisburgu.edu, Research Interests: Mobile computing and wireless communications, Big Data applications, Artificial intelligence, Information security, wireless sensor networks, IoTs, Digital agriculture
- Ilheb Abdellatif, Ph.D., IAbdellatif@harrisburgu.edu, Research Interests: Enterprise Architectures and Integration using SOA, Operations management, IoT Applications, web-based systems
- Jay Liebowitz, Ph.D., Jliebowitz@harrisburgu.edu, Distinguished Professor of Business and Finance, Research Interests: Knowledge management, artificial intelligence, Big Data Applications, Expert systems applications, Operations research, Financial engineering, Research methodologies
- Leena Pattarkine, Ph.D., LPattarkine@HarrisburgU.edu, Research Interests: Biotechnology systems, Biotechnology applications, pharmaceutical information systems, healthcare informatics
- Mehdi Noorbaksh, Ph.D., (Univ of Texas, Austin), MNoorbaksh@harrisburgu.edu, International management and business, Strategic management, Global organizations, Healthcare systems and Global health, Energy and alternative sources, Risk management, International relationship issues
- Robert M. Pittman, Ph.D. (Binghamton University), RPittman@harrisburgu.edu, Research Interests: Large scale systems engineering, Technology management, Program management, Application of traditional engineering principles to small enterprises, Agile methods
- Saeed Sardari, Ph.D. (University of Maryland), SEsmaili@harrisburgu.edu, Research Interests: Nanotechnology, Digital health, Web applications, IoTs, Logic design, Semiconductor device physics, Analog and Digital Circuit design
- Shane Tomblin, Ph.D., (Univ of Kentucky), STomblin@harrisburgu.edu, Research Interests: Enterprise Engineering and Architectures, healthcare informatics, information systems foundations, organizational learning, business process modeling and workflows, structuration, semiotics
- Stanley Nwoji, Ph.D., SNwoji@harrisburgu.edu, Research Interests: Business intelligence, Artificial neural networks, Data warehousing, Strategic management, Entrepreneurship, Data mining, International business, Medical informatics, Digital marketing.
- Wouter Popelier, Lecturer in ISEM, WPopelier@harrisburgu.edu, Research Interests: Digital Infrastructure, Next Generation Databases and Networks, Enterprise Architecture Frameworks, Software development quality assurance, Data flow and modeling
Corporate Faculty:
- Eduardo Rodriguez, Ph.D. \texttt{ERodrigues@harrisburgu.edu}, \textit{Research Interests:} Business intelligence, Systems analysis and design, Analytics, Risk management
- Janine Clarke, Ph.D., \texttt{JClarke@harrisburgu.edu}, \textit{Research Interests:} Business intelligence, Strategic management, Entrepreneurship, Digital marketing
- Matthew North, Ph.D, \texttt{MNorth@harrisburgu.edu}, \textit{Research Interests:} Business intelligence, Artificial neural networks, Data warehousing, Data mining, International business, Systems analysis and design
- Steven Else, Ph.D., (Denver), \texttt{SElse@harrisburgu.edu}, \textit{Research Interests:} Digital Enterprises, Enterprise Architectures frameworks, Business Intelligence, Smart Enterprises.

\begin{center}
\textbf{Exhibit 2: SME (Subject Matter Expert) for Capstone Projects}
\end{center}
\textbf{What is an SME:} a fulltime or corp faculty member with expertise (research, publications, practice) in broad areas such as healthcare, security, AI, etc. The topics are listed in Exhibit3.

\textbf{Roles/Responsibilities:}
- Work with corp and FT faculty to review and improve the quality of courses in the topic area
- Advise students interested in pursuing further studies in the topic area
- Make presentations to Grad695 classes to discuss possible projects that the students can pursue (these talks may be prerecorded discussions)
- Teach different sections of 699 courses so that the students with particular interest can get subject matter guidance (initially, may just serve as an advisor to students in 699)

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\textbf{Exhibit 3: Sample Graduate Research Topic Areas (with Subject Matter Experts – SMEs)}
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Digital Enterprises (SMEs: Umar, Abdellatif, Noorbaksh, Popelier)
- Next Generation of Digital Enterprises (Technical and Business Issues)
- Strategic Planning, Engg & Mgmt of Digital Enterprises
- Enterprise Architecture and Integration of Digital Enterprises
- Digital and Global Organizations – the major trends
- Computer Aided Planning, Engineering and Management of Digital Enterprises

Digital Technologies for Modern Enterprises (SMEs: Popelier, Anjum, Abdellatif, Umar)
- Emerging Information & Communication Technologies (e.g., IoTs)
- ICT4D (ICT for Developing Countries)
- Trends in Data Management
- Role of blockchain
- Cryptocurrency
- Evolving IT Infrastructure & the Next Generation Internet
- Cloud Computing Developments
- Next Generation of Web-based Software Engg
- Trends in Mobile Computing and Wireless Communications
- IT Quality Assurance – Practice and Research Issues
Business Intelligence (BI), Business Analytics and AI (SMEs: Liebowitz, Nwoji, Popelier, Anjum, Abdellatif, Umar)

• Artificial Intelligence Principles and Applications
• Business Analytics
• Big Data Applications
• Deep learning for images
• Deep learning for Natural Language Processing (NLP)
• Business Intelligence and Decision Support
• Strategic Intelligence
• Smart Enterprises and Smart Cities

Enterprise Engineering (SMEs: Umar, Abdellatif, Popelier, Pittman, Tomblin)

• Analysis & Design of Information Systems
• Information Security Management
• Business Process Modeling and Workflow
• Enterprise Architectures Frameworks
• eGovernment and eCommerce
• Aligning Business Strategy with IT Strategy
• Large Scale Systems Engineering

Enterprise Management and Entrepreneurship (SMEs: Noorbaksh, Nwoji, Clarke, Abdellatif)

• Business Strategy & Management Principles
• Operations Management
• Marketing in the Digital Age
• Financial and Managerial Accounting
• Business Entrepreneurship Principles
• Business Entrepreneurship Management
• Business and Entrepreneurial Financing
• Public Administration and Public Policy

Digital Health and Life Sciences (SMEs: Sardari, Patterkine, Noorbaksh, Tomblin, Mitchell)

• Life Science for IT Professionals – Emerging Areas
• Healthcare Systems in Practice
• Health Informatics and Information Systems in Practice
• Next Generation of Digital Health
• Social, Technical and Organizational Tradeoffs in Digital Health
• Healthcare Data and Health Analytics
• Smart Health – latest Developments
Exhibit 4: Sample List of Graduate Thesis and Applied Project Topics, by Groups (since 2013)

Research/Applied Project Topics (Group1)
- BIG DATA Applications in Health and Human services
- Change Management in Government Services
- Collaborative Supply Chains for Military Operations
- Health Information Exchanges: Architecture and Integration Issues
- Information Security for Solar Energy
- Project Management: How the PMBOK Guide was used by the Ancient Construction Project Managers
- Smart Solutions for Cities and Governments
- Smart Interagency Communications using Sharepoint and NIEM
- Smart Decision Support for Disaster Recovery

Research/Applied Project Topics (Group2)
- Decision Support Systems in the Armed Forces
- Developing an Entrepreneurship Portal
- Doing More With Less Through Decision Support and Business Intelligence
- Enterprise Architectures for Developing Countries
- Enterprise Architecture Blueprint based on SOA for Government Agencies
- Expert System for Wireless Network Planning
- Emotional Index for Project Failure
- Effectiveness of Learning Technologies
- Exploring Case Based Reasoning for Practical Applications

Research/Applied Project Topics (Group3)
- A User Centered Design Approach for Handheld Devices
- Designing Mobile Health Clinics for Rural Areas
- Developing an Ontology for Medical Information Systems
- Health Information Exchange Models and Standards – An Analysis
- Managing Virtual Team
- Project Management Office for SMEs
- Using ICT for Food Distribution Supply Chains
- Using ICT for Developing Countries: Southern Sudan Case Study
- Using GIS for Government Agencies

Exhibit 5: Additional List of Graduate Thesis and Applied Projects, by Topic Areas (since 2013)

Management, Business Strategies and Business Models
- Next Generation Enterprises and Globalization
- Enterprise Agility Business and Government Agility
- Digital Governments and Digital Health
- Policies needed for technologies
- Smart Services, Smart Governments and Smart Businesses
- Entrepreneurship and How to Finance Your Business
- Business Strategies in a Competitive Environment
- Policy issues in modern settings
- Leadership in the digital age
- Agile Project Management
- Large Scale Project Management (Projects of Projects – PoP)
- Managing integration projects
- Project Management Office (PMO)

Emerging Technologies and Their Applications
- AI Applications in Digital Enterprises
- Mobile Computing Apps
- Cloud Computing Technologies, Models and Configurations
- Wireless Communications and Next Generation Technologies
- Emerging Web Technologies and web Services
- ICT for Developing Countries
- Business Games and Simulations
- GIS for Governments
- Government-Business networks between agencies and governments for healthcare, poverty, and emergency services
- Collaborative systems (e.g., Sharepoint)
- Telemedicine, Healthcare Information Exchange and Mobile Health Clinics
- Next Generation of ERP Systems

**Strategic Planning, Architectures and Integration**
- Computer aided planning.
- Strategic IS Planning in the Digital Age
- Strategic Planning for Mobile Computing
- Enterprise Architectures and Integration in the Digital Age
- B2B trade and interagency information exchange Models (e.g., NIEM)
- Migration of legacy systems to SOA

**Systems Engineering, Design Approaches and Decision Support**
- User Centered Design
- Intelligent Decision Support for Managers
- IT Quality Management and IT Audits
- Information Security Approaches and Technologies
- Computer aided consulting for developing countries.
- Computer aided planning, engineering and management for eBusiness

*Note: Many topics can be combined (e.g., security of mobile apps)*

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APPENDIX A: PROPOSAL TEMPLATE

PROGRAM: ISEM, PROJECT MANAGEMENT, LEARNING TECHNOLOGIES

PROPOSAL FOR MASTER THESIS OR APPLIED PROJECT

TITLE: --------

AUTHOR NAME

Date: --------
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Abstract

One paragraph

Highlights of the main idea

Gives an overview of the proposal, motivate the reader to read the proposal

example of a good abstract: Hevner’s article

keywords:

Few Keywords: Examples -- IS planning, ebusiness architectures, business processes
1. **Introduction (2-4 pages)**

The big picture - the overall problem
Quick decomposition of the problem
Background info
Motivation
Definitions of commonly used terms

2. **Problem Statement and Justification (1-3 pages)**

Clear statement of the problem
Why it should be solved (justification)
What will be deliverables
Type of work: behavioral research, building an artifact, applied study
delimits
Hypothesis (if any) to be tested- articulated hypotheses and/or questions
Suggestion: a high level diagram of the work may be highly useful (what are the outputs – deliverables, what are the inputs, etc)

3. **Literature Review -- Analysis of Related Work (4-5 pages)**

Why the problem has not been solved (literature review)

Quick overview of literature


There should be a framework for analyzing the literature (may be a table, a chart, a diagram, whatever)

4. **Proposed Solution Approach (2-3 pages)**

Also known as Study Design (based on behavioral or design science research) that shows:
- The main results expected
- How the results will be produced

Focus is on “How” will you solve the problem” (you know “What” the problem is)
It is basically a plan that consists of the following:

- What will be the overall process (procedures, technologies) will you use to answer the questions
- What will be the steps of the process (decompose and subdivide)
- What will be the results of the steps (data collected, data analyzed, artifacts built)
- What will be done in each step and what will not be done
- What type of resources will be needed in each step
- How will the validity and quality of results be assured

The setting (environment in which the results will be used) should be also discussed. May also include specific details about all aspects of experiments, data collection and interpretation, sampling, ethical issues, etc.

5. Proposed Work Plan (1-2 pages)

Expected to finish: fall, spring, summer (please specify)
Detailed plan of work with major activities, target dates for completion, etc
It basically adds timelines to the study design
A high level Gant chart would be helpful

REFERENCES


Appendices

Any extra materials, sample data, etc
APPENDIX B: Thesis/Project Guidelines

for Graduate Students

Draft (January 2015)

Acknowledgement: This guide is an abbreviated and heavily edited version of the MS Thesis Guidelines at the New Castle University in England.
Overview

These guidelines are intended to help you in the thesis/project process. Given that a thesis/project is an individual piece of work there is no intention unduly to restrict you in your approach. This document presents guidelines to support your work, therefore, and is not a set of absolute rules or procedures to which you must adhere. You will talk in more detail about your own project with your thesis/project supervisor.

In general, thesis/projects vary in style and approach according to your program of study. The following represent some core principles that differentiate a thesis from a practical project:

- **Thesis**: You undertake a thorough review of literature and of current knowledge and test the theoretical base for your work in some way in some practical situation. You typically present some hypothesis and test them for validity through some hands-on experiments, surveys or other instruments. The objective is to help the research community.

- **Practical Project**: You undertake a thorough investigation of a topic (e.g., use of mobile devices in healthcare) and develop deep understanding of the practical aspects and real life applications/implications of the field. You may develop prototypes or insightful reports that are of value to practitioners. The objective is to help the practitioner community.

The primary goal of the thesis/project is to allow you to enrich your knowledge and integrate your academic study with the analysis of related practical or theoretical work. The results produced *should* be publishable in a conference paper after minor additional work. This is not a requirement, just a desirable goal.
Assessment Criteria

2.1. The scope of assessment
Ideally, your thesis/project should reflect:

- A clear statement of the problem you have chosen to investigate
- A thorough reading of the relevant literature (practical or theoretical)
- Appropriate selection of a study approach
- An ability to synthesise various perspectives
- A good grasp of the theoretical and/or practical issues
- An ability to evaluate evidence, drawing appropriate conclusions and acknowledging ambiguity;
- Clarity of presentation
- A fluent style

2.2 How your work is Assessed
The thesis/project will be assessed by your advisor and also by a committee of three peers (other graduate students). You can suggest the peer review committee members.
2.3 Presentation and format

**Length:** The Thesis/project should be between 10,000 to 12,000 words (it should not exceed 12,000 words), not including references and appendices.

**You must submit an electronic copy of your work in PDF format.**

There are no firm specific rules for content and presentation. However, thesis/projects will normally comprise:

- **A Title Page** (this is essential): including the title of the thesis/project, your name and degree course, and the institution awarding the degree. The title should be succinct yet clearly specify the content of the report. This should be brief (thirty words is normally the maximum length). It should be agreed and finalised as part of the final draft. It may be different from the original working title.

- **An Abstract** (essential): stating briefly the mode of enquiry and any conclusions reached. This should be brief, certainly no more than one page in length.

- **A Contents Page** –

- **A Preface:** acknowledging any help, advice or support – especially from people outside the School – and mentioning any specific difficulties encountered in carrying out the project which may have detracted from the outcome.

- **An Introduction** (essential): the purpose of this chapter is to introduce and contextualize the study. This means that the significance or importance of the topic is set out. If there is no apparent importance to the study to any external reader, the topic may not be appropriate. This can best be done by positioning the thesis/project in relation to other work that has been published, whether in agreement with that work or otherwise. This Introduction should also discuss the questions your thesis/project addresses. This section should also tell the reader how the topic will be unfolded and the order of forthcoming material.
- **Literature Review**: Depends on Project or Theses. Discussed in Proposal
- **Method (Approach Used)**: Depends on Thesis or Project. Discussed in Proposal
- **Results or findings**: these should be clearly presented. Avoid overburdening the reader with masses of data: produce summaries of the main findings. Where statistical procedures are employed, these should be described. You should include samples of data, calculations and computer printouts in the appendices (**appendices do not contribute to the word count**).
- **Discussion**: this should summarise your findings, and indicate their implications for your questions. The discussion functions as an appraisal and criticism of your work, in relation to the issues and hypotheses raised in the introduction. It should not simply repeat chunks from your introduction or findings. In some cases, discussion is included in the Results section.

- **Conclusion** (essential): a brief statement of any conclusions you have reached as a result of your work. What do you want the reader to know as a result of having read your thesis/project? If you have developed any strong personal opinions about the subject which seem appropriate to relate, this is the place where such content is appropriate.
- **References**: a complete list, properly set out, with all relevant details. All references cited in the text should be included here - and vice versa.
- **Appendices**: if appropriate. As a general rule, if figures, tables, charts or quotes are less than a full page and can be conveniently included in the text, you will want to do so, since reference to appendices is awkward for the reader. All such material, in the text or at the end, should be titled and sequentially numbered. Appendices are intended to support and provide additional, substantiating information for your work, not as a 'dumping ground' for anything that you couldn't get into the main text because of word count restrictions.
2.4 General points

Writing Style: The level of writing must be appropriate to the level of your degree. Specifically, you should pay attention to correct spelling, grammar, punctuation, sentence structure and clarity of style. It is your responsibility to edit the text for typing and grammatical errors.

Page Layout: Pages should be numbered, starting with and including the title page. Margins: Please leave sufficient margins to allow for binding.

Tables and charts: should be numbered in sequence by chapter, e.g. Table 3.1 is the first table in Chapter 3. Each figure should be accompanied by a descriptive title which completely explains the contents of the figure.

Final Note: Plagiarism

- The intellectual work of others that is being summarised in the thesis/project must be attributed to its source. This includes material you yourself have published or submitted for assessment here or elsewhere.
- It is also plagiarism if you copy the work of another student. In that case both the plagiariser and the student who allows their work to be copied will be disciplined.
- When writing thesis/projects and essays, it is not sufficient to just indicate that you have used other people’s work by citing them in your list of references at the end. It is also not sufficient to just put "(Bloggs 1992)" at the end of a paragraph where you have copied someone else’s words. It is essential that the paragraph itself be IN YOUR OWN WORDS.
- The only exception to this is if you are quoting a source. In that case you must put the quotation in quotation marks and cite the source, including page reference, immediately afterwards. If the quotation is longer than a sentence, you should indent and set off the whole passage; when the quotation is indented in this way it is not necessary to use quotation marks, but, as always, the author, date, and page number should be cited.
- It is assumed that all ideas, opinions, conclusions, specific wording, quotations, conceptual structure and data, whether reproduced exactly or in paraphrase, which are not referenced to another source, is the work of the student on this thesis/project. If this is not the case, an act of plagiarism may have occurred, which is cause for disciplinary action at the programme or University level.