Master of Cyber Security Program

Capstone Project Supervision

Preface

The graduate studies in Saudi Arabia aim to encourage the scholars and students to keep pace with the rapidly developed science and technology and encourage them for creativity, innovation and development of the scientific research that contributes to address the issues of Saudi society. To achieve this, a Deanship of Postgraduate Studies in each Saudi university has been established and associated with the Vice Dean for Postgraduate Studies and Scientific Research, and is responsible for supervising, evaluating, and constantly reviewing all postgraduate programs at the university.

1. Capstone Project in Cyber Security

In the Capstone project, which is one of the courses of the Master of Cyber Security (MCS) Program at the College of Computing and Informatics (CCI), the students explore the literature, conduct research, and develop solutions to assist and analyze organizations security needs related to continuously evolving security challenges. Students will analyze organizational objectives and propose solutions and implementation plans. The proposed solutions must address strategies to overcome challenges of cyber security related projects such as assessing risks, reduction of fund, and keeping the support of executive management. Students will utilize skills gained throughout the program to demonstrate the ability to design a cyber security project from conception to publishing/deployment. After completing the Capstone Project course, the students will be able to:

1. Define, articulate, and use terminology, concepts, and theory in the student field of research and know how to use them.
2. Recognize the efficiency of a given design and implementation using empirical data and compare the results against state-of-the-art solutions.
3. Identify and demonstrate appropriate research methodologies (research question articulation, hypothesis formulation, conducting literature review) and know when to use them.
4. Evaluate the proposed solutions to find the optimal one.
5. Write clear, concise, and accurate technical documents and presentation following well-defined standards and accurate bibliographies and tables of references.
6. Identify possible future work, limitations of the current work and any ethical considerations or conflicts of interests.

2. Capstone Supervision at the Master of Cyber Security (MCS) Program

To achieve the goals of the graduate studies, the MCS program at the College of Computing and Informatics has:

- Established a general framework for the Capstone research plan in which the controls of the Capstone research project, how to write and evaluate the Capstone project, and the selection of the supervisor for the student are defined.
- Assigned a supervisor to the Capstone student to help the student in choosing the topic of the project, follow up the student work, and contribute to improving the quality of student writing and achieving the research goals and the scientific contribution.
- Created the evaluation report forms required to judge the student work.

3. Supervisor Selection and Capstone Project Evaluation

To achieve the highest level of quality in the research project that is conducted by the student, the MCS program has established a mechanism for selecting the supervisor and evaluating the work submitted by the student.

3.1 Supervisor Selection

1. The faculty member who supervises the Capstone project is required to be a Full Professor or an Associate Professor specialized in the field, working in the student's university branch and sharing the same research interest with his/her student.
2. When necessary, an Assistant Professor may supervise the Capstone project if two years had passed since his/her appointment to the rank of Assistance Professor, and he/she has published at least two refereed papers in his specialization.
3. Faculty members who wish to supervise Capstone projects are contacted to provide the program coordinator with their research interests.
4. Research interests are then collected and announced to the final-level students to choose the supervisor and the idea they wish to work on.
5. The student communicates with the program supervisor to ensure that the preferred supervisor has remaining slots, as each supervisor is allowed to supervise only three students.
6. Then the student is directed to communicate with the supervisor to obtain their approval and start working on the project.
7. All these approvals are made before the start of the semester to make the most of the time possible.

3.2 Project Evaluation

1. The program forms an evaluation committee for each Capstone student, consisting of the project supervisor and two faculty members (examiners) who have previously taught in the program, preferably those who previously supervised research projects.
2. The student's work is judged in two phases, one during the Midterm exam period (**Appendix 1**) and the other at the end of the semester (**Appendix 2**).
3. The student submits the project report to the Blackboard using the allocated space of similarity checking using Turnitin tool. The accepted percentage is 25%. Any similarity

greater than 25% will be considered plagiarism and further actions will be taken by the program administration.

4. The student submits the project report to the evaluation committee and an appointment is allocated for the student to present and discuss his/her work at the front of the evaluation committee.
5. Each examiner of the evaluation committee evaluates the student's work and provides him/her important remarks and recommendations that contribute to improving the quality of the student's work and achieving the desired project contribution.
6. The student reflects the remarks and recommendations from the evaluation committee on his/her work and delivers the improved version to the evaluation committee for arbitration again and grant the student the appropriate grade.

Appendix 1: Midterm Evaluation Report

Kingdom of Saudi Arabia
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College of Computing and Informatics

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CS698 – Capstone Project in Cyber Security

Mid Project Evaluation Sheet

FACULTY MEMBER NAME		
BRANCH	RIYADH	
PROJECT TITLE		
PROJECT ROLE (Supervisor/Committee Member)	☐ Supervisor ☐ Examiner	
Student Information	**Student Reg. ID**	
	Student Name	
Marks Earned	**?**	**100**
	?	**10**

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2011-1432

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PROJECT EVALUATION

(To be filled by supervisor and committee member separately)

Make sure to insert marks, not the percentages.

Sr. #	Attribute Title (max. marks)	Achieved Marks	Comments if points are deducted
Contribution	Research Gap (5)		
	Originality of Proposed Work (5)		
	Project Contribution (5)		
Project Report	Template Compliance (10)		
	Report Completeness (10)		
	APA Citation Style Accuracy (10)		
	Quality of References (10)		
Sections	Abstract (5)		
	Research Introduction (10)		
	Literature Review (20)		
	Research Methodology (10)		
	Total / 100		

Please fill up the following two sections:

a- **Strengths** of the performed work and the report:

b- **Weaknesses** of the performed work and the report:

CYS698 – Capstone Project Attribute Guidelines:

Midterm

Research Gap: Specify the research question or problem that has not been addressed appropriately (or not at all) in the existing related work of the chosen topic.

Originality of Proposed Work: How the proposed work produces new knowledge instead of summarizing what is already known.

Project Contribution: How the project work contributes towards the advancement of human knowledge.

Template Compliance: The attribute focusses on style of research report. Evaluation should be based on professional development of report, consistency, writing style and overall adherence to the provided template.

Report Completeness: The attribute focusses on content of the research report. The evaluation should be based on how many sections have been adequately completed in the research report.

APA Citation Style Accuracy: The accuracy of using APA citation style in the body of the report.

Quality of References: The attribute should be evaluated based on the relevance of literature sources, their acceptance in research/market and the way these resources have been described in the literature review.

Abstract: The evaluation is based on how the student summaries the problem, the main argument, the research methods and procedures, and the main findings and conclusion.

Research Introduction: the evaluation is based on how the students summaries the project proposal and how they specifying the objectives.

Literature Review: the evaluation is based on how the students demonstrate the topic, the understating of its importance and analyzed the literature relevant to the topic.

Research Methodology: The attribute grading is based on the methods and the findings that answer the research questions for the topic that has been picked and the description of the components of the methodology.

Appendix 2: Final Evaluation Report

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CYS698 – Capstone Project

Final Project Evaluation Sheet

FACULTY MEMBER NAME		
BRANCH	RIYADH	
PROJECT TITLE		
PROJECT ROLE (Supervisor/Committee Member)	☐ Supervisor ☐ Examiner	
Student Information	**Student Reg. ID**	
	Student Name	
Marks Earned	**/200**	
	/ 20 (Supervisor)	
	/ 10 (Examiner)	

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PROJECT EVALUATION

(To be filled by supervisor and committee member separately)

Make sure to insert marks, not the percentages.

Sr. #	Attribute Title (max. marks)		Achieved Marks	Comments if points are deducted
Contribution	Research Gap (5)			
	Originality of Proposed Work (5)			
	Project Contribution (5)			
Project Report	Template Compliance (10)			
	Report Completeness (10)			
	APA Citation Style Accuracy (10)			
	Quality of References (10)			
Sections	Abstract (5)			
	Research Introduction (10)			
	Literature Review (20)			
	Research Methodology (10)			
	Only Final Report	Implementation (30)		
		Research results (20)		
		Discussions of results (20)		
		Research conclusions (15)		
		Research Future Work (15)		
		Total (100 for midterm report, 200 for final report)		

Please fill up the following two sections:

a- **Strengths** of the performed work and the report:

b- **Weaknesses** of the performed work and the report:

CYS698 – Capstone Project Attribute Guidelines:

Midterm and Final

Research Gap: Specify the research question or problem that has not been addressed appropriately (or not at all) in the existing related work of the chosen topic.

Originality of Proposed Work: How the proposed work produces new knowledge instead of summarizing what is already known.

Project Contribution: How the project work contributes towards the advancement of human knowledge.

Template Compliance: The attribute focusses on style of research report. Evaluation should be based on professional development of report, consistency, writing style and overall adherence to the provided template.

Report Completeness: The attribute focusses on content of the research report. The evaluation should be based on how many sections have been adequately completed in the research report.

APA Citation Style Accuracy: The accuracy of using APA citation style in the body of the report.

Quality of References: The attribute should be evaluated based on the relevance of literature sources, their acceptance in research/market and the way these resources have been described in the literature review.

Abstract: The evaluation is based on how the student summaries the problem, the main argument, the research methods and procedures, and the main findings and conclusion.

Research Introduction: the evaluation is based on how the students summaries the project proposal and how they specifying the objectives.

Literature Review: the evaluation is based on how the students demonstrate the topic, the understating of its importance and analyzed the literature relevant to the topic.

Research Methodology: The attribute grading is based on the methods and the findings that answer the research questions for the topic that has been picked and the description of the components of the methodology.

CYS698 – Capstone Project Attribute Guidelines:

Final Only

Research results: Evaluation should be based on the clearance and quality of results of the research and the structure of the body of the thesis.

Research results discussions: Evaluation should be based on the clearance and depth of discussion section of the research and the structure of the body of the thesis.

Implementation: Evaluation should be based on the clearance and details given to the implementation section and the possibility for reproduction of the same results for future researchers

Research conclusions: The evaluation is based on (1) examining what the student discovered in each section of the research thesis and (2) the overview of the research process clearly formulate the findings and conclusions regarding the research problem.

Research Future work: The evaluation is based on presenting possible avenues for future work that represent logical consequence of current research work.