PSM 2 EVALUATION RUBRIC

Section B(1): Supervision – 10% (SUPERVISOR)

Criteria	1: Minimal	2: Satisfactory	3: Good	4: Excellent
Log book	No/inadequate entry, entries do not reflect project progress	Weekly entry, entries somewhat reflect project progress	Meaningful weekly entry, entries reflect project progress	Meaningful weekly entry, entries reflect project progress, includes project planning
Meeting frequency	Hardly meet, < 2 meetings	< 5 meetings	5 meetings	=> 6 meetings
Work ethic	Passive attitude, unable to communicate with supervisor	Good attitude, poor communication with supervisor	Good attitude, good communication and relations with supervisor	Positive attitude, good communication and relations with supervisor
Self-reliance / Independence	Highly dependent on supervisor	Dependent on supervisor	Somewhat dependent on supervisor and able to solve problems with support	Able to work and solve problems independently

Section B(2): Progress Report – 5% (SUPERVISOR)

Criteria	1: Minimal	2: Satisfactory	3: Good	4: Excellent
Improvement of PSM 1 report	No/minimal change on suggestions and comments made. Corrections not done. change	Some suggestions/comments from evaluators have been addressed. Some correction is done	Some suggestions/comments from evaluators have been addressed. All correction is done	All suggestions/comments from evaluators have been addressed. All correction is done. *addressed = either followed or counter explained by SV
Completeness of Chapter 4	Inherent spelling and grammatical errors, incomplete chapter contents	Some spelling and grammatical errors, chapter contents somewhat complete	Some spelling and grammatical errors, chapter contents complete	No spelling and grammatical errors, chapter contents complete *chapter contents follows PSM handbook
Progress of Chapter 5	Inherent spelling and grammatical errors, incomplete chapter contents	Some spelling and grammatical errors, chapter contents somewhat complete	Some spelling and grammatical errors, chapter contents complete	No spelling and grammatical errors, chapter contents complete *chapter contents follows PSM handbook
Writing style, format and clarity	Does not follow thesis format Figures and tables are not captioned and referred	Follow thesis format Inappropriate use of figures and tables Figures and tables are captioned but not referred	 Follow thesis format Inappropriate use of figures and tables Figures and tables are captioned and referred 	 Follow thesis format Appropriate use of figures and tables Figures and tables are captioned and referred
Citation and references	No citations Direct translation	Minimal citations No direct translation	Some facts and information are not clearly cited No direct translation	All facts and information are clearly cited No direct translation

Section B(3): Project Progress 1 – 5% (SUPERVISOR)

Criteria	1: Minimal	2: Satisfactory	3: Good	4: Excellent
Milestone achieved	No/minimal achievement	< 30% project completed	< 40% project completed	> 40% project completed
Project execution follows planning	No/minimal progress	Progress behind schedule	Progress on schedule	Progress ahead of schedule
Knowledge and skill improvement	Minimal new skills developed, unable to	Some improvement in skills and knowledge, unable to	Some improvement in skills and knowledge, able	Significant improvement in skills and knowledge, able to

express new skills to	express new skills to	to express new skills to	clearly express new skills to
supervisor	supervisor	supervisor	supervisor

Section B(4): Project Progress 2 - 5% (SUPERVISOR)

Criteria	1: Minimal	2: Satisfactory	3: Good	4: Excellent
Milestone achieved	Minimal achievement	< 60% project completed	< 70% project completed	> 70% project completed
Project execution follows planning	Minimal progress	Progress behind schedule	Progress on schedule	Progress ahead of schedule
Knowledge and skill improvement	Minimal new skills developed, unable to express new skills to supervisor	Some improvement in skills and knowledge, unable to express new skills to supervisor	Some improvement in skills and knowledge, able to express new skills to supervisor	Significant improvement in skills and knowledge, able to clearly express new skills to supervisor

Section B(5): Short Paper - 5% (SUPERVISOR/EXAMINERS)

Criteria	1: Minimal	2: Satisfactory	3: Good	4: Excellent
Originality of the paper	 Ideas are taken directly from another source, not your own words. Similarity percentage (turnitin) >30% 	 Ideas not communicated well, but still in your own words. Similarity percentage (turnitin) >25% - <30% 	 Ideas somewhat clearly communicated in your own words. Similarity percentage (turnitin) =<20% 	 Ideas clearly communicated in your own words. Similarity percentage (turnitin) <20%
Technical soundness	Method chosen is somewhat appropriate to aims Extremely poor explanation of work/process and results No diagrams or poorly represented ones.	Method chosen is appropriate to aims Poor explanation of work/process and results Provides diagrams but does not facilitates better understanding	Method chosen is appropriate to aims Somewhat detailed explanation of work/process and results Provides diagrams for better understanding	 Method chosen is appropriate to aims Detailed explanation of work/process and results Provides diagrams for better understanding
Clarity of presentation	Extremely poorly written, not supported or organized idea, hard to understand Results not highlighted nor analysed well; shown in appropriate graphs and charts.	Poorly written, not supported or organized idea, not easy to understand Results highlighted but not analysed well; shown in appropriate graphs and charts.	Not well written or supported, but well organized idea, somewhat easy to understand Results highlighted and analysed somewhat acceptably well; shown in appropriate graphs and charts.	Well written, well organized and well supported ideas, easy to understand Results highlighted and analysed well; shown in appropriate graphs and charts.
Format, citation and references	Facts and information are not cited or with missing references Do not follow paper format Direct translation	Most facts and information are not clearly cited or with missing references Somewhat follows paper format Some direct translation	Some facts and information are not clearly cited or with missing references Follows paper format No direct translation	 All facts and information are clearly cited with references Follows paper format No direct translation

Section B(5a): Final Report System Development - 25% (SUPERVISOR/EXAMINERS)

Criteria	1: Minimal	2: Satisfactory	3: Good	4: Excellent
Abstract	Not very informative or understandable	Somewhat informative and understandable Does not comprehend the implemented project	Informative, complete and understandable Comprehend the implemented project	Highly informative, complete and understandable Comprehend the implemented project very well

Introduction	Contents incomplete and poorly written Mismatched understanding of project	Contents are somewhat complete but not clearly written Contents fairly reflect project understanding	Contents are complete but not clearly written Contents fairly reflect project understanding	Contents are complete and clearly written Contents reflect project understanding
Literature review	Poor investigation into existing systems/techniques/tec hnology, and no comparison between them. Literature review is insufficient and not relevant to the project aims.	Somewhat complete investigation into existing systems/techniques/tech nology, but weak/no comparison between them. Literature review is insufficient and relevant to the project aims.	Somewhat complete investigation into existing systems/techniques/tec hnology, and a comparison between them. Literature review is sufficient and relevant to the project aims	Complete investigation into existing systems/techniques/techn ology, and a comparison between them. Literature review is sufficient and relevant to the project aims.
Methodology	Methodology not presented well nor explained clearly, most/all of these are missing: all phases, work done and deliverables. Does not reflect nor support project progress.	Methodology presented but not explained well, two of these are missing: all phases, work done and deliverables. Insufficient to support project progress.	Methodology presented but not explained clearly, one of these are missing: all phases, work done and deliverables. Insufficient to support project progress.	Methodology presented and explained clearly, which include all phases, work done and deliverables. Sufficiently supports project progress
System design	 Poor and incomplete system design, does not cover all the different users of the system. System flow not explained. Network, hardware and database design not explained well/at all 	 Inappropriate and incomplete system design does not sufficiently cover all the different users of the system. System flow not explained clearly. Network, hardware and database design are not explained clearly 	 Appropriate and somewhat complete system design, somewhat sufficiently covers all the different users of the system. System flow explained clearly. Network, hardware and database design are explained in detail 	 Appropriate and complete system design, sufficiently covers all the different users of the system. System flow explained clearly. Network, hardware and database design are explained in detail.
System implementation	 Most activities in the project are not explained. Most major modules are not explained in detail or at all: coding, GUI, input/output. Client/Server connections are not mentioned. Sample data size <30; and/or does not cover all different aspects of the project. There is no/insufficient search function 	Some activities in the project are explained. Some major modules are explained in detail: coding, GUI, input/output. Client/Server connections are not explained clearly. Sample data size >30; covering all different aspects of the project. There is a sufficient search function	 All activities in the project are explained somewhat clearly. Major modules are explained in detail: coding, GUI, input/output. Client/Server connections are somewhat clearly explained. Sample data size >35; covering all different aspects of the project. Search function is somewhat complete and efficient for project purpose 	 All activities in the project are explained clearly. Major modules are explained in detail: coding, GUI, input/output. Client/Server connections are clearly explained. Sample data size >40; covering all different aspects of the project. Search function is complete and efficient for project purpose.
Testing	Completed 1-2 of these tests: Input/Output System Flow Error messages User Acceptance Test (UAT) Testing of Network and security elements	Completed 2-3 of these tests in detail: Input/Output System Flow Error messages User Acceptance Test (UAT) Testing of Network and security elements	Completed 3-4 of these tests in detail: Input/Output System Flow Error messages User Acceptance Test (UAT) Testing of Network and security elements	Completed all of these tests in detail: Input/Output System Flow Error messages User Acceptance Test (UAT) Testing of Network and security elements

Conclusion (discussion and analysis)	Limited/minimal discussion on project achievements, limitations and contributions Limited/minimal suggestions for future works	Somewhat clear discussion on project achievements, limitations and contributions Insufficient or irrelevant suggestions for future works	Clear discussion on project achievements, limitations and contributions Somewhat relevant suggestions for future works	Clear discussion on project achievements, limitations and contributions Relevant suggestions for future works
Writing style, format and clarity	Ideas are not communicated well, hard to understand, with many spelling and grammar mistakes Does not follow thesis format Figures and tables are not captioned and referred	Ideas are not communicated well, but easily understood, with some spelling and grammar mistakes Follows thesis format Inappropriate use of figures and tables Figures and tables are captioned but not referred	Ideas are somewhat clearly communicated, easily understood, with minimal spelling and grammar mistakes Follows thesis format Inappropriate use of figures and tables Figures and tables are captioned and referred	Ideas are clearly communicated, easily understood, with no spelling and grammar mistakes Follows thesis format Appropriate use of figures and tables Figures and tables are captioned and referred
Citation and references	No citations Missing references Direct translation	Minimal citations Missing references No direct translation	Some facts and information are not clearly cited Some missing references No direct translation	All facts and information are clearly cited with references No direct translation

Section B(5b): Final Report Research Based - 25% (SUPERVISOR/EXAMINERS)

Criteria	1: Minimal	2: Satisfactory	3: Good	4: Excellent
Abstract	Not very informative or understandable	Somewhat informative and understandable Does not comprehend the implemented project	 Informative, complete and understandable Comprehend the implemented project 	Highly informative, complete and understandable Comprehend the implemented project very well
Introduction	Contents incomplete and poorly written Mismatched understanding of project	 Contents are somewhat complete but not clearly written Contents fairly reflect project understanding 	Contents are complete but not clearly written Contents fairly reflect project understanding	Contents are complete and clearly written Contents reflect project understanding
Literature review	Literature lacks relevance, quality and depth Critical reviews not included	Limited literature from quality resources, limited relevance and insufficiently supports project aims Critical reviews not included	Literature are from somewhat relevant and quality resources, supports project aims Critical reviews included but not done well	Literature are from relevant and quality resources, supports project aims Critical reviews are included
Research methodology	Incorrect selection of methodology and solution Phases, process and deliverables are poorly stated and does not reflect nor support project	Inappropriate selection of methodology and solution to project aims/objectives Phases, process and deliverables are minimally stated and insufficient to support project	 Appropriate selection of methodology and solution to project aims/objectives Phases, process and deliverables are not clearly stated and only somewhat sufficient to support project 	Appropriate selection of methodology and solution to project aims/objectives Phases, process and deliverables are clearly stated and sufficient to support project
Experiment design and testing	Minimal explanations of the activities involved in research experiment and testing, are these are poorly done. Very minimal of	Most of the activities involved in research experiment and testing are not clearly explained or insufficient. Most of these are missing:	Not all activities involved in research experiment and testing are clearly explained. Some of these are missing: Coding and	All activities involved in research experiment and testing are clearly explained. This includes: Coding and implementation, data

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	none of these are included: Coding and implementation, data collection and sanitization, data analysis methods/techniques, testing environments	Coding and implementation, data collection and sanitization, data analysis methods/techniques, testing environments	implementation, data collection and sanitization, data analysis methods/techniques, testing environments	collection and sanitization, data analysis methods/techniques, testing environments.
Result and discussion / analysis and finding	Limited explanation on research analysis Results representations (graphs, tables, charts, graphics, etc) are minimal and insufficient to support understanding Results comparison/benchmark ing (with other methods/techniques/ap proach) is not done or very limited	Somewhat clear explanation on research analysis Results representations (graphs, tables, charts, graphics, etc) are done but not very clear, meaningful and appropriate Results comparison/benchmarkin g (with other methods/techniques/appr oach) is not done or insufficient	Somewhat clear explanation on research analysis Results representations (graphs, tables, charts, graphics, etc) are somewhat clear, meaningful and appropriate Results comparison/benchmark ing (with other methods/techniques/ap proach) is done but not in detail	Clear explanation on research analysis Results representations (graphs, tables, charts, graphics, etc) are clear, meaningful and appropriate Results comparison/benchmarking (with other methods/techniques/appro ach) are clearly detailed
Conclusion (discussion and analysis)	Limited discussion on project achievements, limitations and contributions Limited suggestions for future works	Insufficient discussion on project achievements, limitations and contributions Insufficient or irrelevant suggestions for future works	Somewhat clear discussion on project achievements, limitations and contributions Somewhat relevant suggestions for future works	Clear discussion on project achievements, limitations and contributions Relevant suggestions for future works
Writing style, format and clarity	Ideas are not communicated well, hard to understand, with many spelling and grammar mistakes Does not follow thesis format Figures and tables are not captioned and referred	Ideas are not communicated well, but easily understood, with some spelling and grammar mistakes Follow thesis format Inappropriate use of figures and tables Figures and tables are captioned but not referred	Ideas are somewhat clearly communicated, easily understood, with minimal spelling and grammar mistakes Follow thesis format Inappropriate use of figures and tables Figures and tables are captioned and referred	Ideas are clearly communicated, easily understood, with no spelling and grammar mistakes Follow thesis format Appropriate use of figures and tables Figures and tables are captioned and referred
Citation and references	No citations Missing references Direct translation	Minimal citations Missing references No direct translation	Some facts and information are not clearly cited Some missing references No direct translation	All facts and information are clearly cited with references No direct translation

Section B(6a): System - 30% (SUPERVISOR/EXAMINERS)

Criteria	1: Minimal	2: Satisfactory	3: Good	4: Excellent
Fulfilled aim, objectives and scope	Does not fulfil aim,	Somewhat fulfilled aim,	Aim, objectives and	Completely fulfilled aim,
	objectives and scope	objectives and scope of	scope of project fairly	objectives and scope of
	of project	project	fulfilled	project
Coding programming	Does not follow coding standards Limited understanding of program code	Somewhat follow coding standards Somewhat understand program code	Mostly follow coding standards Program code quite understood	Strictly follow coding standards Clearly understand program code
Completeness	Minimal modules	Some modules function	Some modules	All modules function
	function correctly and	correctly and meet	function correctly and	correctly and meet project
	meet project	project requirements	meet project	requirements

	requirements - Limited module integration - Limited testing and validation	Some module integration Some testing and validation	requirements - All modules are integrated - Some testing and validation	All modules fully integrated Complete testing and validation
Enhanced service and/or commercialization	No commercial value No effect on quality of service or of life	1 of these:	2 of these:	Has commercial value Enhances quality of service Increases quality of life
Course curriculum elements SCSR: Network and security elements **** devices include the following : IoT, embedded, fingerprint reader, RFID scanner, etc.	Minimal and missing many.	Has a few, but not done well.	Has most, but not complete and done fairly well.	Has a complete set and done well. Network elements: Full system integration between Client/server (web/database/etc) and devices – if any); no localhost (mandatory); admin features/services are complete. Security elements: Password and database encryption (mandatory); flow control of system and access control,
Creativity / interface and user experience	Limited graphical user interface Does not reflect project requirements Poor or insufficient user experience	At least one of these designs are completed: Screen / menu Content (buttons, pages etc.) System / page navigation Somewhat reflects project requirements Acceptable user experience	Any 2 of these designs are completed: Screen / menu Content (buttons, pages etc.) System / page navigation Reflects project requirements Good user experience	All of these designs are fully completed: Screen / menu content (buttons, pages, etc.) System / page navigation Reflects project requirements Good user experience

Section B(6b): Research Output - 30% (SUPERVISOR/EXAMINERs)

Criteria	1: Minimal	2: Satisfactory	3: Good	4: Excellent
Achievement of research objectives	Does not fulfil aim, objectives and scope of research project	Somewhat fulfilled aim, objectives and scope of research project	Aim, objectives and scope of research project fairly fulfilled	Completely fulfilled aim, objectives and scope of research project
Data collection and cleansing/ research design	Data collection process is poorly done (how the data was collected, what/how many data sources were analyzed, etc) Data collected is missing important aspects to fit the research aims and objectives Data cleansing/sanitization (if required by research context) is poorly done (how the data was sanitized, what	Data collection process is insufficiently exhibited (how the data was collected, what/how many data sources were analyzed, etc) Data collected is somewhat suitable for the research aims and objectives Data cleansing/sanitization (if required by research context) is insufficiently shown (how the data was sanitized, what methods/techniques	Data collection process is exhibited though not in detail (how the data was collected, what/how many data sources were analyzed, etc) Data collected is suitable for the research aims and objectives Data cleansing/sanitization (if required by research context) is explain in detail (how the data was sanitized, what	Data collection process is exhibited in detail (how the data was collected, what/how many data sources were analyzed, etc) Data collected is suitable for the research aims and objectives Data cleansing/sanitization (if required by research context) is clearly explain in detail (how the data was sanitized, what methods/techniques used, etc)

	methods/techniques used, etc)	used, etc)	methods/techniques used, etc)	
Experiment/ procedure/ process	Experiment procedures lack thoroughness fail to accurately generate valid and reliable data, and poorly done. Experiment environment and/or process were neither appropriate nor suitable for research context. Experiment environment were not taken into consideration nor planned (where applicable) Measurement instrument validity is questionable and not supported	Experiment procedures were somewhat thorough, manageable, accurately generate valid and reliable data, and replicable. Experiment environment and/or process were somewhat appropriate and suitable for research context. Experiment done in a controlled environment to ensure data reliability and accuracy (where applicable) Valid and supported measurement instrument is used in research	Experiment procedures were fairly thorough, manageable, accurately generate valid and reliable data, and replicable. Experiment environment and/or process were fairly appropriate and suitable for research context. Experiment done in a controlled environment to ensure data reliability and accuracy (where applicable) Valid and supported measurement instrument is used in research	Experiment procedures were thorough, manageable, accurately generate valid and reliable data, and replicable. Experiment environment and/or process were appropriate and suitable for research context. Experiment done in a controlled environment to ensure data reliability and accuracy (where applicable) Valid and supported measurement instrument is used in research
Research results representation	Results are not clearly explained, level of detail is severely insufficient, and there are serious organizational issues Tables/figures are not clear/concise in conveying the data. Statistical analyses (if used) are inappropriate tests and/or are not accurately interpreted.	Results are not very clearly explained, level of detail is insufficient, and there are more organizational issues Tables/figures are not clear/concise in conveying the data. Statistical analyses (if used) are inappropriate tests and/or are not accurately interpreted.	Results are explained but not as clearly, level of detail is not as sufficient, and there are some organizational issues Tables/figures are not as clear/concise in conveying the data. Statistical analyses (if used) are appropriate tests but are not accurately interpreted.	Results are clearly shown in a comprehensive level of detail and are well-organized Tables/figures clearly and concisely convey the data. Statistical analyses (if used) are appropriate tests and are accurately interpreted
Result analysis and discussion	Interpretations/ analysis of results severely lacking in thoughtfulness and insight, are not informed by the study's results, and do not address how they supported, refuted, and/or informed the hypotheses/ propositions Discussion of how the study relates to and/or enhances the present scholarship in this area is severely limited and/or absent altogether. Suggestions for further research in this area are severely limited and/or absent altogether.	Interpretations/ analysis of results lacking in thoughtfulness and insight, are not clearly informed by the study's results, and do not adequately address how they supported, refuted, and/or informed the hypotheses/ propositions Discussion of how the study relates to and/or enhances the present scholarship in this area is limited. Suggestions for further research in this area are very limit	Interpretations/ analysis of results are sufficient but somewhat lacking in thoughtfulness and insight, are not as clearly informed by the study's results, and do not as thoroughly address how they supported, refuted, and/or informed the hypotheses/ proposition Discussion of how the study relates to and/or enhances the present scholarship/study in this area is adequate. Suggestions for further research in this area are adequate	Interpretations/ analysis of results are thoughtful and insightful, are clearly informed by the study's results, and thoroughly address how they supported, refuted, and/or informed the hypotheses/ propositions Insightful discussion of how the study relates to and/or enhances the present scholarship/study in this area Suggestions for further research in this area are insightful and thoughtful
Contribution to knowledge	Has no publication value Has no effect on quality of service or of life	1 of these: Has minor publication value (contribution to knowledge)	2 of these: Has some publication value (contribution to knowledge)	Has significant publication value (contribution to knowledge) Can enhance quality of

	Can enhance quality of serviceCan increase quality of life	Can enhance quality of service Can increase quality of life	service Can increase quality of life
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Section B(7): Presentation - 10% (EXAMINER)

Criteria	1: Minimal	2: Satisfactory	3: Good	4: Excellent
Appearance and attitude	Does not follow UTM Smart Day dress code Impolite to examiners	Casually dressedPolite to examinersPassive attitude	Partly follow UTM Smart Day dress codePolite to examinersPositive attitude	Follow UTM Smart Day dress codePolite to examinersPositive attitude
Project understanding / Content	Shows little understanding of the project and unable to sufficiently present topic, problem background, suggested solution and its significance. Poorly explain process, analysis and findings in manner that reflects poorly on basic understanding of content	Shows some understanding of the project and able to present topic, problem background, suggested solution and its significance. Able to sufficiently explain process, analysis and findings in manner that shows some basic understanding of content	Have a fair understanding of the project and able to confidently present topic, problem background, suggested solution and its significance. Able to explain process, analysis and findings in manner that shows understanding of content	Clearly understood the project and able to clearly and confidently present topic, problem background, suggested solution and its significance. Able to explain process, analysis and findings in manner that shows clear understanding of content.
Clarity of presentation	Not clear communication Ideas and information not communicated well and hampers understanding Presentation is unorganised	Somewhat clear communication Ideas and information are somewhat unclear and hampers understanding Presentation is sufficiently organised	Ideas and information communicated fairly clearly Presentation is organised	Ideas and information communicated clearly Presentation is well organised
Question and answer session	Unable or not attempting to answer questions or answers reflect lack of project understanding	Able to answer some questions Some answers are irrelevant to project objectives	Able to answer most questions Answers fairly reflect project understanding	Able to answer all questions Answers reflect project understanding

Section B(8): Ethics - 5% (COORDINATOR)

Criteria	1: Minimal	2: Satisfactory	3: Good	4: Excellent
Similarity Percentage	Non or very minimal (less than 2 chapters) have been verified for similarities percentage using <i>Turnitin</i> , and endorsed by supervisor, with each chapter having less than 20% each.	Not all chapters (less than 4) have been verified for similarities percentage using <i>Turnitin</i> , and endorsed by supervisor, with each chapter having less than 20% each.	Not all chapters have been verified for similarities percentage using <i>Turnitin</i> , and endorsed by supervisor, with each chapter having less than 20% each.	All chapters have been verified for similarities percentage using <i>Turnitin</i> , and endorsed by supervisor, with each chapter having less than 20% each.
Submission	Does not follow all submissions (form/ report) process, procedure and deadline	Somewhat follow submissions (form/ report) process, procedure and deadline	Follow submissions (form/ report) process, procedure and deadline	Follow all submissions (form/ report) process, procedure and deadline

Notes:

Notes:

Mark calculation:
e.g.: Section B(1) – Supervisor (10 %)

If mark given is 1: 1/4*10 = 2.5 %

If mark given is 3: 3/4*10 = 7.5 %

If mark given is 4: 4/4 *10 = 10.0 %