



Research Project (RP)

HANDBOOK VERSION 4

September 2019

SRI LANKA INSTITUTE OF INFORMATION TECHNOLOGY

TERMS OF REFERENCE

| | |
|--------------------|--|
| RP | Research Project |
| SLIIT | Sri Lanka Institute of Information Technology |
| DBMS | Database Management systems |
| HCI | Human computer interaction |
| LIC | Lecturer in-charge |
| PP1 | Progress Presentation 1 |
| PP2 | Progress Presentation 2 |
| FoC | Faculty of Computing |
| LMS | Learning Management System |
| URL | Uniform Resource Locator |
| Supervisor | The supervisor acts as a guide, mentor, source of information, and facilitator to the student during the project |
| WBS | Work Breakdown Structure |
| SLACK | SLACK is a collaboration hub that can replace email to help you and your team work together |
| MS Teams | Teams is a collaboration hub for online meetings and project management |
| Git Lab | Git lab is a place to upload and manage code repositories |
| Redmine | A Project Management tool. |
| Milestones | A significant stage /event in the development |
| Research | The systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions |
| Methodology | A system of methods used in a particular area of study or activity |
| Abstract | Summarize |

| | |
|---------------------|---|
| Gantt chart | A chart in which a series of horizontal lines shows the amount of work done or production completed in certain periods |
| GitLab | GitLab is an open-source code repository and collaborative development platform |
| IEEE | Institute of Electrical and Electronics Engineers (world's largest technical professional organization dedicated to advancing technology for the benefit of humanity) |
| APA | American Psychological Association |
| ACM | Association for Computing Machinery |
| OPAC | Online public access catalogue |
| IT | Information technology |
| LAN | Local area network |
| Bibliography | A list of the books referred to in a scholarly work |
| SDLC | Systems development life cycle |
| ISBN | International Standard Book Number |

ABSTRACT

Research Project (RP) is a compulsory 16 credits module for undergraduates reading for the Bachelor of Science Honors Degree in Information Technology, specialization in Information Technology, Information Systems Engineering, Software Engineering, Computer Systems and Networking, Cyber Security, Interactive Multimedia, and Data Science at the Sri Lanka Institute of Information Technology (SLIIT). The module provides a platform for students to showcase the knowledge and skills they have obtained throughout their degree program and, thus, lies at the heart of the degree program. It is allocated with 16 credits, which is the highest number of credits allocated to a module in the curricula of all specialization programs.

RP handbook is the first source of reference material for students following the research project module. It provides essential information required for all students taking the module, supervisors, and co-supervisors involved in supervising projects and examiners evaluating projects. The first version of the handbook was prepared in the year 2010, and the revised version was released in 2017 and the current practices are in the version prepared in 2020.

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1 INTRODUCTION

1.1 What is Research Project (RP)?

Research Project (RP) is a group project done by a maximum of four final year students, who are reading for a BSc Honors degree in Information Technology. The RP, as practised in the software industry, assesses the students individually by evaluating sophisticated research questions and objectives and finally combining those components into an integrated product. Students are required to apply and extend the disciplinary knowledge they have obtained throughout the degree program to complete the RP. The RP module is a yearlong compulsory module that is conducted within both semesters of the final year and the total number of credits allocated to the RP is 16.

The students are required to provide a software solution for an open-ended complex problem, they obtain from industry, suggested by the supervisor, or the students are also allowed to define a research question as per their experience. Each project is carried out by a group of a maximum of four students and the students have the freedom to form their project groups. During the two semesters, the students are required to spend a significant amount of time for independent work related to their project.

Moreover, a series of lectures, workshops, and training sessions are conducted related to the RP module to continuously support students in conducting the project. In addition, the supervisor and a co-supervisor guide the students throughout the project. Figure 1 depicts the series of evaluations and the milestones conducted to monitor and assess the progress of the students towards the expected outcomes of the project. As illustrated in Figure 1, the project is informally beginning during the students' third year second semester, and the students will be given the time schedule drawn up for entries, assessments, and approximately workshop sessions.

1.2 Expected outcomes of RP

The overall objective of the RP module is to provide students with an opportunity to apply their knowledge gained during the period at SLIIT, to conduct an industry-related research project solving a problem, and provide it as a software solution in Computing Technology. Moreover, the module is designed to improve the 21st-century essential skills: communication, teamwork, leadership, marketing, and negotiation that are necessary to achieve their future endeavours.

To cater for these objectives, the RP module is developed making five specific learning outcomes as key pillars. Those learning outcomes are listed as follows:

- LO1: Provide a creative and innovative solution to an open-ended complex problem.
- LO2: Apply the key pillars of the domain of computing.
- LO3: Apply project management methodologies to provide a solution to an open-ended problem using appropriate techniques, tools, best practices, and standards, in the ethical, security, social, legal and professional context.
- LO4: Communicate effectively with a wide range of audiences including both technical and non-technical stakeholders.
- LO5: Assess the commercial viability of a project.

1.3 Resource personnel for RP

RP module is administered by a team of eight members representing all three departments of the Faculty of Computing. The RP coordinator/lecturer-in-charge (LIC) is responsible for leading the team to facilitate the students with the necessary environment, evaluations, lectures, and the LIC is the main contact point for the students. Moreover, the RP coordinator/LIC is responsible for preparing the timeline for the evaluations, submissions, and all other necessary administrative work.

The co-lecturers in the team are senior academics assigned from the Faculty of Computing who are responsible for conducting workshops, conducting preliminary approvals, and planning assessments. Any student queries related to the module could be forwarded to the RP members via email, and the coordinator or the co-lectures can reply to these queries.

There will be an internal moderator appointed by the Dean of the faculty. The moderator is responsible for moderating the assessment plan, rubrics, timeline, and project deliverables produced by students. The non-academic staff members associated with the module are responsible for administrative work related to the module such as maintaining student records, creating evaluation schedules, and communicating with the students.

In addition to the above resource personnel, each project is guided by a supervisor and a co-supervisor. Students are free to find their supervisor and the co-supervisor, and the RP team will approve the supervisor and co-supervisor depending on the availability. The supervisors are experts on the research area on which the project is carried out and they guide the students

towards meeting the project objectives throughout the project. The roles and responsibilities of supervisors are explained in section 5.1.

Each project is also assigned with two examiners and a moderator for presentation-based evaluations. Altogether, the examiners and the moderator, along with the project supervisor and co-supervisor, take part in project evaluations throughout the project. The examiner and the moderator may also provide students with corrective feedback during evaluations. Moreover, the examiners and the moderators officially do a written communication with Supervisor and Co-Supervisor at the end of each oral evaluation.

1.4 Overview of RP and Evaluation Process

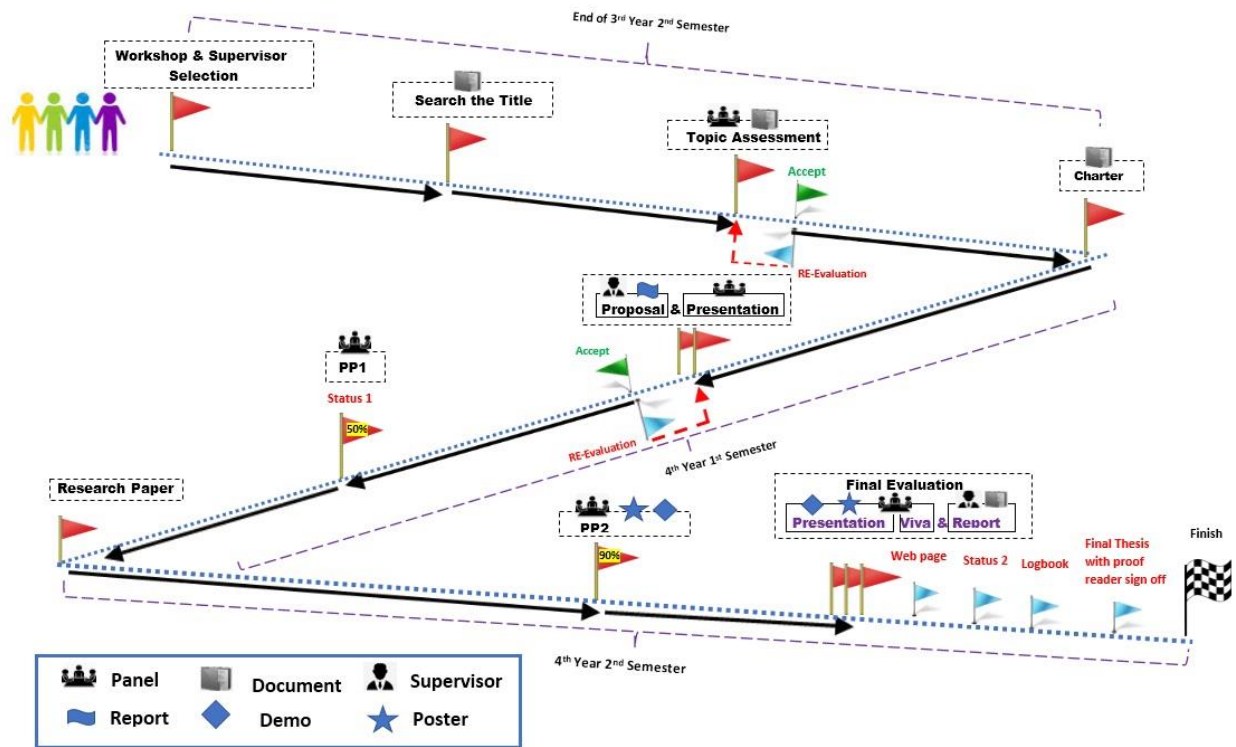


Figure 1: RP Milestones

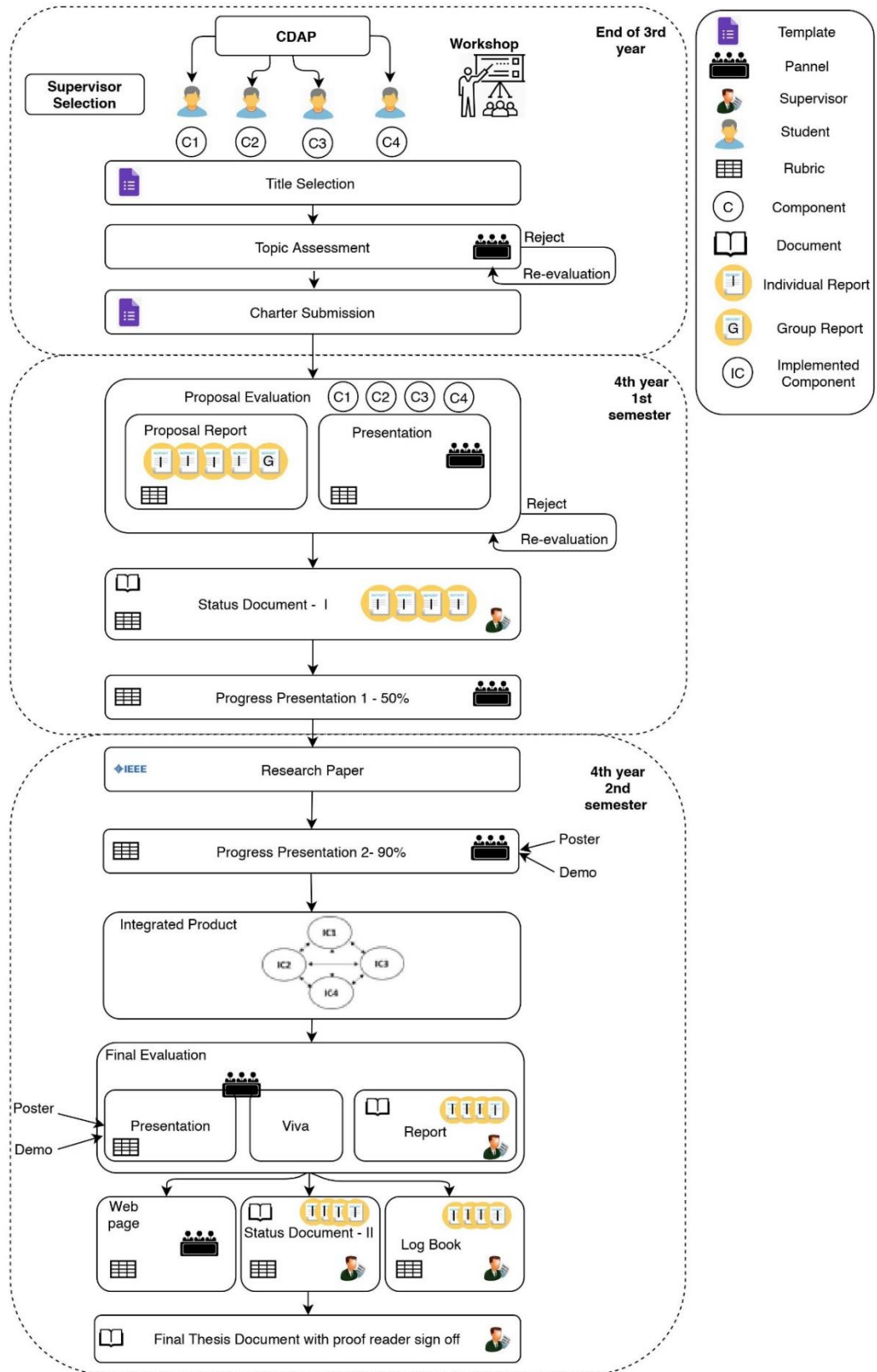


Figure 2: Evaluation type in each assessment

As depicted in Figure 2, the students should achieve several goals in the RP module, and each goal consists of several evaluations. Students must prepare and provide several deliverables /artefacts for those evaluations. There are several evaluation types involved in RP:

1. Expert panel desk evaluation (e.g., topic assessment)
2. Expert panel presentation evaluations (e.g., proposal, progress, and final presentations)
3. Document evaluations (e.g., proposal report, and thesis)
4. Code-level evaluations (e.g., part of the progress presentation II)
5. Research paper evaluations

As depicted in Figure 1, the RP team organize a workshop during the 3rd year 2nd semester and guide the students about the RP module. Moreover, faculty experts guide them on the research question selection, proposal writing, and the benefits of the RP module for their future endeavours. Then the students, are asked to finalize their project group, tentative topic, supervisor, individual components of the research, and the objectives, and then asked to fill the “topic assessment form” (given in [Appendix A-1](#)) to the RP team.

Students are encouraged to prepare the above form when they have completed the third year of the degree program. Guidelines for students to select a project are given in section 2.2. During this phase, the students are advised to find a provisional supervisor and co-supervisor based on their project interests and have formal meetings with them. Once the students get the official consent from the supervisors, the students then can fill the topic assessment form and submit it to the RP team.

The topic assessment will be a desk evaluation conducted by a panel of experts, and once the project topic assessment form is approved, students can prepare the project charter. However, the topics can be rejected due to various reasons including insufficient research in individual components, inadequate information, vague information, unclear research question or objectives, etc. Thus, in such situations, the group will be given additional attempt(s) to finetune their research idea with the help of the supervisor and the co-supervisor. Sign-off of project charter leads to the formal registration of a project and the project group. More details on the topic assessment, project charter, and initial registration are given in sections 2.4 and 4.1.

When the project is formally registered, the students can prepare a project proposal report and the content of the prepared report must be presented to the evaluation panel consisting of three members; two examiners and a moderator.

More details of the project proposal and evaluations are available in sections 3.1 and 4.1. The proposals also can be rejected due to several reasons including, inadequate workload distribution among team members, unclear methodology, inadequate explanation on the outcomes of the methodology, and insufficient workload, etc. However, there is a constraint that the topic cannot be rejected at this point, therefore only the project methodology can be rejected.

In such situations, the comments from the panel will be directed to the supervisor with the “Project proposal review form” attached in Appendix A-5 so that the supervisor is aware of the components the students need to make extra efforts on. Therefore, both supervisor and students can work on the proposal considering the comments given by the evaluation panel. Such projects will be given additional chance(s) to present their updated proposal to the same panel. The proposal report on the other hand must be changed accordingly and both supervisor and co-supervisor are responsible to mark the report. When the project proposal is approved, the students are permitted to carry out the proposed project.

During the project implementation phase, the students must present their progress in two stages:

1. Progress Presentation 1 (50% completion)
2. Progress Presentation 2 (90% completion)

During the time students present Progress Presentation 1, students should submit the status 1 document explaining the millstones of the project. The Status 1 document must comprise the necessary details taken from the Microsoft planner and the Gitlab commits. In order to publish the scientific findings, the students, together with the supervisor, should write a research paper and submit it to a reputed international conference or a journal, and the students are encouraged to start writing the paper during the time between the Progress Presentation 1 and 2.

The students should then do Progress Presentation 2 after three months from Progress Presentation 1. During this presentation, the students will be evaluated for the completion of the product and there will be a code level evaluation as well. 45% of the Progress Presentation 2 marks are allocated to the code evaluation. Moreover, during the evaluation, the students should demonstrate 90% completion of the project with live/video demos and should present it using a

conference-style poster. Details of the two progress review presentations are given in sections 3.4 and 4.1. Finally, the students must demonstrate their implemented individual components and the integrated final product to the panel as a presentation, and a viva.

Moreover, the students should submit the thesis document to the supervisor and the co-supervisor for the evaluations. The individual thesis document will be allocated for their examiner and the examiner will be blind for all parties including the supervisor, co-supervisor, and the students. Before the final presentation and viva students have to provide the project status documents and the logbooks they have been maintaining, the group website they have developed, and the research paper for evaluation. Details on the above evaluations are given in section 4.1. Details on the final presentation, viva, and final report are given in section 4.1.

2 RP Milestones

2.1 Forming a project group and supervisor selection.

As explained in Section 1 and depicted in both Figures 1 and 2, RP is a group project, which is carried out by a group of a maximum of four members. The group projects were introduced to practice project management practices similar to the industry projects carried out in the software and hardware companies. Students have the complete freedom to form groups by themselves and each group must appoint one of its members as the leader of the group. Students are free to form groups among different specializations, i.e., Software Engineering, Computer System, and Networking, offered by the Faculty of Computing.

As depicted in Figures 1 and 2, the RP brainstorming session is started during the third year second semester. From this point onward the students are encouraged to form groups, select topics, and formally negotiate with the supervisors. The students are notified about the research interest of the supervisors from the FoC Research Committee. The students can check the availability of the tentative supervisors using a system provided to the students.

Even though RP is a group project, as illustrated in Figure 2, all evaluations are carried out on an individual basis, and the KPIs are set for each evaluation. Each student would be responsible for designing and developing a significant research component related to the project. Thus, the effort spent on the project by every group member should be approximately equal. Working in a group would help students to develop a series of other soft skills such as problem-solving, efficient communication, teamwork, and negotiation during the time the project is carried out. Unfortunately, in some circumstances, some team members may find it difficult to work together. In such situations, the students have to act responsibly and attempt to reconcile any issues between the group members. Any issues that couldn't be tackled by themselves should be brought to the attention of the supervisor.

The responsibilities of the leader and the group members are given in Table 1.

Table 1: Responsibilities of the leader and the group members

| Responsibility | Group Leader | Rest of the Group Members |
|---|--------------|---------------------------|
| Topic Registration | | |
| Find a supervisor and negotiate | X | X |
| Find a Research Topic | X | X |
| Distribute the components among the team members | X | X |
| Arrange the meetings | X | X |
| Get the signature of both supervisor and Co-Supervisor | X | X |
| Submit the “Topic assessment form” to the cloud | X | |
| Address the comments and do the necessary amendments to the form and re-upload | X | X |
| Project Charter Stage | | |
| Prepare the Charter document | X | X |
| Get the signature from the supervisor and the co-supervisor | X | |
| Upload to the Cloud Drive | X | |
| Proposal State | | |
| Draft the proposal and obtaining the Plagiarism report and upload it to the student cloud drive | X | X |
| Create Git Repository | X | |
| Add members to Git Repository | X | |
| Maintain the Git Repository | X | X |
| Create the MS teams and add the members, supervisor, Co-Supervisor to the teams. | X | |
| Integrate the MS planner to the Teams | X | |
| Create, update and generate the | X | X |

| | | |
|---|---|---|
| status reports | | |
| Fortnight Git Commit | X | X |
| Organize the meetings | X | |
| Progress Review 1 Stage | | |
| Organize the meetings | X | |
| Generate Status 1 report including Git, MS teams planner | X | X |
| Fortnight Git Commit | X | X |
| Progress Review 2 Stage | | |
| Finish the research paper and get it reviewed by the supervisor | X | |
| Generate Status 2 report including Git, MS teams planner | X | X |
| Fortnight Git Commit | X | X |
| Prepare the poster and the demonstration | X | X |
| Final Stage | | |
| Integrate the final project and finalize project video | X | X |
| Upload the website to the cloud | X | |
| Proofread the final reports and get the documents signed by an approved expert. | X | X |
| Print, hard bound and submit the final group thesis and the individual theses. | X | X |
| Upload the Status document 2 and the log books | X | X |

2.2 Selecting a project topic.

RP project attempts to provide a comprehensive research-based solution for a real-world problem. A student group may get an initial idea of a project topic based on their interest, based on ideas given by a supervisor, based on industry requirements or they may consider selecting a topic from a topic list made available through the institute's Learning Management System (LMS) at URL courseweb.sliit.lk. With an initial idea in hand, students, then, must search for relevant literature on research databases and repositories of research conducted at SLIIT (cdap.sliit.lk).

During this stage, the RP team strongly suggests the students have formal negotiations with their supervisors and get their views, advice, and clarifications of the topics the students have selected. The purpose of the literature review as above is to analyze whether the selected topic is already researched and to understand the state of the art techniques. Student groups are recommended to spend a considerable amount of time in finding research topics and discuss the potential supervisors after attending the brainstorming workshop. Additionally, it is recommended that the students consider more than one topic initially and discuss the feasibility of those topics with a potential supervisor before selecting a project topic to carry out. The potential research project should be clearly segregated into individual parts, where an individual member should solve the sub research problem by setting individual objectives

Consequently, the individual scopes of the project should be suitable for the academic rigour expected from the final year students of the degree program while giving enough consideration for the workload and time constraints. Each student has to design and develop a significant research component related to the research within 10 calendar months. Students are expected to spend at least 28 hours each week on the research components they are working on during the two semesters. The RP management team continuously conduct workshops for the students and educate them regarding the topic selection and the expectations based on the module outline provided (The Module Outline is in APPENDIX D)

2.3 Selecting a project supervisor.

Each research project is carried out under the supervision of a supervisor and a co-supervisor. Supervisors are selected from faculty members holding the post of lecturer, senior lecturer, and professor. Co-supervisor can be any faculty member including assistant lecturers. The Research Committee of the Faculty of Computing timely gets the updates from each faculty member

regarding their research interests and makes the lists available for the students. That list is uploaded to the LMS and students are free to browse the list and decide the supervisor based on their interest areas. Moreover, the faculty members update their research profiles, and the students should use the sliit.lk website and visit the research pages to get an idea of the research interests of the potential supervisors.

First, the students must identify the research area and research team, based on their interest, before seeking foreseeable project supervisors. A senior academic qualifying for the role of the supervisor could, then, be selected from those among the related research groups. The appointment of a supervisor is done based on a mutual agreement. Student groups may also choose a co-supervisor based on a mutual agreement or the supervisor may help the students to appoint a co-supervisor based on the research area of the project. If an external supervisor is required for the project, the supervisor may also help the students to appoint the external supervisor. However, the principal supervisor will be the faculty member.

2.4 Preliminary project approvals

Once a supervisor agrees to guide students, the student group would have to refine the topic and its scope through a series of discussions among the student group and the supervisor. As depicted in Figure 1, the next milestone for the students is to fill the topic evaluation form, with the support of the supervisor, and to submit it for evaluation. At this point, the students have to register using online registration, and then submit the “Topic Review form” (provided in Appendix A-1) to the RP team.

Students are expected to complete the topic assessment form, including the abstract, the problem they are addressing, the overall system diagram of the proposed solution, and the individual task breakdown. Moreover, during this stage, with the support of the supervisor, the student must decide their individual research component and the implementation component and state this in the “topic registration” form. Finally, both the supervisor and the co-supervisor need to sign this form before uploading the document to the cloud space; the cloud space link will be a temporary link given by the RP team. Upon receiving the document, the RP team will issue the groups a temporary ID. The Topic assessment forms added without the supervisor signature and the co-Supervisor signature will be desk rejected without any evaluations.

The Topic Assessment form will then be evaluated by a panel consisting of the senior faculty members, including a member from the RP team, for the novelty, viability, scope, feasibility, objectives, the areas students gain expertise in, and the social impact. The panel will then decide one of the following actions:

1. Accept with minor modifications.
2. Accept with major modifications.
3. Reject.

The students categorized into the 1st category can amend the comments and proceed to submit the charter document. However, the students should communicate with the supervisor and the co-supervisor before amending the comments. The groups fallen into the 2nd category has to rectify the suggestions given by the panel with the support of the supervisor. Those who are in the 3rd category will be given another two weeks to find another topic the panel will suggest suitable amendments/ improvements to the project if required. A project must receive the panel's approval to move forward and, thus, the project group should resubmit the topic assessment form if it is not approved.

Once the topic assessment form is accepted, as the last step of the project registration phase, the student group should complete the project charter form, including the main project objectives and workload of individual members. The duly filled project charter form, given in Appendix A-2, signed by the supervisor and co-supervisor should be handed over to the RP coordinator. After this stage is completed, the topic cannot be changed by the students, supervisors, or panel member. However, the panel members or the supervisors shall request minor changes to the scope with the approval of the RP coordinator.

Once the RP coordinator approves the project charter, the RP team will issue a registration number and then after that team will be formally recognized using this ID. Meanwhile, the RP team, with the support of SLIIT, FoC Research Committee, will assign the examiners and the moderator to the research group by considering the expertise and the research areas of the senior faculty members. These members, as depicted in Figures 1 and 2, will assess each student, during their proposal, Progress I, Progress II, Final, and VIVA presentations. The supervisor and co-supervisor will be providing feedback for all document submissions including the research paper; the supervisors and the co-supervisor should review the research paper before submitting it to the

conferences. Moreover, the supervisor and co-supervisor will assess the document evaluations including the proposal, final reports, logbook, and two status documents.

During this stage, the students will get their cloud space in the Office365 cloud. The students should upload the soft copies of the topic assessment form, charter form, and the project cover sheet (given in [Appendix A-1, A-2, and A-3](#)) to their cloud space. Furthermore, the students should create their Gitlab accounts, Microsoft teams account, and the groups and add the necessary screenshots to the cloud space as well.

2.5 Intermediary Project approvals

During the stages of proposal evaluation, the students should submit the proposal report to the supervisors, so the supervisor and the co-supervisor will mark those and give suggestions for improvements. Moreover, the students should present a comprehensive project proposal to a panel appointed by the RP team (see section 2.4). During the presentation, the students might ask to do minor changes to their scope depending on the feasibility, knowledge, and state-of-art of the research. Nonetheless, there could be rejections of the methodologies during the project proposal presentation; that process is explained in section 3.1.

After that, the students will be given four months and three months to conduct their Progress Review 1 and Progress review 2 respectively. During this stage, the students should maintain the milestones set in the project management tool and code the project, and regularly commit the code into Gitlab. During the period between the progress reviews, the students should finish the initial draft of the research paper and then should submit it to the supervisor and the Co-supervisor to review them. There could be multiple review cycles depending on the quality, clarity, and readability of the paper.

Finally, the students should submit the draft version of the thesis to the supervisor immediately after the Progress Review 2. The supervisor and the blind reviewer then review the document and allocate marks to the report. The Mark allocation equation is further described in Section 4. The last millstones the students should have to finish are to submit the website for the integrated product and to do a presentation, and provide the student logbook with the hardbound thesis to the RP team.

The mark allocation for each assessment/milestone is given in Table 2.

Table 2: Mark allocation for each assessment

| Assessment | IT4010 | |
|------------------------------|------------|-------|
| | Individual | Group |
| Proposal Presentation | 6 | |
| Proposal Report | 6 | |
| SRS/DD/RRD | 0 | |
| Progress Review 1 | 15 | |
| Progress Review 2 | 18 | |
| Research Paper | | 10 |
| Final Report | 15 | |
| Final Report (group) | | 4 |
| Final Presentation | 10 | |
| Final VIVA | 10 | |
| Website | | 2 |
| Progress reports | 2 | |
| Log Book | 2 | |

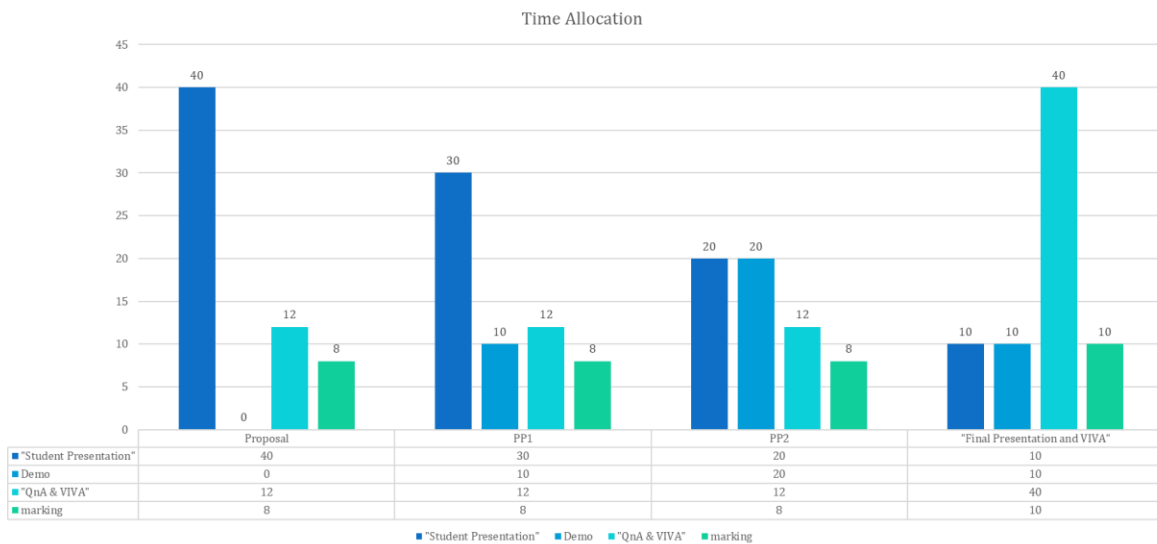


Figure 3: Presentation Time Allocation

3 Conducting the project

3.1 Preparing project proposal

Once the project charter is approved, and the project is registered with the guidance of the supervisor and the co-supervisor, the students are expected to conduct comprehensive background research, identify the research gap, define the objectives of the project clearly and identify the methodology to conduct the project. The above information should be explained in detail in the project proposal report using the template given in Appendix C-1. The project proposal is subjected to the plagiarism check and the score obtained should be below the institute-approved threshold.

The proposal report should be first submitted to the supervisor for comments. The project group then must present the project proposal to the project evaluation panel mentioned in Sections 1.3 and 1.4. The project evaluation panel may suggest corrections and improvements to the project where necessary and evaluate the presentation using the rubrics given in Appendix B. Depending on the nature of the project, the panel will decide whether the proposed methodology is sufficient for the RP module and compatibility with the learning outcomes of the module. If the project is not sufficiently explained, then the panel will fill the “Project Review Form (in Appendix A-5)” and hand over the comments to the supervisor as explained in Section 3.8. There, as depicted in Figure 2, the panel can decide on another presentation if necessary. The students will be given two weeks to meet the supervisor and get advice before they submit the proposal again to get the methodology accepted.

For the proposal evaluations, as given in Table 2, the students will get 6 marks each for reports and presentations. When the project groups successfully get their proposals accepted, the Research Project team will provide the students and the supervisors a cloud space to upload the reports, and the necessary deliverables. The students should upload all submissions to the directory structure by the given deadlines (published in the LMS) and the supervisors are requested to download the necessary documents from the cloud and mark the reports. The mark sheets will be then added to the Cloud and the RP team will use those mark sheets (appendix B)

to finalize the student gradings. Moreover, the students are requested to upload both individual and group documents to the cloud.

3.2 Designing the project

With the project proposal presented and feedback obtained, the project group would next move into the design phase of the project. Different project groups may take different approaches in the design phase depending on the type of project. For example, student groups conducting software-related projects may design class hierarchies related to their project in the design phase, whereas, the groups conducting projects related to embedded software may more focus on the architectural design.

During the design phase, students developing software-related or embedded software-oriented projects are expected to develop a high-level view of their proposed system and be aware of minor components related to the system and how they work together in the system. They should also document functional and non-functional requirements, interfaces and constraints of their system. Students, conducting pure research, on the other hand, should develop a solid methodology for their research and identify the benefits and constraints of the research.

3.3 Development, deploy, and test of the project

Once the student groups have finalized the project design, they may proceed to the development phase of the project. During the development phase, students are expected to gain in-depth knowledge of technologies applicable to their project and apply those technologies to develop a proof of concept of the proposed solution. Students are also expected to use best practices and pay attention to the non-functional requirements related to the project while being sensitive to professional, legal, and ethical issues.

Several evaluations are conducted during the development phase of the project. Two progress review presentations are taken to evaluate how well the students are working towards the objectives set. At the end of the semester, the final presentation and a viva session would be conducted. Following the above assessments, students have to submit the final dissertation for evaluation using the template provided in Appendix C-1.

3.4 Interaction with external parties

During the implementation and the testing phases, some projects may require collecting data from external parties. Or, the students might visit the necessary resource persons, e.g., all healthcare-related projects must have doctors as external resources persons, and they must verify the results the students are obtaining. Therefore, the students need an official document of project verification from the university. Such letters (one for the group) will be offered from the RP team with the signature of the project coordinator. The necessary information and the process to obtain a letter are published in the LMS. If the students should need ethical clearance to obtain datasets, visit facilities, etc., the students should follow the institutional guidelines to get the ethical clearance.

3.5 Reporting the project progress

During the two semesters that the project is carried out, students are expected to meet the supervisor and the co-supervisor of the project frequently and update him/her on the progress of the project. Moreover, the students may conduct the meeting using online tools. The tool recommended by the RP subject is the Microsoft Teams app where the students get full access to a chat group that includes their supervisor and Co-supervisor as well. Furthermore, students may use tools such as Slack, WhatsApp to have group chats and to have scrum project management. At the initial stages of the project, students are expected to meet the supervisor at least once a week and during the latter stages at least once in two weeks.

During the supervisor meetings, the students have to provide the supervisors with the project logbook which summarizes work carried out by each student related to projects. The project logbook also can be maintained online by following the instructions given in the LMS. Students have the complete freedom to maintain books as the logbook. Moreover, the students should have to maintain the chat history in the project management tools they use and upload those to the online logbook. These log entries must be certified by the supervisor and the co-supervisor. The project logbook is used at the end of the year to track how the student has worked towards meeting the objectives of the project as well as to prove that the students have maintained good communication with their supervisors/co-supervisors. Marks for the logbook are given using the rubric attached in [Appendix B-12](#)

In addition to the project logbook, the supervisor and the co-supervisor can monitor the project progress using the Microsoft Project tool. This tool is instrumental for designing project Gantt charts and supervisors can easily monitor the status of each task in the Gantt chart. For the above purpose, the tasks related to their individual research should be, first, entered into the Microsoft Project. This should be done by the project leader using the guidelines published on the RP page on the institute's LMS. The status reports 1 and 2, including necessary details taken from the Microsoft planner, Gantt charts, and the GitLab commits, should be then submitted to the supervisor before the Progress Presentations and the supervisor will give marks for these submissions using the rubric given in the [Appendix B-11](#)

3.6 Exhibitions and competitions

Groups with projects of outstanding achievement may be offered opportunities to represent SLIIT at national and international competitions and exhibitions. Students are requested to follow guidance from the RP coordinator or supervisor and participate in such events as and when such opportunities arise.

3.7 Handling Emergencies

If any members of a project group face an emergency such as health concerns, family bereavement, or any serious situations, these should be brought to the immediate attention of the supervisor. If such situations cannot be tackled by the supervisor to a satisfactory level, the supervisor may report the issues to the RP coordinator. Issues as above may prevent students from participating in evaluations at times.

In such situations, the student may be granted an extension for the evaluation. For the above purpose, a formal written appeal with supporting documents should be handed over to the RP coordinator within five days of the assessment date for intermediate assessments and within two days for the final assessment. For medical emergencies, a medical certificate should be obtained by a registered government medical practitioner, and that must be certified by the in-house doctor of SLIIT. Further, if the student is absent due to other critical or emergencies, such as unavoidable circumstances due to private reasons, the student should submit a request with a valid reason verified by the research supervisor.

Handling absence/ emergencies in intermediate evaluations

The possibility of offering an assessment extension would be decided by the RP coordinator after considering the validity of the student/ group's request and the rules and guidelines of SLIIT. If the said assessment is an intermediate assessment and the request is successful, the RP team lets the student/group consult with the project evaluation panel for a negotiation to re-arrange the assessment. Once the student/group arranges an available time with the panel members, the student/group should inform the RP team and shall get a full mark given to the assessment. (Note: this is only valid for the conditions mentioned above). If a student/ group failed to participate in any assessment without obtaining prior approval, he/she would receive zero marks for the said assessment. In case of one member of the research group is absent due to an emergency, other members must attend the assessment and continue as scheduled.

However, if the student/ group failed to submit a valid reason for his/ her claims, the student can still negotiate with the panel for re-arranging the presentation. Thus, the students can get a maximum of 45% of the marks allocated to the assessment.

Handling absence/ emergencies in final evaluations

If the said assessment is the final report, final presentation, or viva, then the student should have completed all the previously held assessments and have obtained at least 45% of the marks from the total marks for the already completed assessments for the appeal to be considered. The same appeal process should be followed as mentioned above. Due to time limitations, it would not be practical to schedule another evaluation before the results are released, even if the appeal is successful. Therefore, if the appeal is successful the student's grading for the said assessment and the final grading for the RP would be set to "Incomplete" and the student would receive a new assessment date which would fall before the completion of the repeat examinations. The RP marks of the said student would be updated at the board of examination of the repeat examinations without any penalty.

If a student had faced a serious medical condition or an exceptional situation that deprived he/she of participating in the final presentation or viva or preparing the final report, and a possible extended evaluation date, the student can appeal for carrying forward the intermediate marks and complete the project with the next batch of students. Here also the same appeal process should be followed.

In case a student fails the project module with “C-” grade, the student should complete the project as a solo project in the following semester with the approval of the RP coordinator and the student must make sure that there will be 30% additional novelty in the project. The student may assume the same supervisor and the co-supervisor. In this case, the student is eligible to give the project deliverables related to semester two, namely Progress Presentation II, Final report, VIVA, Final presentation, logbook, and the status document II. The rest of the marks will be taken as a forward from semester 1. However, the student must send a request to the RP coordinator, CCing the Supervisor and Co-supervisor, mentioning the details: previous group ID, Supervisor, Co-Supervisor, marks, and the grade received.

In a case, a student receives a grade below “C-” the student should redo the whole project by joining a following year student group.

Registering to the Project Management tools

As explained previously, during the period of the project, the students are requested to maintain subscriptions for different project management tools including Microsoft SharePoint, cloud drives, Microsoft Teams, Microsoft Planner, Gitlab to document, maintain software code, and project management. The Microsoft Teams integrated with Microsoft Planner and Gitlab were introduced to the students to plan their project, milestones, and the software delivery with the help of the supervisors. The Teams application can be used to have scrum project meetings among the team members effectively. The students will be given an Office 365 cloud space to share all their deliverables. Furthermore, the students are given a project space in the Gitlab server hosted by SLIIT. The students can maintain the versions of their coding in the GitLab effectively.

Document uploading cloud platform

The students will be given access to an Office365 share point directory to upload their assessment deliverables. The students should use their “my.sliit.lk” account to log in to the cloud account. The directory will be granted access only to the group members and the supervisors. The directory structure that will be shared with the students is illustrated in Figure 4. The date on which the document is uploaded will be identified by observing the “modified date” of each file and the deadline violations are penalized accordingly.














|  Name ▾ | Modified ▾ | Modified By ▾ |
|--|------------|---------------|
|  1. Project Proposal | February 8 | CDAP SLIIT |
|  2. Status Document 1 | February 8 | CDAP SLIIT |
|  3. Progress Presentation - 1 | February 8 | CDAP SLIIT |
|  4. Research Paper | February 8 | CDAP SLIIT |
|  5. Progress Presentation - 2 | February 8 | CDAP SLIIT |
|  6. Final Report & Presentation | February 8 | CDAP SLIIT |
|  7. Status Document 2 | February 8 | CDAP SLIIT |
|  8. Website | February 8 | CDAP SLIIT |
|  9. Log Book | February 8 | CDAP SLIIT |
|  Marking Schemes | February 8 | CDAP SLIIT |
|  Project Registration Documents | February 8 | CDAP SLIIT |
|  Panel Comments for the Students.xlsm | 5 days ago | CDAP SLIIT |

Figure 4: Cloud Directory Structure

The students are requested to add all the necessary documents to the directory. Moreover, the students can also see all the mark rubrics and study the method of evaluations. All group members should add the necessary deliverables and the deadlines will be maintained by looking at the modified date of the files.

Panel Comments for the students.

The panel comments given to the individual student will be displayed in the “Panel Comments for the students” excel file and the same comments will also be forwarded to the supervisors automatically. The students should discuss the comments given by the panel with the supervisor and continue the project accordingly.

GitLab

SLIIT hosted a GitLab software code management server for the students to commit their codes and manage those. The server can be accessed globally, and the students can commit the codes as

necessary. The students should register themselves to the server using the <IT_Number>@my.sliit.lk email address to the server. Then the team leader and the members should do the following tasks.

Table 3:Tasks of the team leader and the members

| | Task | Responsibility |
|---|--|--|
| 1 | Create a login (make sure that you use both your name and IT number in the account) in <u>GitLab.sliit.lk</u> | All four members in the group. Only *. my.sliit.lk accounts can be used to create your git accounts. |
| 2 | Create a group and the project in the git lab | The team leader is responsible to create a group in the git repository. The group should be named according to your project ID . If there are duplicate groups created, the RP team will delete all duplications and issue a penalty for the group. Once you finish creating the Project Group, create a project under the group. The project ID has to be your respective project ID given by the RP team. |
| 3 | Add team members to the created Group | The team leader is responsible. Issue the developer or manager role to the team members. |
| 4 | Add your supervisor and the Co-Supervisor to the group | The team leader is responsible |
| 5 | Commit codes to the repository | All four members are responsible. Will be evaluated by the RP team. |
| 6 | Add a ReadMe.MD file to your project | Leader is responsible. It should contain, <ol style="list-style-type: none"> 1. Main objective 2. Main Research questions 3. Individual research question 4. Individual Objectives, 5. Other necessary information |
| 7 | Create separate branches for each member of the project group and make sure you all PR the updates to Master Branch once a week. | All four members are responsible. |

The codes uploaded by the students will be reported to the online logbook and to the status document for the evaluation process.

Microsoft Teams with Microsoft Planner

Microsoft Teams is a hub for teamwork in the Office365 environment. The team can be configured to have chat, live meetings, scrum meetings, project management tools engaging the student project management easier and flexibly. The teams can be incorporated with Gitlab, so that the supervisor can maintain consistency in monitoring the coding progress, and the deadlines. The students should follow the given instructions and register to the Teams app and incorporate both Gitlab and the Microsoft planner into their teams.

I. Create a Team for your Project Group in Microsoft Teams

1. Click [here](#) to Download & Install Microsoft Teams on your device
2. Create a Team with the following naming format: <Group-ID>_<Project Title>
3. Add all group members to the team using SLIIT IT Number (MYSLIIT Account)
4. Add your supervisor and co-supervisor to the Team.
5. If you have already created a Team, please edit the info using the above guidelines
6. Create a chat group including your supervisors to have group chats and group calls and have regular meetings.
7. The status documents (both 1 and 2) will include the screenshots of the chats, calls, and the output of the Microsoft planner. Therefore, this is a mandatory step.

II. Using Planner & Teams for Project Management

1. Microsoft planner is a task management and project management tool that can be directly integrated into Microsoft Teams and other MS Office products.
2. This helps to plan Work Breakdown Structure, Gantt Charts and manage students' projects.
3. Each member should maintain a different instance for the WBS, Gantt Charts to manage separate components of the project.

III. Using Teams for Supervisor Meetings

1. Using Teams, students can initiate conference calls within their team and with the supervisor.

2. Use this tool to maintain a good communication channel with the supervisors.

IV. Complete & Upload

1. In order for RP Team to track your progress please complete the Team creation and upload a screenshot to the Project Registration Documents folder in your OneDrive.

3.8 Project Warnings and review

As illustrated in Figure 5, the project can be reviewed in the proposal stage and issued warning letters during the PP1 and PP2 stages. During the proposal presentation, if the panel requires to review the scope of the student(s), the panel should send the “Confidential comment” to the supervisors through the mark entering system, and if needed, the panel members should submit the project review form to the RP team. Then the team will forward the letter to the respective supervisors. There, the supervisors can discuss with the teams and act accordingly. The workflow of the proposal review is illustrated in Figure 5.

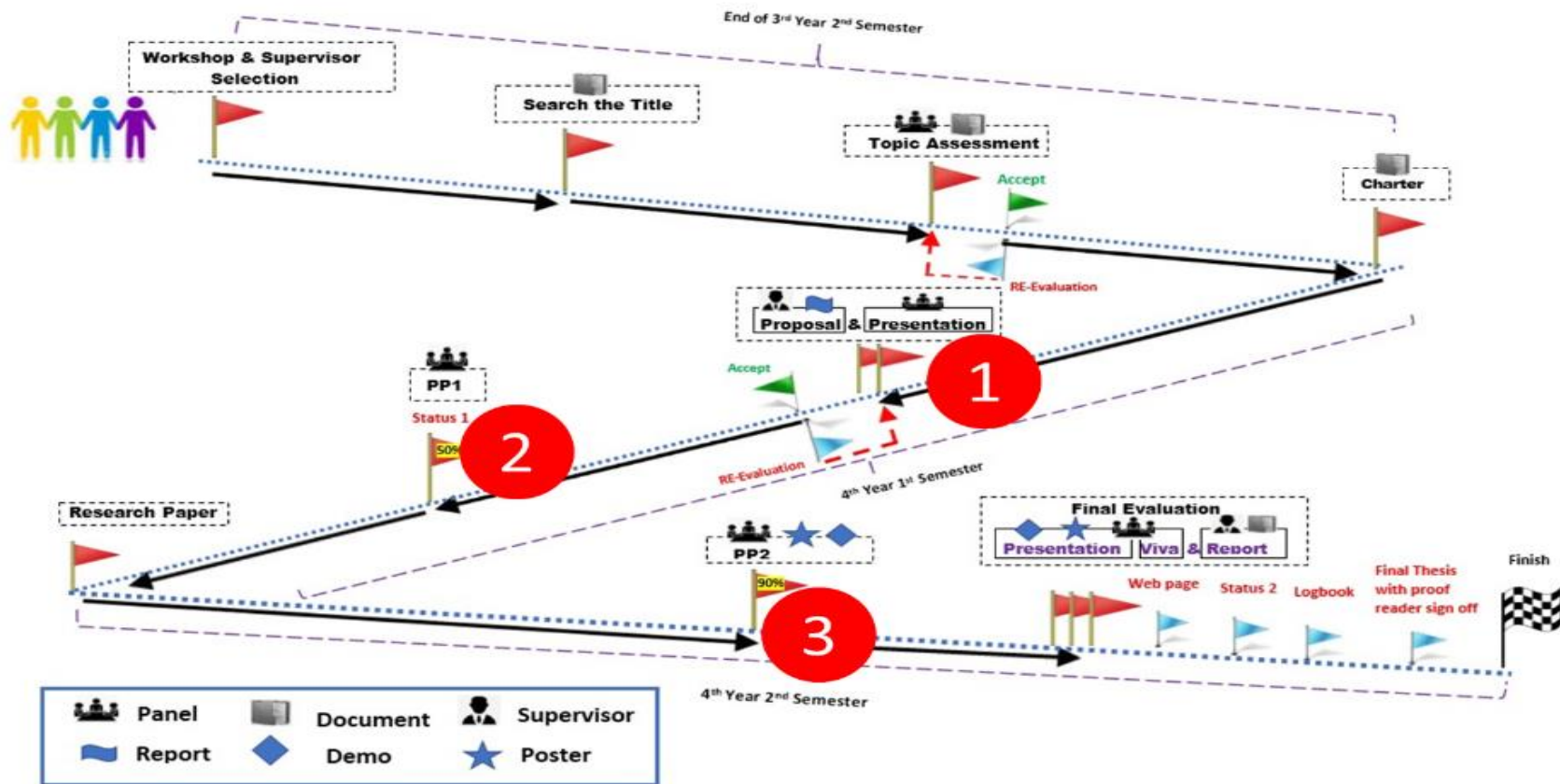
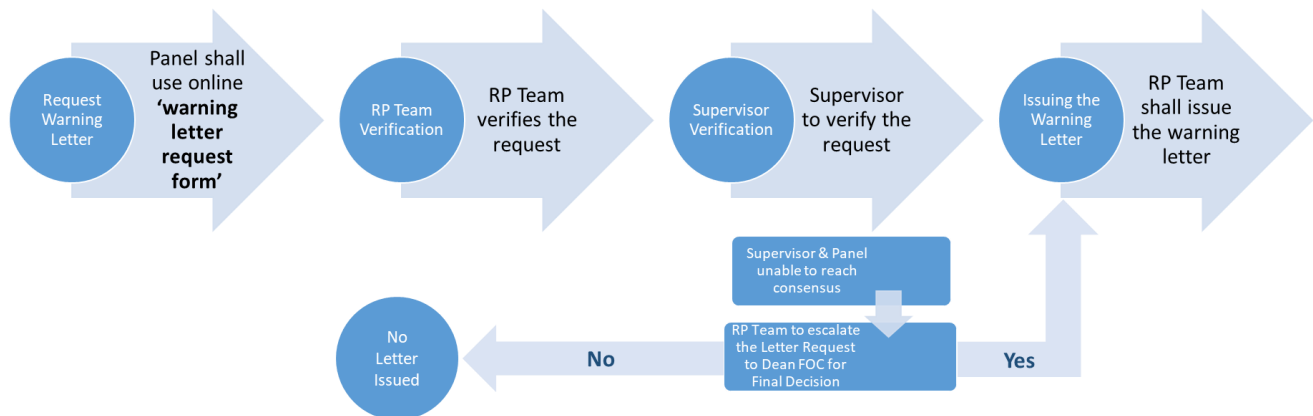


Figure 5: Project proposal review and warnings

During the PP1 and PP2 stages (following number 2 and 3 in Figure 5), in case if the panel members or the supervisor, together with the co-supervisor, decide that a student or the entire group does not perform or they do not show enough progress during the evaluations, the students will be offered a warning letter after each evaluation. The process of issuing the warning is illustrated in Figure 6.



- During the Panel Evaluation an online form will be made available to the panel to initiate the process.
- RP Team will independently verify the review request and communicate to the supervisor.
- Supervisor will verify and inform the RP Team.
- In case panel and supervisor fails to reach a consensus, issue is escalated to the Dean FOC.
- RP Team will issue the official warning letter to respective student(s).

Figure 6: Procedure to issue warning letters.

In case the panel members issue a warning letter to a student or a group of students during the PP1 and PP2 presentations, the panel shall send the request to the RP team. Then the RP team will check and verify the consensus with the supervisor. If the supervisor does not agree with the comments given by the panel members, the RP team will decide to issue the warning letter with the concurrence of the Dean FoC.

The template of the warning letter can be found in Appendix A-4. The students are only allowed to get two warning letters in total, and if they received more than the limit, the student or the group will be dropped into the next consecutive semester with the consent of the supervisor. In any of the cases, following numbers 2 and 3 in Figure 5, the warning letters will be given by the RP coordinator.

4 Project Evaluation and Grading

4.1 Overview of Evaluations

There are 12 screenings and evaluations associated with the RP module. Except for topic screening and project charter screening, all other assessments are allocated with marks. The 10 evaluations which are allocated with marks are as follows:

1. **Project proposal Evaluation:** – Project proposal is the first evaluation that comprises of two sub evaluations: 1.) Proposal presentation, and 2.) proposal report. For the above evaluations, as illustrated in Figure 5, students must submit individual reports to the supervisor, and then the students should do a presentation to the panel appointed by the RP team.

An individual mark is allocated for each student as the students should have clearly shown the research questions, objectives, methodology, and the method of evaluation of the respective part of their group project. The project proposal report weights 6% of the total marks allocated to the RP. The proposal report should be checked for plagiarism and the similarity report should be attached as an appendix to the document. The Report similarity score must be below the institute approved-plagiarized values. The proposal report is evaluated by the supervisor and the co-supervisor. The project proposal presentation is also carried 6% of the total allocated marks. The students are expected to do a presentation regarding their research problem, objectives, and tentative methodologies to a panel. The panel consists of two examiners who are experts in the domain students are presenting, and a moderator. The rubrics used for evaluating the project report and project proposal presentation are given in Appendix B-1 and B-2 respectively.

2. **Progress review presentation 1:** – For progress review 1, students have to do a presentation and/or a product demonstration to the same panel appointed for the proposal presentation. By the time of the evaluation, the students are expected to complete at least 50% of the project work. The students will be given four months from the proposal presentation to do Progress Presentation 1. Marks for the progress presentation is allocated on an individual basis and 15% of the final mark is allocated for progress presentation 1. This presentation will be used to screen the projects for the national and

international competitions. The rubric used for evaluating the progress review presentation 1 is given in Appendix B-5.

3. **Progress review presentation 2** – Progress Presentation 2 has two evaluations including a product/demo and a presentation together with a code-level evaluation. This evaluation will take place 3 months after Progress Presentation 1. This evaluation will contribute 18% to the final marks. For progress review 2, students have to do a presentation and/or a product demonstration for the same panel assigned by the RP team. By the time of the evaluation, the students are expected to complete at least 90% of the project work. The students are evaluated for the code-level competency of the project. The students are assigned to GitLab repositories, and the RP team takes the expertise of the industry for this evaluation before the students present to the panel assigned to them. As depicted in Figure 3, the students are individually evaluated, and individual marks are allocated. Moreover, the students may use a poster to demonstrate their achievements. The rubric used for evaluating the progress review presentation 2 is given in B-6: Evaluation rubric for Progress Review 2 Appendix B-6.
4. **Research paper** – Once the project reaches 50% of the completions, the students are advised to start writing the conference paper. The paper has to be continuously updated with the progress up to the Progress presentation 2. Then the students are encouraged to submit the paper to National or International conferences with the consent of the supervisors. The total marks are allocated to the accepted and presented paper is 10 % of the final marks. The marking scheme is given in Appendix B-7. A common mark is allocated for all members of each project group for the research paper.
5. **Web site** – Once the project is completed, the students are expected to develop a website that can be used to market the integrated product they implemented during the project. The website must be available to publish the details of the project and project deliverables. A common mark is allocated for all members of each project group for the project website and 2% from the final mark is allocated for the project website. The marking scheme is given in the Appendix B-13

6. **Project logbook** – Throughout the project, students are expected to maintain a project logbook. The project logbook provides evidence of the work carried out by each student and the regular supervisor meeting details. Marks for the project logbook are allocated on an individual basis and it counts for 2% from the final mark. If the project team maintains Microsoft teams, SLACK group, the project logbook can be created by extracting the threads they maintained in the respective channel. The mark sheet is given in Appendix B-12.
7. **Final project presentation** - For the final presentation, students have to do a presentation and/or a product demonstration. The students have to do an individual presentation related to the component they have developed. The mark for the final project presentation is allocated on an individual basis. This evaluation will contribute 10% to the final marks. The same panel will evaluate the final project presentations. The final presentation will be an extended version of progress presentation 2 and the students should do a live demonstration of the implemented systems/prototypes to the panel. The Final presentation will be followed by an individual VIVA session. The rubric used for evaluating the final project presentation is given in Appendix B-8.
8. **VIVA** - Viva is an individual oral session between project group members and the evaluation panel, where, the group members answer specific questions prompted by the panel. Marks for the viva are allocated on an individual basis and 10% from the final mark of students is allocated for the viva. The rubric used for evaluating the viva is given in Appendix B-9.
9. **Final project thesis** – The final project thesis is the final evaluation of the project. For this evaluation, the groups are expected to submit a single group report and four individual reports to their supervisor and the co-supervisor. 19% of the marks will be allocated to the final report. The final report will be subjected to the “Blind Double” marking. The reviewer will be selected with the support of the Dean, and the head of the research committee. The marks allocated by both supervisor and the Blind marker will

then be considered offering the final mark for the thesis. The rubric distributed among both markers is given in [Appendix B-10](#). The double-blind marking and the marks moderation process are illustrated in Figure 7.

10. Project status document – The status of each project is evaluated through the Microsoft Project tool after the PP1 and the students submit the final thesis. Furthermore, the status document should provide the evidence, for the git commits, and the bi-week meetings done with supervisors, Co-Supervisor, or the external supervisor. From the final mark, 2% is allocated for the above evaluations. Guidelines used for evaluating project status documents are given in [Appendix B-11](#).

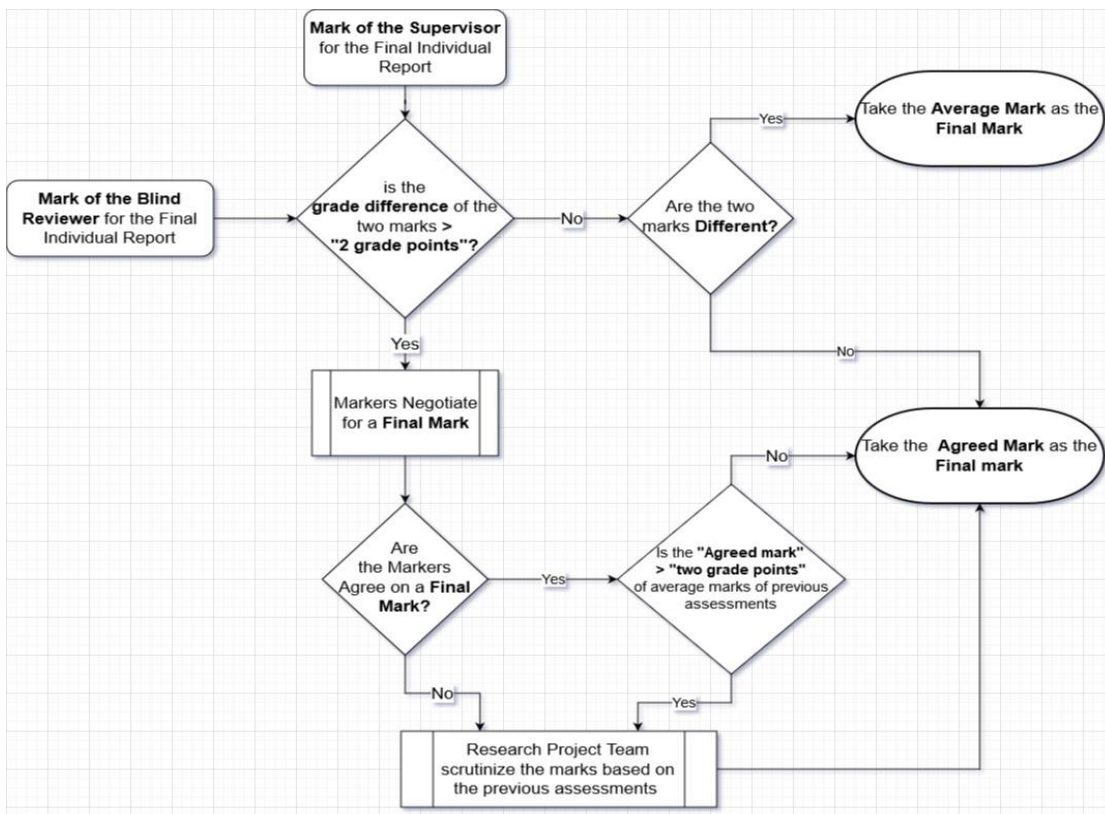


Figure 7: Process implemented diagram to the final bind double marking.

An overview of assessments discussed above is summarized in the table below.

Table 4-1: An overview of project evaluations

| Evaluation | Nature of Evaluation | Type of evaluation | Percentage of marks | Evaluation panel |
|----------------------------|--|-------------------------------|----------------------------|---|
| Topic Screening | Individual evaluation | Panel based evaluation | NA | Five senior members from the faculty |
| Charter Submission | Group submission | NA | NA | RP Team |
| Proposal Report Evaluation | Individual evaluation | Written document evaluation | 6% | Supervisor and the Co-Supervisor |
| Proposal Presentation | Individual aural evaluation | Presentation based evaluation | 6% | A panel consist of two senior examiners, and a moderator appointed by the RP team |
| Status document I | Individual submission evaluation | Gantt Chart based evaluation | 1% | Supervisor and the Co-Supervisor |
| Progress Review I (50%) | Individual aural evaluation | Presentation based evaluation | 15% | Same panel as the Proposal Presentation |
| Research paper | Group evaluation | Research paper review | 10% | Review panel appointed by the conference and the RP team |
| Progress Review II (90%) | Individual aural, demo-based, and coding | Presentation based evaluation | 18% | Same panel as the Proposal Presentation and some industry experts for code evaluation |

| | | | | |
|---|---|-------------------------------------|-----|---|
| | evaluation | | | |
| Final Thesis Evaluation (Individual) | Individual blind double evaluation | Document based evaluation | 15% | Supervisor, and Co-Supervisor together with a blind marker appointed by the RP team |
| Final Thesis Evaluation (Group) | Integrated product blind double evaluation | Document based evaluation | 4% | Supervisor, and Co-Supervisor together with a blind marker appointed by the RP team |
| Final Presentation | Individual aural, demo-based, and coding evaluation | Presentation based evaluation | 10% | Same panel as the Proposal Presentation |
| Final VIVA | Individual aural, evaluation | Discussion based evaluation | 10% | Same panel as the Proposal Presentation |
| Status Document II | Individual submission evaluation | Gantt Chart based evaluation | 1% | Supervisor and the Co-Supervisor |
| Web site | Demo based group evaluation | Webpage demo | 2% | RP team |
| Log book | Individual submission evaluation | Gantt Chart based evaluation | 2% | Supervisor and the Co-Supervisor |

4.2 Evaluation timeline

As illustrated in Figure 1, the project topic screening and project charter submission of the RP module are conducted before the commencement of the academic year (the 3rd year 2nd semester of the students). Project proposal, project progress review 1, and status document 1 submission are conducted during semester 1 of level 4. Progress review 2, final presentation, viva, final project report, research paper, website, and project logbook are evaluated during semester 2 of level 4. An approximate timeline for the evaluations is given in the table below.

Table 4-2: Tentative project evaluation timeline

| Evaluations/Submissions | Tentative week |
|--------------------------------|---|
| Topic Assessment | 6 weeks prior to the 4 th year 1 st semester commencement |
| Charter Submission | 2 weeks prior to the 4 th year 1 st semester commencement |
| Proposal Presentation | 1 week prior to the 4 th year 1 st semester commencement |
| Proposal Report | 3 rd week of the 4 th year 1 st semester |
| Status document I | 1 st week of the 4 th year 2 nd semester |
| Progress presentation I (50%) | |
| Research paper | 1 st week of the 4 th year 2 nd semester |
| Progress presentation II (90%) | 8 weeks into the 4 th year 2 nd semester |
| Final Evaluation | 1 st week after the 4 th year 2 nd Semester |
| Status Document II | |
| Logbook | |
| Web page | Last week of the 4 th year 2 nd Semester |

4.3 Grading

For RP module grades are given based on the overall mark of the module as shown in Table below.

Table 4-3: Grading criteria for RP

| Grade | Marks Range |
|--------------|--------------------|
| A+ | 90-100 |
| A | 80-89 |
| A- | 75-79 |
| B+ | 70-74 |
| B | 65-69 |
| B- | 60-64 |
| C+ | 55-59 |
| C | 45-54 |
| C- | 40-44 |
| D+ | 35-39 |
| D | 30-34 |
| E | 00-29 |

5 Roles and responsibilities

5.1 Roles and responsibilities of the supervisors

Some guidelines and responsibilities of supervisors, co-supervisors, and external supervisors are given below.

- i. The supervisor is the first contact point for the student group to all project-related matters and it is expected that the project would be guided by the supervisor at all times.
- ii. The supervisor is expected to discuss the progress, and preparation for the next submission, etc. of the project with students and arrange meeting schedules at the beginning of the project acceptance.
- iii. The supervisor is expected to guide the students to scope the project properly, refine the idea and give constructive suggestions throughout the project. When the supervisor identifies knowledge gaps of students, poor grasp of principles, etc., impeding project development, he/she should make every effort to offer relevant instructions to bridge the gap. If the students still fail to register significant improvement in the project, the supervisor should warn the students of this fact in writing via email, carbon-copying the RP Coordinator and Team. If the students are facing difficulties in performing well in their project, the supervisor should advise, communicate, and discuss with them orally and try to get them on the right track. Otherwise, the students should be given a warning in writing through emails, carbon copying them to the co-coordinator - RP and the team RP.
- iv. If the project group gets absent for the project meetings with the supervisor three consecutive times, the supervisor should warn the students of this fact in writing via email, carbon-copying the RP Coordinator and Team.
- v. The supervisor will assess the students' progress at several stages as given below, and he/ she acts as the examiner for the following assessments.
 - a. Proposal report
 - b. Project status documents
 - c. Project logbook
 - d. Final thesis

- x. The supervisor should update the mark sheets of the proposal and the final report to the relevant cloud space shared by the faculty RP team.
- xi. Co-supervisor is expected to guide students by working together with the supervisor of the project, assist the supervisor in arranging meetings and providing sufficient feedback to improve the research paper.
- xii. If any external supervisors are required, the supervisor should contact the external supervisor and get his/her consent at the project charter submission stage.
- xiii. The supervisor is expected to provide timely feedback on draft reports submitted by the students.

5.2 Roles and responsibilities of project group members

The roles of the students who are members of project groups are as follows:

- i. Students are required to participate in all RP lectures, meetings with supervisors, submit all deliverables on time, and participate in all assessments according to schedule. The student group should continue to achieve the project objectives, despite some member(s) shall not participate in the project activities. The students who are not collaborating in the project design and implementation phase will be identified and marks are reduced accordingly.
- ii. Successful projects are the result of constant dialogue among the group members to share their knowledge. Students are required to make an equal contribution to the project workload.
- iii. The students are not allowed or authorized to change the project title, project members, supervisor, or co-supervisor once they have formally submitted the charter to the RP team and obtained the official project registration ID.
- iv. It is the responsibility of each team member to upload the necessary deliverables on or before the deadline and maintain the cloud space updated.
- v. It is the responsibility of the students to check with the supervisor of their preference for marking. For example, if the supervisor requests a hard copy of the proposal report or final thesis report, the students should print that report and submit it to the supervisor, in addition to uploading the documents to the cloud space.

- vi. The project leader or any group member can request a meeting time from the supervisor via email or another communication medium as agreed with the supervisor. When the supervisor allocates a time slot, it is the student's responsibility to attend the meeting and obtain guidance.
- vii. All group members are expected to participate in supervisor meetings regularly. The group must consult and provide progress updates to the supervisor and co-supervisor. The frequency of meetings with the supervisor and co-supervisor should not be less than once every fortnight.
- viii. Project meeting minutes and notes taken should be maintained in a project logbook. Marks will be allocated for the project logbook. In case the students maintain SLACK or any project management tool, it is the responsibility of the group members to compile those as a logbook and get the signature of the supervisor.
- ix. Students should carry out the project under the guidance and directions of their supervisors and may not seek instructions from other faculty members without first informing the former.
- x. Students must obtain the assistance of the supervisor and co-supervisor to resolve issues related to the project and group dynamics.
- xi. Students may bring project issues to which the supervisor/co-supervisor cannot recommend solutions to the RP Coordinator. Difficulties in working with the supervisor/co-supervisor may also be brought to the notice of the RP Coordinator.
- xii. In the case of reports, students are recommended to hand over the draft in advance to the supervisor, in order to receive feedback based on which they can improve the final version of the reports.

5.3 Roles and responsibilities of the project evaluation panel

- i. The panel is expected to provide constructive feedback to the students to carry on the project. The comments will be written, and the comments will be visible to both students and the supervisors.
- ii. If the panel needs to send a concern to the supervisor regarding the students' knowledge, progress, attitudes, and behavioural facts, together with the moderator, the panel

examiners should fill in the comments to the supervisor. Such comments are not visible to the students, and they will be directly sent to the supervisors.

- iii. The project review panel would assess the student's progress at several stages as listed below.
 - b. Proposal Presentation
 - c. Progress review presentations
 - d. Final presentation & viva
- iv. The project review panel is expected to be present at each assigned progress evaluation and examine the students based on the marking guidelines provided. The marking guidelines for each assessment are presented in Appendix C.

Issue project confirmation letters.

In the need of data collection, company visit or meeting resource personal, the project teams might need an official project letter. In that case, the students should request the project letter following the guideline given below.

Send an email to **lakmini.a@sliit.lk** (CC. <Coordinator> and **cdap@sliit.lk**) mentioning the following fields:

1. Title (As submitted to the Charter)
2. Project ID
3. Team leader ID and name
4. Team members' IDs and names
5. Supervisor's name
6. A **one-sentence description** of the required data.

Only one letter will be issued per group.

APPENDIX A- RP Forms

A-1: Topic Assessment form



Sri Lanka Institute of Information Technology

Temporary ID:

Project Topic Assessment – XXXX/XXXX Regular/ June

Topic

Abstract (200 Words Max):

Research Area/Group: Select the area by referring to the document uploaded to the Courseweb

Choose an item.

Supervisor should fill this part

Supervisor and Co-Supervisor endorse the proposed project, and hence, guide the students to acquire required knowledge skills pertaining to above sub domains of their specializations.

Supervisor: Choose an item.

Signature

Continuation of Previous Year Project? ☐

If yes, state the Project ID

and year

Co-Supervisor: **Select Co-Supervisor**

Signature

External Supervisor

Name

Team Members:

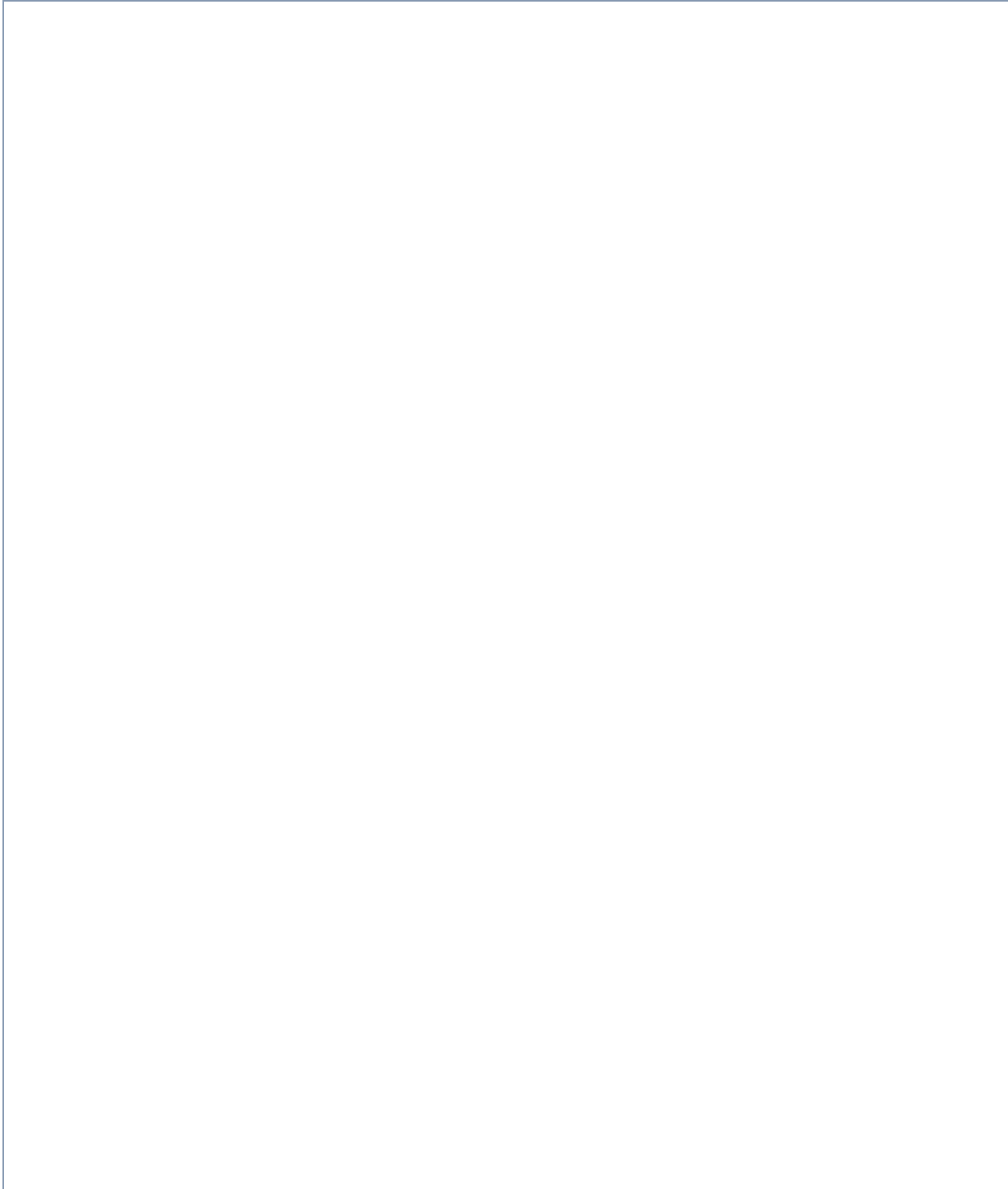
| | | |
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| | | |
| | | |
| | | |

Research Problem:

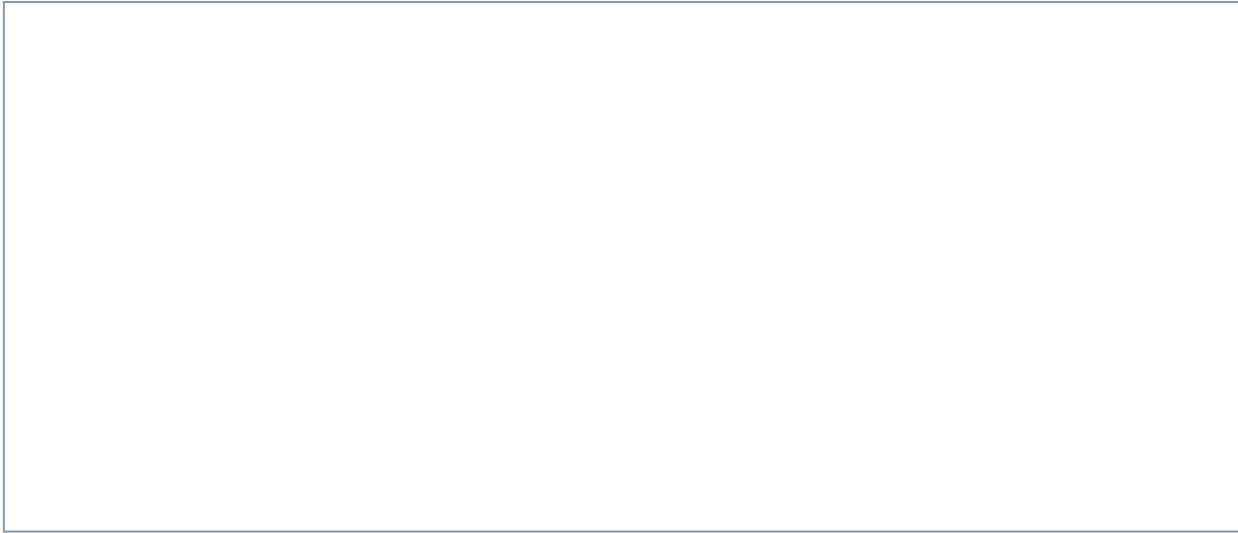
Solution proposed:

System Overview Diagram for the solution proposed. Recommended to draw using draw.io. Note: This is not an activity/flow (UML) diagram

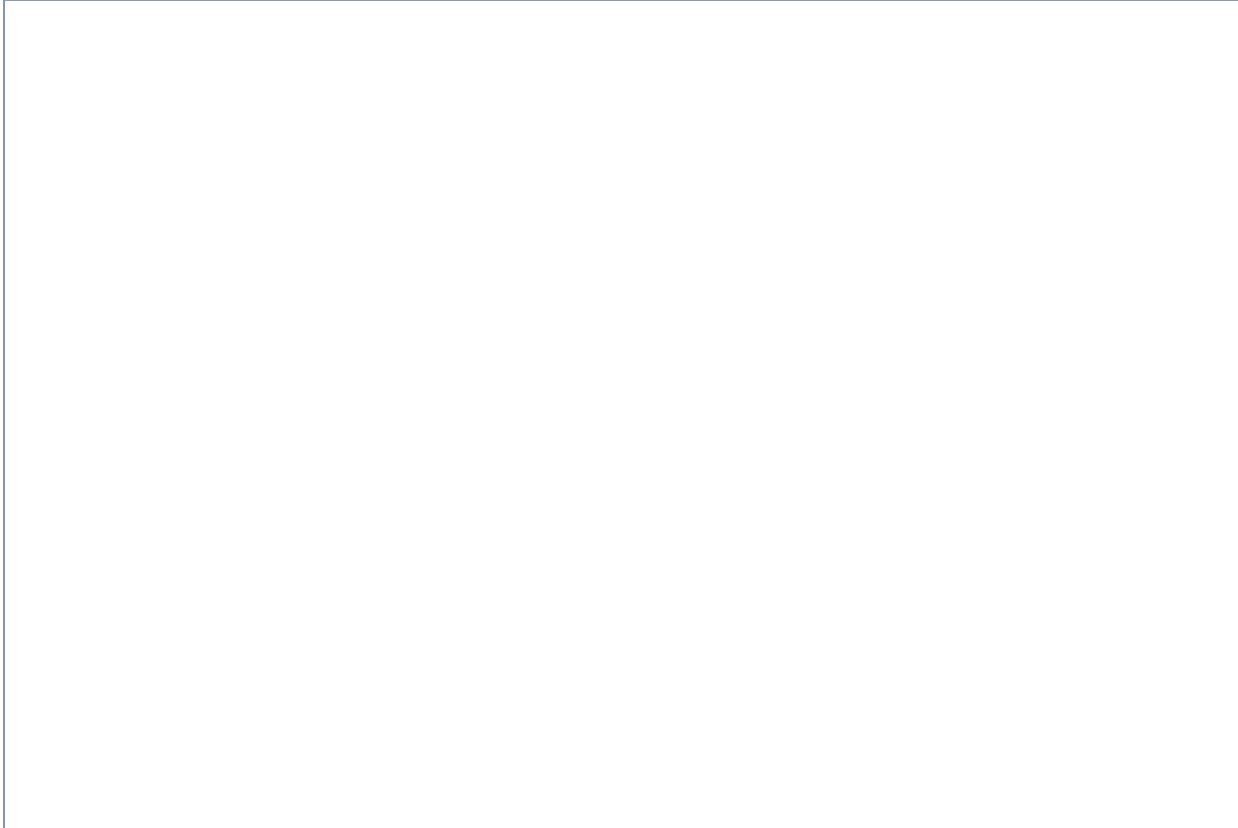
1. Man components including the data sources, stakeholders, interaction among the stakeholders, etc.
2. Interconnection among the components
3. Major SW and HW components




Objectives (1 main objective and 4 sub objectives):

A large, empty rectangular box with a thin blue border, intended for listing objectives.

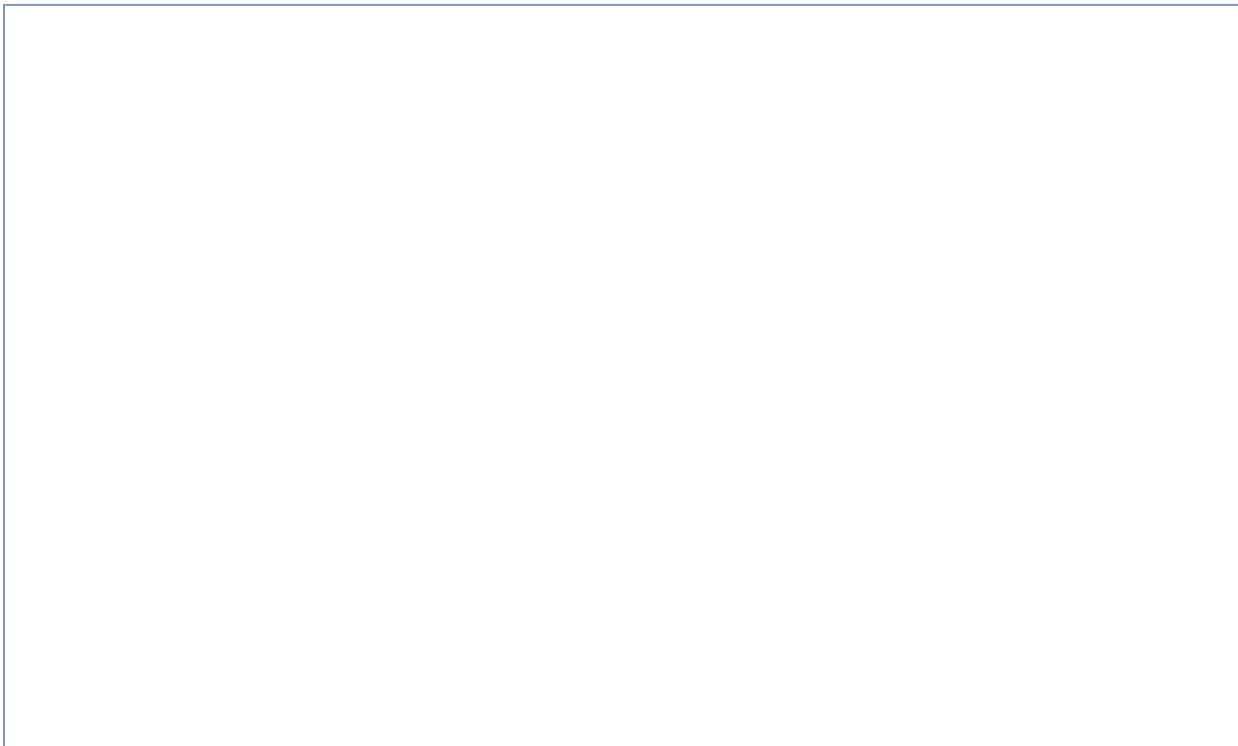
Task divided among the members

A large, empty rectangular box with a thin blue border, intended for describing how the task is divided among members.

Technologies to be used:

A large, empty rectangular box with a thin blue border, intended for listing technologies to be used.

If supervisor States that this year is a continuation of previous work, state the further work the students should do compared to the previous years.
(NOTE: This part has to be filled by the supervisor)

A large, empty rectangular box with a thin blue border, intended for describing further work compared to previous years.

This part will be filled by the Topic Screening Panel members

Acceptable: Mark/select as necessary

| Acceptance/ Rejection | Correction State | |
|--------------------------|--------------------------|--------------------------|
| | Minor Correction | Major Corrections |
| Accepted | <input type="checkbox"/> | <input type="checkbox"/> |
| Resubmit | <input type="checkbox"/> | <input type="checkbox"/> |
| Rejected | <input type="checkbox"/> | |

Corrections (if necessary)

Major changes proposed:

Any

other

Comments:

Approved by the review panel:

| Member's Name | Signature |
|---------------|-----------|
| | |
| | |
| | |

Important:

1. According to the comments given by the panel, do the necessary modifications and get the approval by the **same panel**.
2. If the project topic is rejected, find out a new topic and inform the CDAP Group for a new topic pre-assessment.
3. A form approved by the panel must be attached to the **Project Charter Form**.

A-2: Project Charter Form



Sri Lanka Institute of Information Technology

PROJECT REGISTRATION FORM

(This form should be completed and uploaded to the Cloud space on or before XXXX)

The purpose of this form is to allow final year students of the B.Sc. (Hon) degree program to enlist in the final year project group. Enlisting in a project entails specifying the project title and the details of four members in the group, the internal supervisor (compulsory), external supervisor (may be from the industry) and indicating a brief description of the project. The description of the project entered on this form will not be considered as the formal project proposal. It should however indicate the scope of the project and provide the main potential outcome.

PROJECT TITLE

(As per the accepted
topic assessment form)

RESEARCH GROUP

(as per the Topic
assessment Form)

Select Research Group

PROJECT NUMBER

(will be assigned by the lecture in charge)

PROJECT GROUP MEMBER DETAILS: (Please start with group leader's details)

| | STUDENT NAME | STUDENT NO. | CONTACT NO. | EMAIL ADDRESS |
|--------|--------------|-------------|-------------|------------------------|
| Format | Perera C.D.D | ITxxxxxxxx | xxxxxxxxxx | itxxxxxxxx@my.sliit.lk |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

SUPERVISOR, CO_ SUPERVISOR Details

| | |
|--------------------------------|--------------------------------|
| SUPERVISOR Name | CO-SUPERVISOR Name |
| Choose an item. | Choose an item. |
| Signature | Signature |
| Attach the email as Appendix 1 | Attach the email as Appendix 2 |
| Date | Date |

EXTERNAL SUPERVISOR Details (if any, may be from the industry)

| | | | | |
|------|-------------|-----------------|-----------------|-----------------------------------|
| | | | | Attach the email as Appendix 3 |
| Name | Affiliation | Contact Address | Contact Numbers | Signature/Date |

ACCEPTANCE BY CDAP MEMBER (This part will be filled by the RP team)

| | | |
|------|-----------|------|
| | | |
| Name | Signature | Date |

PROJECT DETAILS

Brief Description of your Research Problem: (extract from the topic assessment form)

| |
|--|
| |
| |

Main expected outcomes of the project: (extract from the topic assessment form)

| |
|--|
| |
|--|

WORKLOAD ALLOCATION (**extract from the topic assessment form after correcting the suggestions given by the topic assessment panel.**)

(Please provide a brief description about the workload allocation)

| | |
|----------|--|
| MEMBER 1 | |
| | |

| | |
|----------|--|
| MEMBER 2 | |
| | |

MEMBER 3

MEMBER 4

DECLARATION (Students should add the Digital Signature)

“We declare that the project would involve material prepared by the Group members and that it would not fully or partially incorporate any material prepared by other persons for a fee or free of charge or that it would include material previously submitted by a candidate for a Degree or Diploma in any other University or Institute of Higher Learning and that, to the best of our knowledge and belief, it would not incorporate any material previously published or written by another person in relation to another project except with prior written approval from the supervisor and/or the coordinator of such project and that such unauthorized reproductions will construe offences punishable under the SLIIT Regulations.

We are aware, that if we are found guilty for the above mentioned offences or any project related plagiarism, the SLIIT has right to suspend the project at any time and or to suspend us from the examination and or from the Institution for minimum period of one year”.

| | STUDENT NAME | STUDENT NO. | Signature |
|---|--------------|-------------|-----------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

**Research Project
(IT4010)**

Group Assessment File

Project ID : XXXXXXX

Supervisor :

Project Title:

XXXXXXXX

Group Details:

| Student ID | Student Name |
|-------------------|---------------------|
| | |
| | |
| | |
| | |
| | |

Research Project (IT4010)

Student Assessment File

Project ID : XXXX

Student ID : XXXXX

Student Name : XXXXX

Research Domain: XXXXX

Project Title

XXXXX

Project Sub Title

XXXXXX

Individual Component Abstract

Research Project (IT4010)

Student Assessment File

Project ID : XXXX

Student ID : XXXXX

Student Name : XXXXX

Research Domain: XXXXX

Project Title

XXXXX

Project Sub Title

XXXXXX

Individual Component Abstract

Research Project (IT4010)

Student Assessment File

Project ID : XXXX

Student ID : XXXXX

Student Name : XXXXX

Research Domain: XXXXX

Project Title

XXXXX

Project Sub Title

XXXXXX

Individual Component Abstract

Research Project (IT4010)

Student Assessment File

Project ID : XXXX

Student ID : XXXXX

Student Name : XXXXX

Research Domain: XXXXX

Project Title

XXXXX

Project Sub Title

XXXXXX

Individual Component Abstract

A-4: Warning Letter



Sri Lanka Institute of Information Technology

LETTER OF WARNING

This is a warning letter issued to following student(s) for their problems related with the final year project. After carefully observing their performance in the past, following verbal instructions, the evaluation panel was decided to issue a warning letter. Therefore, we strongly advise you to correct the under mentioned issues and work hard on your project.

PROJECT TITLE

PROJECT NUMBER

Details of Students

| | STUDENT NAME | STUDENT ID. | SIGNATURE. |
|---|--------------|-------------|------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

Brief description about the issues of student(s):

.....

Examiner

Supervisor

Co-Supervisor

.....

Research Project Coordinator

Assessment:

Date:-

A-5 Project Proposal Review Form



Sri Lanka Institute of Information Technology

Project ID

Project Proposal Review Form – 2020 Regular

Note: If the review panel decides that the proposed methodology (**not the topic**) is not adequate to do for the RP, fill the following details including reasons for review, suggested improvements, and the necessary instructions and leave this form in the file. This document will be sent to the project supervisor to consider the corrections proposed by the review panel.

Project ID

Main Reason for the Review

Major changes proposed:

Any other Comments:

Approved by the review panel:

| Member's Name | Signature |
|---------------|------------------------|
| | <Signature not needed> |
| | |
| | |

Supervisor's Comment

Supervisor Name:

Important:

- According to the comments given by the panel, do the necessary modifications and get the approval by the **same panel**.
- Submit this form to supervisor and let the supervisor discuss the feasibility of the corrections proposed by the evaluation panel.
- The studnets should present this form during the Re-proposal presentation.

APPENDIX B: Project Evaluation Rubrics

B-1: Evaluation rubric for Project proposal report

RP(ITxxxx) - Proposal Report Mark Sheet [Total contribution = 6%] Group ID

Student ID:

Student Name:

| Sub Assessment Criteria | Excellent (100 - 75) | Good (74 - 60) | Average (59 - 40) | Below Avg. (39 - 0) | Marks [Out of 100] |
|--|--|--|---|---|-----------------------|
| Proven gap/Creative Solution [Based on LO1] - [35%] | | | | | |
| 1.Knowledge gap (Problem) with novel and creative solution 70% | Clearly argued the existence of knowledge gap using credible, multiple sources. Excellent justification for novelty and creativity. | Sufficiently argued the existence of knowledge gap using limited sources. Good justification for novelty and creativity. | Moderately argued the knowledge gap with very few or no sources. Average justification for novelty and creativity. | Knowledge gap is not clearly identified. Poor or No justification for novelty and creativity. | |
| 2.Compare existing systems and related work 30% | Extensively compared the research problem in the present context of the research domain / with similar products and services. | Sufficiently compared the research problem in the present context of the research domain / with similar products and services. | Moderately compared the research problem in the present context of the research domain / with similar products and services | Poorly compared or No comparison has been done | |
| Capability in applying the knowledge in particular stream [Based on LO2] - [30%] | | | | | |
| 3.Application of key pillars in the specialized area of knowledge 50% | Clearly identified the most appropriate research area (Machine learning, Image processing, Data Science etc.) | Satisfactorily identified the research area. | Vaguely identified. But appropriateness is doubtful. | Indistinctly identified or Not identified. | |
| 4.Application of technologies in the relevant key pillar/area 50% | Demonstrated full awareness of technologies in the relevant area and a critical evaluation of technologies proving selection of the best technology/s. | Adequate awareness of technologies to be used and a good evaluation of technologies proving selection of the best technologies. | Moderate awareness of technologies to be used. | Poor or Zero awareness of technologies to be used. | |
| Solution Implementation [Based on LO3] - [5%] | | | | | |
| 5.High-level System Architecture and identification of self-evaluation plan/criteria 50% | Brilliantly justified high-level SA with highly acceptable self-evaluation plan. | Adequately justified high-level SA with acceptable self-evaluation plan. | Barely justified high-level SA with fairly acceptable self-evaluation plan. | Poorly justified or No evidence of High-level SA with inappropriate or No self-evaluation plan. | |
| 6.User Requirements / Functional Requirements 20% | Comprehensive and realistic user requirements and the functional requirements well described. | Comprehensive and realistic user requirements and the functional requirements adequately described. | Comprehensive and realistic user requirements and the functional requirements barely described. | Comprehensive and realistic user requirements and the functional requirements poorly described. | |
| 7.Work Breakdown Structure (WBS) 30% | Comprehensive planning demonstrate in WBS, realistic time estimates and right workload distribution. | Good planning demonstrate in WBS, realistic time estimates and good workload distribution. | Satisfactory planning of WBS, barely feasible time estimates and acceptable workload distribution. | Poor or No planning of WBS, Unrealistic time estimates and unacceptable workload distribution. | |
| Effective Communication [Based on LO4] - [15%] | | | | | |
| 8.Idea delivery 50% | Excellent explanation of proposal content (objectives and methodology etc.), with logical discussion of the system's features. | Sufficiently explained the proposal content (objectives and methodology etc.), with good discussion of system's features. | Proposal content explained but containing some irrelevant information. | Weakly explained the proposal content with lot of irrelevant information. | |
| 9.Structure and mechanics of language 30% | Excellent structure and formatting, meaningful chapters (as recommended) with logical flow. Excellent language usage without grammatical and typographical errors. | Acceptable structure and formatting, meaningful chapters (as recommended) with logical flow. Fairly good language usage with very few grammatical and typographical errors | Poorly designed structure and formatting. Many grammatical and typographical errors. | Unacceptable structure. Very poor writing. | |

| | | | | | |
|---|---|---|---|---|--|
| 10.Referencing (IEEE) 20% | Proper citing and referencing. | Acceptable level of citing and referencing. | Few citations with incorrect referencing. | Very few or No citations and incorrect or No referencing | |
| Ability of commercialization / potential for entrepreneurship [Based on LO5] - [15%] | | | | | |
| 11.Ability of commercialization / potential for entrepreneurship 100% | Demonstrated sound evidence to prove business potential highlighting many achievable user benefits | Sufficient evidence to prove business potential highlighting some achievable user benefits | Few evidence to prove business potential with few user benefits | Very few or No evidence to prove business potential with unachievable or No user benefits | |
| Comments | | | | | |

Co-Supervisor _____ Supervisor _____

B-2: Evaluation rubric for Project proposal presentation

Proposal Presentation Mark Allocation Sheet [Total contribution = 6%]

Student ID:

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|

Student Name: and Group ID

| Sub Assessment Criteria | Excellent (100 - 75) | Good (74 - 60) | Average (59 - 40) | Below Avg. (39 - 0) | Marks [Out of 100] | | |
|---|--|---|---|--|--------------------|--|--|
| Proven gap/Creative Solution [Based on LO1] - [35%] | | | | | | | |
| Knowledge gap (Problem) with novel and creative solution 70% | Clearly argued the existence of knowledge gap using credible, multiple sources. Excellent justification for novelty and creativity. | Sufficiently argued the existence of knowledge gap using limited sources. Good justification for novelty and creativity. | Moderately argued the knowledge gap with very few or no sources. Average justification for novelty and creativity. | Knowledge gap is not clearly identified. Poor or No justification for novelty and creativity. | | | |
| 2.Compare existing systems and related work 30% | Extensively compared the research problem in the present context of the research domain / with similar products and services. | Sufficiently compared the research problem in the present context of the research domain / with similar products and services. | Moderately compared the research problem in the present context of the research domain / with similar products and services | Poorly compared or No comparison has been done | | | |
| Capability in applying the knowledge in particular stream [Based on LO2] - [30%] | | | | | | | |
| Application of key pillars in the specialized area of knowledge 50% | Clearly identified the most appropriate research area (Machine learning, Image processing, Data Science etc.) | Satisfactorily identified the research area. | Vaguely identified. But appropriateness is doubtful. | Indistinctly identified or Not identified. | | | |
| Application of technologies in the relevant key pillar/area 50% | Demonstrated full awareness of technologies in the relevant area and a critical evaluation of technologies proving selection of the best technology/s. | Adequate awareness of technologies to be used and a good evaluation of technologies proving selection of the best technologies. | Moderate awareness of technologies to be used. | Poor or Zero awareness of technologies to be used. | | | |
| Solution Implementation [Based on LO3] - [5%] | | | | | | | |
| High-level System Architecture and identification of self-evaluation plan/criteria 50% | Brilliantly justified high-level SA with highly acceptable self-evaluation plan. | Adequately justified high-level SA with acceptable self-evaluation plan. | Barely justified high-level SA with fairly acceptable self-evaluation plan. | Poorly justified or No evidence of High-level SA with inappropriate or No self-evaluation plan. | | | |
| User Requirements / Functional Requirements 20% | Comprehensive and realistic user requirements and the functional requirements well described. | Comprehensive and realistic user requirements and the functional requirements adequately described. | Comprehensive and realistic user requirements and the functional requirements barely described. | Comprehensive and realistic user requirements and the functional requirements poorly described. | | | |
| Work Breakdown Structure (WBS) 30% | Comprehensive planning demonstrate in WBS, realistic time estimates and right workload distribution. | Good planning demonstrate in WBS, realistic time estimates and good workload distribution. | Satisfactory planning of WBS, barely feasible time estimates and acceptable workload distribution. | Poor or No planning of WBS, Unrealistic time estimates and unacceptable workload distribution. | | | |
| Effective Communication [Based on LO4] - [15%] | | | | | | | |
| Communication skills 60% | Excellent structure and smooth flow of the presentation. Excellent performance at the Q&A session. | Well-developed structure and good flow of the presentation. Good performance at the Q&A session. | Fairly developed structure and the flow of the presentation. Fair performance at the Q&A session. | Poorly developed structure and fragmented flow of the presentation. Poor performance at the Q&A session. | | | |

| | | | | | | | |
|---|--|--|---|---|--|--|--|
| Presentation skills 40% | Excellent stage presence, body language, eye contact, voice projection and clarity. Commendable use of visual aids. Excellent time management. | Good stage presence and body language Use of visual aids Hardly managed the time | Average stage presence with no body language Little or no use of visual aids poor time management | Poor stage presence No use of visual aids Poor time management | | | |
| Ability of commercialization / potential for entrepreneurship [Based on LO5] - [15%] | | | | | | | |
| Ability of commercialization / potential for entrepreneurship 100% | Demonstrated sound evidence to prove business potential highlighting many achievable user benefits | Sufficient evidence to prove business potential highlighting some achievable user benefits | Few evidence to prove business potential with few user benefits | Very few or No evidence to prove business potential with unachievable or No user benefits | | | |
| Comments | | | | | | | |

Examiner

Moderator

Supervisor

B-5: Evaluation rubric for Progress Review 1

| Sub Assessment Criteria | Excellent (100 - 75) | Good (74 - 60) | Average (59 - 40) | Below Avg. (39 - 0) | Marks [Out of 100] |
|---|---|--|--|---|-----------------------|
| Proven gap/Creative Solution [Based on LO1] - [10%] | | | | | |
| Problem definition (30%) | The identified problem is clearly presented referring to the current implementation. | The identified problem is adequately presented referring to the current implementation. | The identified problem is marginally presented referring to the current implementation. | The identified problem is not clearly presented. The current implementation does not help to understand the problem. | |
| Proof of concept (70%) | The current implementation clearly demonstrates proof of concept of the proposed solution. | The current implementation adequately demonstrates proof of concept of the proposed solution. | The current implementation shows some evidence of proof of concept of the proposed solution. | The current implementation lacks evidence of proof of concept of the proposed solution. | |
| Capability in applying the knowledge in particular stream [Based on LO2] - [25%] | | | | | |
| Application of key pillars in the specialized area of knowledge (30%) | The current implementation clearly shows that the most appropriate research/knowledge areas have been identified and are being applied. | The current implementation adequately shows that the most appropriate research/knowledge areas have been identified and are being applied. | The current implementation shows some evidence of application of appropriate research/knowledge areas. The most appropriate research/knowledge areas are not being applied in some parts of the project. | The current implementation shows little or no evidence of application of appropriate research/knowledge areas. | |
| Application of technologies in the relevant key pillar/area (70%) | Technologies being applied are well presented and in-depth knowledge of technologies is demonstrated. | Technologies being applied are adequately presented. An acceptable knowledge of technologies is demonstrated. | Technologies being applied are presented with missing details. Some knowledge of technologies is demonstrated. | Technologies being applied are poorly presented with incomplete/missing details. Knowledge of technologies is poorly demonstrated. | |
| Solution Implementation [Based on LO3] - [40%] | | | | | |
| Design Excellence (30%) | Demonstrated excellent design features | Demonstrated sufficient design features | Demonstrated marginal/minimal design features | Demonstrated poor design features | |
| Completion of prototype/product/research (40%) | Work completed is satisfactory (approximately 50% where applicable) and no identifiable delay as per the project plan | Work completed is acceptable. There are minor delays as per the project plan. Corrective actions have been identified and are being executed. | Work completed is not sufficient. There are some delays as per the project plan. Acceptable corrective actions have been identified. | Work completed is not sufficient. There are major delays as per the project plan. Acceptable corrective actions have not been identified. | |
| Standards/best practices (20%) | Application of appropriate standards/best practices is well demonstrated and clear evidence are present | Application of appropriate standards/best practices is adequately demonstrated and some evidence are present | Application of some standards/best practices is demonstrated. Few evidence are present | Application of standards/best practices is not demonstrated. No evidence. | |
| Risk mitigation (10%) | Project risks and appropriate measures have been clearly identified. Corrective actions are being executed or a comprehensive execution plan exists | Project risks and appropriate measures have been adequately identified. Corrective actions are being executed or a comprehensive execution plan exists | Some project risks have been identified. Acceptable corrective actions are not being executed. An acceptable plan does not exist. | No clear understanding of project risks. An acceptable risk mitigation plan does not exist. | |

| Effective Communication [Based on LO4] - [15%] | | | | | |
|--|--|---|---|---|--|
| Communication skills (60%) | Excellent structure and smooth flow of the presentation. Excellent performance at the Q&A session. | Well developed structure and good flow of the presentation. Good performance at the Q&A session. | Fairly developed structure and the flow of the presentation. Fair performance at the Q&A session. | Poorly developed structure and fragmented flow of the presentation. Poor performance at the Q&A session. | |
| Presentation skills (40%) | Excellent stage presence, body language, eye contact, voice projection and clarity. Commendable use of visual aids. Excellent time management. | Good stage presence and body language Use of visual aids Hardly managed the time | Average stage presence with no body language Little or no use of visual aids poor time management | Poor stage presence No use of visual aids Poor time management | |
| Ability of commercialization / potential for entrepreneurship [Based on LO5] - [10%] | | | | | |
| Ability of commercialization / potential for entrepreneurship (100%) | Demonstrated sound evidence to prove business potential highlighting many achievable user benefits. | Sufficient evidence to prove business potential highlighting some achievable user benefits. | Few evidence to prove business potential with few user benefits. | Very few or No evidence to prove business potential with unachievable or No user benefits. | |
| Comments | | | | | |
| Recommend for NBQSA (Yes/No) | | | | | |

Examiner

Moderator

Supervisor

B-6 : Evaluation rubric for Progress Review 2

| Sub Assessment Criteria | Excellent (100 - 75) | Good (74 - 60) | Average (59 - 40) | Below Avg. (39 - 0) | Marks [Out of 100] |
|---|--|---|--|---|--------------------------|
| Proven gap/Creative Solution [Based on LO1] - [10%] | | | | | |
| Problem definition (30%) | The identified problem is clearly presented referring to the current implementation. | The identified problem is adequately presented referring to the current implementation. | The identified problem is marginally presented referring to the current implementation. | The identified problem is not clearly presented. The current implementation does not help to understand the problem. | |
| Transfers the prototype model into functional units (70%) | A clear justification of how the prototype model is transferred into the current implementation. | An adequate justification of how the prototype model is transferred into the current implementation. | Some evidence of how the prototype model is transferred into the current implementation. | A poor or no justification of how the prototype model is transferred into the current implementation. | |
| Capability in applying the knowledge in particular stream [Based on LO2] - [20%] | | | | | |
| Application of key pillars in the specialized area of knowledge (30%) | The current implementation shows the use of extensive knowledge in the most appropriate research/knowledge areas. | The current implementation shows the use of adequate knowledge in the most appropriate research/knowledge areas. | The current implementation shows the use of some knowledge in the most appropriate research/knowledge areas. | The current implementation shows the use of little or no knowledge in the most appropriate research/knowledge areas. | |
| Application of technologies in the relevant key pillar/area (70%) | Technologies being applied are well presented and in-depth knowledge of technologies is demonstrated. | Technologies being applied are adequately presented. An acceptable knowledge of technologies is demonstrated. | Technologies being applied are presented with missing details. Some knowledge of technologies is demonstrated. | Technologies being applied are poorly presented with incomplete/missing details. Knowledge of technologies is poorly demonstrated. | |
| Solution Implementation [Based on LO3] - [40%] | | | | | |
| Design Excellence (30%) | Demonstrated excellent design features. | Demonstrated sufficient design features. | Demonstrated marginal/minimal design features. | Demonstrated poor design features. | |
| Completion of product/research (40%) | Work completed is satisfactory (approximately 90% where applicable) and no identifiable delay as per the project plan. | Work completed is acceptable. There are minor delays as per the project plan. Corrective actions have been identified and are being executed. | Work completed is not sufficient. There are some delays as per the project plan. Acceptable corrective actions have been identified. | Work completed is not sufficient. There are major delays as per the project plan. Acceptable corrective actions have not been identified. | |
| Standards/best practices (20%) | Application of appropriate standards/best practices is well demonstrated and clear evidence are present. | Application of appropriate standards/best practices is adequately demonstrated and some evidence are present. | Application of some standards/best practices is demonstrated. Few evidence are present. | Application of standards/best practices is not demonstrated. No evidence. | |
| Professional, legal, social, security and ethical issues (5%) | Professional, legal, social, security and ethical issues have been clearly identified. | Professional, legal, social, security and ethical issues have been adequately identified. | Some professional, legal, social, security and ethical issues have been identified. | Poor understanding of Professional, legal, social, security and ethical issues. | |
| Nonfunctional requirements (5%) | Clearly demonstrated the non functional requirement of the project. | Adequately demonstrated the non functional requirement of the project. | Demonstrated some non functional requirement of the project. | Little or no demonstration of non functional requirement of the project. | |

| Effective Communication [Based on LO4] - [15%] | | | | | |
|--|--|---|---|---|--|
| Communication skills (60%) | Excellent structure and smooth flow of the presentation. Excellent performance at the Q&A session. | Well developed structure and good flow of the presentation. Good performance at the Q&A session. | Fairly developed structure and the flow of the presentation. Fair performance at the Q&A session. | Poorly developed structure and fragmented flow of the presentation. Poor performance at the Q&A session. | |
| Presentation skills (40%) | Excellent stage presence, body language, eye contact, voice projection and clarity. Commendable use of visual aids. Excellent time management. | Good stage presence and body language Use of visual aids Hardly managed the time | Average stage presence with no body language Little or no use of visual aids poor time management | Poor stage presence No use of visual aids Poor time management | |
| Ability of commercialization / potential for entrepreneurship [Based on LO5] - [15%] | | | | | |
| Commercialization / potential for entrepreneurship (100%) | Demonstrated sound evidence to prove business potential highlighting many achievable user benefits. | Sufficient evidence to prove business potential highlighting some achievable user benefits. | Few evidence to prove business potential with few user benefits. | Very few or No evidence to prove business potential with unachievable or No user benefits. | |
| Comments | | | | | |

Examiner

Moderator

Supervisor

B-7: Guidelines for evaluating the research paper

| | Type of Conference/Journal | Nature | Marks |
|---|---|------------|-------|
| 1 | Peer reviewed international conference with H-index 5 or above | Full paper | 10 |
| | | Poster | 08 |
| 2 | Peer reviewed any conference with H-index 01- 04 | Full paper | 09 |
| | | Poster | 07 |
| 3 | International or National Conferences conducted/organized by SLIIT (if it is not in the categories 1 and 2 above) | Full paper | 08 |
| | | Poster | 06 |
| 4 | SLIIT Students Research Symposium | Full paper | 07 |
| | | Poster | 05 |
| 5 | Any other conference/symposium | Full paper | 04 |
| | | Poster | 02 |
| 6 | Peer reviewed Journal (It is a must to submit acceptance letter with acceptable review comments including relevant dates: Submitted, Revised and Accepted). If not, no marks will be granted. | Full paper | 10 |
| 7 | Peer reviewed Journal (Submitted, but has not received the acceptance letter. It is a must to submit the paper submission acknowledgement letter and supervisor's comments about the standard of the research paper). If not, no marks will be granted. | Full paper | 4 |

B-8: Evaluation rubric final presentation

| Sub Assessment Criteria | Excellent (100 - 75) | Good (74 - 60) | Average (59 - 40) | Below Avg. (39 - 0) | Marks [Out of 100] |
|--|--|---|--|--|--------------------------|
| Proven gap/Creative Solution [Based on LO1] - [5%] | | | | | |
| Problem definition (30%) | The identified problem is clearly presented referring to the current implementation. | The identified problem is adequately presented referring to the current implementation. | The identified problem is marginally presented referring to the current implementation. | The identified problem is not clearly presented. The current implementation does not help to understand the problem. | |
| Transfers the prototype model into functional units (70%) | The product implementation clearly demonstrate proof of concept of the proposed solution. | The product implementation adequately demonstrate proof of concept of the proposed solution. | The product implementation shows some evidence of proof of concept of the proposed solution. | The product implementation lacks evidence of proof of concept of the proposed solution. | |
| Capability in applying the knowledge in particular stream [Based on LO2] - [5%] | | | | | |
| Application of key pillars in the specialized area of knowledge (30%) | The current implementation shows the use of extensive knowledge in the most appropriate research/knowledge areas. | The current implementation shows the use of adequate knowledge in the most appropriate research/knowledge areas. | The current implementation shows the use of some knowledge in the most appropriate research/knowledge areas. | The current implementation shows the use of little or no knowledge in the most appropriate research/knowledge areas. | |
| Application of technologies in the relevant key pillar/area (70%) | Technologies being applied are well presented and indepth knowledge of technologies is demonstrated. | Technologies being applied are adequately presented. An acceptable knowledge of technologies is demonstrated. | Technologies being applied are presented with missing details. Some knowledge of technologies is demonstrated. | Technologies being applied are poorly presented with incomplete/missing details. Knowledge of technologies is poorly demonstrated. | |
| Solution Implementation [Based on LO3] - [50%] | | | | | |
| Design Excellence (30%) | Demonstrated excellent design features. | Demonstrated sufficient design features. | Demonstrated marginal /minimal design features. | Demonstrated poor design features. | |
| Completion of product/research (40%) | Product is completed fully as specified in prior in the project proposal. | Work completed is acceptable even though minor functionalities which does not affect the overall functionality are not completed. | Work completed is not sufficient with few key functionalities not been implemented properly. | Work completed is not sufficient with several core functionalities not implemented properly. | |
| Standards/best practices (20%) | Application of appropriate standards/best practices is well demonstrated and clear evidence are present. | Application of appropriate standards/best practices is adequately demonstrated and some evidence are present. | Application of some standards/best practices is demonstrated. Few evidence are present. | Application of standards/best practices is not demonstrated. No evidence. | |
| Professional, legal, social, security and ethical issues (5%) | Professional, legal, social, security and ethical issues have been clearly identified and addressed properly in the solution implementation. | Professional, legal, social, security and ethical issues have been adequately identified and addressed sufficiently in the solution implementation. | Some professional, legal, social, security and ethical issues have been identified and addressed in the solution implementation. | Little or no professional, legal, social, security and ethical issues have been identified. | |
| Nonfunctional requirements (5%) | Non-functional requirements related to | Non-functional requirements related to | Some non-functional requirements related to | Little or no non-functional requirements related to project | |

| | | | | | |
|---|--|--|---|---|--|
| | project are clearly identified and addressed, | project are adequately identified and addressed, | project are identified and addressed, | are identified and addressed, | |
| Effective Communication [Based on LO4] - [20%] | | | | | |
| Communication skills (60%) | Excellent structure and smooth flow of the presentation. Excellent performance at the Q&A session. | Well-developed structure and good flow of the presentation. Good performance at the Q&A session. | Fairly developed structure and the flow of the presentation. Fair performance at the Q&A session. | Poorly developed structure and fragmented flow of the presentation. Poor performance at the Q&A session. | |
| Presentation skills (40%) | Excellent stage presence, body language, eye contact, voice projection and clarity. Commendable use of visual aids. Excellent time management. | Good stage presence and body language Use of visual aids Hardly managed the time | Average stage presence with no body language Little or no use of visual aids poor time management | Poor stage presence No use of visual aids Poor time management | |
| Ability of commercialization / potential for entrepreneurship [Based on LO5] - [20%] | | | | | |
| Commercialization / potential for entrepreneurship (100%) | Demonstrated sound evidence to prove business potential of the project and have clearly planned how the product is to be commercialized. | Provided sufficient evidence to prove business potential of the projects and sufficient planning has been done on how the product would be commercialized. | Few evidence to prove business potential of the project and plan to commercialize the product. | Very few or no evidence to prove the business potential of the product and plan to commercialize the product. | |
| Comments | | | | | |

Examiner

Moderator

Supervisor

B-9: Evaluation Rubric for Final viva

| Sub Assessment Criteria | Excellent (100 - 75) | Good (74 - 60) | Average (59 - 40) | Below Avg. (39 - 0) | Marks [Out of 100] | |
|---|---|--|--|---|--------------------|--|
| Proven gap/Creative Solution [Based on LO1] - [15%] | | | | | | |
| Knowledge gap (60%) | Has collected substantial amount of literature to justify the gap. Exhibited thorough knowledge on them to justify the gap. | Has collected many literature to justify the gap. Exhibited fair knowledge has gathered to justify the gap. | Has collected some literature relevant to research work. Can justify the work done has been derived from literature. | Has collected only few or no literature to justify the gap. Unable to give evidence to justify the gap. | | |
| Novelty and creativity (40%) | Distinguish the outcome from many existing solutions. New features justify the design excellence. | Distinguish the outcome from some existing solutions. New features makes a better solution than existing ones. | Compares with one or two other systems. Few new features were shown. | Poor comparison with existing solutions. New features are not convincing. | | |
| Capability of applying the knowledge in particular stream [Based on LO2] - [30%] | | | | | | |
| General domain knowledge (40%) | Shows thorough, in depth understanding of the domain. Well described the domain and the problem in succinct manner. | Shows good understanding of the domain. Able to describe the domain and problem in the context. | Shows shallow understanding of the domain. Able to connect problem to the domain. | Does not have proper understanding about the domain. Unable to connect problem to the domain. | | |
| Specific domain knowledge (60%) | Described comprehensively, how specific techniques have been developed and used to solve the problem. Can describe alternatives. | Described how specific techniques have been modified and used to solve the problem. Can mention alternatives. | Knows how specific techniques have been used to solve the problem. Know availability of alternatives. | Unable to explain how techniques have been developed to solve the problem at hand. Unaware of other alternatives. | | |
| Solution Implementation [Based on LO3] - [40%] | | | | | | |
| Use of Technology (60%) | Used latest and appropriate technology to develop the solution. Can justify the selected technologies. | Used an appropriate technology to develop the solution. Describe the alternative technologies. | Used a technology which is suitable to develop the solution. Aware of alternatives. | Used a technology which is comfortable. Unable to justify the selected technology. Unaware of alternative technologies. | | |
| Use of Best Practices (40%) | Confidently described how the latest industry practices were employed to design, develop, and maintain the software/solution development. Can justify the methods used. | Fairly described how the industry practices were employed to design, develop, and maintain the software/solution development. Can describe advantageous of the methods used. | Can mention the industry practices employed to design, develop, and maintain the software/solution development. Describe the methods used. | Described an ad-hoc methods to design, develop, and maintain the software/solution development. Unable to describe advantageous over other methods. | | |
| Effective Communication [Based on LO4] – [15%] | | | | | | |
| Responsiveness (40%) | Answers flow naturally. Knowledgeable about the problem solved. Student provided direct and in depth answers. | Answers flow naturally. But, takes time to articulate answers. Student provided direct but shallow answers. | Answers do not flow naturally. Takes time to articulate ideas. Answers are verbose but align with the work done. | Answers do not flow naturally. Takes time to articulate ideas. Answers are verbose and do not align with the work done. | | |

| | | | | | | |
|--------------------------|---|--|---|--|--|--------------|
| Language skills (30%) | Speaks grammatically correct sentences. | Makes few mistakes during the conversation. | Makes many mistakes during the conversation. | Conversation has lot of mistakes and word selection is poor. | | |
| Confidence (30%) | Shows very confident. Excellent eye contact when answering questions. | Shows confident. Good eye contact while answering questions. | Student does not show confidence. Poor eye contact while answering questions. | Student does not show confidence. Student does not maintain eye contact. | | |
| Comments | | | | | | |
| | | | | | | Total |

Examiner

Moderator

Supervisor

B-10: Evaluation rubric for Final thesis

| Sub Assessment Criteria | Excellent (100 - 75) | Good (74 - 60) | Average (59 - 40) | Below Avg. (39 - 0) | Marks (Out of 100) |
|---|--|--|--|--|-----------------------|
| Proven gap/Creative Solution [Based on LO1] - [10%] | | | | | |
| Literature survey with a comparison of similar work (50%) | Excellent use of the literature based on many credible sources to identify the gap. | Good use of the literature based on some credible sources to identify the gap | Average use of the literature to identify the gap | Poor/No use of the literature to identify the gap | |
| Research problem is identified with a knowledge gap (50%) | Completely new idea with an excellent justification for novelty. Research problem and the objectives are mentioned clearly | Improved solution for an existing problem. Good justification for novelty. Research problem and the objectives are mentioned sufficiently. | Some novelty with an average justification. Research problem and the objectives are mentioned poorly | Very less / No novelty with poor/No justification. Research problem and the objectives are unacceptable | |
| Capability in applying the knowledge in particular stream [Based on LO2] - [10%] | | | | | |
| Application of key pillars in the specialized area of knowledge (100%) | Use of extensive Use in knowledge in the research/knowledge the research/knowledge | of adequate knowledge in most the most appropriate areas in research/knowledge areas the final product the | Use of some knowledge in the most appropriate the areas in final product final product | Use of little or no knowledge most appropriate appropriate research/knowledge areas in in the final product | |
| Solution Implementation [Based on LO3] - [45%] | | | | | |
| High level view of the system design (25%) | Excellent demonstration of the system design showing the major components and their relationships with each other Excellent demonstration of the communication with external interfaces | Adequate demonstration of the system design showing the major components and their relationships with each other Good demonstration of the communication with external interfaces | Average demonstration of the system design showing the major components and their relationships with each other Average demonstration of the communication with external interfaces | Poor demonstration of the system design showing the major components and their relationships with each other Poor demonstration of the communication with external interfaces | |
| Use of appropriate tools, technologies and design techniques in the development with a proper justification (35%) | Excellent use of appropriate technologies with proper justification Excellent use of development framework tools | Adequate use of appropriate technologies with proper justification Adequate use of development framework tools | Average use of appropriate technologies with proper justification Average use of development framework tools | Poor use of appropriate technologies with proper justification Poor use of development framework tools | |
| Completeness of the functional/non- functional requirements (35%) | Covers all key functional /non- functional requirements Covers all scenarios in test cases | Covers sufficient key functional /non- functional requirements Covers sufficient scenarios in test cases | Covers some key functional /non-functional requirements Covers some scenarios in test cases | Covers few/no key functional /non-functional requirements Covers few/no scenarios in test cases | |
| Consideration of social, security and ethical aspects of the system and | Covers all social, security and ethical aspects and limitations | Covers sufficient social, security and ethical aspects and limitations | Covers some social, security and ethical aspects and limitations | Covers few/no social, security and ethical aspects and limitations | |

| | | | | | |
|---|--|--|--|--|--|
| the limitations (5%) | | | | | |
| Effective Communication [Based on LO4] - [20%] | | | | | |
| Idea delivery (50%) | Excellent explanation of the report content | Sufficiently explained the report content | Report content explained but containing some irrelevant information | Weakly explained the report content with lot of irrelevant information | |
| Structure and mechanics of language (30%) | Excellent structure and formatting , meaningful chapters (as recommended) with logical flow Excellent language usage without grammatical and typographical errors | Acceptable structure and formatting , meaningful chapters (as recommended) with logical flow •Fairly good language usage with very few grammatical and typographical errors | Poorly designed structure and formatting. Many grammatical and typographical errors | Unacceptable structure. Very poor writing | |
| Referencing (IEEE) (20%) | Proper citing and referencing. | Acceptable level of citing and referencing | Few citations with incorrect referencing | Very few/ no citations and incorrect or No referencing | |
| Ability of commercialization / potential for entrepreneurship [Based on LO5] - [15%] | | | | | |
| Commercialization / potential for entrepreneurship (100%) | Sound evidences to prove commercialization of the product | Sufficient evidences to prove commercialization of the product | Average evidences to prove commercialization of the product | Poor/no evidences to prove commercialization of the product | |
| Comments | | | | | |

Moderator/ Co - Supervisor

Supervisor

B-11: Guidelines for marking project status document

Project Status Document up to SRS

Project No.:

Student No.....

| Item No | Description | MAX. MARKS ENTITLED | MARKS GIVEN | REMARKS |
|---------|--|---------------------|-------------|---------|
| 1 | Updated Gantt chart of finalize Design & implementation phases | 25 marks | | |
| 2 | Reflect actual time with respect to predicted (estimated) time & how user-workload (work breakdown structure) to achieve deadlines. (Eg: once user completes allocated tasks, free users should be assigned for remaining tasks. This is in order to maximize resource utilization to achieve deadline.) | 25 marks | | |
| 3 | Finalize work breakdown structure & allocates resources for each areas. | 25 marks | | |
| 4 | Project management tool (generate Reports). <ul style="list-style-type: none">• Should include milestones.• Test results & how system testes.• User-task allocation details.• Documentation work. | 25 marks | | |
| | Total | 100 marks | | |

Project Status Document from SRS to Completion.

(Project Management tool outcome reflections)

Project No.:

Student No.....

| Item No | Description | MAX. MARKS ENTITLED | MARKS GIVEN | REMARKS |
|---------|--|---------------------|-------------|---------|
| 1 | Updated Gantt chart of finalize Design & implementation phases | 25 marks | | |
| 2 | Reflect actual time with respect to predicted (estimated) time & how user-workload (work breakdown structure) to achieve deadlines. (Eg: once user completes allocated tasks, free users should be assigned for remaining tasks. This is in order to maximize resource utilization to achieve deadline.) | 25 marks | | |
| 3 | Finalize work breakdown structure & allocates resources for each areas. | 25 marks | | |
| 4 | Project management tool (generate Reports). <ul style="list-style-type: none">• Should include milestones.• Test results & how system testes.• User-task allocation details.• Documentation work. | 25 marks | | |
| | Total | 100 marks | | |

Supervisor

B-12: Evaluation rubric for Log book

RP (IT4010) – Research Log Book Mark Sheet [Total Contribution = 2%]

Group ID:

Student ID:

Number of dates defined for the supervisor visit are 14 for this year (every other week).

1. Number of actual dates participated for the year

2. Whether the student has actively participated in each visit?

| | |
|-----|----|
| Yes | No |
|-----|----|

3. His/ Her contribution to the project a. 1 – Very good

b. 2 – Good

c. 3 – Average

d. 4 – Poor

e. 5 – Very poor

4. Whether he/ she has maintained a research log book?

| | |
|-----|----|
| Yes | No |
|-----|----|

5. Student's marks for research log book (**out of 100**)

Name of the supervisor

Signature and date

B-13: Evaluation rubric for website**RP (IT4010)-Website –Mark Sheet (Total contribution = 2%)****Project ID:****Student ID:****Student Name:**

| | Criteria | Yes | No |
|------------------------------------|--|------------|-----------|
| 1 | The website contains all relevant details of research and well informative | | |
| 2 | Use of suitable technologies to develop the website | | |
| 3 | Capacity of the website is under the defined size | | |
| Marks Granted for the group | | % | |

Remarks

-

Moderator

-

Examiner

APPENDIX C – Document Formats

Guidelines on Documentation and Submissions of Dissertations

1. Introduction for the common sections and the necessary guidelines

All undergraduate students at the SLIIT should follow the under mentioned instructions before preparation of their proposal or Final dissertation report

None of these reports will not be accepted if the students have not prepared the documents according to these guidelines. The sections that should be included only into the proposal document are highlighted in this color.

There is a sample Proposal template is given in the Appendix C1 and the Dissertation template and the guidelines are given in the Appendix C2.

1.1 Page Formatting

1.1.1 **General Instructions:** International A4 white paper of good quality (80 gsm) should be used. Other paper may be used if required (e.g.: for maps) on the instructions of the supervisor.

1.1.2 **Submission:** The document should be word processed and double sided. One and a half line spacing is required, except for the abstract, tables and indented quotations where single line spacing may be used.

1.1.3. **Fonts:** A conventional font type must be used and text should be in “**Times New Roman.**”

- Chapter heading : All Capital—14 Font size, Bold
- Section heading : Title case-12 Font size, Bold
- Sub-section heading :Sentence case-12 Font size, Bold
- Body text : Sentence case - 12 Font size
- Tables and Illustrations : Font size may be varied while maintaining legibility

1.1.4. **Margins** of 40 mm on left & bottom and 25 mm on top & right should be used (Refer Appendix CI).

2. Pagination

Each page should have page numbers except the “**Title**” page. Lower case **Roman numerals** should be assigned centered at the bottom of the page to all “**preliminary pages**” (Refer Appendix CII; i - ix in content page). Pagination of the body text and appendices is to be in **Arabic numerals** centered at the right bottom of the page. The pagination begins with the first page of the first chapter and continues throughout the rest of the text.

3. Tables and Illustrations

Tables are grids consisting of columns and rows that present numerical or verbal facts by categories. Figures include charts, graphs, diagrams, photographs, maps, musical examples, drawings and other images. All these types of nontextural material are collectively referred to as illustrations. **All tables and figures must be referred to in the text by number (not by a phrase such as "the following table")**. Charts, graphs, maps, and tables that are larger than the standard page should be attached as Appendices. Furthermore, the tables figures should be center aligned and placed either at the top of the page or the bottom of the page. Figure captions should be in Times New Roman, 10 font size below the figure, as illustrated in Figure 1. Where as the table captions should be placed top of the table, as shows in Table 1.

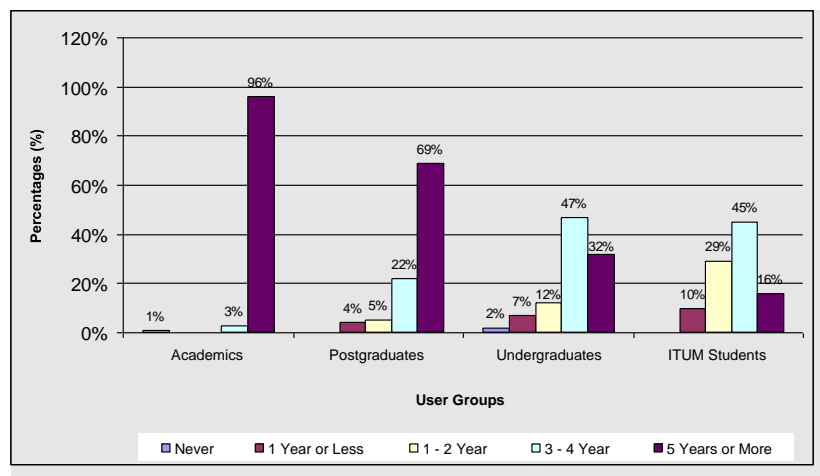


Figure 1: The Internet experience of the participants

Source: (if any)

Table 1: Kruskal-Wallis Test results for the Internet experience vs. user category

| User Category | N | Median | Ave Rank | Z |
|----------------|-----|--------|----------|-------|
| Academics | 73 | 5.000 | 233.5 | 6.90 |
| Postgraduates | 87 | 5.000 | 189.9 | 2.78 |
| Undergraduates | 139 | 4.000 | 130.1 | -5.75 |
| ITUM Students | 31 | 4.000 | 95.5 | -4.29 |
| Overall | 330 | | 165.5 | |

4. Photographs

High-quality colored or black-and-white photographs or reprints with sufficient clarity may be incorporated. Photographs with glossy finish and dark backgrounds should be avoided where possible. State 'Original in Color' in the title where color is used.

5. Binding

Use normal stapler binding for the proposal documents, if the supervisor requested a hard copy. Otherwise you have to upload the document to the given cloud space.

- 5.1. Hard bound dissertation should follow the formatting and the binding guidelines given in the “thesis dissertation example.docx”.

Sections that Must be there in the Proposal/ Dissertation

NOTE: The sections that should be included only into the proposal document are highlighted in this color.

- i. Title page
- ii. Declaration
- iii. Abstract
- iv. Acknowledgement/Dedication
- v. Table of contents
- vi. List of Tables
- vii. List of Figures
- viii. List of Abbreviations
- ix. Introduction
 - a. Background Literature
 - b. Research Gap
- x. Research Problem
- xi. Research Objectives
- xii. Methodology
 - a. Methodology including the system diagram (You may use subsections as needed)
 - b. Commercialization of the Product
- xiii. Software Specifications, Research Review or Design Components
- xiv. Budget and Budget Justification (if any)
- xv. Testing & Implementation Results & Discussion (This section is not needed in the Proposal report)
 - a. Results
 - b. Research Findings
 - c. Discussion
 - d. Summary of Each Student's contribution
- xvi. Conclusions
- xvii. References
- xviii. Glossary
- xix. Appendices (no limit)

1. Cover

A sample cover page is available in both Proposal and dissertation appendixes necessarily.

2. Title Page

First page should be the title page It should contain.

- The Title
- Project ID
- ‘Project Proposal Report/ Final Project Thesis’
- Authors’ Full Names, Student IDs
- Names of the Supervisors
- Official Name of the Degree
- Official Name of the Department of the University
- The Month and Year of Submission

3. Declaration, copyright statement and the statement of the supervisor (This section is only needed for the Dissertation)

“I declare that this is our own work and this proposal does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any other university or Institute of higher learning and to the best of our knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

Also, I hereby grant to Sri Lanka Institute of Information Technology, the nonexclusive right to reproduce and distribute my dissertation, in whole or in part in print, electronic or other medium. I retain the right to use this content in whole or part in future works (such as articles or books).”

| Name | Student ID | Signature |
|------|------------|-----------|
| | | |
| | | |
| | | |

| | | |
|--|--|--|
| | | |
|--|--|--|

The supervisor/s should certify the proposal report with the following declaration.

The above candidates are carrying out research for the undergraduate Dissertation under my supervision.

Signature of the supervisor:

Date

4. In the acknowledgement section, the student is required to declare the extent of assistance which has been given by his/her faculty/department staff, fellow students & external bodies or others in the collection of materials and data, the design & construction of apparatus, the analysis of data and preparation of the dissertation. If the research was sponsored, it is necessary to mention the name of the funding organization and other details (if any). In addition, it is appropriate to highlight the supervision and advice given by the dissertation supervisor.

5. Abstract

Individual copies of all authors must have an abstract reflecting the research done. Abstracts must provide a brief introduction to the subject in addition to the concise summary of methodology, anticipate test results, conclusions and recommendations (300 words or less).

Abstract Title : Title case/Times New Roman 12 point Bold (If use other fonts,
Change the size appropriately)

Text : Times New Roman 11 point Light.

Spacing : Single line

6. Table of contents

All the main sections and subsections of each chapter must be included in the table of contents with their page numbers. The page numbers of abstracts, and others which come first in the proposal report should also be included. Also, if there are any appendices, should be included in the table of contents.

7. List of figures

If the proposal report contains any figures then separate list should be prepared including the name of the object and the page number. The chapter number should be included in defining the number of figures.

8. List of tables

If the proposal Report contains any tables then separate list should be prepared including the name of the object and the page number. The chapter number should be included in defining the number of tables.

9. List of abbreviations

Abbreviations must follow the International standards. When an abbreviation is used in first time, it must be explained in the text. A separate list should be prepared for all abbreviations used in dissertation with their full meaning. The abbreviations in the list should be arranged according to the alphabetical order.

10. Introduction

The report should with an introduction and the last part of the report should include the anticipated conclusions and recommendations. All the chapters of report should have a title and a chapter number. Any new chapter should be started in a new page.

11. Background & Literature survey

This section should elaborate the background information related to the research project.

12. Research Gap

This section must provide the evidences related to the existing solutions and should do a thorough comparison to highlight the novelty of the solution you are proposing.

13. Research Problem

This section should explain the research problem and the specific research questions you are trying to solve in detail. The necessary references should be given to improve the clarity of the problem definition.

14. Objectives

14.1 Main Objective

14.2 Specific Objectives

This section should be dedicated to state the main and the specific objectives of the proposal. The objectives should be clearly show that the research problem and the questions are addressed, and you have the motivation to solve them. The objectives you set here should be tested and discussed in the section 15. Main objective of your research project states what you expect to achieve in general terms. Specific objectives break down the main objective into smaller, logically connected parts that systematically address the various aspects of the problem leading to the main objective. Your specific objectives should specify exactly what you will do in each component of your study, how, where, when and for what purpose.

15. Methodology

The methodologies to achieve the objectives stated in the section 13 should be explained in the methodology section. However, in the proposal document, you might not be able to give an extensive explanation of the methodologies. Yet, a tentative methodology should be there to convince feasibility of the proposed solution. Thus section should explain the equations, algorithms, and the scenarios. Moreover, the section should elaborate the methods used for the data collection.

16. Test Results and the Discussion (This section is not needed to the Proposal report)

This section should contain all the necessary details of the case studies, testing, environments, simulations, evaluations, and all the test results to prove you have achieved your objectives and the research problem is solved as you have explained. Moreover, this section should justify the results you have obtained through a comprehensive discussion.

17. Description of Personal and Facilities

This section should include the facilities and the personal support you require to achieve your objectives.

18. Software Specifications, Research Review or Design Components

Depending on the advice of the supervisor you should decide the type of the user requirements, design requirements, and the review. Based on that you have to select a template from SRS, DD, or RRD and have to add the necessary section as sub sections for this section.

Subsections must be included into is as following table (Select appropriately with the guidance of the supervisor

Table 2 Software Specifications, Research Review or Design Components

| SRS (For Software oriented Projects) | DD (For Hardware oriented projects) | RRD |
|---|--|---|
| 1 User interfaces | 1 User interfaces | 1. Sources for test data and analysis, 1.1 Data collection procedures to be used 1.2 Data analysis methods to be used |
| 2 Hardware interfaces | 2 Hardware interfaces | 2. Anticipated benefits 2.1 Benefits to users 2.2 Contribution to the body of knowledge |
| 3 Software interfaces | 3 Software interfaces | 3.Scope and specified deliverables / expected research outcome 3.1 Explain what the software product(s) will do, and, if |

| | | |
|--|--|--|
| | | necessary, will not do |
| 4.Communication interfaces | 4 Communication interfaces | 4. Research constraints (if any) 4.1 All conditions that may limit developer's options. |
| 5 Classes/Objects < For Software Dev. Oriented Projects> | 5 Architectural Design <For Embedded System related Projects > 5.1 High level Architectural Design 5.2 Hardware and software requirements with justification 5.3 Risk Mitigation Plan with alternative solution identification 5.4 Cost Benefit Analysis for the proposed solution | 5. Project plan or schedule The timeline that indicates the time frame within which various parts of the research will be completed. The value of including this is that it demonstrates the feasibility of the research. |
| 6 Performance requirements | 6 Performance requirements | |
| 7 Design constraints | 7 Design constraints | |
| 8 Software system attributes 8.1 Reliability 8.2 Availability 8.3 Security 8.4 Maintainability | | |
| 9. Other requirements | | |

19. Budget and Budget Justification (if any)

20. Reference list

A reference list¹ is the list of all books, articles, and other source of materials, which were referred and should be listed according to the international referencing method adopted. APA Style and IEEE Style are recommended. You may refer the reference [1] for the IEEE style and you must follow the guidelines when referring the research works, webpages, etc. Each reference entry should be single-spaced with double spacing between entries.

NOTE: The ‘Reference list’ does not contain a chapter number.

References

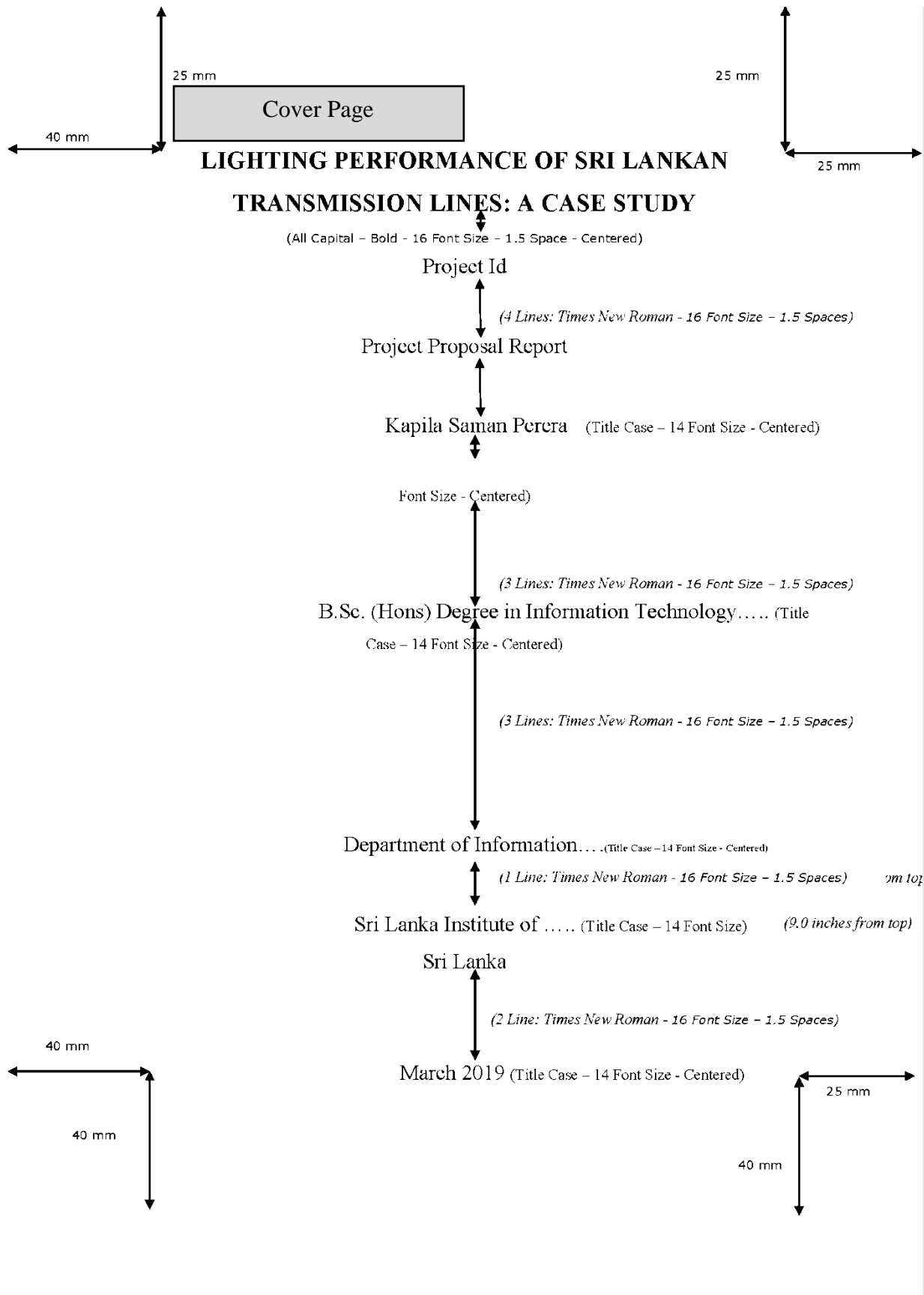
[1] IEEE Data Port, "How to Cite References: IEEE Documentation Style", <https://iee-dataport.org>, [Online]. Available: <https://bit.ly/2BTSKg2>.

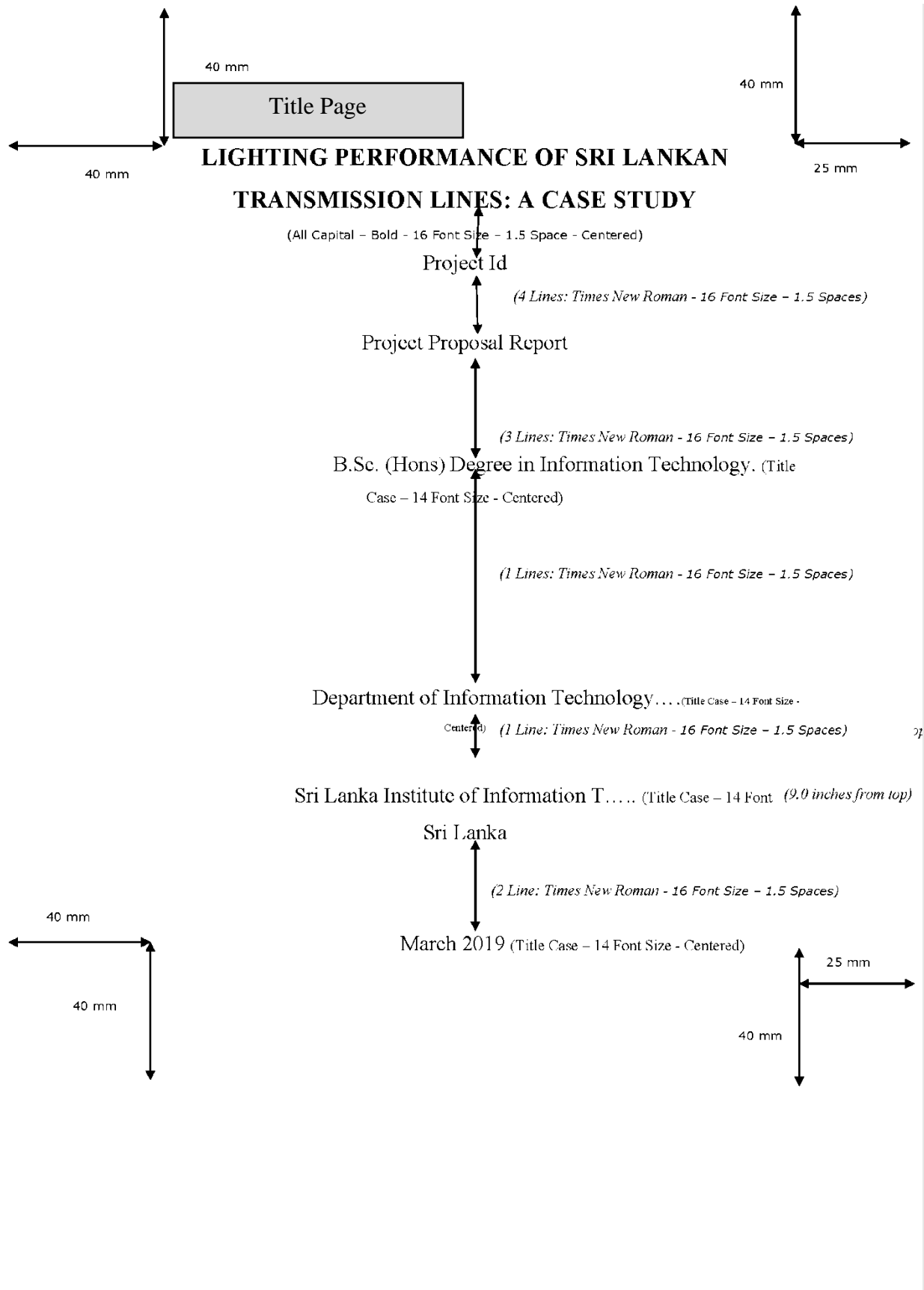
21. Appendices

Supplementary material could be included as Appendices rather than in the main text. For example, Appendices may contain questionnaires, detailed descriptions on apparatus, extensive tables of raw data, source code etc. All appendices must have page numbers written in the same type face and size used for pagination throughout.

If appendices contain photocopied material, the photocopies should be of letter quality.

APPENDIX C1
Proposal Template





Content Page

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[List of Abbreviations]

LIST OF ABBREVIATIONS

| Abbreviation | Description |
|--------------|--|
| ACM | Association for Computing Machinery |
| IEEE | Institute of Electrical and Electronic Engineers |
| OPAC | Online Public Access Catalogue |

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APPENDIX C2

Final Dissertation template and necessary guidelines

Sri Lanka Institute of Information Technology
Guidelines on Documentation and Submission of Dissertations

INTRODUCTION

A dissertation is an essay advancing a new point of view resulting from research as a requirement for a Bachelor degree

All Undergraduate students at the SLIIT should follow the under mentioned instructions before preparation of their dissertations.

The final copies of the dissertations will not be accepted if the students have not prepared the dissertation according to these guidelines.

Common Instructions

01. Number of Copies and the methods of submissions

Student must submit printed copies as follows;

Draft: One set of copies (1 group report and 4 individual summary reports). The Draft copy should be shared with your supervisor either using the assigned cloud space or as a “stapled” hard copy. The RP team will share the soft copy with the blind reviewer.

Final (soft bound): One set of copies (1 group report and 4 individual summary reports) have to be submitted through the assigned cloud space.

Final (Hard bound): One group report and four individual reports have to prepare using the following instructions and submit it to the RP team..

02. Page Format

2.1. **General Instructions:** International A4 white paper of good quality (80 gsm) should be used. Other paper may be used if required (e.g.: for maps) on the instructions of the supervisor.

2.2 **Draft:** The draft to be submitted to the supervisor should be word processed and double sided. One and a half line spacing is required, except for the abstract, tables and indented quotations where single line spacing may be used.

2.3 **Final Submission:** Final submission should be word processed and single sided. One and a half line spacing is required, except for the abstract, tables and indented quotations where single line spacing may be used.

2.4. **Fonts:** A conventional font type must be used, and text should be in **Times New Roman**.

- Chapter heading :All Capital—14 Font size, Bold
- Section heading :Title case-12 Font size, Bold
- Sub-section heading :Sentence case-12 Font size, Bold
- Body text :Sentence case - 12 Font size
- Tables and Illustrations : Font size may be varied while maintaining legibility

2.5. Margins of 40 mm on left & bottom and 25 mm on top & right should be used (Refer Appendix I).

03. Pagination

Each page should have page numbers except the “Title” page. Lower case **Roman numerals** should be assigned centered at the bottom of the page to all “preliminary pages” (Refer Appendix II; i - ix in content page). Pagination of the body text and appendices is to be in **Arabic numerals** centered at the right bottom of the page. The pagination begins with the first page of the first chapter and continues throughout the rest of the text.

04. Tables and Illustrations

Tables are grids consisting of columns and rows that present numerical or verbal facts by categories. Figures include charts, graphs, diagrams, photographs, maps, musical examples, drawings and other images. All these types of nontextural material are collectively referred to as illustrations. **All tables and figures must be referred to in the text by number (not by a phrase such as "the following table").** Charts, graphs, maps, and tables that are larger than the standard page should be attached as Appendices. Furthermore, the tables figures should be center aligned and placed either at the top of the page or the bottom of the page. Figure cations should be in Times New Roman, 10 font size below the figure, as illustrated in Figure 1. Where as the table captions should be placed top of the table, as shows in Table 1.

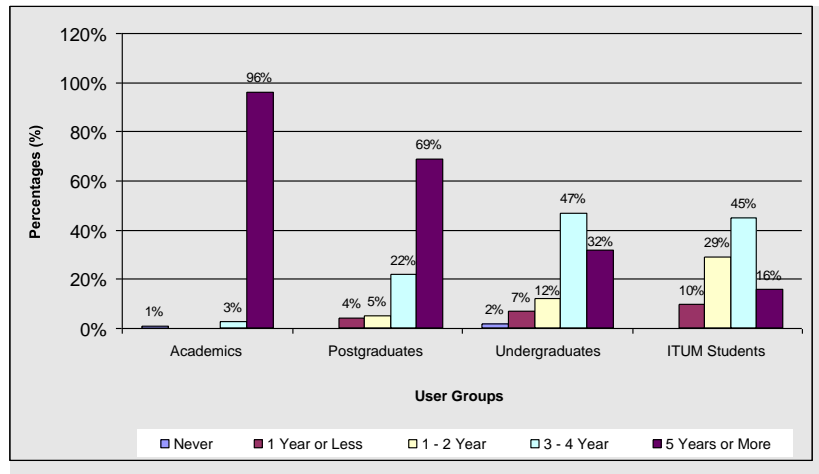


Figure 1: The Internet experience of the participants

Source: (if any)

Table 3: Kruskal-Wallis Test results for the Internet experience vs. user category

| User Category | N | Median | Ave Rank | Z |
|----------------|-----|--------|----------|-------|
| Academics | 73 | 5.000 | 233.5 | 6.90 |
| Postgraduates | 87 | 5.000 | 189.9 | 2.78 |
| Undergraduates | 139 | 4.000 | 130.1 | -5.75 |
| ITUM Students | 31 | 4.000 | 95.5 | -4.29 |
| Overall | 330 | | 165.5 | |

05. Photographs

High-quality colored or black-and-white photographs or reprints with sufficient clarity may be incorporated. Photographs with glossy finish and dark backgrounds should be avoided where possible. State 'Original in Color' in the title where color is used.

06. Additional Materials

Additional materials if any (Eg: software, audio, video etc.), could be enclosed in a CD/DVD as an Appendix. These CDs/DVDs must be submitted in a pocket pasted inside back cover. Both CD label and the pocket should carry the following information: Name, Title of submission with project number, Date of submission (example: September 2017), Degree and Department (example: B.Sc. Special Honors degree in information Technology, specialization on Software Engineering, Department of Information Technology).

07. Binding

7.1. Cover Page (Hard Bound)

See the Sample coverage given Lettering on Cover should be in **GOLD printing on a black hard bound.**

7.2. Draft (Soft Bound)

The draft to be submitted to the supervisor should be soft bound

7.3. Final Submission

The final corrected copy of the dissertation must be free from typographical, grammatical and other errors when submitted. After making the alterations mentioned by the supervisor, final dissertation should be hardbound with the Black color.

Short name of the degree and the year submitted should be indicated at 80mm and 40 mm from the bottom of the spine respectively. The name of the candidate with initials should be

mentioned at 20mm from the top of the spine as depicted in Figure 2. Lettering on cover should be in **GOLD**.

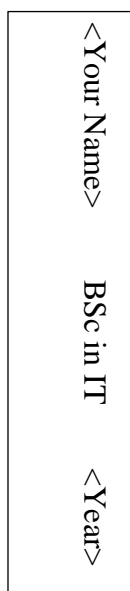
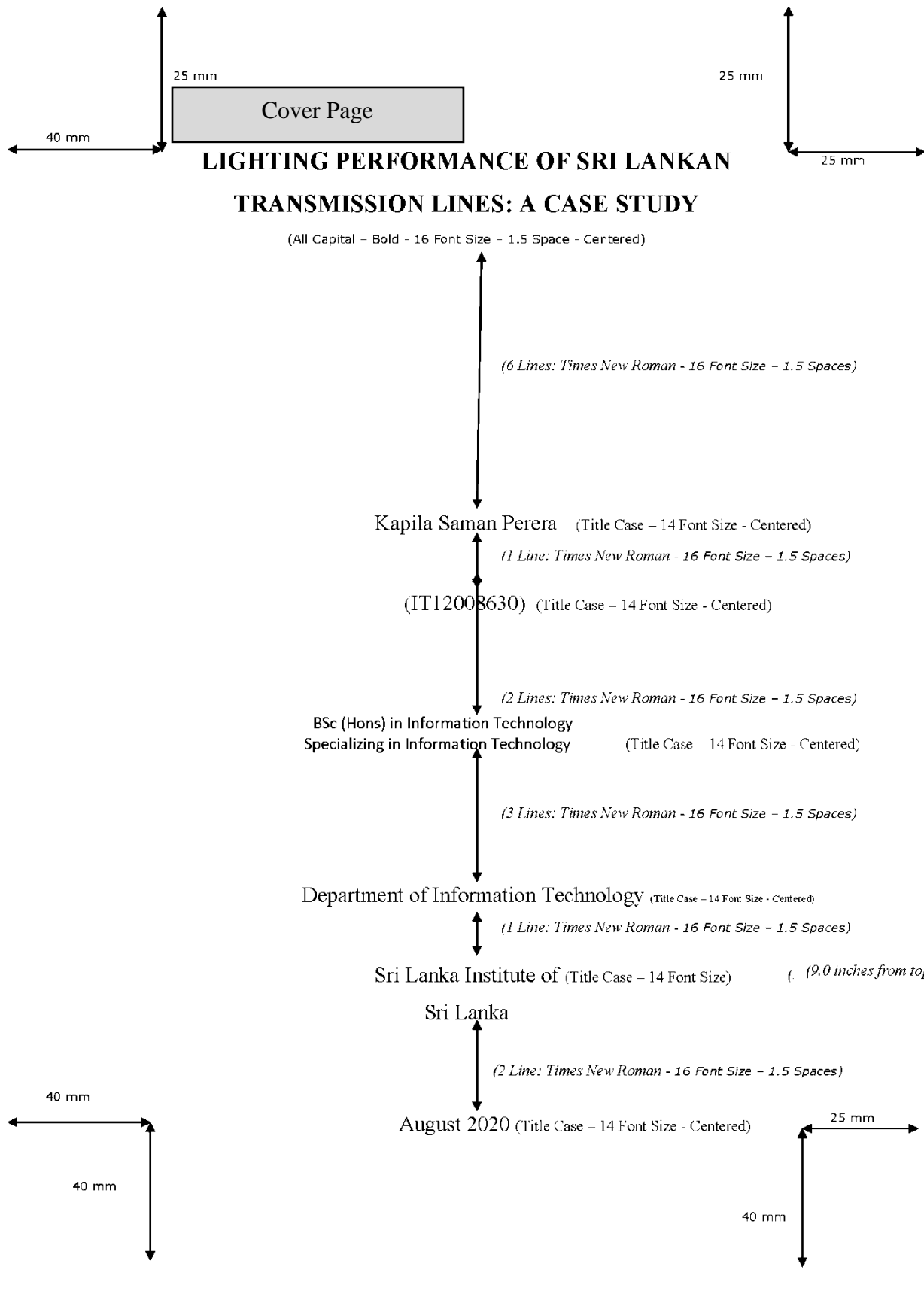


Figure 2. Spinal code of the hard bind copy

Components

1. A dissertation should contain the following parts in the given order.
 - i. Hard Cover (Background – Black, Text – Gold) [only Final report
Hard copy]
 - ii. Title page (1 A4 page)
 - iii. Declaration (1 A4 page)
 - iv. Abstract (1 A4 page)
 - v. Acknowledgement (1 A4 page)
 - vi. Table of contents (1-2 A4 pages)
 - vii. List of Tables (if any)
 - viii. List of Figures (if any)
 - ix. List of abbreviations (if any)
 - x. Introduction (10-15 A4 pages)
 - a. background literature
 - b. research gap
 - xi. research Problem (2-5 A4 Pages)
 - xii. Research Objectives (1-2 A4 Pages)
 - xiii. Methodology (15-25 A4 pages)
 - a. Methodology including the system diagram and you may use subsections as many as you need
 - b. Commercialization aspects of the product
 - xiv. Testing & Implementation Results & Discussion (10-15 A4 pages)
 - a. Results
 - b. Research Findings
 - c. Discussion
 - d. Summary of Each Student's contribution
 - xv. Conclusion (2-4 A4 pages)
 - xvi. References (2 onwards)
 - xvii. Glossary (if any-1-2 pages)
 - xviii. Appendices (no limit)

Document Size: Min 50 A4 Pages



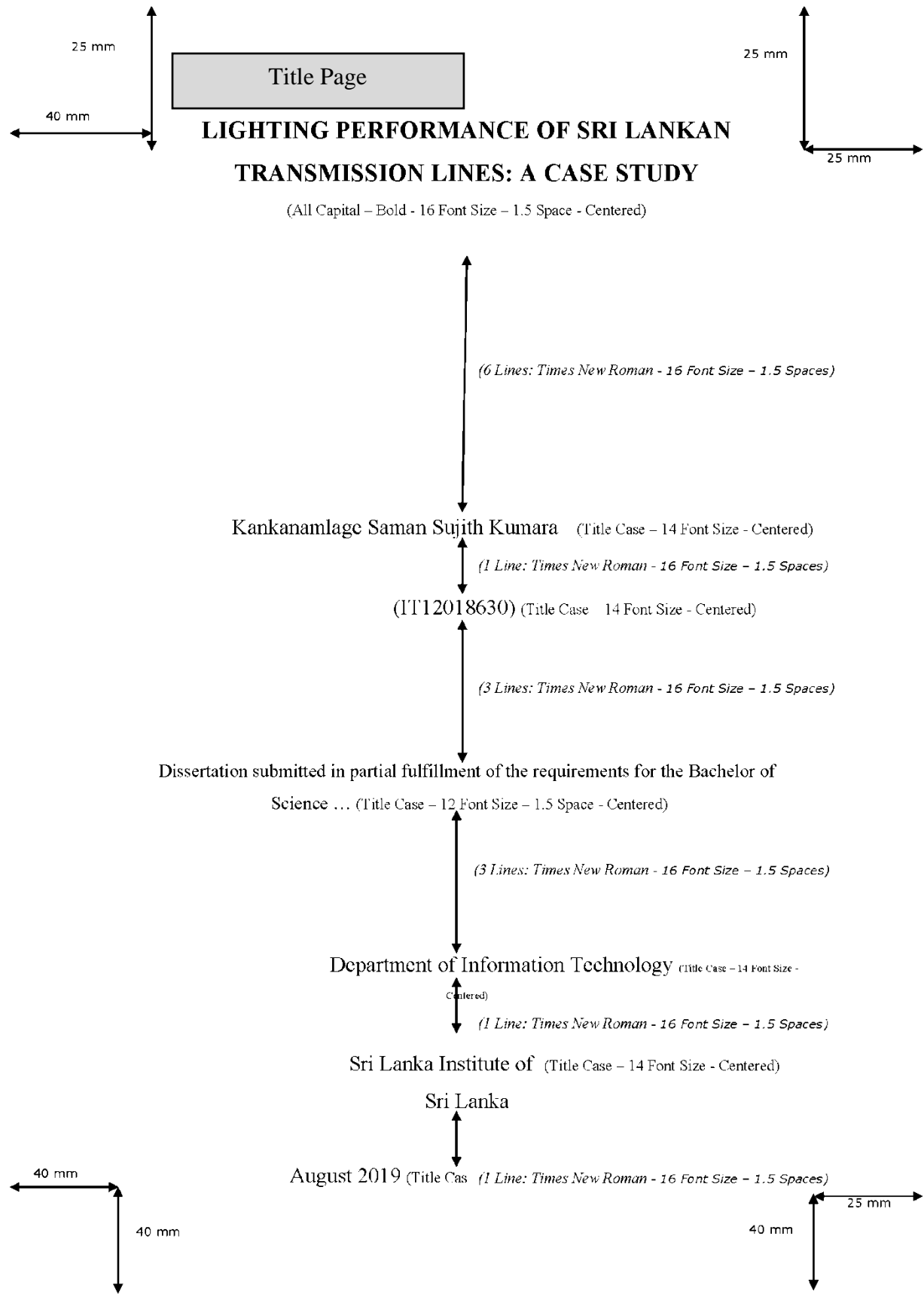


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LIST OF ABBREVIATIONS

| Abbreviation | Description |
|--------------|--|
| ACM | Association for Computing Machinery |
| IEEE | Institute of Electrical and Electronic Engineers |
| OPAC | Online Public Access Catalogue |

APPENDIX D: Module Outline

| | |
|---|--------------------------------------|
|  SLIIT <i>Discover Your Future</i> | DEPARTMENT OF INFORMATION TECHNOLOGY |
| | FACULTY OF COMPUTING |

| MODULE OUTLINE | | | |
|---------------------------|---|-------------|---|
| Module Name | Research Project | | |
| Module Code | IT4010 | Version No. | 2017 - 1 |
| Year/Level | 4 | Semester | 1 & 2 |
| Credit Points | 16 | | |
| Pre-requisites | Satisfy the progression criteria from year 3 to 4 | | |
| Co-requisites | None | | |
| Methods of Delivery | Lectures (Face-to-face) Tutorials Labs | 2 0 0 | Hours/ Fortnight Hours/Week Hours/Fortnight |
| Course Web Site | http://courseweb.sliit.lk/ | | |
| Date of Original Approval | January, 2017 | | |
| Date of Next Review | January, 2022 | | |

| MODULE DESCRIPTION | |
|--------------------|--|
| Introduction | The objective of this module is to enable students to apply their knowledge gained during their studies to conduct a comprehensive industry-related research project in the domain of computing, and to develop a wide range of skills including teamwork, |

| | | | | |
|---------------------|---|---|---|----------|
| | problem-solving and other soft skills. | | | |
| | This module spans over two semesters and the final grade is given at the end of the second semester. The students are supervised, and the progress is monitored throughout the two semesters through a series of meetings and evaluations. The final outcome of the project should be a software product/system, hybrid system of hardware and software, or an acceptable research outcome. | | | |
| Learning Outcomes | At the end of the module student will be able to: | | | |
| | LO1: | Provide a creative and innovative solution to an open-ended complex problem | | |
| | LO2: | Apply the key pillars of the domain of computing | | |
| | LO3: | Apply project management methodologies to provide a solution to an open-ended problem using appropriate techniques, tools, best practices, and standards, in the ethical, security, social, legal and professional context. | | |
| | LO4: | Communicate effectively with a wide range of audiences including both technical and non-technical stakeholders. | | |
| | LO5: | Assess the commercial viability of a project. | | |
| Assessment Criteria | During two semesters, a series of meetings and evaluations are held to monitor the progress of the student as follows. Detailed descriptions can be found in the Project Handbook. | | | |
| | Continuous Assessments | | | |
| | • Topic Assessment | 0 | % | LO1-LO2 |
| | • Proposal Presentation & Report | 12 | % | LO1- LO5 |
| | • Progress Presentation I | 15 | % | LO1- LO5 |
| | • Progress Presentation II | 18 | % | LO1- LO5 |

| | | | | |
|----------------------------|--|------|-------|----------|
| | <ul style="list-style-type: none"> Final Presentation and VIVA | 20 | % | LO1- LO5 |
| | <ul style="list-style-type: none"> Final Report | 19 | % | LO1- LO5 |
| | <ul style="list-style-type: none"> Research Paper (published) | 10 | % | LO1- LO4 |
| | <ul style="list-style-type: none"> Website | 02 | % | LO4 |
| | <ul style="list-style-type: none"> Research logbook, Status document 1 & 2 | 04 | % | LO4 |
| | TOTAL | 100 | % | |
| Estimated Student Workload | Contact Hours | | | |
| | <ul style="list-style-type: none"> Lecture | 28 | hours | |
| | <ul style="list-style-type: none"> Tutorial | 00 | hours | |
| | <ul style="list-style-type: none"> Laboratory | 00 | hours | |
| | Time Allocated for Assessments | | | |
| | <ul style="list-style-type: none"> Continuous Assessments | 05 | hours | |
| | <ul style="list-style-type: none"> Supervisor Meetings | 15 | hours | |
| | Reading and Independent Study | 1552 | hours | |
| | TOTAL | 1600 | hours | |
| Module Requirement | To pass this module, students need to obtain an overall mark that would qualify for a “C” grade or above. | | | |
| Primary References | [1] Thomas, G., “How to do your research Project A Guide for students”, Sage Publication, 3 rd Ed., 2017, ISBN: 9781473948877 | | | |
| | [2] Langer, Arthur M, "Guide to Software Development - Designing and Managing the Life Cycle", 2nd edition, Springer, ISBN 978-1-4471-6799-0, 2016 | | | |
| | [3] Robert C. Martin, "Clean Code: A Handbook of Agile Software Craftsmanship", 1 st edition (August 11, 2008), Prentice Hall, | | | |

CONTENTS OF THE MODULE

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| 1. Introduction to the importance of doing a research project <ul style="list-style-type: none"> • Introduction to the assessments and timeline • Why projects are important? • How to form a project group • Objectives of the final year research project • What is a research project? | LO1, LO3 |
| 2. Generating Ideas & Getting Information from clients <ul style="list-style-type: none"> • How to generate a project idea? • Conducting brainstorming sessions • Collecting information from others | LO2, LO4 |
| 3. Project proposal report writing and presentation <ul style="list-style-type: none"> • What are the deliverables? • Project scheduling • Gantt chart • Project team roles & responsibilities • Project management concepts • Structure of the proposal | LO1-LO5 |
| 4. Software development lifecycle and the agile methodology <ul style="list-style-type: none"> • SDLC methodologies • Agile methodology | LO2, LO3 |
| 5. Conducting a literature survey <ul style="list-style-type: none"> • How to conduct a literature survey • How to maintain a reference list using appropriate referencing styles | LO1-LO3, LO5 |

| | |
|--|-----------------|
| 6. Maintain the research logbook <ul style="list-style-type: none"> • Guidelines for maintaining the research logbook • Meetings with supervisors • Maintaining individual records | LO4 |
| 7. Research Paper <ul style="list-style-type: none"> • How to write a research paper? • Analyzing results • How to write an effective discussion? | LO4 |
| 8. Software Project Management Tools <ul style="list-style-type: none"> • Code repositories • Version controlling • Coding best practices | LO3 |
| 9. Effective communications <ul style="list-style-type: none"> • Preparing a presentation • Effective presentation techniques | LO4, LO5 |

| GENERIC INFORMATION |
|--|
| <p>Any type of plagiarism is not allowed.</p> <p>Plagiarism: Academic honesty is crucial to a student's credibility and self-esteem, and ultimately reflects the values and morals of the Institute as whole. A student may work together with one or a group of students discussing assignment content, identifying relevant references, and debating issues relevant to the subject. Plagiarism occurs when the work of another person, or persons, is used and presented as one's own.</p> <p>-----End of Module Outline-----</p> |

