

UNIVERSITY OF DAR ES SALAAM
COLLEGE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



FINAL YEAR PROJECT GUIDELINES FOR
IS 335 (B.Sc. in Computer Science & B.Sc. with Computer Science)

CS 498 / CS 499 (B.Sc. in Computer Engineering and Information Technology)

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A. Preamble

A final year undergraduate project is an extended piece of an individual's work. It does not necessarily involve original research or the study of unpublished or primary material. It, however, must involve the application of knowledge and skills in solving an engineering or computer science problem. You will spend some time working on a topic that appeals to you, and have regular meetings with your supervisor (and/or external client) to discuss your progress.

Your project is an important piece of work. It provides you with an opportunity to show what you have learnt and what you can do. It is up to you to make the most of this opportunity and use it to prove your competence. It can be demanding but it can also be very rewarding. Use this opportunity well as you may not get many chances to be rewarded for carrying out work that follows your personal interest, and to be fully involved from the original idea to the final product.

A project report is not an extended literature review and to treat it as such is a mistake that you will probably find out too late. It has to be planned well and written over a long period of time. The project report is also a piece of work which may carry special weight in references written on your behalf so do take it seriously.

This information booklet aims to help you select, plan, execute and document your project and is applicable effective from the 2015/16 academic year. Please read it carefully. We would suggest that you re-read this document throughout the year, particularly when preparing the project report, as it will otherwise be hard to keep track of all of the points that are made.

Please note that these guidelines are not negotiable. However, constructive criticism and helpful ideas are welcome for future consideration.

All the best!

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B. Introduction

B.Sc. in Computer Science (ICS), B.Sc. with Computer Science (WCS), and B.Sc. in Computer Engineering and Information Technology (CEIT) curriculum require all students to work on a final year project. This is a compulsory and important part of your final year of study which many of you will also find to be very enjoyable and stimulating.

The general aims of the project are to encourage and reward individual inventiveness and application of effort whilst you conduct an investigation of an issue relevant to the field of your degree under the supervision of a member of staff.

The selection of the topic for your project should be made in your second (ICS and WCS) or third (CEIT) year and work should begin immediately after. Penalties are applied for lateness, and failure to register a project in time does not constitute justification for late submission of final reports. A condition for getting your degree is to have passed the project. If you fail the project, for whatever reason, you will not get a degree.

C. Objectives

The need in computer science and engineering education for the combination of theory and practice has led to the decision to give emphasis on problem-based teaching and learning at the College of ICT (CoICT), University of Dar es Salaam (UDSM). The final year project is thus designed to be problem-based.

The objectives of projects at the Department of Computer Science and Engineering (CSE) are to:

- Develop the student's capability for self-reliant solving of computer science and engineering problems
- Extend the students' knowledge considerably in their chosen topic
- Develop the skills required for originality and creativity of thinking
- Contribute to the existing body of knowledge of computer science and engineering

C.1. Expectations

The project is seen as the culmination of the studies of an undergraduate. As part of the outcomes, the student is expected to:

- Construct a detailed plan of an engineering or computer science project
- Define a problem clearly and to specify conditions and limitations
- Collect and review information independently from many different sources particularly from industries (catalogues, handbooks, interviews etc.)
- Show an understanding of the context in which the selected project lies
- Find solutions similar to those found in industry and literature
- Apply knowledge from previous learning at CoICT, and try to develop one's own suitable solution
- Apply relevant tools and techniques and demonstrate practical skills and understanding of theory
- Select and optimize a solution by considering all practical aspects: Computer Science, Engineering, Economical, Ecological and other related points of view

- Convert design of a solution by one's own efforts into an advanced state of practice in accordance with the availability of resources
- Come out with clearly defined conclusions and recommendations for improvements and further technical development
- Defend ideas in discussions and presentations
- Present ideas and results in a written report using engineering drawing, tables, graphs and diagrams which convinces readers that the above objectives have all been achieved

As long as the project meets the above formal criteria, you are free to suggest any project.

C.2. Skills gained

In addition to academic and personal rewards, the project will allow you to gain the following skills:

Self management

- Set personal objectives
- Manage time and tasks
- Identify and implement personal learning strategies

Learning skills

- Learn independently
- Use library skills and other information gathering skills
- Integrate knowledge from various sources
- Use a range of academic skills

Problem solving

- Analyse theories and evidence
- Think conceptually
- Identify strategic options
- Evaluate the usefulness of different approaches

Communication

- Write fluently and effectively on chosen topics
- Present a coherent argument orally and in writing

Information technology (IT)

- Use IT as a research tool
- Access specialist sites
- Practice information retrieval

Project management

- Write a formal, professional report
- Systematic and dispassionate evaluation of your own work
- Prepare activity plan

D. The Project

D.1. Different types of projects

Whilst your project is an individual piece of work, it will probably fit into one of a number of types of projects. Broadly speaking, there are three basic types of projects: design and build, experimental, and theoretical. Of course, this is a generalization and a project may combine features from more than one of these types. As an engineering or computer science student, you are encouraged to select design and build projects if possible. You should discuss this with your supervisor early in the life of the project and it will probably help to look at some previous project reports.

Design and build. These projects should involve the main activities associated with the development of a well-engineered system for carrying out the particular task required by the project: requirements analysis, specification, program design, implementation, system testing (including field testing and user comments), documentation and maintenance. Most of these stages are likely to be included in the report and the reasons for the various design decisions will be carefully described.

Experimental. These projects involve the investigation and evaluation of a new piece of technology. This may involve a substantial amount of (software or hardware) implementation and the application of scientific measurements and investigations to ascertain its properties and usefulness. Such a project will necessarily have a report which will describe the theoretical foundations of the technology, a description of the implementation and the experimental procedures used and an analysis of the results, together with an assessment of the relationship between the project work and other published work. Thus there should be a discussion of the problems of existing methods and how the new ideas overcome any of these problems.

Theoretical. Projects in this category tend to concentrate on introducing the relevant concepts with suitable examples, investigating further examples, making and testing assumptions, developing theorems and proofs, where appropriate, and assessing the results, with attention given in suitable cases to possible applications.

D.2. Project specifications / requirements

Any student's project issued by Department of CSE at the University of Dar es Salaam should:

- As much as possible, have a link to Computer Science or Engineering preferably in Tanzania;
- As much as possible, define technical specifications to be attained;
- As much as possible, require the application of knowledge acquired in different courses;
- If possible, be connected to students' projects of other Computer Science/Engineering or non-Computer Science/non-Engineering departments (inter-disciplinary);
- Facilitate students to handle and deal with industrial machinery and technical processes;
- Require students to make personal contacts in industry;
- Require students to implement their own designs, ideas, findings, suggestions, etc. as far as possible by themselves in order to confront them with all problems; and
- Be limited in time according to the time allocation.

D.3. IS 335, CS 498 and CS 499

You are required to carry out your project over two semesters. For the ICS and WCS programmes, the same module IS 335 continues throughout the two semesters. For the CEIT programme, two project modules together form the entire project from beginning to end i.e. your project shall be divided into two semesters, CS 498 taking place in semester 1 and CS 499 taking place in semester 2. Though it will be the continuation of one project, assessment shall be treated as two separate units and as such, any material presented for assessment should be standalone for each individual module.

In terms of content, the first semester shall cover the introductory stages of a project, from the definition and specification of the problem and its objectives, to the literature review, methodologies to be used, schedule of activities, data collection, initial design and cost estimates of the project. The second semester shall cover the experimental and conclusive stages of a project, from the data analysis, detailed design and implementation of the prototype, to the conclusions and recommendations of the project.

D.4. Selection of project title

Since you are going to spend considerable time doing your project and its mark represents a large part of your final assessment, you should choose the subject of your project carefully. If you feel strongly motivated with the subject of your project, you will be thinking of new ideas, designs and calculations at any possible opportunity and this will undoubtedly help you achieve your best. If on the contrary you are not motivated, it will be difficult for you to get the necessary level of concentration and dedication that you will need for creative work.

Turning a rough idea into a well thought out and clearly presented project plan can be a large amount of work. You are advised to begin thinking about a research area for your project towards the beginning of your second year for ICS and WCS programmes, and towards the beginning of your third year for CIET programme, as the selection process is likely to be a gradual one. Bear in mind the choice of a research topic while carrying out your reading and general study. Begin to collect a number of ideas. The main sources of inspiration are commonly:

- Courses you have already taken or will possibly be taking
- Ideas proposed by your colleagues
- Suggestions made by supervisors or other academic members of staff
- Project suggestions on the projects web page
- Past years' projects
- Proposals put forward by industry, especially companies who have provided practical training opportunities for students
- Recent journals and technical papers
- Problems experienced

When ideas are first being suggested or discussed it is good to keep an open mind about them. A topic which initially seems very interesting may prove unreasonable on further consideration, perhaps because it will be too difficult. Equally, many of the ideas suggested may be unfamiliar to you, and so will need to study them before you can appreciate what would be involved in following them. Almost all project suggestions should also be seen as starting points rather than fully worked out prescriptions. By making adjustments to original ideas, or selecting aspects of the project to concentrate on, even the most uninspired starting point can grow into a worthwhile proposal that has its own special character.

Towards the middle of your second (ICS and WCS) or third (CEIT) year you will have to choose a research area (before selecting a title). Once you have a few ideas, discuss them with any prospective supervisor from the department. The role of the supervisor is initially to give guidance on the choice of the title and the methodology to be employed and later to give advice in all aspects of the project. If you are completely lost, talk to your academic advisor, project coordinator, or any other member of staff early.

In deciding which project to take, you may find it helpful to answer the following questions:

- Am I really interested in this project? This is always a good starting point.
- Would I like to develop my knowledge in this subject area (or subject areas)?
- Do I already know a lot about this subject area?
- Can I cope with the likely demands of researching this topic in terms of both depth and breadth?
- Are the resources (time, facilities, money, equipment, staffing, knowledge, skills etc.) available for work in this subject area?
- Will I need to learn new techniques and methods to accomplish this project? If so, how difficult will it be for me to acquire them?
- Are there likely to be any serious ethical issues attached to the research. Can they be handled satisfactorily using University procedures?
- Would I be coping with an open-ended project or a clearly-defined one?
- Will this be of relevance / help to my future intended career?
- Which supervisor(s) would be appropriate for me to work with?
- Will the output be useful?

There are by no means definitive remedies to be found in the answers to the above questions. These questions however, might help you in determining what strengths and weaknesses each of your ideas, carries for you.

Once you have found a potential project and potential supervisor, you have to work out what the project will be about. A good way to proceed is to identify a draft project title and to augment this with one or two descriptive paragraphs, or at least a set of bullet points indicating the scope and scale of the project. This ‘preliminary project proposal’ can then be discussed with your potential supervisor. Following discussion and agreement with your potential supervisor, you can now submit your proposed project title.

D.5. Timetable

Key dates are summarized in Table D.1. You must complete the activities shown on time. Note that the effective management of your time can be a major factor in the quality of your project. You should start background work on your project over the vacation following completion of your second (ICS and WCS) or third (CEIT) year, then work consistently on it once the third/fourth year begins. It pays to start writing up the final project report early.

Table D.1: Key dates

S/N	Activity	Week number
	ICS and WCS: Year 2, Semester 2 CEIT: Year 3, Semester 2	
1	Initial project seminar	6
2	Report project title and supervisor	8
3	Register project title with a supervisor and submit project registration form	10
4	Project allocations displayed on noticeboard	13

ICS and WCS: Year 3, Semester 1 CEIT: Year 4, Semester 1		
5	Final changes to project titles	1
6	Submit IS 335 / CS 498 progress report	6
7	IS 335 / CS 498 oral progress presentations	7
8	Submit IS 335 / CS 498 final report	14
9	IS 335 / CS 498 oral presentations	According to UE timetable
ICS and WCS: Year 3, Semester 2 CEIT: Year 4, Semester 2		
10	Submit IS 335 / CS 499 progress report	6
11	IS 335 / CS 499 oral progress presentations	7
12	Submit IS 335 / CS 499 final report	14
13	IS 335 / CS 499 oral presentations	According to UE timetable

All work should be handed in to the project coordinator before Thursday 4 pm of the week specified. You should ensure that on delivery you have checked off the relevant list.

These dates should be seen as immovable deadlines which must not be missed although they are subject to change. Please check the noticeboard for up-to-date information and enter the dates in your diary accordingly.

D.6. Initial project seminar

This will be held between weeks 5 and 7 of semester 2 of your second (ICS and WCS) or third (CEIT) year. The exact time and place will be advertised on the noticeboard. At this session questions relating to IS 335, CS 498 and CS 499, including this document, can be answered.

Prior to attending this seminar, it is strongly advised that you undertake some preliminary background work on your project and be able to:

- Provide a background to your project (including any relevant literature survey)
- Produce a project plan with clearly identifiable tasks and deadlines
- Identify equipment / tools which are crucial to undertaking your project

This increases your chances of having identified any potential problems with your project, and having raised as many good questions concerning your project, that can be settled or clarified during the seminar.

D.7. Registration

Only after discussion and agreement on a proposed project with a potential supervisor you can submit your proposed project title. This submission will act as your registration. You are required to, on two project registration forms, fill in your project details, including the details of your proposed supervisor and your project objectives. One form will remain with your supervisor, the other is to be submitted to the project coordinator. Make sure that your description is short and to the point, yet contains enough details for the assessment panel to understand what the project is about, so that you are given the green light to start your project as early as possible.

Furthermore, make sure that your submission is complete with the signature of a member of staff who has agreed to be your supervisor for the duration of your project. If a supervisor agrees to supervise you, he/she should also have you on his/her list (a separate form) of students he/she has agreed to supervise. Note that the department requires an even distribution of students per supervisor and so it is in your best interest to find a supervisor early. Given the need to have an even distribution of students per supervisor, prior to the submission of your project title registration form which has the details about the project you intend to carry out, you are required to report your project title and supervisor in week 8. This allows the department to finalise the supervision list and provide room before the registration of project titles.

Once you have submitted your project title, members of the assessment panel will read through the proposed project, and either agree that it is potentially a good project, or tell you what is missing. Some projects may not be suitable, or may lack clear aims and objectives (for example ‘I want to make a gadget but I don’t know what it will do yet’). It is very important that your project has clear objectives. The objectives tell us whether your project can be marked when you are finished.

Project registration forms are due on week 10 of your second (ICS and WCS) or third (CEIT) year. The registration forms should reach the project coordinator by Thursday 4pm on the relevant week. You should ensure that on delivery you are checked off the relevant list. Registrations received after the deadline shall carry a penalty of 10% per week and will not be accepted as grounds for the late submission of project reports. Students failing to complete this registration process shall not be allowed to submit a project report until they have been properly registered.

Should there be any changes you wish to make to your project title, this should be done by the first week of the first semester of your final year.

D.8. Supervision

A supervisor is appointed to each project. The allocation of a supervisor is carried out in parallel with the assessment of proposed project titles. This is one of the reasons why the registration procedure is important. Although many times the proposed supervisor becomes the allocated supervisor, this is not always the case. In some circumstances you may be allocated a different supervisor, and you should check this as soon as possible. For interdisciplinary projects you may be allocated more than one supervisor.

The role of the supervisor is two-fold. The first role of a supervisor is to stimulate discussion and indicate the various avenues of approach which may be available. The second role of a supervisor is to act as an independent arbiter, to judge progress during the project and highlight any causes for concern, as well as to mark independently both your efforts and achievements. It is important to recognise that although your supervisor may continue to play the equally important role of guide and mentor during the detailed execution of the project, it is emphasised that the ultimate responsibility for the project lies with you. The role of the supervisor is not to direct the work but to provide advice on the structure, emphasis and content of your project, to align this with the standards and requirements of the department. Your supervisor will also offer encouragement and criticism at each stage of the work. You are expected to plan and execute the project on your own initiative. It is therefore your responsibility as the student to keep your supervisor well informed of both your progress and problems.

Immediately following the assessment of project titles and allocation of project supervisors, you should arrange a meeting with your supervisor to discuss your project. Provide him/her with an overall plan of your project, including aims, objectives and deadlines. Also agree on a schedule of activities, including regular meetings to discuss progress.

It is a formal requirement that you regularly meet with your project supervisor (at least once every two weeks during the project period). Many supervisors will want to meet with you weekly, and it is advised that you use this opportunity to do so. The frequency of the meetings will depend on your needs and the nature of your project. You should agree on a timetable with your supervisor at the start of each semester. Typically, you should expect to meet with your supervisor for about half an hour per week. Some supervisors will want to meet with you more often than this, and it may be that you will need to meet for longer near the start of the project when it is being defined. Please note that you are expected to take the initiative in making appointments with your supervisors and not the other way round. Remember that your supervisor may have other things to do (other projects to look after, research, teaching, administration), and may not always be immediately available. If it is impossible to see your supervisor, inform your academic tutor and/or the project coordinator. These meetings are for your benefit and you are responsible to ensure that they take place. The project coordinator will maintain close contact with supervisors to ensure that they are kept fully informed of students' progress.

You should be prepared for meetings with your supervisor. Bring along results to discuss and questions to explore. If your supervisor requests it, you may also have to regularly submit short reports on your project work (usually by email). These reports should record the main milestones of the project, discussing both successes and failures. Remember that if you require feedback on work that you have written then the lecturer involved will have to set aside time to read the material and this should be taken into account when setting deadlines for yourself. You should negotiate with your supervisor when you want work to be read and arrange a meeting to discuss the feedback. It is worth noting that lecturers are extremely busy at the end of semesters.

You are encouraged to keep a web-based diary of work on your project and to e-mail the URL to your supervisor. Note that your supervisor will be continuously assessing your work on the project. In addition, you should keep a logbook on which you record your own ideas, notes from literature searches, notes of meetings and discussions with the supervisor, developments, designs and calculations and in general, to document all the work done in your project. When a project is complete it can often be hard to look back and remember what aspects of it had seemed particularly uncertain at the start, and to trace all the problems that were overcome on the way to the successful completion.

A logbook can be used to make notes on examples you want to include in your project report and a reminder of why certain design decisions were made. Such notes can obviously prove their worth at the end of the semester when the project report is being written, but they can be equally important earlier by giving you a clear view about the rate at which you have been able to make progress, and hence an indication as to how you should plan for the future. In keeping notes it is useful to record failures, frustrations and dead ends as well as successes, since you may well wish to cite some of these to support the choices that you make. Overall, as you start work you need to keep in view the final objective, which is the preparation of a project report in which you submit clear evidence that you carried out a significant piece of work in a coherent and well organised manner, making proper use of known results and demonstrating your ability to plan and complete such work within a predefined time scale.

The logbook is intended to contain comprehensive documentation of the day to day running of your project. All information associated with the project including lists and details of reference material consulted, records of equipment used, sketches of equipment designed, tables of results (both raw and processed data), graphs, notes should be included. While it will be hand-written and not up to "normal presentation standard", it should be well structured and clear so that anyone continuing with the project will be able to follow the work undertaken. All entries to the logbook should be dated. Bring this logbook with you to your meetings with your supervisor and let your supervisor see what you are doing. It may be used in part to decide your project mark. The logbook does not need to be of any particular type. Any book with fixed pages (not removable) will do although a hard backed notebook may be better.

In addition to seeking advice from your supervisor, you may seek advice from other members of staff. The academic members of staff at the department are very knowledgeable on a wide range of subject areas. You are likely to find a good number of staff competent in the field you have chosen. Use this pool of expertise wisely.

Experience indicates that it can be helpful even at a relatively early stage to produce a draft 'table of contents' to indicate how the report may be structured. Initially this may be just chapter and/or section headings, subsequently 'fleshed out' with narrative/bullet point descriptions of the planned/envisioned content. This can be a 'living' document, revised as appropriate as the project progresses. As work progresses and the report begins to take shape it may be appropriate to pass a draft to your supervisor for comment. It is easier to build up your report as your project progresses than to leave the writing to the end. It is also more beneficial to have your supervisor's input as you go along than to wait till the end.

If you are experiencing difficulties with your supervisor or his/her supervision, contact the project coordinator having first tried to sort things out with the supervisor concerned. If your supervisor is absent either through sickness or other commitments, another supervisor will be allocated during this period.

For projects with an external organization, you will be allocated an academic supervisor (a member of the academic staff) and an industrial supervisor (a member of the client organization). You need to hold regular meetings with both your academic and industrial supervisor. Whilst you are at the external organization, whether in a company or in another part of the university, you will be representing not only yourself, but the university and the department in particular. Please bear this in mind at all times. More than likely, the project you will be offered will be a real task that the organization needs. Useful results will be expected from you and the organization will be devoting considerable managerial time to integrating you into their organization.

You are required to:

- Undertake the project to the best of your capability;
- Liaise regularly with both company and academic supervisors;
- Comply with company regulations whilst on company premises or representing that company (e.g. dress, time keeping, smoking, safety procedures etc.);
- Produce a report for the university at the end of the project;
- Maintain any confidentiality associated with the project.

If you feel that you are unable to proceed with a project, you should discuss the situation with your supervisor. If this is not possible, then you should speak to the project coordinator. You should not leave a project without good reason and you should inform both academic and industrial supervisors in writing that you intend to do so.

Your supervisor's opinion is very important. If your supervisor is not satisfied with the performance of at least 50% of your project work and 80% of your attendance, your project may be disqualified after the case has been presented and approved to a panel of the departmental teaching staff.

D.9. Keeping backup copies

It goes without saying (so here it is in writing) that you must keep backup copies of your work (you may even consider giving a disk containing a backup copy of all your work to your supervisor at meetings).

The department observes that maybe one or two of its students suffer a serious computer failure each year. So while this is not very likely to hit you, you need to be protected in case it does. You should institute a regular schedule for backing up project files, perhaps onto CD or memory stick. Keeping regularly updated copies of files on your own machine and perhaps even on friends' computers can also be a sensible strategy if carried through in a well thought out and organised way. Online facilities such as dropbox, Microsoft onedrive, Google Drive, etc.

In practice the biggest danger to your files is not hardware failure but clumsy editing or confusion about filenames; when tired it is painfully easy to delete an important file instead of the temporary one you intended to discard. There are also times when you may discover that a full week's work of heavy adjustment to your code was in fact misguided and that the best thing to do would be to restore your files to an earlier state. You should therefore arrange to make regular safe copies of your files, and preserve several generations of them. The situation when this becomes most critical is when you are working under most pressure, which is of course when making backups feels most like a piece of bureaucracy that wastes your time!

Any loss of information due to failure of computing equipment is not the department's responsibility, and will not be considered grounds for extending the project hand-in deadline.

D.10. Supply of stationery

You are responsible for all stationeries and secretarial services for your project.

D.11. Construction works

Staff from training workshops are prepared to advise you and to provide close guidance to you. You however have to ask for help in due time. In case construction work cannot be done, either by yourself or by staff of training workshops, it may be handed over to the central workshop. In such cases, you have to follow the job-order procedures. As the training workshops have to give priority to their major tasks, only specific periods can be allocated for project work. Work in the laboratories has to be arranged individually with the staff members concerned. You are requested to plan your project work properly and to keep all staff informed in order to avoid overloading particularly towards the end of semesters.

D.14. Project costs

Your project is part of a course of study. The department does not provide any financial assistance on top of the budget that you receive for your studies. It is a major part of your project that you practice execution of tasks with limited funds. You will therefore be required to carry out purchases of components not found in the laboratories from the funds you have for your studies. Do not forget that these funds are to also take care of any travel, workshop and laboratory services, materials, stationery, as well as report printing and binding.

D.15. Intellectual property

It is a condition of registration that students agree to assign the intellectual property in any patentable invention, registerable design, rights in a database, design rights and rights in any computer program to the University. Any queries regarding possible commercial exploitation of any products from a project should be referred to the project coordinator in the first instance.

You should bear in mind that the examiners will require electronic submission of your project report and code. Therefore you should not sign anything, such as a non-disclosure agreement, that would prevent you from submitting them.

D.16. Getting help – financial, project progress, changes to initial plan

If things start to go wrong, it is important to talk to your project supervisor, academic advisor, or the project coordinator as soon as possible. The sooner you let us know about the problem, the sooner we can help you.

An extension may be granted if you are ill or unable to work and obtain a valid medical note, or there are other exceptional extenuating circumstances. You must inform your supervisor as soon as possible that you have been ill or otherwise unable to work. The medical note must be handed in to the department to be placed in your departmental file.

Once you have started on a project it is expected that you will follow through the plan as laid out in your proposal. Small adjustments to the emphasis that you put on different aspects of the work and refinements to the plan made as you go are of course always acceptable. However, in a few cases, larger changes are needed and this section discusses that possibility. There are two classes of circumstance that might force you to have to abandon a project part way through and re-design it from the start or seek another. The first would be if (despite proper checking earlier on) some vital piece of hardware, software or data suddenly became unavailable and no alternative could be found. Cases of this sort should be very rare as these should be considered early on, but natural or man-made disasters (lightning strikes, fires, floods, etc.) do sometimes occur, and it is not always possible to recover from them rapidly enough to allow a project to proceed undisturbed. The second case arises when work is progressing much more slowly than originally predicted and that it is unrealistic to expect that the targets originally set will be attained. In both of these cases there are three steps involved in getting the project back under control:

1. Identify as promptly as possible that there is a problem which could potentially grow into a serious one. Get in touch with your supervisor and discuss the issue, trying to see whether there is an easy way to side-step the problem. Regular milestones let you spot work-rate problems.
2. Try to get the difficulty resolved, setting a fixed date and a clearly stated way of knowing whether your problems are over. For example, "If the extra hardware is delivered by next Friday I will be able to catch up".
3. If (2) does not correct your problems, seek further help from your project coordinator as well as your supervisor.

It should be obvious that problems are much easier to resolve if found early, and if discussed with your various advisers. Large changes of direction in a project are very strongly discouraged, and you should expect your supervisor and project coordinator to suggest ways of getting approximations to the original work done. These may include simulating unavailable equipment, concentrating more on a secure (if perhaps unexciting) aspect of a project or re-arranging your affairs by giving up other activities to make more time available for project work.

E. Progress Reports

For both semesters of your final year project, you will be required to submit a progress report mid-semester describing concisely the work done so far, the difficulties faced and work plan for the rest of the time. One hard copy and one soft copy should reach the project coordinator before 4pm on the Thursday of the sixth week. These reports should be type written with 1.5 line spacing.

For the first semester, the progress report, of not less than 6 pages and not more than 10 pages, should have the following format:

- Cover page
- Abstract – a short summary stating the nature and scope of the work
- Introduction – provide a background to the work and justify the usefulness of the project
- Problem statement – clearly define the problem in concise, non-ambiguous statements
- Objectives – list the aims of the project which when achieved signify the completion
- Literature review – discuss any previous and/or current related works
- Methodology – suggest suitable steps and techniques to be used in solving the problem
- Work done so far – detail the progress made to date
- Time schedule – a detailed time scale planning of the work ahead e.g. GANTT chart
- Budget – showing costs involved in the execution of the project
- References

For the second semester, you are expected to focus on your progress since your last submission. The report, which is expected to be between 10 and 15 pages long, should put emphasis on the description of the work done so far, and on the expectations and plans to finish the work. Background and introductory material should be kept to a minimum and should only be included if it is necessary for the understanding of the work done. The main body of the report should be divided into chapters or sections containing a

description of the work done, with special emphasis on the personal contribution, and including a detailed plan for the remaining work.

The purpose of the progress reports and progress presentations is to check whether your project is on track, whether you have spent sufficient time on it, whether you have made progress, and whether your plan is realistic. It is important to show your achievements so far, a plan on how you are going to complete your project, and any important deviations in the objectives of your project or in carrying out your project. These sessions are not only for you to be assessed, but also for you to be guided. The more complete your presentation is, the more assistance you can get from the panelists. Panelists may recommend some changes in the planning or aims of your project, and if so, take these comments and suggestions very seriously.

F. The Project Report

The final report is intended to provide a concise yet comprehensive account of the project work undertaken. It should be targeted at another engineer or computer scientist who will take over the continuation or maintenance of your work, and therefore, must have access to every detail of your thinking in the design and execution of your task. It presents your work as a single report. Copying from retrievable sources is highly discouraged. It is your opportunity to, in your own words; describe what you have achieved, why, and how it fits in with other work in the field.

The project is treated as equivalent to two taught modules, this providing an approximate indication of the scale of activity involved. Writing a project report requires planning and time. It is prudent to allow three or four weeks for the task. It is particularly important not to rely on printers being in working order during the week before the deadline for submission! Remember that however much time and effort has gone into the research work, the assessment stands or falls on the quality of the report. To this extent the structure and clarity of the report is crucial. There is no one right way to write a project report because each project is unique and a body of research results is polysemic, inviting a variety of different interpretations. There are ways and means of writing a good report and the following guidelines set out the broad structure and other considerations to be taken into account.

A typical project report extends to around 40 pages, with significant variance around this depending on the nature of the project being reported. For example, if the project is based on experimental activity involving data collection and analysis or involves hardware or software development there may well be extensive appendices detailing these aspects that result in the overall project report being substantially longer than is indicated here. The general, somewhat trite, guideline is that the report should be as long as is necessary and no longer! What is meant here is that the report should not be ‘padded out’ with extraneous, marginally relevant standard material to achieve a particular length. The quality and substance of what is included in the report is of more significance than the length. That said, it is unlikely that a substantial study of an appropriate scale can be adequately dealt with in much less than about 25 pages. In this, there is an assumption about point size and line spacing of course! To be on the safe side, keep your final first semester report to between 20 and 40 pages, and your final second semester report to between 25 and 60 pages. Please note that though these limits mentioned are the minimum and maximum allowed, they are not a fixed requirement. Quality counts more than quantity. These limits however will be enforced and

overly long reports can be penalized unless your supervisor agrees to the extension. Generally speaking, a project report exceeding the maximum length will normally be given fewer marks than work of similar quality that is below the maximum length.

The final report should be self-contained and should give a clear description of the problem tackled, the objectives of the work, the methods used to solve it, the results obtained and the student's original contribution. All these aspects will be of importance when the report is marked.

All reports should follow strictly the guidelines about plagiarism as stipulated in the university regulations. Reports can include listing of computer programs or parts of them, either in the main text or in the appendices when absolutely necessary. However, a clear indication should accompany these listings indicating the authorship of these programs and the extent of any modification introduced by the author on someone else's programs. Wherever software is included, it will be subjected to assessment based on its clarity and on the following of standard norms about software design, apart from any results obtained with its use.

F.1. Contents and ordering – format, citing references

It is suggested that the report should include the following sections. Actual section headings may vary and some sections might be broken down into further section headings. It is recommended that you discuss your report content, layout and format with your project supervisor as the focus of some projects may not enable you to easily fit in with these recommended guidelines.

Cover Page: The report should have a cover page. Sample of cover page is appended to this document and is only to be used for final project submissions.

Declaration: The report should include a signed ‘declaration’ of authorship and originality which states how far the work contained in the report is your own work and how far it has been conducted in collaboration with, or with the assistance of, others. An example is given here:

Certification

Statement of Authorship and Originality

I declare that this report and the work described in it are my own work, with any contributions from others expressly acknowledged and/or cited.

I declare that the work in this report was carried out in accordance with the Regulations of the University of Dar es Salaam and has not been presented to any other University for examination either in Tanzania or overseas. Any views expressed in the report are those of the author and in no way represent those of the University of Dar es Salaam.

Signature:.....

Date:

This report may proceed for submission for assessment for the award of B.Sc. in Computer Science / B.Sc. with Computer Science / B.Sc. in Computer Engineering and Information Technology at the University of Dar es Salaam.

Supervisor's Signature:

Date:

Note that in the sample of declaration, the word 'cited' means that where you have drawn on the published literature (including web sites) for information, diagrams, etc. you have provided explicit references to these sources – most commonly/appropriately by inclusion in a numbered set of references with individual entries indexed from the relevant text of the report.

Abstract: The report should have a concise but comprehensive abstract, of about a page, summarizing the objectives of the work, the contents of the report and indicating the most relevant aspects of the work done and achievements. Although the abstract is placed at the beginning of the report it should be revised on various occasions and finalized as the last piece of the report. The abstract will succinctly review the problem, the design and methods and the key findings. In a final sentence the main conclusion of the research will be given. The idea is that it can then be used in publications listing research work completed, which will enable other workers in the same field to identify what has already been done and to refer to the abstract to see whether or not they should read the whole report. Therefore the abstract must provide a summary of the report, stating the nature and scope of the work undertaken, the contribution it makes to knowledge of the subject matter, a brief statement of the research method used, an outline of the main argument and findings, and a summary of any conclusions reached. A good abstract is singularly difficult to produce. Try to avoid a chapter by chapter summary; and try to give an overall impression of the work, bearing in mind the purpose of an abstract.

Acknowledgements: If your project is based on the work of a team it is usually appropriate to indicate this by saying so. This is also the place for all other acknowledgements. It is important to acknowledge all assistance and contributions made by other people to your project.

Table of Contents: The table of contents must provide a title and page number for each chapter/section and sub section of the report and should agree with it exactly. Page numbers should be entered against every item in the table of contents and headings should be differentiated using a numbering system. If the report contains appendices these should be included at the end with their titles listed in the table of contents.

List of Symbols, Abbreviations and Nomenclature: This should list, with page numbers, all the abbreviations in alphabetical order.

List of Figures: This should list, with page numbers, all the schematics, photographs, photocopies, diagrams, and the like that are in the report, in the order in which they appear in the text.

List of Tables: This should list, with page numbers, all the tables in the report in the order in which they appear in the text.

Main body of the report: The main body of the report, where the actual work and results is described should be well structured in chapters with suitable headings, and with sub-sections providing further structure. The first chapter of the main body of the report should be the Introduction and the last chapter the conclusions.

Introduction: The introduction ‘gets things started’. It sets the context of the work, indicates what is being addressed in the report, provides the motivation for the study and can usefully provide a ‘road map’ indicating how the report is structured.

Problem Statement: The problem statement should clearly state the problem that you are trying to solve.

Objectives: Here the objectives of the research are stated clearly and concisely. What are you aiming to achieve?

Literature Review: This includes a review of related work or literature. It should generally be unnecessary to quote at length from technical papers or textbooks. If a simple bibliographic reference is insufficient, consign any lengthy quotation to an appendix.

Methodology: The methodology is the recipe for conducting the research. It talks about the approach you took to solve your problem and thus achieve your objectives. You should describe your methodology used and why you have chosen that methodology.

Intermediate Sections: An example of section headings could be: requirements analysis, specification, data collection, data analysis, design, implementation, testing, and evaluation. Ideally sections are numbered within chapters (2.1, 2.2), subsections may have numbers if you want (2.1.1, but never go beyond three levels!). The headings of sections and subsections should be bold.

Remember to explicitly describe the work which was undertaken before code was written, hardware built or theories worked on. Show how the project proposal was further refined and clarified, so that the implementation stage could go smoothly rather than by trial and error. It is important to demonstrate throughout the project report that a proper professional approach was employed. Cite any new programming languages and systems which had to be learnt and mention complicated theories or algorithms which required understanding. Do not pretend to have developed existing theories or algorithms. In the implementation section, describe what was actually produced: the programs which were written, the hardware which was built or the theory which was developed. Descriptions of programs may include fragments of high-level code but large chunks of code are usually best left to appendices.

Similar advice applies to circuit diagrams. It should not be necessary to give a day-by-day account of the progress of the work but major milestones may sometimes be highlighted with advantage. In the evaluation section, assessors will be looking for signs of success and for evidence of thorough and systematic testing. Sample output, tables of timings and photographs of workstation screens, oscilloscope traces or circuit boards may be included. As with code, voluminous examples of sample output are usually

best left to appendices. There are some obvious questions to address. How many of the original goals were achieved? Were they proved to have been achieved? Did the program/hardware/theory really work? Assessors are well aware that large programs will very likely include some residual bugs. It should always be possible to demonstrate that a program works in simple cases and it is instructive to demonstrate how close it is to working in a really ambitious case.

Conclusions: This part of the report should describe the conclusions drawn from the work. This section is particularly important in a final report where it should give a clear description of what is important in the work done, indicating clearly the personal contribution. There should also be a description on how well the initial objectives of the project have been met. So you are summarising key findings but also using this section to ‘bring things to a tidy end’.

Recommendations: This is to summarise your recommendations and/or improvements for future work arising from your project.

References: All sources cited in the text should be included in the list of references. References should be referred to in the text by using American Psychological Association (APA) referencing style. References should be arranged in alphabetical order at the end of the report, beginning with author’s name. References are important to the reader, therefore, each citation must be complete and correct. It is essential that all the work which you produce for assessment should be fully referenced.

For a journal paper citation, format is:

Surname, Initial., & Surname, Initial. (Year, date). Title of article: Subtitle of article. *Title of the journal in italics, volume number/year in italics* (issue number in parentheses), page range or page number.

Example:

Kwan, I., & Mapstone, J. (2004). Visibility aids for pedestrians and cyclists: A systematic review of randomised controlled trials. *Accident Analysis & Prevention*, 36(3), 305-312.

For a book citation, format is:

Surname, Initial., & Surname, Initial. (Year). *Title in italics: Subtitle in italics*. Place of publication: Publisher.

Example:

Baundali, R. (1998). *Dusty Water Supply Techniques* (15th edition). Kijiweni Publishing Company.

For a conference paper citation (workshop, symposium etc.), format is:

Author Surname, First Initial. Second Initial. (Year). Conference paper title. *Proceedings Book Title* (pp. page range of paper). Place of Publication: Publisher.

Example:

Armstrong, D. B., Fogarty, G. J., & Dingsdag, D. (2007). Scales measuring characteristics of small business information systems. *Proceedings of Research, Relevance and Rigour: Coming of age: 18th*

Australasian Conference on Information Systems (pp. 163-171). Toowoomba, Australia: University of Southern Queensland.

Appendices (Where appropriate): This includes any major details such as complex mathematical derivations, complex statistical procedures, equipment details, complete sets of results, voluminous code, user manuals, questionnaires, summary of interview transcripts, or any other detailed data or developments relevant to the project but that would detract from the ‘flow’ if included in the main body of the report. They should be supporting some argument or theme in the text and not just nice to know. In most cases the reader does not have to read them to follow and understand the main text - they can take it or leave it. This also applies to footnotes which are usually shorter and appear either at the foot of the page or the end of the chapter. They can be a definition, quotation or any other bit of information needed. The appendices are not marked but a consequence of following up a reference to an appendix may be an adjustment to the mark for a chapter in the main body of the project report.

Towards the end of each section try to give a pointer towards the next section, thus giving continuity to the project report as a whole. Be wary about the excessive use of notes and footnotes. These can be helpful if you need to include detail useful for the reader but not essential to the flow of the argument, but otherwise should be avoided. Where notes/footnotes are mainly about authors, it may be better to use a referencing system in the body of the text. See your supervisor about this. Where you do use notes/footnotes, these should be numbered and listed at the end of each section.

Assessors primarily require the project report to be literate and tidy. It is not necessary to spend hours using an advanced graphics design package but it is necessary to avoid spaces before commas, full stops and closing brackets. Adherence to these project guidelines is regarded as part of the presentation. If you fail to include a cover page, or misunderstand the phrase “not more than 10 pages”, or omit the abstract altogether, you will lose marks for presentation.

F.2. Typography and style – font, page numbering

Paper: Your report must be printed on A4 size white paper. Paper of a larger size up to A3 may be used for maps, plans, diagrams and illustrative material forming part of the report.

Page Numbering: Pages should be numbered consecutively and preferably positioned at the bottom centre of the page. Pages must be single-sided. Paginate the preliminaries (portions preceding the Introduction) in lower case Roman numerals (i, ii, iii, etc). Number pages of the main body in Arabic numerals (1, 2, 3, etc).

Text: Your report must be typed. The text should be in 1.5 line spacing and have a font size of 12 using Times New Roman font. Double spacing should be provided above and below equations. Headings should be in a font size no larger than 14. Quotations and footnotes can be in single spacing in a font size of 10. Variables should be in italics. Italics should not be used to introduce a new thought or idea. In text, numbers should be written in words unless it is a measurement (e.g. 5 metres) or a label.

Equations, Figures and Tables: Equations, figures and tables should have numbers, captions and should be referenced from the text. Unless you have obtained prior permission from your supervisor to submit a

separate folio, all maps, photographs, graphs, etc should be embodied in the text. Maps, charts, graphs, diagrams should all be referred to as figures and numbered in the consecutive order. Sources of information used on compiling equations, figures and tables should be acknowledged. All illustrations should be numbered, titled, and as far as possible, be self-explanatory. Where necessary, each new section should be restarted with a new numbering scheme. Caption for a table should appear at the top of the table. Caption for a figure should appear at the bottom of the figure. Captions should start with chapter number followed by figure/table/equation number. Example, Table 3.2, Figure 4.5, etc. Avoid using words such as Figure below, Table above. You should reference a Table number or Figure number. Example: Figure 3.2 shows

Margins: Margins at the binding left hand side should be not less than 30mm. Top, bottom and side margins should be not less than 20mm. This is also very important for graphs and illustrations as these are often drawn to fill a complete page and legends get lost in the binding and trimming process.

Additional materials: Appended electronic material should be in a CD or DVD if you wish, but not on a flash disk (memory stick). There should be a declaration in the report of the programming language used, the files included, and the size of the files. A README text file (.txt) should be included. Good quality photocopies (black and white or coloured) and good quality photographs (black and white or coloured) can be used.

These guidelines, which are in force at the start of the programme, will apply to the presentation of your project report unless you are informed otherwise.

F.3. Plagiarism, syndication and fraud

Project work is conducted in your own time and obviously not under constant control and supervision. It is expected that work will be done fairly, and that the project report will be a proper report on the work performed. If you get unusually large amounts of assistance during the year, or use code written by somebody else you must report it. Results shown in your project report must have been produced by your programs and not concocted. Obviously both general and particular claims (including ones made implicitly rather than explicitly) must be true.

You are responsible for ensuring that work you submit for assessment is genuinely your own and is not plagiarised (borrowed, without specific acknowledgement, or stolen from other published or unpublished work). All work should be acknowledged. No text should be taken from any other source. If you think that someone has written a fantastic quote that you want to borrow, then you must make it visually clear that you have done so. To include in your report any material from other sources than your own original work, without properly referencing, constitutes plagiarism and will be severely penalised. This applies to text, figures, computer programs and drawings. All these should be properly referenced when taken from other sources.

Any quotations from articles or books should be clearly marked as such and a full reference, including the page number, given. Normally it is also unacceptable, even if proper references are given, to copy textually from other sources, unless textual reproduction is absolutely necessary. In such cases, use should be made of quotation marks to make absolutely clear that the sentence is copied textually. If you are

quoting actual words from a published or unpublished source - or even from work of your own - you must acknowledge that fact each time you do it by using quotation marks and citing your source in the text of your work. It is not enough just to list sources in a bibliography at the end of your project report if you do not acknowledge the actual quotes in the text. Neither is it acceptable to change some of the words or the order of sentences if, by failing to acknowledge the source properly, you give the impression that it is your own work or your own ideas. Quoting work from elsewhere without attribution, or rewriting a text in one's own words, can constitute plagiarism. This is a serious offence and any breaches will be treated rigorously by the University. If you are in any doubt about this you should consult your supervisor.

Assessed work should not be produced jointly unless the written instructions specified this. Such co-operation is cheating and any commonality of text is plagiarism. Where there is clear evidence of unpermitted collaboration in work submitted to meet the assessment requirements for the project, all the students concerned may be required to resubmit alternative items of work.

All reports should include a signed declaration of authorship and originality as shown under “F.1. Contents and ordering – format, citing references”. This form should be printed, completed, signed and bound with the rest of the report.

Where it is established that a student has been cheating, he/she will be deemed to have failed the complete assessment for that project. Re-examination or resubmission of work for assessment will be at the discretion of the university.

Note that none of these points prevent you from obtaining assistance with your project – they just require that you present a sufficiently detailed explanation of how your results were achieved to allow the assessors to assess the strengths of your contribution. The University views fraud as a serious offence, and all staff members involved in the assessment of project report are expected to watch for and report any anomalies which could indicate its presence. You should read the University’s guidelines on plagiarism.

You should also be aware that the electronic copy of your project report will be submitted to anti-plagiarism software for checking. Any report found to not satisfy plagiarism conditions shall not be allowed to proceed for submission for assessment.

We repeat – the project must be your own work. Plagiarism means failure and possible expulsion!

G. Submission

G.1. Before submitting

Once you have your final error-free, plagiarism-free version of your report, submit one hard copy to your supervisor, well in advance of the submission deadline. It is a requirement that you receive approval for submission of your report from your supervisor before submitting it to the project coordinator. This approval will be shown by the signing of the certification page, which shows that the report has been given the go-ahead for assessment. It is advised that you do not wait until the deadline to provide your report as you may not have enough time to incorporate all the suggested comments, and only upon the consent of

your supervisor (which includes making any necessary modifications that they will suggest) must you submit your report for assessment. You cannot submit a report that is not signed.

G.2. Submission deadlines

The final deadline for submission of project reports is Thursday 4pm of week 14. Both the soft and hard copies of the report must be submitted by the 4pm deadline. The soft copy should be identical in content to the printed version. The final deadline for submission of accompanying software and/or hardware is on the day of presentation.

Late submissions of any report will normally incur in loss of marks unless a properly justified extension of the deadline has been previously agreed with the project coordinator. Penalty for unjustified lateness will be 10% per day. Penalties for late submissions are deducted after the total mark has been found. The deduction comes into play immediately after the 4pm deadline, when the first day starts to be counted.

To request an extension, a recommendation supported by your supervisor must be made in writing before the original deadline, and must be for a specific length of extension. The recommendation must state the grounds for the extension and include reference to appropriate evidence that the supervisor has seen. Normally the length of the extension should relate closely to the lost time attributable to the exceptional circumstance. The grounds must be based on one or more particular circumstances which are clearly beyond your control and which do not constitute a contingency for which provision should have been made.

Examples of such circumstances are:

- a medical certificate covering indisposition for a period at which key work was due to be carried out;
- an unexpected bereavement;
- absence of a supervisor and replacement supervisor at a point when key supervision had been specifically planned despite notice being given to the project coordinator and the coordinator agreeing to provide a replacement;

Examples of circumstances which would not normally be sufficient for an extension:

- loss of a computer disk (backups should be kept);
- failure of a printer (printing should be done well in advance of the deadline);
- problems in binding including lack of power (binding should be done well in advance of the deadline)

When deciding whether the grounds are sufficient, the following points will always be considered in relation to the request:

- Did the circumstances occur at a key point?
- Has the student kept the supervisor informed of progress so that a valid judgement of the effect of the circumstances can be made?
- Are the circumstances simply “normal problems” for which most students would not expect an extension so that granting an extension in this case would give the student an advantage over other students?

If an extension is granted the project coordinator will ensure that the student is informed in writing with a copy sent to their supervisor and departmental student file, defining the new deadline.

G.3. Number of copies

You should hand in two hard copies of your final report (in tape binding), one soft copy (as a PDF file in a CD), and any software that you have produced (in a CD). Please note that all your source code, designs, CAD files, and the like must also be submitted. Remember also to include database of your application and also passwords for your application if applicable. These must conform to the style described in these guidelines. Your reports should be bound with sufficient anticipation to avoid last minute problems, which can result in delays in submission with the corresponding penalty. The front cover of project reports is given a different colour each year. You shall be informed of the colour for your year of submission.

It is important to check with your supervisor whether any corrections need to be made before binding.

Also note that the entire cost of production of the dissertation will be borne by you.

G.4. Students responsibility

At all times bear in mind that IS 335, CS 498 and CS 499 are your responsibility. It is not your supervisor, academic tutor or department's responsibility. You are entirely responsible for your project work.

G.5. Regulations

The regulations of the University of Dar es Salaam and the College of ICT apply to your project work and take precedence over these guidelines. Please ensure that you are familiar with them and comply with them at all times. Ignorance is no excuse!

G.6. Appeals

Appeals for project work follow the same procedures as appeals for other courses in your department.

H. Assessment

Students must be aware that the importance of the project mark is much more than the units it represents. Prospective employers pay particular attention to the project mark and the evaluation of the student's performance in the project normally constitutes a major part in letters of recommendation written by members of the staff on behalf of the students.

H.1. Allocation of marks

Your report will be assessed by a number of examiners, internal and external, one of whom will be your supervisor. Marks are drawn up from three main components, your performance throughout, your reports, and your oral presentation, as follows:

Student Performance 10%, Project Reports 50%, Oral presentation 40%.

The oral presentation marks (40%) are drawn up from seven components, as follows:

Organisation	Contents	Project Goals and Accomplishment	Project Plan	Delivery	Use of Multimedia	Answering of Questions
5 marks	10 marks	6 marks	6 marks	5 marks	4 marks	4 marks

Criteria based assessments are used to determine the project marks in each of these areas taking into account such factors as effort and dedication, quality of work, originality and independence, presentation and achievement.

The original aspect of your work can come from a variety of sources. If your project is research based then the novelty comes from some new contribution to science. If your project is more application oriented, novelty can come from new combinations of technology, or new designs.

Note that we try and mark you on what you achieved in your project, taking into account how difficult a project was in the first place. No marks are explicitly awarded for difficulty. Assessors are well aware that some projects are more challenging than others and take this into account as they read the report. Sloppy presentations however (either written or oral) may reduce your mark, as it may not be possible to assess what you have achieved in your project. Assessors are also well aware that some projects are a continuation of a previously done project.

Penalties for late submissions are deducted after the total mark has been found. The deduction comes into play immediately after the 4pm deadline, when the first day starts to be counted. Both the soft and hard copies of the report must be submitted by the 4pm deadline.

When all the final project marks have been submitted, an exercise will be carried out involving all staff involved in supervising and assessing projects. The final mark will be deduced following internal approval as well as approval of external examination. In exceptional circumstances an additional examination may be organised. If so, you should make yourself available in order to be assessed.

The failure of either IS 335, CS 498 or CS 499 will have the same impact like any other course in a specific semester.

For an idea of what may be in the mind of an assessor when assessing your progress and final reports, see the Assessor's Checklist in the Annexes. Do note that assessment will vary according to the nature of the individual topic.

H.2. Student Performance

It is essential that you make full use of supervision and technical support to resource your project as effectively as possible. A significant proportion of the marks allocated to the project are based on your performance during the project, and supervisors will be forming judgements based on your application and achievements while undertaking the project. Some of the things that will be considered when assessing your performance include:

- Your ideas
- Your initiative to get things done
- Diligence in terms of work persistence
- Your systematic approach to an engineering project
- Your progress report and oral presentation

Of course, any other necessary criteria shall also be considered.

H.3. Results of Project Work

Your achievements will also be assessed. Some of the things that will be considered when assessing your achievements include:

- Problem analysis
 - Definition of the problem
 - Specification of problems (objectives)
 - The plan, design and product
- Choice of workable solution
 - Justification of solution from technical and economic point of view
 - Function in terms of solving the problem
 - Quality in terms of the degree of achieving objectives
 - Completeness of solution
 - Critical comments and conclusions (model checking and improvement)

H.4. Written Report

When it comes to the written report, the following are some of the things that will be considered during assessment:

Relevance of description in terms of:

- Logical order
- Preciseness
- Completeness of the report
- Neatness
- Adherence to the report guidelines
- Meeting of deadline (10% is deducted after the deadline for the first week and 10% per day thereafter)

Of course, any other necessary criteria shall also be considered.

H.5. Oral presentations

During the last week of the university examinations, a day, sometimes two or three days, will be devoted to a series of brief presentations and demonstrations of each project given by the students. The audience shall comprise of supervisors, independent assessors, staff, students in the department and other interested participants. The aim of the oral presentation and demonstration session is to give a panel of assessors a feel for how much you have achieved, the quality of your work in the project and the amount of work and

effort that you have put in. The oral presentation is also intended to assess your ability to deliver a technical presentation in which you outline the results of your project investigations. Therefore, you should aim to give a professional presentation as if you were addressing a group of managers and engineers in industry. Both contents and style will be assessed.

Here is a summary of the items that will be considered during assessment of oral presentations:

- Organization (clear introduction, inclusion of necessary background information, logical flow of ideas, clear distinction between introduction, body and conclusion)
- Contents (focus on topic, detailed body of presentation, level of conversance, use of facts and logical explanations where appropriate, strong conclusion)
- Project Goals and Accomplishment (clear problem stating, clear definition of project goals, clear evidence of accomplishment of project goals)
- Project Plan (methodology, assumptions and limitations, resources, costing, schedule)
- Delivery (audibility, pace, inflection, eye contact, moderate use of notes, mannerisms i.e. gestures and posture, use of filler words e.g. uhm, uuuh, mmmm, time keeping)
- Visuals / use of multimedia (layout of slides, professional quality, clarity of slides, handling of slides)
- Answering of questions (evidence of practice, enthusiasm, interest)

The presentations should be prepared using presentation software (such as Microsoft PowerPoint), and will be projected directly from computers installed in the rooms. It is important that it is clear to the audience, and in particular to the members of the marking panel, the extent of your personal contribution and amount of work and effort involved in your project. Graphics and animations can be used effectively to show your work but only when used in moderation. Excessive use of fancy graphics and animations can be annoying to the audience and usually are counterproductive, since these are often used to disguise a lack of substance. All slides should be numbered.

The presentation, which should summarise the key aspects of your report, should include:

- An outline, aims and background of the project
- Essentials of design /tests/experimental procedures
- Major results and discussions
- Conclusions and recommendations

The time allocated for each presentation is 13 minutes including questions (you have to plan for an 8 minutes talk with 5 minutes spared for questions). Supervisors will be prepared to give students advice on suitable forms of presentation and may also help students rehearse their presentations. Ideally all students should have at least one rehearsal session of their presentation with their supervisor.

Note that not all projects require a demonstration, and that demonstrations do not have to be slick. If you have done research that, for example, proves a theoretical property of some circuit, then there is little that you are expected to demonstrate. When you have developed a proof-of-principle algorithm or piece of hardware, then we expect some demonstration. If you claim to have implemented a fully working gadget then we expect a slick demonstration. You will need to make sure that you have set up a system to demonstrate your work, and to submit that demo/prototype to the department.

Giving a presentation is a compulsory part of the project and if this is missed for any justifiable reason, it will have to be given at another date that will be fixed. Unjustified absences will normally be deemed to constitute an abscondment unless a valid cause is established by the production of acceptable evidence. Decisions on valid causes will be made by the department, following receipt of written evidence from the student supporting his / her case.

Attendance of presentations is also a compulsory part of the project. Your presence for the entire duration of the presentations is expected, and you will be deducted 5% from your final project mark if you miss any part without prior permission from the project coordinator.

I. Additional Information

Information relating to the project will be displayed on the noticeboard. Any handouts will normally be available from the Department Office.

Copies of previous project reports already submitted can be consulted in the library. You are strongly recommended to look at several of these in the early stages of your research.

J. Annexes

J.1. Project title consultation form**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING****PROJECT TITLE CONSULTATION FORM****STUDENT'S NAME:** **Reg. No:**.....

Date	Title	Comments	Supervisor Signature

Final Title:

.....

.....

Supervisor's Name: **Signature:** **Date:**.....

J.2. Project registration form

UNIVERSITY OF DAR ES SALAAM
COLLEGE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
P. O. BOX 35131 DAR ES SALAAM TANZANIA

FINAL YEAR PROJECT TITLE REGISTRATION FORM

STUDENT'S NAME:

PROJECT TITLE:

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DETAILS:

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SUPERVISOR: **SIGNATURE:**

DATE:

IMPORTANT DEADLINES:

REGISTRATION: Tenth week of second semester leading to final

MODIFICATION OF TITLE: First week of first semester during final year

NOTE:

LATE REGISTRATION: 10% PENALTY PER WEEK

J.3. Project title change form

UNIVERSITY OF DAR ES SALAAM
COLLEGE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
P. O. BOX 35131 DAR ES SALAAM TANZANIA

FINAL YEAR PROJECT TITLE CHANGE FORM

STUDENT'S NAME:

CHANGE NUMBER: (Is this your 1st time changing your title? 2nd time? 3rd time?).....

CHANGING FROM PROJECT TITLE:

.....
.....

SUPERVISOR:

REASON(S) FOR CHANGE:

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.....

NEW PROJECT TITLE:

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DETAILS:

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SUPERVISOR'S NAME : **SIGNATURE:**.....

DATE:

NOTE IMPORTANT DEADLINE:

MODIFICATION OF TITLE: First week of first semester during final year

J.4. Supervisor consultation form

UNIVERSITY OF DAR ES SALAAM
COLLEGE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
P. O. BOX 35131 DAR ES SALAAM TANZANIA

PROJECT SUPERVISOR CONSULTATION FORM

PROJECT TITLE:

STUDENT'S NAME:

SUPERVISOR:

Date	Comments	Student Signature	Supervisor Signature

COMMENTS:

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J.5. Cover page format

<p style="text-align: center;">UNIVERSITY OF DAR ES SALAAM</p> <p style="text-align: center;">COLLEGE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</p> <p style="text-align: center;">DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING</p> <div style="text-align: center; margin-top: 20px;"></div> <p style="text-align: center;">PROJECT REPORT [COURSE CODE]</p> <p style="text-align: center;">PROJECT TITLE: [PROJECT TITLE]</p> <p>A Project Report in Partial Fulfillment for the Award of Bachelor of Science in [DEGREE PROGRAMME]</p> <p>Name of Candidate:</p> <p>Registration Number:.....</p> <p>Name of Supervisor: Supervisor's Signature</p> <p>Submission Date:</p>
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J.6 Assessor's Checklist for Student Progress

	Excellent	Very Good	Good	Satisfactory	Poor
Stage One:					
Has the student presented clear aims and objectives?					
Has the student presented a project plan?					
Does the plan seem realistic and achievable?					
Has the student identified clearly the methodology and resources to be used and justified them within the context of the activities undertaken?					
Has the student submitted technical drawings (if any)?					
Stage Two:					
Has the student fulfilled the majority of the aims and objectives?					
Does the content show clear evidence of the theoretical issues?					
Does the content show clear evidence of a critical analysis of the work undertaken and the results achieved?					
Are the results achieved so far credible and in line with expectations?					
Is the work completed so far well rounded?					
Does the plan for any remaining work seem realistic and achievable?					
Has the student started writing the final report? If so, is it logically presented and containing the appropriate stages of discussion?					
Stage Three:					
Is the quality of the presentation of the report up to the university's standard, including the appropriateness of the illustrative material, such as diagrams, maps and software?					
If any problems were encountered, were they handled suitably, was the right type of guidance sought and what the amount of direction required suitable?					