MSc Project Assessment Criteria

Purpose and Nature of the MSc Project

The purpose of the MSc project is to demonstrate that students can:

1. bring together the knowledge that they have acquired from the various modules in the programme and apply it to a major task;

2. use the professional and academic literature to extend their knowledge in order to meet the challenges of the task;

3. critically evaluate other people's work in the field, and their own.

An MSc project is a 'research project' but, unlike MPhil and PhD projects, it is not required 'to constitute an original contribution to learning'. In practice, this means that students are required to find things out, by critical reading of the professional and academic literature, or by analysing requirements identified by potential users of a software system, and are required to apply the knowledge gained to reasonably novel problems, but are not expected to generate fundamentally new ideas themselves. In the specific context of Computer Science, an MSc project usually means one of the following:

1. software implementation

2. survey

3. investigation

4. system design.

Software implementation projects are projects whose main purpose is to produce a piece of software that has to satisfy some specific requirements. It may well be that part of the task in carrying out the project is to identify those requirements in detail. Students are not expected to produce all the documents that would be produced in an industrial or commercial development. Because the time available is limited, the software is bound to be fairly small and there is no need for compendious documentation. Nevertheless, dissertations describing such projects are still expected to address the central issues of requirements, design, testing and validation; they should also include a critical account of the tools and methods used and the way in which they were selected. To be acceptable as a master's level project, the task itself must be more than a run-of-the-mill implementation and must require the exercise of some creative or imaginative skills. The resulting dissertation must outline and evaluate the engineering approach, compare the approach used with other similar approaches, and must rationalise the choice of approach. It is essential to review published work concerning similar tasks and/or approaches rather than inventing everything from scratch. A good review should strike an appropriate balance between web and other sources, and should include careful appraisal of all the sources used.

A survey can range from surveys of packages available for use in veterinary practices to surveys of algorithms for deciding whether an object can be moved around a corner in a corridor (the so-called sofa problem). It involves a great deal of information gathering (from suppliers, from users or potential users, or from learned journals, depending on what is being surveyed), profound study to understand how the things being surveyed differ from each other and what the practical importance of the differences is, and application of analytical and compositional skills to draw valid and useful conclusions and describe them concisely and precisely. It is very difficult to do a survey project well.

An investigation normally requires the student to write some software; it differs from software implementation in that the requirements are usually less clearly defined and there is no certainty about what can be achieved. The aim is to see how well a particular approach to a problem will work or to improve on an existing technique. It often involves conducting a series of experiments and analysing the results. Projects of this type are closest to conventional academic research as it is understood in science and engineering. It is essential that the hypotheses being investigated are clearly stated, that the experiments are shown to be designed to test the hypotheses, and that the results are assessed in the light of the experiments and the hypotheses.

System design is not a very precise term. What we mean by it is the design of a complete system for a real world environment, usually, but not necessarily, a business information system, that is too large for the implementation to be contemplated as part of the MSc project. Enterprise modelling frequently constitutes a substantial element of this kind of project. Projects of this sort are most likely to be carried out by students who have significant business experience and are often done in collaboration with an employer. As with software implementation, an MSc project focused on system design must evaluate more than one engineering approach, and must rationalise the choice of approach. It should also review published work about similar domains and approaches, striking a balance between web and conventional sources.

Students are usually expected to use a reasonably wide range of sources, including research literature – it is certainly not acceptable for all the material to be taken from a single text book or article, or from web sites that themselves derive from a single source. Students must also evaluate the work they have done in a critical way; exactly what this will mean depends on the type of project they have undertaken. Students are not expected to have done a complete and perfect piece of work; there is simply not enough time. They are, however, expected to realise the weaknesses (and also the strengths) of the work they have carried out and to report on these in the dissertation.

MSc students undertake a very wide range of projects. A Software Engineering project will usually address a task that is commercially or industrially relevant, that is, a task that someone working in the industry might be expected to carry out. Intelligent Systems projects are likely to be more academic in nature. If a project is carried out in the context of a specific situation, e.g. the student's employing organisation, so much the better. However, if the work has been done in such a context, this must be made clear in the dissertation.

Criteria for specific levels

Marks above 80% are rarely awarded. When they are awarded, the work must be of the standard indicated for marks of 75% and above, and must also demonstrate a deep understanding and insight into the key issues raised by the project, an innovative response to the problem addressed, and an outstanding critical evaluation of both the problem and the response.

In order to be awarded a mark of 75% or over,

1. the work must completely meet the standards expected of a professional in the software industry or must be of a standard acceptable to a professional or academic journal;

2. the dissertation must be written in a style appropriate to an academic dissertation, it must be largely free of grammatical and typographical errors, and it must comply, in the spirit if not the letter, with the department's published guidelines for MSc dissertations;

3. the task undertaken must be appropriate to a master's project; it must involve either the application of knowledge from the taught part of the course to a problem whose solution is not straightforward, or the acquisition of substantial new knowledge from professional or academic literature;

4. the dissertation must include a critical evaluation of the work carried out by the student as well as either an evaluation of the tools used (both their quality and their suitability for the task) in comparison with the alternatives available, or other work carried out in the same field, as reported in the professional or academic literature. The evaluation must demonstrate a deep understanding of the material.

A mark in the range 70% to 74% will be awarded to a project that generally meets the requirements for a mark of 75% or above but which does not reach the level of professional or academic quality required under the first criterion or does not meet the same standards of presentation.

A mark in the range 60% to 69% will be awarded when the standards for higher marks have not been attained but:

1. the work carried out demonstrates clear competence at a master's level task;

2. the dissertation describes clearly what has been done;

3. the dissertation shows an awareness of alternative approaches and demonstrates why the approach taken was selected.

A mark in the range 50% to 59% will be awarded to a project that generally meets the criteria for a mark in the range 60% to 69% but that shows significant areas of weakness in either the dissertation or the way the work has been carried out.

A mark in the range 30% to 49% indicates a failed project: Projects fail for any of the following reasons.

1. They include nothing original or, in the technical sense, critical;

2. They are substantially regurgitated, either with or without appropriate references;

3. they are inaccurate, or incoherent or both;

4. they are uncritical, too small, or not researched;

5. the project report does not accurately reflect the work done;

6. other sources are inadequately acknowledged.

That is, a project fails if it meets the intellectual standard required for an MSc project but fails to meet the presentation criteria necessary to achieve a pass mark; or, although it is adequately presented, it describes work that is not of the intellectual level required for an MSc project.

Marks in the range 20% to 29% indicate a failure due to any of the following causes:

1. a seriously flawed understanding of the problem tackled;

2. a seriously inappropriate response to the problem.

Marks below 20% may be awarded for a drastically inadequate response to the problem tackled.

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