

# Study Guide

This item contains selected online content. It is for use alongside, not as a replacement for the module website, which is the primary study format and contains activities and resources that cannot be replicated in the printed versions.

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# 1 Introduction

Welcome to TM470 *The computing and IT project*. The project is the final stage of the computing and IT-related suite of qualifications. It is your opportunity to work on an exciting and interesting topic of your choice and to show your ability to work independently at this level using knowledge and understanding you have gained from your studies earlier in your degree programme.

This document is the TM470 *Study Guide* and is the starting point for your project. You should find everything you need to get started here. It contains a lot of information, which you should read through now, but you will need to keep referring to it throughout the project.

The *Study Guide* explains:

- what a project is and what its special features are
- how it is assessed
- what you need to do
- what resources are available to you
- how to get started.

A lot of this information is explained in greater detail in the other project resources available on the TM470 website.

## 1.1 What is a project?

A project is a single task with a set of identifiable outcomes. This means that when a project is finished you will always be able to look at the results and ask:

- 'Was it successful?', 'Did it achieve its outcomes?', 'How did it achieve its outcomes?'

Not only can you ask these questions but also you should be able to answer them.

In addition, you should be able to ask:

- What did I do well to make it succeed?
- What could I do better next time?

In fact you will need to answer these questions in your end-of-module assessment (EMA), which forms your final project report.

## 1.2 What is a computing and IT project?

The computing and IT project is usually the last module you will undertake as part of a degree in the Computing and IT programme. It gives you the opportunity to make use of knowledge and skills you have built up earlier and also to gain new knowledge in cutting-edge areas and to develop new skills.

As you will have studied several modules in the programme you will already be familiar with many of the features of TM470 such as using assessment as a way of keeping you involved with learning, using online forums and having the support of a tutor.

In many ways though, TM470 is different. Firstly, there is very little teaching material. Instead there is a set of resources that you can use to develop and enhance your skills and experience while completing the project. Secondly, you yourself are in charge of the project and how it is conducted.

For most students the computing and IT project is one of the few chances you will get in your career to choose something of interest to yourself and pursue it as a project. Normally, you will be doing projects on behalf of your employer or a client. So when you choose a project topic it is an exceptional opportunity to have a go at something that is of real interest to you. There is an extensive [Project Choice](#) guide on the website; it is a good idea to read this as soon as you can, and to start choosing a topic.

As part of this module you will be expected to:

- choose and justify your choice of project
- define what the outcomes of the project will be
- plan how you are going to achieve these outcomes
- research the background and state of the art of the subject area of your project
- complete the project
- produce a report describing the project and analysing both the project itself and the way you went about it.

Completing the three tutor-marked assignments (TMAs) and the EMA (the project report) will guide you through these activities stage by stage.

## 1.3 What is an individual project?

An individual project involves:

- identifying a problem
- IT- or computing-based technology
- planning, producing and evaluating a solution
- work based on level 3 modules, which extends level 3 learning; you may do a project on a topic that does not directly relate to any of the level 3 modules as long as it is on an IT and Computing topic, and within your specialist route, if applicable, and your understanding of it is of a sufficient depth to undertake of a Computing and IT end of award project.

An important aspect of the project is that it is an individual piece of work. This means that the work in the project must be entirely your own. Some projects are undertaken by teams of people; that is not the case in this module.

Additionally, as the project always makes use of the work of other people, you need to be careful to identify what is your work and what is information you have found through searching the literature and other sources. You must avoid plagiarising.

An important aspect of the project is your development as a reflective practitioner, not only technically proficient in your area of expertise but also able to step back from the details to think about how your work is progressing and your approach to it. In this module the process followed when completing your project is as important as the final project outcomes. This is reflected in the mark scheme.

## 2 The Library

A large amount of the project will involve researching background information and finding out about recent developments in your area. It is easy to make the mistake of thinking that this can be found out about just through web searches. In practice you will need to make use of academic journals, databases of abstracts, textbooks and many other sources.

The list of sources may look daunting, but there is a simple solution: the Open University Library. Through online tools, the Library gives access to almost all the information sources you will need. Not only does it provide access but also there are very good online training sessions about using these sources. In addition, there are dedicated project resources to help you:

- understand the issues involved in searching the literature
- recognise the relevant from the irrelevant
- learn how to write a literature review
- understand the importance of proper citing and referencing.

A big problem can be keeping track of the information you have found and referring to it properly in your TMAs and EMA. The Library can help with this as well. It provides online tools that you can use to keep track of all the useful information you find and then later to insert proper references into your work. This helps a lot in avoiding plagiarism.

There is a section of the TM470 website devoted to the Library and its facilities. In there you will find descriptions of all the facilities you are likely to need and tutorial sections explaining how to use them. Of course, your tutor will be able to help in this area as well.

You are strongly advised to make use of these library facilities: without them it is difficult, if not impossible, to achieve a good mark.

## 3 Choosing a topic

The project will fill a large part of your thoughts and time for the next few months. Choosing a project that meets the demands of your degree programme is important, but it is equally important to choose a project that interests you. There is an extensive [Project Choice](#) guide on the website and after this *Study Guide* it is the first thing you should read. To help you choose an interesting and worthwhile project we have set up a Project preparation forum, which will be open before the module officially starts. This is an online forum where you will have the opportunity to discuss your choice of project with other students and tutors.

It is essential that you agree your choice of project with your tutor soon after the start of the module. In TMA 01 we ask you to describe and give evidence of how your discussions with your tutor have influenced your choice of project and the manner in which you have agreed to maintain contact with your tutor between TMAs. TMA 01 expects you to have chosen a project title and topic, and is due very early in the module.

Be careful not to be unrealistic in your ambitions for the project. It should be complex enough to allow serious evaluation and for you to take decisions along the way, but not so complex that you can't complete it to a proper standard within the time.

## 4 External bodies and constraints

Many degrees that use TM470 as a project provide exemption from the professional examinations of the BCS (The Chartered Institute for IT) and partial exemption from the educational requirements for registration with the Engineering Council as a Chartered Engineer. This makes it much easier to gain professional membership of the BCS (MBCS status) and to register as a Chartered IT Professional or Chartered Engineer.

The professional bodies impose certain criteria on the project in order that these exemptions can be provided.

If you wish to take advantage of these exemptions you will find more information about this in the [Project Choice](#) guide on the TM470 website.

## 5 What happens in a project

A typical project involves several phases or stages.

Usually these will include:

- choosing a project title and topic
- scoping and defining the project
- planning how you are going to complete the project
- researching the project subject area
- analysing the problem to be addressed
- actually conducting the project (this could be one or more of the following project types: a research project, a development project or an evaluation project. These terms are explained in more fully in the project choice document)
- evaluating the results of the project
- evaluating your conduct of the project
- producing a final report on the project.

Guidance on how to complete these will be provided as part of the assessment of the module. If you complete all three TMAs and the EMA successfully you will have covered all the phases above.

### 5.1 How big is it? How long does it take?

You should be able to get all the information you need in your final project report (the EMA) into about 10,000 words. In addition you will need appendices where you should present detailed information. Do not use the appendices as a means to offload material from the main body of your report because of word limits. You will also need to provide a full and accurate list of the references you have cited.

You will be able to use most of the information you provide in TMA 01, TMA 02 and TMA 03 in your EMA; there is no problem in repeating it but it may need adapting or updating. However your final report must be entirely self-contained as your tutor (the first marker) will be familiar with your TMAs but the other marker(s) will only read the final project.

You should expect to spend about 75% of your time on TM470 on doing the actual project (this includes your background research and reading) and about 25% on writing your TMAs and EMA.

## 6 Personal development

As you progress with the project you should be developing as a reflective practitioner. Throughout the project you should be thinking about what experience you are bringing to the task, what you are learning and how you can improve your knowledge and skills.

Developing your skills as you work on your project is all about taking responsibility for extending and improving your learning and performance in a context that is broader and more open-ended than conventional OU modules. The assignments and the project report itself are intended to support your learning by allowing you to demonstrate skills that are valuable both in the workplace and for your future learning. You will receive feedback on your assignments, which you can use to improve your performance.

## 7 Aims and learning outcomes

### Aims

The project provides opportunities for you to:

- integrate and apply relevant knowledge, understanding and skills you have developed during your programme of study
- develop as a reflective practitioner – being aware of your knowledge and skills, how you are using them and what you are learning from the experience.

### Learning outcomes

The assessment of your work is based on learning outcomes. They describe what you will know and be able to do at the end of the module if you have completed it successfully. These learning outcomes are very important and you should think about them carefully, both when planning and when producing your work. That is, you should make sure that what you intend to do will meet the learning outcomes for each assessment and also that you have actually addressed all the relevant outcomes when you submit work.

The learning outcomes are grouped together under four headings: knowledge and understanding; cognitive skills; key skills; and professional and practical skills.

### Knowledge and understanding

You should be able to demonstrate and apply:

- a systematic understanding of the fundamental technical concepts and principles relevant to your project.

### Cognitive skills

You should be able to develop and demonstrate the ability to:

- identify and refine the goals and content of your project which should be within the area of your chosen specialist route, if applicable.
- identify, list and justify the resources, skills and activities needed to carry out the project successfully, and identify and address any associated risks.
- gather, analyse and evaluate relevant information to complete the project successfully
- critically review how you have tackled the project.

### Key skills

You should be able to develop and demonstrate the ability to:

- make effective use of a variety of information sources, including the internet, demonstrating awareness of the credibility of the source
- communicate information, ideas, problems and solutions clearly
- learn independently and reflect on what has been done, with a view to improving skills and knowledge.

## Professional and practical skills

You should be able to develop and demonstrate the ability to:

- plan and organise your project work appropriately, and keep systematic records of plans, progress and outcomes
- identify and address the legal, social, ethical and professional issues (LSEPIs) and the equality, diversity and inclusion (EDI) concerns that may arise during the development and use of computing and IT systems
- analyse a practical problem and devise and implement a solution, which should be within the area of your chosen specialist route, if applicable, building on, and extending, the knowledge and skills developed throughout your earlier OU studies and experience.

The specification of each assessment will make it clear which learning outcomes are being addressed by the assessment.

## 7.1 How to use learning outcomes

There are two main ways in which you can make use of the learning outcomes.

Firstly, familiarise yourself with them so that you can make use of them during the project. They can be used to guide your activities and how you approach the project.

Secondly, when doing work and completing assessments make sure that the work you are doing addresses the learning outcomes specified for that assessment.

Every learning outcome is assessed in each of the TMAs and the EMA. This is because they are developmental.

For example, for the outcome 'identify and refine the goals and content of your project' you will start achieving this by identifying the goals and content of your project in the first assessment. You will improve and refine these throughout the whole project until you satisfy the outcome by handing in your final project report – the EMA.

### 7.1 Using learning outcomes

This activity is designed to ensure that you understand the learning outcomes for this module and that you will be able to use them to check your progress.

Using the list of learning outcomes on the previous web page:

1. Write down a list of all the outcomes that you think will be demonstrated by successfully choosing a project topic and title.
2. Write down a list of the outcomes that you think will be demonstrated by a good final project report.

### 7.2 Defining terms

Here are some terms that are associated with activities you will undertake as part of the project. Try to discover what each one means and how it will be used in the project.

- Scoping
- Literature search
- Analysis
- Synthesis
- Reflective practice

- Referencing

## 8 Assessment

The computing and IT project is assessed through three TMAs and one EMA, which is your final report. The TMAs are designed to guide you through the stages necessary to complete the project successfully.

In the first week of the module you should read and familiarise yourself, in broad terms, with all three TMAs and the EMA. You should pay particularly close attention to TMA 01 as you will need to begin work on this assignment as soon as possible in order to meet the deadlines.

It is important to recognise that each assignment builds on work done for the previous one.

Before you begin any assignment you should pay very close attention to the grade criteria as they will help you:

- understand what is required for any given grade
- assess your own work as it develops and before you submit it.

The grade-related marking scheme is a vital tool that will help you succeed on the module.

### 8.1 The TMAs and EMA

The TMAs and the EMA provide guidance for the main stages of your project. Table 8.1 shows what you are expected to produce for each TMA and the EMA.

**Table 8.1**

Assignment (weighting)	Work done for this assignment
TMA 01 (5%)	<p>TMA01 is your project proposal. Your focus in this TMA should be planning, and describing what you expect to be doing throughout the module. Within TMA01 we expect you to have made progress in the following:</p> <ul style="list-style-type: none"> <li>• <b>Identifying</b> the goals and content of your project.</li> <li>• Starting to <b>select and evaluate</b> relevant information sources that describe related work and point to possible methods to be used.</li> <li>• <b>Outlining</b> resources (especially data, access to people, etc.) that are crucial for success and identifying that these will be available when needed.</li> <li>• <b>Identifying and evaluating</b> your own skills and knowledge that are crucial for the success of this project. Identifying essential skills that you lack and starting to develop these.</li> <li>• <b>Choosing</b> an appropriate project lifecycle model and starting to plan and schedule the work required based upon this.</li> <li>• <b>Identifying</b> which concepts and principles from the literature and/or prior OU study you will be using. These must be within the area of your chosen specialist route if applicable.</li> <li>• <b>Identifying</b> what project work will be done and how this addresses the core aspects of your problem and its solution and identifying how this will extend your knowledge and skills.</li> <li>• <b>Identifying</b> the legal, social, ethical and professional issues (LSEPIs) and the equality, diversity and inclusion (EDI) concerns that may arise during your project work. You should include your project ethics checklist as Appendix 1.</li> <li>• <b>Critically evaluating</b> your progress so far.</li> </ul>

- **Demonstrating** your ability to learn independently by starting useful exploratory work that addresses an important aspect of your project.

TMA02 is the first of the two interim reports you will write.

Within TMA02 we expect you to have made progress in the following:

- **Refining**, where needed, the goals and content of your project.
- **Continuing** to select and evaluate relevant information sources both in the problem domain and covering the technical aspects of your project.
- **Identifying** resources (especially data, access to people, etc.) that are crucial for success and identifying that these will be available when needed and **discussing where your earlier assessment of risks was good or weak**.
- **Developing** your own skills and knowledge that are crucial for the success of this project.
- **Refining** your project plan and **making an accurate assessment of progress** in relation to your original plan.
- **Demonstrating** the correct use of concepts and principles from the literature and/or prior OU study.
- **Successfully undertaking** some purposeful project work that addresses one or more of the core aspects of the problem and its solution and, **explaining** how this has extended your knowledge and skills.
- **Refining** the legal, social, ethical and professional issues (LSEPIs) and the equality, diversity and inclusion (EDI) concerns that are arising during your project work. You should include your project ethics checklist as Appendix 1.
- **Continuing** to critically evaluate your progress so far.
- **Providing** evidence for independent learning.

TMA 02 (10%)

