



# Examiners' Report Lead Examiner Feedback

January 2021

Pearson BTEC Nationals  
In Computing (31770H)  
Unit 3: Planning and Management of  
Computing Projects

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## Introduction

A fascinating examination series for BTEC Nationals in Computing Unit 3, with some excellent submitted work.

This unit is assessed through two parts, part A, which involved developing the PID and Gantt chart. Part B included the checkpoint and email, which was 2 hours.

This unit is a mandatory unit for all learners studying the extended certificate, foundation diploma, diplomas, and extended diploma.

The unit will always contain four sections. Each section is linked to a scenario and used through that section. The scenario clearly stated at the beginning of each section.

Each section is broken down into activities, which will test learners on different areas of the specification, and learners should expect to apply their knowledge to the scenario.

Learners are given a scenario with additional information to support. They instructed to look at individual parts/sections of this during the examination to answer questions. The information brief may give learners:

1. Information about problems that they need to solve.
2. Interpret the scenario and apply the solution using Project Management techniques and theory

All Activities of the examination paper provide differentiation at all attainment levels. The brief designed to escalate in difficulty so that a more significant percentage of higher-grade marks depends on the skills, knowledge, and understanding.

- LE Report to be considered with paper and mark scheme
- Contextual introduction

## Introduction to the Overall Performance of the Unit

The learners' overall performance was reasonable compared to the previous seasons for this unit, and it was slightly worse in some parts like the PID. It was evident that learners need more preparation for the rigor of this exam. The performance on Activity 2, Gantt chart was excellent, with many learners picking up marks for most sections. The number of blank responses was also significantly high Activity 1, PID, was disappointing; the main problem was the interpretation of the scenario. Activity 3 and 4 were of a good standard and demonstrated the learner's ability to apply theory to practical scenarios. However, in some parts of Activity 3, project quality management was another area that learners struggled with; they failed to include processes and activities that determine the quality of the policies, work processes. For activity four, having an interpretation of the scenario inaccurately, the objectives were either rewritten or unrelated to the scenario. This had an impact on project evaluation. Learners struggled with lessons learnt in Activity 3. Learners still keep writing evaluation rather than what they would do differently in the next project.

## Individual Questions

### Activity One

#### **PID & Objectives**

Candidates need to show a sufficient understanding; they should complete most PID sections. Transferring information from the scenario to the PID, we would expect this done. They should have attempted the sub-task, such as deliverables, constraints, and stakeholders. It should have relevance to the scenario and not as generic as what was seen in the current cohort.

The objectives are based upon clearly defined project goals and can be broken down further into the component tasks. This helps determine the success factors, which the learner needs to evaluate in activity 4. It is essential to ensure they are 'SMART' objectives. Learners still struggle with this, the example of what could be added.

**(Band 4)**

**objectives**

SMART objective	Achieved?	Date and Comments
Project must finish on the 2/04/21	Ongoing	The project deadline will be on the 2/04/21, we must finish by this time to meet the client requirements.
£125,000 budget	Ongoing	We must make sure that the project stays within

		budget throughout the project.
Project starts on the 1/02/21	Ongoing	The project will start on the 1/02/21, the teams will know what they must start on this day and what function points they need to complete
Customised app will be developed and configured	Ongoing	The new customised app will allow the staff to use the new systems that are being installed. It will be fully stress tested before the project end date
New network infrastructure will be installed	Ongoing	The new network infrastructure will support the new hardware being installed, this must be finished before any hardware installation commences
Faults will be fixed before project deadline	Ongoing	We must make sure that all the faults are fixed before the project is

The objectives can reflect the Project Lifecycle stages, Analysis, Design, Implementation, Testing, and Evaluation/Review, and then adding relevant information from the scenario. These need to be specific and time-constrained which are relevant to the given procedure. The above candidate has considered all areas using logical chains of reasoning that show full awareness of the given scenario.

## Risk analysis

We are looking for a systematic approach to managing risk and establishing a way of mitigating them. They should identify at least 2 or 3 sensible risks with an appropriate 3 point scale and then some contingency that deals with the risk rather than subjective. In a lot of cases, this was primarily generic. **(Band 4)**

Risk legend	Severity					
	x	1	2	3	4	5
Likelihood	1	1	2	3	4	5
	2	2	4	6	8	10
	3	3	6	9	12	15
	4	4	8	12	16	20
	5	5	10	15	20	25

### Risk Management Strategy

Risk	Probability	Impact	Severity	Contingen
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				cy Plan
Materials will not be delivered on time	3	4	12	We will have a back-up supplier in case our materials cannot be delivered on time. This will cost more however if we do not get these materials on time, we will go over the project deadline.
Natural Disaster e.g., Flood, Earthquake	2	5	10	We will have backup servers and databases off-site in case the onsite ones get damaged and we lose work.

### Communication plan

This communication plan is needed to see with whom they are communicating; the organisation chart above the table should be helpful. We need to see the appropriate frequency and type of communication. The purpose needs to be sensible. It should not be, for example, to catch up on progress; though that is important, it would be beneficial to elaborate on particulars. **(Band 3)**

**Communication Plan**

Stakeholder(s)	Frequency	Type	Purpose
Ms Paton – Client	Weekly & Upon Request Regular Emails	Face-to-Face, Email, Conference Call	To discuss the progress on the project and if the deliverables are meeting the client requirements
Bobby Gray & Harry Smith – App Developers	Upon Request	Email	Discuss issues if their team leader is not available
Ahmed Iftikhar – Senior Software Developer	Weekly & Upon Request Regular Emails	Email, Face-to-Face	Discuss the progress of their teams function points and if there are any issues

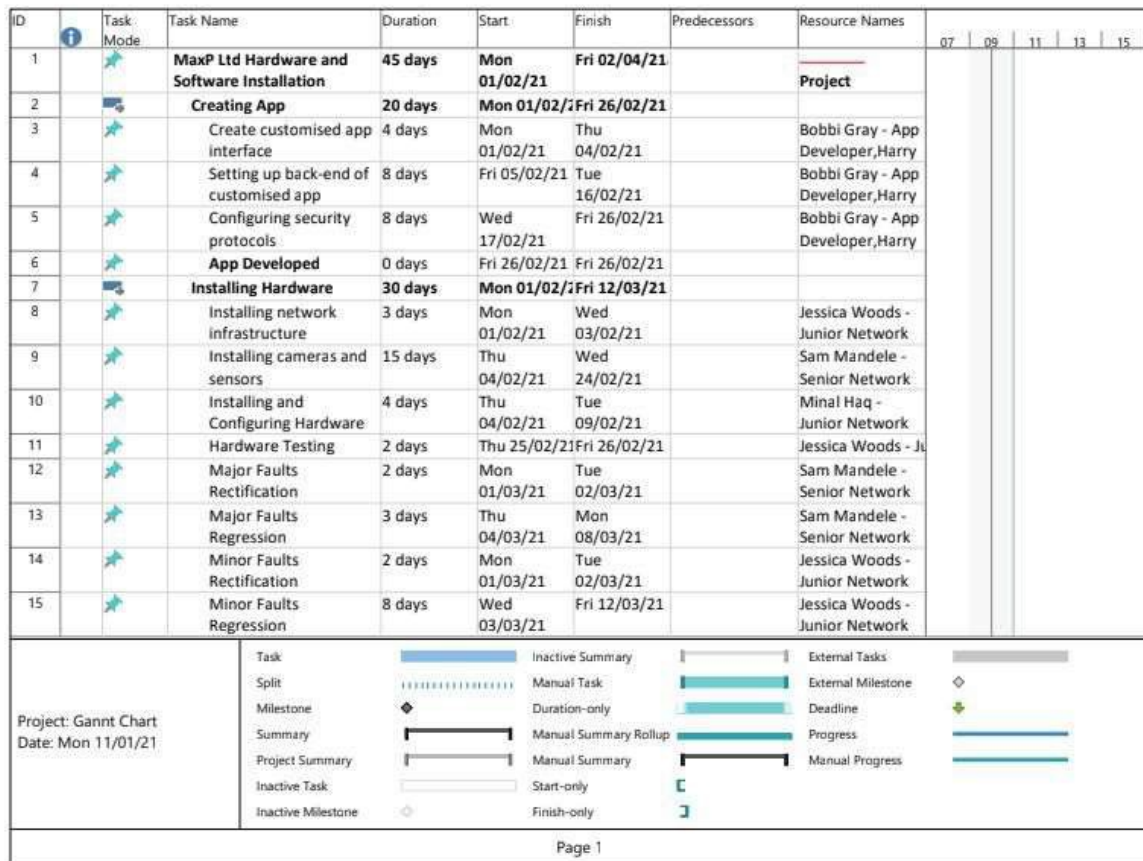
Sam Mendele – Senior Network Engineer	Weekly & Upon Request Regular Emails	Email, Face-to-Face	Discuss the progress of their teams function points and if any issues have occurred
Jack Alderice – Junior Software Engineer	Upon Request	Email	To discuss any issues if their team leader is not available
All Junior Network Engineers	Upon Request	Email	To discuss any issues if their team leader is not available

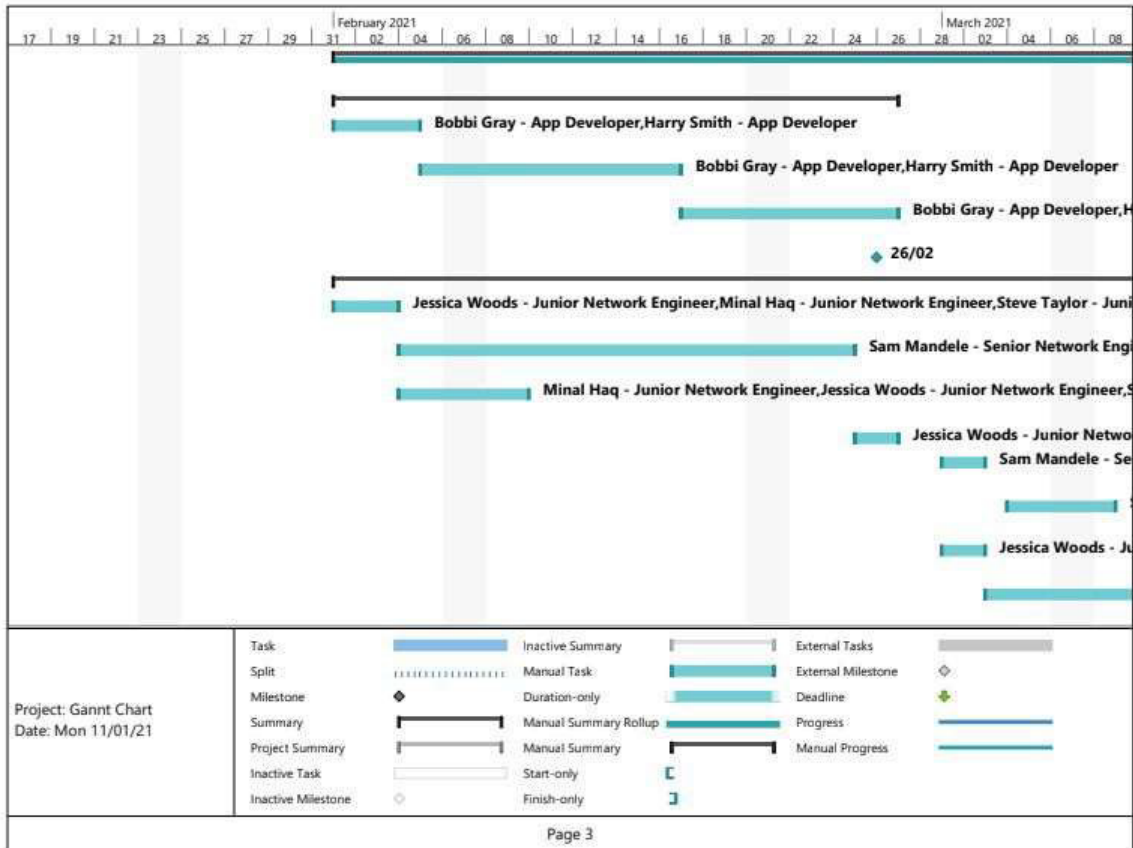


## Activity 2

### Gantt charts

This should show a graph with tasks, dates and duration, milestones to indicate length and overlaps; however, if they have not allocated resources, this would limit the marks the student can gain. It clearly states in the criteria resources allocated on the Gantt chart. For this series, it was completed well.





## Resources

We need to identify some of the resources based on the correct functional point analysis. Expect to see all the tasks allocated to the right resources. Calculation of the overall cost should be of the hour's work per worker and the required hardware and software with an estimated final cost. **(Band 3)**

## Cost

Main points primarily are the benefits of meeting quality requirements, which should include less rework, higher productivity, and lower costs, therefore increasing stakeholder satisfaction and increased productivity. The learner has shown some reasonable understanding, including hardware resources and fee, the time needed for each employee, with the cost. Still, they have not shown any evidence of how they attained the number of days required. However, it has come over budget; the learner has shown how they have calculated the costs from the functional points or how they have found the most efficient use of resources. **(Band 3)**

## Activity 3

### The completion checkpoint.

There were many instances of learners writing their evaluation with Activity 3. Lessons learned are relevant and insightful, showing a thorough understanding of project management concepts" has been met. This section should evaluate progress and performance, should inform what changes they would make to future working practices. The learner has done this by discussing communication issues with the team. Areas that can discuss any problems dealt with, any cost-saving or additional costs, the impact, timings, and the scope of the task have what you set out to be met at his point or is on target.

### (Band 3)

#### Quality Management

(List the activities undertaken this period)

#### Quality Standards

The client has not asked us to use any specific quality standards throughout the project. However, I have chosen:

- ISO/IEC 25010:2011, this standard is used to make sure the software side of the project is of the highest standard possible and so our software engineers understand their tasks.
- ISO/IEC 25012:2008, this standard is complimentary to ISO/IEC 25010:2011 and contains a model for the quality that is expected.
- ISO/IEC 27033:2010+, this standard describes all the threats and techniques that our network engineers can use to make sure that the networking is of the highest standard possible. It also ensures that they do it safely and that the network is safe and secure.

#### Client Requirements

Ms Paton hopes that these new systems will:

- o provide a 30% efficiency saving on utility bills
- o minimise security risks
- o improve the wellbeing of staff through a better office environment
- o reduce carbon footprint

#### Project Life Cycle

Throughout the project, I have made sure that I have followed the correct project lifecycle. This was so the project had a structure and everyone has a job to do, this makes a project more efficient. However, due to unforeseen issues that came up, we had to plan around these issues to mitigate them, together, the team leaders and I came up with solutions to these issues.

#### Budget

I have used the budget quite well in this project, at the end of the planning stage; I was estimated to be within budget. This gave me more leeway when it came to dealing with issues as I knew I had spare money to spend on fixing these issues and to mitigate them as best as I could.

## Lessons Learned

Throughout the length of the project, I have learned many valuable things that I will be able to take with me into future projects. The issues that were risen throughout the project allowed me to learn new lessons to keep in mind so I can combat these issues more effectively in the future.

I think I have done well on this project; I have managed to complete the project within budget, I managed to do this by effectively assigning staff to tasks to get them done more efficiently. This gave me more leeway to work with the issues that came up throughout the project and mitigate them, so they did not majorly affect the project. Another aspect where I think I done well was communicating with the staff involved and the client. I regularly got in touch with the team leaders so they could discuss the progress of the project and notify me of any issues that have risen. The junior engineers could also request a meeting with me in case their team leader is unavailable at that time; this allowed them to notify me of issues any time, even if their team leaders were not there. I conveyed the progress that had been made on the project to the client regularly too, this was to make sure that the client was happy with the progress and that the deliverables met the client requirements.

One thing that I have learnt during this project is that I should have a backup supplier in case our primary supplier has issues. The biggest delay in this project was due to delivery issues; we had to wait an extra 14 days for the materials to be delivered before we could install them. If we had a backup supplier, this delay could have been mitigated, this would have cost more, however, since I had some of the budget left to spare it would have been worth it to have this backup supplier. Another solution to this is already having the materials on-site before the project start, this would

## **Activity 4**

### **Email completion**

Success criteria are “accurate summary of how quality criteria were met showing an awareness of the scenario throughout”. The second part is the review of the project and linking this to the project lifecycle. It doesn’t have to be a sub-heading of each phase but can mention in the report, e.g. during testing. The third part is the summary of the lesson learned. Learners should utilise the information given in the scenario effectively to provide details of deliverables success, such as the project coming in close to budget. Process success, such as the team’s new system to match the designs, and performance success, such as the project team working together to develop a new high-quality method.

Dear Ms Paton,

First, I would like to thank you on the behalf of everybody here at IIT for entrusting us with your project. Thank you for signing off on the project and I am happy to hear that the new system is working well and has met your hopes of lowering costs and providing your employees with a better working environment. I hope that this means that your employees are more efficient and increase the return-on-investment rate. Within this email, I will provide you with information about the project and my choices during the project. At the end of the email, I will evaluate how well the project went and what lessons the team members and I have learned and how we will take them into future projects.

### **Final Cost of The Project**

The final cost of the project was £120,693, this was including the overtime wages we paid staff to fix the issues that came up during the **project**. As you can see, we managed to stay within the £125,000 budget. I believe one of the reasons I managed to stay in budget was because I effectively assigned staff to function points, so we got them done on time and efficiently. The underspending gave me more leeway to mitigate the effects of the unforeseen issues that arose; it will also allow you spend more on maintaining the app and regularly updating it with new features.

### **Performance of the New Systems**

I am glad to hear that the new systems are working as intended and your hopes for the new systems have been met. At the start of the project, you asked us to develop these new systems in the hope that the system will; provide a 30% efficiency saving on utility bills, minimise security risks, improve the wellbeing of staff and **reduce** carbon footprint. From what we have heard, the system meets these criteria. Since the system has increased staff wellbeing, this is likely to improve their efficiency allowing them to get more work done while also at a higher standard than before. This will increase the rate of return investment and hopefully in the upcoming months and years you will see more benefits from this. Also, now that the building is more energy efficient and reducing the cost of electricity bills, you can use this money to further improve your new systems or just add onto your yearly profit margins. You can now also monitor systems from one central point, this will be one of the reasons you are more energy efficient as now you only need that one central point rather than many others scattered around the building. It also makes it much easier to use and may cost less to maintain than the previous systems you had. I think this project has been a success and has met all your success criteria.

### **Conception**

Before the project began, we knew you were very keen on installing smart devices like temperature control, lighting, and systems in your headquarters in Leeds. Since you already knew what you wanted the new systems to be, this made it very easy to plan and is one of the reasons I feel the project went so well.

### **Defining the Project**

This stage is where I set-up the project team and created the PID, the PID was very useful at the start of the project as it allowed everyone involved in the project to familiarise themselves with it.

### Planning

During the planning stage, I created a Gantt Chart for the project. The total cost of the project was estimated around £117,000 and we agreed on a budget of £125,000, this budget gave me enough leeway to comfortably manage any unforeseen issues that came up in the project. Within this stage, I also decided on what quality standards we were going to use in the project, the standards I chose were successful and helped us deliver high quality systems that worked and will help increase the return of investment. The quality standards I chose also helped keep my networking team safe as I chose standards that outlined the potential risks that are involved with installing new systems. It also told them techniques on how to avoid or mitigate these risks so they can complete their work to the highest standard while also keeping them out of harm's way. In the planning stage, I also created a risk management strategy, which was designed to anticipate any possible risks that may occur throughout the project. This was so we already had a plan in place if anything went wrong and efficiently execute the plan if something did happen. This was another reason why the project went well, due to the creation of the Gantt Chart, all the staff members knew what jobs they had to do and when they needed to complete it by, this made the project more efficient as nobody was confused on what they had to do.

### Execution

When the project started, we could run most of the tasks alongside each other, this was crucial in the success of the project as we only had a 45-day window. It was important that we got all the tasks done in a timely manner so we could move onto the testing and finish the project by the deadline date. We had the creation of the app interface, installation of network infrastructure and the deployment of the cloud server running at the same time. However, the first problem arose when we found out that some of our materials (Cameras, thermometers, and sensors) could not be delivered for another 14 days. We originally planned to start installing the hardware on the 04/02/21 and finish installing them on the 24/02/21, however due to this issue we could not start the installation until the 19/02/21 the installation did not finish until the 11/03/21. The hardware testing commenced on the 12/03/21, during the testing this is where another issue occurred. An unforeseen fault arose as a security breach was detected during this testing phase. This added another 5 days onto the testing while it was being investigated and fixed, our team of junior network engineers and Sam Mandele (Senior Network Engineer) managed to fix this issue by the 22/03/21. This allowed them to get on with the rest of the fault rectification and regression testing. The network team managed to get all the testing done by the 5/04/21, which is 3 days over the deadline. I think we would have managed to get this done before deadline if there were not so many unforeseen issues that arose throughout the hardware installation phase.

However, our smartphone app was created on schedule; the customised interface, back-end, and security protocols for the app were all done by the 26/02/21 and hit the milestone. The next issue occurred when we commenced with the software testing, our junior software engineer (Jack Alderice) discovered that the combined app had a few problems and a further 5 days were needed to add more scripts and to further test the app. However, we managed to get this finished and it allowed Jack Alderice to get back to the planned software testing with Ahmed Iftikhar (Senior Software Engineer) on the 29/03/21. They managed to get all the testing, fault rectification and regression testing completed by the 9/04/21, which again is over the deadline. However, I do believe that if not for the unforeseen issues with the app testing, we would have finished this project on time.

**(Band 4)**

## Summary

**PID-** Learners need to transfer the essential detail from the scenario to the existing template, useless generic terms for constraint, deliverables and apply a more scenario-based link.

**Objectives-** try adding comments giving a good reason for each purpose. It would be helpful to try using fewer generic objectives and more appropriate to the given scenario.

**Quality Management** – learner should try to understand the different component's that make up quality management.

**Lesson Learnt** - The only way to avoid problems happening yet again in the future is to carefully consider what went wrong this time (and why) and decide what we can do differently next time to avoid those problems. Lessons learned is a process to help identify and transfer such recommendations forward from one team to another.





Llywodraeth Cynulliad Cymru  
Welsh Assembly Government

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