Pearson BTEC

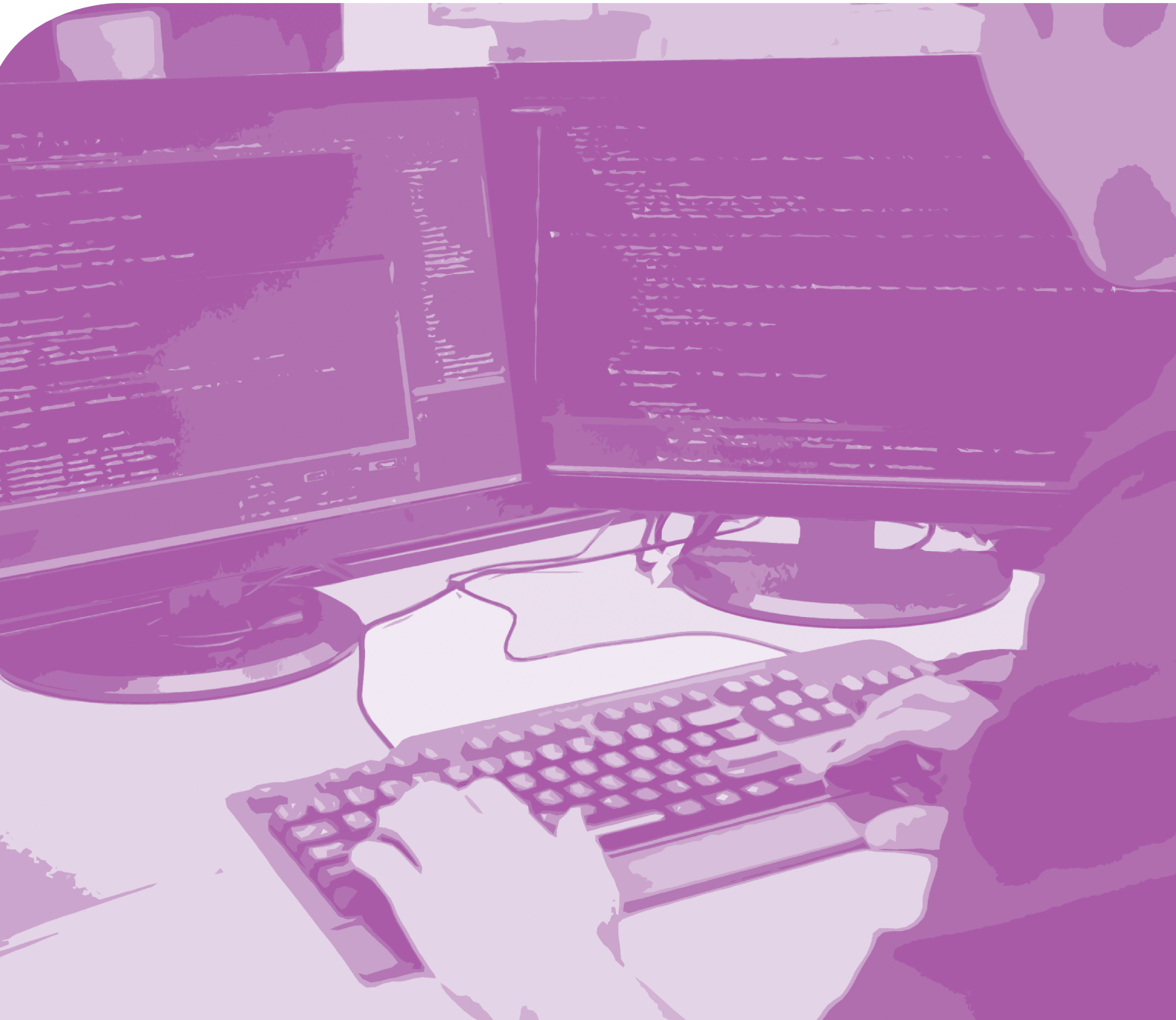
Pearson BTEC Uzbekistan Level 4 Qualifications in

Software Development

Unit 9: Planning and Managing Software Projects

Teacher Resources

Issue 1



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Contents

Introduction

This resource booklet is a companion to the BTEC Uzbekistan Level 4 Qualifications in Software Development. The specification tells you what must be taught and what must be assessed. This resource booklet gives you suggestions and ideas as to how you can do this.

This booklet gives you ideas for teaching and learning, including practical activities, realistic scenarios, ways of involving employers in delivery and of managing independent learning, and how to approach assessments. The booklet also shows you how the specification content might work in practice and inspires you to start thinking about different ways of delivering your qualification.

This resource booklet gives you:

- guidance on how to deliver the unit
- recommended resources to support the delivery of the unit
- a scheme of work that show the topics, activities and assessments covered in the unit
- lesson plans with detailed guidance on how to deliver the lessons in the unit

The information in this resource booklet has been put together by teachers who have been close to the development of the qualification and so understand the challenges of finding new and engaging ways to deliver BTEC qualifications.

The delivery guidance in this booklet gives you information on what you need to consider as you plan the delivery of the unit. This includes suggestions on how to approach the learning aims and unit content, as well as ideas for interesting and varied activities. You will also find tips and ideas on how to plan for and deliver your assessments.

We have included a list of carefully selected resources for the unit. This resource list offers suggestions for books, websites and videos that you can direct your learners to use and/or that you can use to complement delivery.

Unit 9: Planning and Managing Software Projects

Delivery guidance

Approaching the unit

The purpose of this unit is for learners to develop and understanding and skills in planning and managing software projects. Case study and practice materials will be needed in order to provide learners will the opportunity to develop their skills.

Learning aim A begins with a recap of the stages of the software development lifecycle. This should not be new learning, but it is important that learners are confident about the purpose of each stage, and the fact that they are not necessarily sequential, but can overlap.

Similarly, requirements analysis has been covered in other units, but it is included here again to act as reminder of its importance in project management. It needs to be emphasised that the better the requirements analysis is, the more likely the project's chance of success.

Feasibility reports are included in Learning aim A, but it is recommended that these are not taught until *after* learners understand how to manage risks (Learning aim B) and to plan and budget for a project (which are dealt with in Learning aim C): until learners estimate time and budgets, and identify risks, it is very difficult to establish how feasible a project will be. Learners will need to practise creating feasibility reports and so case study materials will need to be developed. For Learning aim B, give learners as much practical experience as possible. Introduce the use of diagramming techniques early on and allow learners plenty of time to experiment with the tools available. In this learning aim, learners will design their software solutions to meet the requirements identified in Learning aim A.

For Learning aim B, learners need to understand the key features, similarities and differences between Waterfall, Rapid Application Development and Agile in projects. Learners may not have heard of 'Waterfall', but it is likely that they will recognise the approach as one that they have used when designing and developing software in other units for this course.

As with feasibility reports, it may be best to leave project initiation documentation until after learners are confident at planning and budgeting a project

Learning aim C is concerned with planning the time and budget for a project. Learners will need plenty of practice at doing this and will need access to Gantt chart software. This software may allow learners to calculate costs, but ordinary spreadsheet software can be used in the same way. The unit content refers to using the results of function point analysis – this is a way of measuring the time needed to complete a task based on its complexity, allowing time to be estimated for different tasks using a single metric. However, it should be emphasised that learners do not need to learn how to carry out function point analysis themselves.

Learning aim D covers change management. A good way of practising this is for learners to need to adapt plans that they have created for scenarios earlier in the course.

Getting started

This gives you a starting place for one way of delivering the unit. It is based on the recommended assessment approach given in the specification.

Unit 9: Planning and Managing Software Projects
Introduction It is best not to teach this unit in sequence, one learning aim at a time, but rather a more holistic approach is recommended, particularly with Learning aims A, B and C.
Learning aim A – Assess the feasibility of a software development project
• Remind learners about the stages of the Software Development Lifecycle. Make sure that learners are clear about the purpose of each stage and the fact that they can overlap. • Use examples of scenarios that will allow learners to carry out a requirements analysis. They are likely to have done similar activities in other units and it may be possible to use or adapt scenarios from other units. • Deal with feasibility reports only *after* learners are confident with planning, budgeting and risk management (covered in Learning aims B and C). Give learners opportunities to practise identifying issues using scenarios.

Unit 9: Planning and Managing Software Projects
Learning aim B – Initiate a software development project
• Learners need to understand the key features, similarities and differences between Waterfall, Rapid Application Development and Agile. Learners may not have heard of 'Waterfall', but it is likely that they will recognise the approach as one that they have used when designing and developing software in other units for this course. It is recommended that project methodologies and project initiation is integrated into project planning and budgeting (Learning aim C), so that learners can practise planning a project using the different methodologies. • Risk management has a much wider application than project management and its principles can be applied to many everyday activities. It lends itself well to group scenarios, such as planning an expedition can be used to give practice.
Learning aim C – Plan a software development project
• Use scenarios to give learners practise planning the time and budget for software projects. Allow time to teach learners how to use spreadsheet formulas, for example how to multiply and calculate totals. It is also important that learners understand the importance of presenting calculations in a way that other people can check.
Learning aim D – Manage changes to a software development project
• Non-software development projects can be used to help show learners about the difficulty of managing changes to projects, and how to monitor quality, time and cost. • Use case studies to give learners practice in adapting plans and budgets. This can be done by using the same scenarios as earlier in the course but getting learners to adapt their plans.

Details of links to other BTEC units and qualifications

This unit links to:

- Unit 10: Software Design and Development Project.

Resources

Textbooks

James Edge – *Agile (The ultimate Guide to Agile project Management and Kanban for Agile Software Development, including Explanation for Lean, Scrum, XP, FDD and Crystal 2018)*, ISBN 9781727480979

This is comprehensive guide to project management and various methodologies used.

Websites

http://www.bcs.org/upload/pdf/casestudy2.pdf

Case studies of successful complex IT projects

https://www.projectsmart.co.uk/

Example of project planning

Pearson is not responsible for the content of any external internet sites. It is essential for teachers to preview each website before using it in class so as to ensure that the URL is still accurate, relevant and appropriate. We suggest that teachers bookmark useful websites and consider enabling learners to access them through the school/college intranet.

Scheme of work

Unit	Unit 9: Planning and Managing Software Projects
Guided Learning Hours	60
Number of lessons	20
Duration of lessons	3 hours
Links to other units	Unit 10: Software Design and Development Project

Key to learning opportunities			
AA	Assessment Activity	**RS**	Revision Session
GS	Guest Speaker	**V**	Visit
IS	Independent Study	**WE**	Work Experience

#	Topic	Lesson type	Suggested activities	Resources
1	A1 Software Development Lifecycle A2 Requirements analysis A3 Feasibility reports	IS	• **Lead-in:** Recap the stages of the software development lifecycle. • **Small group/paired activity:** Use two scenarios (scenarios 1 and 2) that include client briefs. Learners identify requirements. • **Teacher-led discussion**: Elicit from learners any potential issues with scenarios 1 and 2 that might stop the project from being delivered successfully. • **Small group/paired activity:** Give learners a list of different issues that could affect scenarios 1 and 2. Learners need to categorise them as either technical, economic, legal, scheduling or operational. • **Class discussion:** Rank different types of feasibility depending on their impact on a project.	Two teacher-designed scenarios For each scenario, a list of potential issues which could impact on feasibility
2	All areas of content	GS/IS	• **Lead-in**: Introduce the guest speaker. • **Guest speaker:** Learners listen to guest speaker talking about projects they have managed. • **Small group/paired activity:** Learners start researching examples of real IT projects that have not been delivered successfully.	Guest speaker Computers with internet access

#	Topic	Lesson type	Suggested activities	Resources
3	All areas of content	IS	• **Small group/paired activity:** Learners finish their research and prepare presentations to be shared with other groups. • **Whole class discussion**: Teacher highlights key factors in each case, and class try to identify if there are any factors in common.	Computers with internet access
4	B1 Software development methodologies: Waterfall C1 Planning a project: time and tasks	IS	• **Lead-in:** Introduction to Waterfall: what it is and how it relates to the Software Development Lifecycle • **Small group/paired activity:** Learners read a case study to identify how many of the key features of Waterfall are present. Class discussion on pros/cons of this approach. • **Teacher-led presentation**: Explain to learners the relationship between milestones and tasks, and how the results of function point analysis can be used to estimate time needed (learners do not need to carry out function point analysis). • **Small group activity:** Learners are given scenarios 1 and 2 and additional information concerning the team members available, and key milestones. They need to allocate and schedule tasks to team members using a spreadsheet.	Case study of a Waterfall development Scenarios 1 and 2, but with additional information added

#	Topic	Lesson type	Suggested activities	Resources
5	C1 Planning a project: time and tasks	IS	• **Lead-in**: Remind learners of how challenging it is to plan project tasks manually. • **Teacher-led presentation**: Introduce Gantt charts, covering what they are and how to use them. • **Individual activity**: Learners practise scheduling project activities using Gantt charts based on Scenarios 1 and 2.	Computers with access to Gantt software Scenarios 1 and 2
6	C2 Project budgeting	IS	• **Lead in:** Learners compare when they have had to budget (e.g. to save up for a gift) and how successful they were. • **Teacher-led presentation**: Different types of cost, contingency and how to use spreadsheet formulas to perform simple calculations. • **Individual activity:** Learners practise performing simple calculations using spreadsheets. • **Individual activity:** learners are given additional information relating to scenarios 1 and 2 that allow learners to estimate costs for individuals and resources. They use this to calculate costs for the projects.	Computers with access to spreadsheets and/or Gantt Spreadsheet practice activities Scenarios 1 and 2 with additional information about costs

#	Topic	Lesson type	Suggested activities	Resources
7	B1 Software development methodologies: Rapid Application Development (RAD)	IS	• **Lead in**: Revision of the key features of Waterfall. • **Small group activity**: Learners read a case study to identify the key features Rapid Application Development (RAD) are present. Use this to elicit what the key features of RAD are and how it differs from Waterfall. • **Small group activity**: Learners amend the Gantt charts from lesson 5 based on Scenarios 1 and 2 for a project using RAD instead of Waterfall.	Case study of an IT project that uses RAD Scenarios 1 and 2
8	B1 Software development methodologies: Agile	IS	• **Lead in**: Revision of the key features of RAD. • **Small group activity:** Learners read a case study to identify the key features Agile are present. Use this to elicit what the key features of Agile are and how it differs from Waterfall and RAD. • **Individual activity**: Learners create a guide to project management methodology which explains the key features of Waterfall, RAD and Agile, including their strengths and weaknesses. • **Small group activity**: Give learners some short case studies based on real IT projects. Learners decide whether Waterfall, RAD or Agile would be more suitable and why.	Case study of an IT project that uses Agile Scenarios 1 and 2 Additional short project scenarios

#	Topic	Lesson type	Suggested activities	Resources
9	B2 Initiating a project	IS	• **Small group activity/Class discussion**: What information is needed in Project Initiation Documentation? Show an example of completed documentation for Scenario 1 (*not* including risk management). • **Individual activity:** Learners create their own project initiation documentation for Scenario 2. • **Class discussion**: What is risk management? • **Small group activity**: Learners practise risk management by working in groups to plan a 5-day expedition to a remote area in the country. Share the results as a class and compare the risks identified and how they were managed.	Scenarios 1 and 2 Completed project initiation documentation for scenario 1 Blank project initiation documentation.
10	A3 Feasibility and revision of A1, A2, B1, C1, C2 and C3	IS	• **Small group activity**: Give small groups three new project scenarios. The scenarios include the results of requirements analysis. Learners need to apply everything they have learned to complete feasibility reports for each project.	3 new project scenarios (3, 4 and 5)
11	B2 Initiating a project	IS	• **Individual activity**: Learners create project initiation documentation for one of the three projects from lesson 10. • **Small group activity**: Learners reform into different groups in which there is one person who has worked on each scenario. The documentation is shared, and the other two people assess how effective the documentation is. • **Whole class activity**: Feedback on the results of the activity.	Scenarios 3, 4 and 5

#	Topic	Lesson type	Suggested activities	Resources
12	D1 Change Management D2 Monitoring and managing change	IS	• **Small group activity/whole class discussion** Elicit the 'common reasons' why projects need to change from content area D1. • **Whole class discussion**: Explain the importance of monitoring time, quality and costs, and how to do this, and then the different ways of dealing with requests for change, and how to write a checkpoint report. • **Individual activity**: Introduce changes to the project requirements for Scenarios 1 and 2. Learners need to adapt plans and costs from lessons 5 and 6 and write a checkpoint report.	Scenarios 1 and 2 with additional information about changes needed Learners' plans and budgets from lessons 5 and 6
13	D1 Change Management D2 Monitoring and managing change	IS	• **Teacher presentation/Small group activity:** Teacher presents example of a real project where significant changes were needed. In groups of 3, learners research real examples of projects that have changed. How well were the changes managed? What lessons were learned. • **Whole class discussion**: Identify any common themes, and mistakes that could have been avoided by better project planning.	Teacher presentation on a real project where changes were made Internet access

#	Topic	Lesson type	Suggested activities	Resources
14–15	Learning aims A, B, C and D	IS	• **Individual activity**: Learners complete a practice assessment. The teacher marks the work afterwards and returns it at the start of the next lesson	Practice assessment activity Computers with access to Gantt chart software and spreadsheets
16	Learning aims A, B, C and D	IS	• **Individual activity**: Revision quiz. • **Paired activity**: Learners compare what they have done and look at the feedback from the teacher. • **Teacher presentation/class discussion**: Teacher shows a model answer showing one possible way of completing the practice assessment. Class discuss any problems or questions	Results of the practice assessment activity
17–19	Final assessment of Learning aims A, B, C and D	AA	• **Individual assessment activity**: Using the Assessment Workbook, learners complete Tasks 1 and 2.	Assessment Workbook Computers with access to Gantt chart software and spreadsheets
20	All		• **Small group/whole class activity:** Feedback on assessment and the course.	Assessment Workbook Course questionnaire

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	1 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • be able to carry out a requirements analysis for a project • understand different types of feasibility.

Resources checklist	• Two teacher-designed scenarios that outline client needs • A list of different issues that could affect the feasibility of the projects in the scenarios
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Introduction (20 minutes)	• Introduce the unit and the main topics that will be covered.
Main activities (2 hours, 30 minutes)	• Recap the stages of the software development lifecycle. Learners work in groups to identify as many activities as possible that take place during each stage. • Learners work in pairs to small groups. Give the pairs/groups two scenarios (to be referred to as 'Scenario 1' and 'Scenario 2') that include client briefs relating to software that is needed. Learners identify client requirements for a solution for each scenario. • Elicit potential issues from learners with Scenarios 1 and 2 that might stop the projects from being delivered successfully. • Learners return to their pairs or small groups. Teacher gives learners a list of different issues that could affect scenarios 1 and 2. Learners need to categorise them as: o technical o economic o legal o scheduling o operational. • As a class, rank different types of feasibility depending on their impact on a project.
Concluding activity (20 minutes)	• Recap key points learned in the lesson.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	2 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • understand the challenges associated with managing IT projects.

Resources checklist	• Guest speaker • Computers with internet access
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Introduction (10 minutes)	• Recap the previous lesson, and then introduce the guest speaker who has experience of managing IT projects.
Guest speaker (1 hour)	• Learners listen to the guest speaker talking about projects they have managed, focusing on the challenges, problems and how they have overcome them. • Learners then ask guest speaker questions in order to understand the issues better.
Main activities (1 hour 50 minutes)	• Learners work in pairs or small groups to start researching examples of real IT projects that have not been delivered successfully.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	3 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • understand the challenges associated with managing IT projects • have better planning skills.

Resources checklist	• Computers with internet access
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Main activities (180 minutes)	• Learners continue to research examples of IT projects that have not been successful. • Learners create a presentation and then take it in turns to present their findings to the class. • Teacher works with class to highlight key factors in each case, and class try to identify if there are any factors in common.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	4 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • select and use appropriate design documentation to document the design process.

Resources checklist	• Case study of a software development project using the Waterfall method • Scenarios 1 and 2, with additional information about concerning the team members available, key milestones and the results of function point analysis
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Introduction (20 minutes)	• Teacher presents an introduction to the Waterfall project methodology: what it is and how it relates to the software development lifecycle.
Main activities (2 hours, 10 minutes)	• Learners read the case study to identify how many of the key features of Waterfall are present. This leads into a class discussion about the pros and cons of this approach. • Teacher explains to learners the relationship between milestones and tasks, and how the results of function point analysis can be used to estimate time needed (learners do not need to carry out function point analysis). Emphasise also the importance of allowing contingency. • Learners are given Scenarios 1 and 2 and additional information concerning the team members available, key milestones and function point analysis. Working in pairs or small groups, they need to allocate and schedule tasks to team members using a spreadsheet.
Concluding activity (30 minutes)	• Compare results as a class, clarifying anything that is unclear.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	5 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • be able to plan a project using Gantt chart software.

Resources checklist	• Computers with access to Gantt chart software • Scenarios 1 and 2
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Introduction (15 minutes)	• Remind learners of how challenging it is to plan project tasks manually – elicit from learners the difficulties they found in the last lesson.
Main activities (2 hours 15 minutes)	• Teacher Introduces Gantt charts, covering what they are and how to use them. This should cover: o what the main and sub-tasks are o who is responsible for each task o the start and end dates for the tasks o how long each task is scheduled to take o the overlaps between tasks. • Learners then practise scheduling the project activities for Scenarios 1 and 2 using Gantt charts. They do this individually at first and then compare in small groups.
Concluding activity (30 minutes)	• Compare results as a class, clarifying anything that is unclear.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	6 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • understand the importance of project budgeting • be able to estimate project costs.

Resources checklist	• Computers with access to spreadsheets and/or Gantt • Spreadsheet practice activities • Scenarios 1 and 2 with additional information about costs
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Introduction (10 minutes)	• Learners compare when they have had to budget (e.g. to save up for a gift) and how successful they were.
Main activities (1 hour)	• Teacher explains about different types of cost, the importance of contingency and how to use spreadsheet formulas to perform simple calculations. • Learners practise performing simple calculations using spreadsheets.
Concluding activity (1 hour 20 minutes)	• Learners are given additional information relating to scenarios 1 and 2 that allow learners to estimate costs for individuals and resources. They use this to calculate costs for the projects, then compare in groups.
Concluding activity (30 minutes)	• Class discussion of results to compare how they have allocated costs, with the teacher to identify any problems and additional teaching needed if necessary.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	7 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • understand the Rapid Application Development method of project management.

Resources checklist	• Case study of an IT project that uses RAD • Scenarios 1 and 2
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Introduction (15 minutes)	• Teacher recaps with the class the key features of the Waterfall method.
Main activities (2 hours 30 minutes)	• Working in small groups, learners read a case study to identify the key features Rapid Application Development (RAD) are present. • As a class, groups feed back and use their findings to elicit what the key features of RAD are and how this differs from the Waterfall method. • Working individually, earners amend the Gantt charts from lesson 5 based on Scenarios 1 and 2 for a project using RAD instead of Waterfall, and then compare in groups.
Concluding activity (25 minutes)	• Class discussion to compare how different groups have update the project plans. Class discusses what impact RAD may have on how they estimate costs for the project budget.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	8 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • understand the Agile method of project management • understand how Agile, RAD and Waterfall differ from each other.

Resources checklist	• Case study of an IT project that uses Agile • Scenarios 1 and 2 • Additional short project scenarios • Computers and word processing software
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Introduction (15 minutes)	• Recap the key features of RAD.
Main activities (2 hours 15 minutes)	• In small groups, Learners read a case study to identify the key features Agile are present. Use this to elicit as a class what the key features of Agile are and how it differs from Waterfall and RAD. • Working individually, learners create a guide to project management methodology which explains the key features of Waterfall, RAD and Agile, including their strengths and weaknesses. • Give learners some short case studies which summarise real or fictional IT projects. Working individually, learners decide whether Waterfall, RAD or Agile would be more suitable and why.
Concluding activity (30 minutes)	• Class discussion to compare what their answers to the previous activity.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	9 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • be able to initiate a project.

Resources checklist	• Scenarios 1 and 2 • Completed project initiation documentation for scenario 1 • Blank project initiation documentation
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Introduction (20 minutes)	• Learners imagine that they are a new team member who has been assigned to a project. They need to identify what they would need to know from the team leader in order to start up a project.
Main activities (1 hour 40 minutes)	• Use learners' ideas from the small group activity to identify as a class the main areas to match the project-initiation documentation covered in content area B2. Show an example of completed documentation for Scenario 1 (*not* including risk management). • Working individually, learners create their own project initiation documentation for Scenario 2. • Teacher discusses with class the idea of risk management and why it is important. Then move on to how to manage risk by rating the seriousness and trying to avoid, reduce or mitigate the risks.
Concluding activity (60 minutes)	• Learners practise risk management. They have to plan a 5-day expedition to a remote area in the country. First, they identify the risks, and then they the identify how to avoid, mitigate or reduce each of the risks. Share the results as a class and compare the risks identified and how they were managed.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	10 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • be able to complete a feasibility report.

Resources checklist	• three new project scenarios (3, 4 and 5)
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Introduction (10 minutes)	• Recap of previous lesson.
Main activities (2 hours 30 minutes)	• Give small groups three new project scenarios. The scenarios include the results of requirements analysis. Learners need to apply everything they have learned to complete feasibility reports for each project. • In new groups, learners compare what they have done and discuss differences.
Concluding activity (20 minutes)	• Compare results as a class.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	11 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • understand what project initiation documentation can include • be able to initiate a project.

Resources checklist	• Scenarios 3, 4 and 5
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Introduction (10 minutes)	• Recap the key points of the previous lesson.
Main activities (2 hours, 50 minutes)	• Working on their own, learners create project initiation documentation for one of the three projects from lesson 10. • Learners reform into different groups in which there is one person who has worked on each scenario. The documentation is shared, and the other two people assess how effective the documentation is. • Learners feed back to the class on the results of the activity, followed by a whole-class discussion.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	12 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • understand the reason why changes may be needed to a project • understand how to deal with requests for change • understand why it is important to monitor cost, quality and time when managing a project • be able to monitor cost, quality and time when managing a project.

Resources checklist	• An example of a completed checkpoint report • Scenarios 1 and 2 with additional information about changes needed • Learners' plans and budgets from lessons 5 and 6
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Introduction (30 minutes)	• Small groups try to suggest reasons why changes may be needed during a project. Use this activity to elicit the 'common reasons' from content area D1 and provide any reasons that learners might have not considered.
Main activities (2 hours)	• Explain to the class the importance of monitoring time, quality and costs, and how to do this. • Explain the different ways of dealing with requests for change and show an example of a completed checkpoint report. • Give learners an update to Scenarios 1 and 2 in which there are changes to the project – this could be a mix of changes to the client requirements and other issues, such as unexpected changes over which learners have no control (such as staff changes or stages taking longer than expected). Learners work on their own to adapt plans and costs from lessons 5 and 6, and then write a checkpoint report. They then compare what they have done with another person.
Concluding activity (30 minutes)	• Class discussion on any issues and problems that have occurred during the task.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	13 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • have a better understanding of why real projects needed to change, and what lessons can be learned from them.

Resources checklist	• Presentation on a real project where a number of changes were made during the project • Access to the internet
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Introduction (30 minutes)	• Teacher presentation of a real project where changes were needed. This could be any type of project, not just IT projects. Good examples could include construction, manufacturing or governmental projects from around the world: How well were the changes managed? What lessons were learned?
Main activities (2 hours)	• In groups of three, learners research real examples of projects that have changed. How well were the changes managed? What lessons were learned? • New groups are formed, with each new group containing a learner who has worked to research a different project. Learners present their findings in the new groups.
Concluding activity (30 minutes)	• All-class discussion to Identify any common themes, and mistakes that could have been avoided by better project planning.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	14–15 (6 hours)

Lesson objectives	At the end of the lesson, learners will: • be able to apply their understanding of project management to a practice assessment activity.

Resources checklist	• Practice assessment activity • Computers with word processing, Gantt charts and spreadsheet software
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Lead-in (10 minutes)	• Introduce the practice assessment activity
Main activities (5 hours 50 minutes)	• Learners complete a practice assessment over two lessons. After learners have completed the work, the teacher marks the work afterwards and returns it at the start of the next lesson.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	16 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • be able to apply their understanding of project management to a practice assessment activity.

Resources checklist	• Results of the practice assessment activity
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Introduction (20 minutes)	• Learners complete a short revision quiz designed to test their understanding of the course content.
Main activities (2 hours 30 minutes)	• Working in pairs, learners compare what they have done, and look at the feedback from the teacher. • Teacher shows a model answer showing one possible way of completing the practice assessment. Class discuss any problems or questions.
Concluding activity (10 minutes)	• Explain to learners that in the next three lessons they will be completing the final assessment activities working on their own without help from the teacher or other learners.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	17–19 (6 hours)

Lesson objectives	At the end of the lesson, learners will: • have completed the assessment for Tasks 1 and 2.

Resources checklist	• Assessment Workbook • Computers with access to Gantt chart software and spreadsheets
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Individual assessment activity (9 hours)	• Learners complete the assessment for Tasks 1 and 2 in their Assessment Workbooks.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 9: Planning and Managing Software Projects
Lesson number	20 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • understand how well they have completed the assessments.

Resources checklist	• Assessment Workbooks
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Main activities (2 hours 30 minutes)	• Teacher returns marked assessments to learners and go through the assessments in relation to the task briefs.
Concluding activity (30 minutes hours)	• Learners work on their own to complete a questionnaire to give their views on the course and the assessment. • Discuss as a class how it can be improved.

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