



College of Contract Management
United Kingdom

Professional Diploma in Forensic Schedule Analysis

Syllabus

15 November 2021

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1 Programme Structure and Rules of Combination

1.1 Rationale

The Professional Diploma in Forensic Schedule (Delay) Analysis is designed for Planners, Delay Analysts, Claims Consultants, Engineers, Quantity Surveyors, Project Control Managers, and Contract Managers working for Civil Engineering, Oil and Gas, Petrochemical, Infrastructure, Power Plants, Nuclear, Buildings and Pipeline Projects in the Engineering, Procurement and Construction Sectors, who are progressing into a delay analysis role. This qualification develops the learner's knowledge and skills in delay analysis techniques to resolve a construction delay claim.

At the successful completion of the course, you will be able to determine the root cause of project delays and its effect on the suggested schedule by using an established schedule analysis technique appropriate for the project under analysis. Forensic schedule analysis determines how specific events impact a project schedule.

1.2 Progression to Career

The programme provides the underpinning knowledge and skills to advise about the potential risks of proceeding with a project, should a forensic schedule analyst be required to take short cuts or rely upon the work of others to stay within a very tight budget.

This programme will be delivered by experts who are highly experienced in forensic schedule analysis for over 30 years. They have been involved as an experienced lecturer and trainer in a number of programmes. The programme will be delivered in an interactive and practical format. The courses will include practical examples and case studies. Hence the course content reflects the practical aspects and challenges faced by the professionals and the industry.

1.3 Programme Rules of Combination

The course is of eight months (approximately 32 weeks) duration, including assignment for each module. This contains 4 core units. Learner' performance will be assessed by an open book online exam (assignment) after each unit.

Units:

- FS410-Schedules and Primavera P6
- FS420-Schedule Analysis and Protocols
- FS430- Delay Events
- FS440- Determination

To achieve the Professional Diploma, candidates are required to complete all modules.

1.4 Entry Requirements

- Minimum 18 years old **and**
- Minimum 2 years' experience in the relevant sector.

1.5 Unit and Assessment Grades

The tutor will award a grade to the achievement of each unit (fail, pass, merit or distinction). Unit grades apply to overall performance in units including assignments and practical exercises.

Indicative marking descriptors for differentiating between levels of achievement when marking assignments are provided below (Section 1.8).

The overall grade for a qualification is calculated using a points system. Each unit grade attracts points as follows:

Fail	0 points
Pass	1 point
Merit	2 points
Distinction	3 points
Unit Exemption	1 point

1.6 Assessment

The assessment process is set by the College of Contract Management, which defines the requirements learners are expected to meet to demonstrate that a learning outcome has been achieved. All learning outcomes must be achieved in order to gain attainment of credit for that unit.

All completed assessments are marked internally, internally verified and subject to approval by our partner universities or institutions.

The assessment criteria are based on 3 areas:

1. **Task achievement** – This is a measure of how well the candidate answers the task question/questions and the identification of the important aspects of the task.
2. **Technical Content** – This is a measure of how well the candidate identifies, describes and evaluates the technical aspects of the task.
3. **Presentation** – This is a measure of how well the candidate presents the assignment and includes the quality of the structure and paragraphing, the quality and relevance of visual or graphical content and the referencing used for quoted sources.

1.7 Assignment Policies

1. All submission of assignments must include:
 - a) a copy of the full brief given by the Examination Officer or Course Administrator;
 - b) all source material must be cited in the text and a full bibliography of source material (including author, title, publisher, edition and page) listed at the end of the submission.
2. All submissions must be submitted into our system as instructed by the Examination Officer or Course Administrator.
3. All submissions under the student's name must only be the work of that student. All information sources must be acknowledged. There is the **possibility of failing the units if the contents of the assignment are plagiarised** as set out in the rules and regulations of the institution.
4. All submissions should be in pdf format and students **must** keep a copy of all submitted work for reference purposes. Receipt will be acknowledged by the College once the work is completed.
5. Whenever a candidate submits work after the approved deadline without an authorised extension, a maximum "Pass" grade will be awarded.
6. The Assessor will comment on the quality of the work for learning purposes.
7. Requests for extensions of submission deadlines must be made in writing **prior** to the submission deadline to the Examination Officer or Course Administrator and must be supported by documentary evidence if required.

1.8 Professional Diploma in Forensic Schedule Analysis Indicative Marking Descriptors

Note: Please note that the bands below describe indicative characteristics only. An overall holistic approach is required when assessing a candidate's work and assigning a grade. Please read these grading bands in conjunction with the College of Contract Management Assignment Policy.

Grade	Task Achievement The Relevance of the Response	Inclusion of Relevant Technical Knowledge in Content	Presentation/Coherence
Distinction			
70% +	The work demonstrates a comprehensive understanding of the task. All relevant information is included. The main issues are effectively identified and analysed. There is evaluation and some analysis of solutions to issues relevant to the task. The response shows control of content within the word count.	The work demonstrates a strong understanding of a wide range of technical issues relevant to the task. There is analysis of the advantages/disadvantages of possible choices, risks and potential outcomes.	The work is appropriately structured and the argument is developed coherently. There is a recognised form of source referencing which supports the points in the task. Paragraphing and titling are used effectively to assist the reader. The use of visual/graphical information is clear and effective in assisting the reader. The graphical information is relevant to the task and is accurate.
Merit			
60-69%	The work demonstrates a clear understanding of the main issues relevant to the task. The issues are explained effectively and potential solutions identified. There is some attempt to analyse the merits of the solutions to the task. The task is broadly achieved within the word count, if relevant to assignment.	The work demonstrates an understanding of the key technical issues of the task. There is clear description of relevant technical aspects with some attempt to evaluate the merits of these as appropriate to the task.	Demonstrates an awareness of presentation and an attempt to present the information with clarity and coherence. There is referencing of sources and use of paragraphing and titling to assist the reader. There is use of clear graphical information to support the assignment which has broad relevance to the task. There may be some limited inaccuracies/omissions in these.
Pass			
40-59%	The work demonstrates an understanding of the task. The main points are identified and the task is achieved. There is no attempt to evaluate or analyse the solutions. There may be some inaccuracies, omissions and irrelevant content. There may be lack of control in relation to the word count.	The work demonstrates an understanding of the main technical issues which are identified. This may be limited to description with little evidence of evaluation. There may be some omissions and inaccuracies in the detail. There may be some irrelevant details.	There is an attempt to structure the information. There is evidence of paragraphing and titling which is not always appropriate. Some basic graphical information may be included which is of some assistance to the reader. There may be some omissions or inaccuracies. The work is generally coherent but there may be occasional lapses in coherence and structure.
Fail			
0-39%	The work shows a poor understanding of the task. Frequent inaccuracies. Failure to identify important aspects of the task. Much of the information is irrelevant to the task. There may be evidence of copy and paste from external sources. The response may be limited to lists of words with no attempt to explain the relevance/merits of these to the task. The assignment falls short of the word count.	The work demonstrates a lack of understanding of the technical aspects. There are omissions of important technical information. Errors are evident in the technical content. There is no attempt to explain the relevance of the technical content to the task.	Lacks structure and may be limited to lists of points which are not developed. Disorganised in structure causing difficulty for the reader to understand the points. The response is illegible or incoherent in places. No referencing of external sources. The graphical illustrations are of poor quality or absent. They may be irrelevant. There may be errors and a lack of clarity causing difficulty for the reader to understand.

1.9 Calculating Overall Qualification Grade

To calculate the overall qualification grade, the individual units grades should be added together and compared to the table below:

Candidates must pass all 4 units of the programme.

Total Points for all 4 Units	Overall Grade
12	Distinction
11	
10	
<hr/>	
9	Merit
8	
7	
<hr/>	
6	Pass
5	
4	
<hr/>	
3 or fewer	Fail
Candidates must achieve at least a pass in (or hold exemption from) all 4 units to be awarded the Professional Diploma.	



Unit Title	Schedule and Primavera P6
Unit Code	FS410

Summary

Status	core
Learning Hours	60hrs including Lectures and Group Exercises
Credits Value	6
Period of Study	8 weeks

Summary of Learning Outcomes

Learning outcomes are results of learning that students will have achieved on successfully completing a course. The following reference points were used in designing the learning outcomes;

- QAA Subject Benchmark Statements to ensure: that appropriate and effective teaching, support, assessment and learning resources are provided for students; that the learning opportunities provided are monitored; and that the provider considers how to improve them; and
- The professional competencies required by the ICES, the AACE and the SCL.

Learning outcomes are expressed under three broad headings of achievement in both threshold and typical standards:

U: Understanding (a general awareness of the activity)

K: Knowledge (a more detailed level of understanding of the activity)

S: Skills (to be able, without supervision, to perform relevant functions)



Learning outcomes: The learner will:	Assessment criteria: The Learner can:
1. Understand Fundamentals of Planning and Primavera P6 [U, K].	1.1 Early and Late Start/Finish Times, Critical Path, Float; 1.2 Type of Schedules; 1.3 Benefits of using Primavera P6; 1.4 P6 EPPM and P6 PPM; 1.5 Project Window and Enterprise Project Structure and Toolbar; 1.6 Build and Manage EPS Enterprise Project Structure) and OBS (Organisation Breakdown Structure);
2. Be able to produce projects in Primavera P6 [K, S].	2.1 Overview and navigation 2.2 Creating new projects; 2.3 Importing and exporting projects; 2.4 Creating WBS (Work Breakdown Structure);
3. Be able to manage activities and resources in Primavera P6 [K, S].	3.1 Adding and managing activities to the WBS, creating relationships, CPM (Critical Path Method), total float, assigning constraints and scheduling; 3.2 Defining resources and roles, analysing resource performance, and adding costs to the schedule;
4. Be able to manage baselines and updating schedules in Primavera P6 [K, S].	4.1 Manage base line; 4.2 Updating schedules with dates, resources, and costs; 4.3 Configuring enterprise data; 4.4 Publish P6 data and creating reporting schedules; 4.5 Earned value analysis;
Additional information about the unit	
Units aim(s)	



Recommended Reading

1. Mubarak, Saleh A. (Saleh Altayeb), Construction project scheduling and control/Saleh Mubarak.—2nd ed
2. Paul E Harris, Project Planning and Scheduling using Primavera P6, 2008
3. Oracle Primavera Project Management P6, Reference Manual, version 7.0
4. Jerry Brown Governor, Project Scheduling with Primavera P6 Training Manual, December 2011, Ver 1



Unit Title	Schedule Analysis and Protocols
Unit Code	FS420

Summary

Status	core
Learning Hours	40hrs including Lectures and Group Exercises
Credits Value	4
Period of Study	8 weeks

Summary of Learning Outcomes

Learning outcomes are results of learning that students will have achieved on successfully completing a course. The following reference points were used in designing the learning outcomes;

- QAA Subject Benchmark Statements to ensure: that appropriate and effective teaching, support, assessment and learning resources are provided for students; that the learning opportunities provided are monitored; and that the provider considers how to improve them; and
- The professional competencies required by the ICES, the AACE and the SCL.

Learning outcomes are expressed under three broad headings of achievement in both threshold and typical standards:

U: Understanding (a general awareness of the activity)

K: Knowledge (a more detailed level of understanding of the activity)

S: Skills (to be able, without supervision, to perform relevant functions)



Learning outcomes: The learner will:	Assessment criteria: The Learner can:
1. Understand Construction Delay [U, K].	1.1 Define the Causes of Delay 1.2 Distinguish Excusable from Non-Excusable Delay 1.3 Describe Compensable Delay 1.4 Describe and Distinguish Concurrent / Sequential Delay 1.5 Explain Important Terms & Definitions
2. Understand and Identify the Strengths & Weaknesses of the Various Delay Analysis Methods [U, K].	2.1 Understand the General Advice in the Society of Construction Law (SCL) Protocol 2.2 Comprehend the Taxonomy of Forensic Schedule Analysis 2.3 Understand the Basics of: As-Planned vs. As-Built Schedule Analysis; Impact As-Planned Schedule Analysis; Collapsed As-Built Schedule Analysis; Time Impact Analysis; and Windows Analysis Methods
3. Understand the Purpose and Process of Extension of Time Claims [K, S].	3.1 Identify Relevant Contract Terms 3.2 Discuss the Purposes of Extension of Time Requests and Change Orders 3.3 Appreciate the Relevance of the Programmes & Understand Important Programme Terms 3.4 Develop an Understanding of the Basics of Prolongation Costs
4. Appreciate Certain Challenges in Forensic Schedule Analysis [U, K].	4.1 Appreciate the Challenges, and Devise Solutions, in Relation to: 4.2 Revised & Accelerated Programmes; 4.3 Ownership of Float; 4.4 Exclusion of Concurrent Delay in Contract; 4.5 Functional Concurrency; 4.6 Retrospective v. Prospective Analyses; and 4.7 Other Practical Challenges.
5. Understand the Process of Applying Forensic Schedule Analysis in Practice [K, S].	5.1 Define the Scope of a Delay Analysis Exercise 5.2 Identify and Apply Contract Terms 5.3 Identify the Relevant Project History 5.4 Categorize and Make Best Use of Records 5.5 Develop Implementation Techniques 5.6 Present Delay Analysis Results Effectively
Additional information about the unit	
Units aim(s)	



Recommended Reading

1. Baldwin, A. and Bordoli, D. (2014) A Handbook for Project Planning and Scheduling; Chichester: Wiley Blackwell
2. Butterworth-Heinemann; 3 edition, Construction Delays, by Mark F Nagata, William A Manginelli, Scott Lowe, and Ted J Trauner Jr. (Authors)
3. Mubarak, Saleh A. (Saleh Altayeb), Construction project scheduling and control/Saleh Mubarak.—2nd ed
4. RICS Books, 2016, About Time: Delay Analysis in Construction by Stephen Lowsley and Christopher Linnett (Authors)



Unit Title	Delay Events
Unit Code	FS430

Summary

Status	core
Learning Hours	60hrs including Lectures and Group Exercises
Credits Value	6
Period of Study	8 weeks

Summary of Learning Outcomes

Learning outcomes are results of learning that students will have achieved on successfully completing a course. The following reference points were used in designing the learning outcomes;

- QAA Subject Benchmark Statements to ensure: that appropriate and effective teaching, support, assessment and learning resources are provided for students; that the learning opportunities provided are monitored; and that the provider considers how to improve them; and
- The professional competencies required by the ICES, the AACE and the SCL.

Learning outcomes are expressed under three broad headings of achievement in both threshold and typical standards:

U: Understanding (a general awareness of the activity)

K: Knowledge (a more detailed level of understanding of the activity)

S: Skills (to be able, without supervision, to perform relevant functions)



Learning outcomes: The learner will:	Assessment criteria: The Learner can:
1. Be able to apply and compare delay analysis methods with specific events and the limitation of each method [K, S].	1.1 Case Study: Application of As planned versus As built, show the limitations of this method 1.2 Case Study: Application of Impacted as planned method, show the limitations of this method 1.3 Case Study: Application of Time Impact Analysis, prepare a fragnet etc. 1.4 Case Study: Application of Windows AP v AB analysis, an observational method, use actual scenario 1.5 Case Study: Application of Collapsed as built (but for) method
2. Be able to identify delay events from the various scenarios and case studies [K, S].	2.1 How to apportion delay 2.2 Identify concurrent delay 2.3 Identify compensable delay 2.4 Identify non-compensable delay
3. Be able to select a delay method in specific circumstances, etc. from the various scenarios and case studies [K, S].	3.1 Selection of delay method 3.2 Identify start date of delay event
4. Be able to manage delay analysis in Primavera P6	4.1 Analysis and update the schedules for the application of each method.
Additional information about the unit	
Units aim(s)	

Recommended Reading

1. Taylor and Francis; 1 edition Construction Delays: Extensions of Time and Prolongation Claims by by Roger Gibson (Author)
2. Sweet & Maxwell; 4th edition Delay and Disruption in Construction Contracts by by Keith Pickavance (Author)
3. Wiley-Blackwell; 1 edition A Practical Guide to Disruption and Productivity Loss on Construction and Engineering Projects by Roger Gibson (Author)
4. Wiley-Blackwell; 2nd edition Delay Analysis in Construction Contracts by by P. John Keane and Anthony F. Caletka (Authors)



Unit Title	Determination
Unit Code	FS440

Summary

Status	core
Learning Hours	40hrs including Lectures and Group Exercises
Credits Value	4
Period of Study	8 weeks

Summary of Learning Outcomes

Learning outcomes are results of learning that students will have achieved on successfully completing a course. The following reference points were used in designing the learning outcomes;

- QAA Subject Benchmark Statements to ensure: that appropriate and effective teaching, support, assessment and learning resources are provided for students; that the learning opportunities provided are monitored; and that the provider considers how to improve them; and
- The professional competencies required by the ICES, the AACE and the SCL.

Learning outcomes are expressed under three broad headings of achievement in both threshold and typical standards:

U: Understanding (a general awareness of the activity)

K: Knowledge (a more detailed level of understanding of the activity)

S: Skills (to be able, without supervision, to perform relevant functions)



Learning outcomes: The learner will:	Assessment criteria: The Learner can:
1. Understand and knowledge in scheduling practices for Risk Management [U, K].	1.1 Types of Risk in Construction Projects 1.2 Schedule Risk Types 1.3 Importance of Good Planning for Risk Management 1.4 Importance of Good CPM Scheduling Practices for Risk Assessment 1.5 Schedule Risk Management Steps
2. Understand delay damages [U, K].	2.1 Direct damages 2.2 Indirect damages
3. Be able to determine critical delay [K, S].	3.1 Determination of Critical Delay in the case study for each of the methods of analysis
4. Be able to schedule disruption and mitigation [K, S].	4.1 Directed Acceleration 4.2 Constructive acceleration
Additional information about the unit	
Units aim(s)	

Recommended Reading

1. American Society of Civil Engineers 2017 edition, Schedule Delay Analysis (Standards) by American Society of Civil Engineers (Author)
2. Informa Law from Routledge; 5 edition, Delay and Disruption in Construction Contracts (Construction Practice Series) by Andrew Burr (Editor)
3. Institute, Project Management (2009). Practice Standard for Project Risk Management. PMI