

Table of Contents

Revision History.....	3
Table of Contents	4
Acknowledgements	7
1. Introduction to this Syllabus.....	8
1.1 The International Software Testing Qualifications Board.....	8
1.2 Purpose of this Document.....	8
1.3 The Certified Tester Expert Level in Software Testing	8
1.3.1 Level of Knowledge	9
1.3.2 Examination	9
1.3.3 Accreditation	9
1.4 Normative versus Informative Parts	9
1.5 Level of Detail	9
1.6 How this Syllabus is Organized.....	10
1.7 Terms and Definitions	10
1.8 Learning Objectives (LO) / Levels of Knowledge (K)	10
1.9 Expectations.....	11
2. The Context of Improvement 285 mins.	13
2.1 Why Improve Testing?	13
2.2 What can be Improved?	15
2.3 Views of Quality	15
2.4 The Generic Improvement Process	16
2.4.1 The Deming Cycle	16
2.4.2 The IDEAL improvement framework	16
2.4.3 Fundamental Concepts of Excellence	17
2.5 Overview of Improvement Approaches.....	18
2.5.1 Overview of Model-based Approaches.....	18
2.5.2 Overview of Analytical Approaches	18
2.5.3 Hybrid Approaches	18
2.5.4 Other Approaches to Improving the Test Process.....	18
3. Model-based Improvement 570 mins.	22
3.1 Introduction to Model-based Approaches	23
3.1.1 Desirable Characteristics of Test Process Improvement Models	23
3.1.2 Continuous and Staged Representations	23
3.1.3 Assumptions in Using Models.....	24
3.2 Software Process Improvement Models	24
3.2.1 CMMI	24
3.2.2 ISO/IEC 15504.....	25
3.3 Test Process Improvement Models	25
3.3.1 The Test Process Improvement Model (TPI®)	25
3.3.2 The Testing Maturity Model Integration (TMMi).....	26
3.3.3 Comparing TPI Next to TMMi	27
3.4 Content-based Models	27
3.4.1 STEP.....	27
3.4.2 CTP.....	27
4. Analytical-based Improvement 555 mins.....	29
4.1 Introduction.....	29
4.2 Causal Analysis.....	30
4.2.1 Cause-Effect Diagrams.....	30
4.2.2 Causal Analysis during an Inspection Process.....	31
4.2.3 Use of Standard Anomaly Classifications.....	31

4.2.4	Selecting Defects for Causal Analysis	31
4.3	The GQM Approach	32
4.4	Analysis using Measures, Metrics and Indicators	32
4.4.1	Introduction	32
4.4.2	Test Effectiveness Metrics	33
4.4.3	Test Efficiency / Cost Metrics	33
4.4.4	Lead-time Metrics	34
4.4.5	Predictability metrics	34
4.4.6	Product Quality Metrics	34
4.4.7	Test Maturity Metrics	35
5.	Selecting the Approach for Test Process Improvement 105 mins.	36
5.1	Selecting Test Process Improvement Approaches	36
6.	Process for Improvement 900 mins.	38
6.1	Introduction.....	39
6.2	Initiating the Improvement Process.....	39
6.2.1	Establishing the Need for Improvement	39
6.2.2	Setting Objectives for Test Improvement	40
6.2.3	Setting the Scope for Improvement	41
6.2.4	Influence of People and Culture on the Initializing Phase	42
6.3	Diagnosing the Current Situation	42
6.3.1	Planning the Assessment	43
6.3.2	Assessment Preparation.....	43
6.3.3	Performing Interviews	43
6.3.4	Initial Feedback.....	44
6.3.5	Analysis of Results	44
6.3.6	Performing Solution Analysis.....	44
6.3.7	Recommending Improvement Actions.....	45
6.4	Establishing a Test Improvement Plan	46
6.4.1	Setting Priorities.....	46
6.4.2	Developing an Implementation Approach.....	47
6.4.3	Planning the Improvements	47
6.5	Acting to Implement Improvement	48
6.5.1	Selecting and Executing a Pilot	48
6.5.2	Manage and Control the Implementation	49
6.6	Learning from the Improvement Program	49
7.	Organization, Roles and Skills 465 mins.	50
7.1	Organization.....	50
7.1.1	The Test Process Group.....	51
7.1.2	Test Improvement with Remote, Off-shore and Outsourced teams	52
7.2	Individual Roles.....	52
7.2.1	The Test Process Improver	52
7.2.2	Assessor Roles	52
7.3	Skills of the Test Process Improver/Assessor.....	53
7.3.1	Interviewing Skills	53
7.3.2	Listening Skills	55
7.3.3	Presentation and Reporting Skills	55
7.3.4	Analytical Skills	56
7.3.5	Note-taking Skills	56
7.3.6	Skills of Persuasion	56
7.3.7	Management Skills	57
8.	Managing Change 285 mins.	58
8.1	Introduction.....	58
8.2	Fundamental Change Management Process	58
8.3	Human Factors in the Change Management Process	59

9.	Critical Success Factors	300 mins.....	61
9.1	Key Success Factors		61
9.2	Setting a Culture for Improvement		62
10.	Adapting to Different Life Cycle Models	60 mins.	64
10.1	Adapting to Different Life Cycle Models		64
11.	References		66
11.1	Standards		66
11.2	Trademarks		66
11.3	Books		67
11.4	Papers and Articles		69
11.5	Web References		69
12.	Appendix A – Notice to Training Providers.....		71
12.1	Training Times		71
12.2	Standards Used		72
12.3	Practical Exercises		72
12.3.1	Guidelines for Practical Exercises in the Workplace		72
12.4	Generic Guidance to Training Providers Regarding Criteria		73
12.4.1	Expert Level Training Provider Criteria		73
12.4.2	Expert Level Courses		73
12.4.3	Trainer Entry Criteria		74
	Index		75