

## Working Document Core Compulsory & Elective for Technician Qualification

Level 1 = 8 level 2 = 7 Level 3 = 25 Level 4 = 8 level 5 = 4 (sum 62) *elective range between level 2 & 5 with credits range between 3 & 4*

Core Compulsory				Core elective
Health and Safety	Communications	Equipment operation and maintenance	Knowledge of Sampling	<i>Complete one of the following</i>
497 Demonstrate knowledge of workplace health and safety requirements Level: 1 Credits: 3	1277 version 5 Communicate information in a specified workplace Level: 2 Credits: 3	New 2 Operate and maintain basic civil engineering laboratory equipment Level: 3 Credits: 10	New 5 Demonstrate knowledge of field sampling for testing of engineering materials Level: 3 Credits: 5	8441 version 4 Describe laboratory quality systems Level: 5 Credits: 4
17593 version 3 Apply safe work practices in the workplace Level: 2 Credits: 4	9707 version 5 Demonstrate knowledge of workplace communications requirements Level: 1 Credits: 5	New 6 Calibrate and maintain laboratory test equipment in the civil engineering industry Level: 4 Credits: 8		New 3 Operate and maintain pressure measurement equipment Level: 3 Credits: 3
<b>Planning &amp; Scheduling</b>	<b>Quality Management Systems</b>			New 4 Operate and maintain force measurement equipment Level: 3 Credits: 3
New 1 Plan and conduct daily laboratory testing activities in the civil engineering sector Level: 3 Credits: 10	8440 version 4 Comply with laboratory quality management systems Level: 5 Credits: 4			19522 version 2 Undertake job safety analysis Level 2 Credit 4 <b>Should this unit be compulsory?</b>

## Working Document Endorsements (called Strands) for Technician qualification

<b>Aggregates Strand</b> <b>Minimum Total 4 = 36</b> Sampling + 1 group	<b>Soils Strand</b> <b>Minimum Total = 30</b> Sampling + 1 group	<b>Concrete strand</b> <b>Total = 37</b>	<b>Field Testing</b> <b>Total = 30</b>	<b>Asphalt Strand</b> <b>Total = 35</b>	<b>Bituminous binder Strand</b> <b>Minimum Total = 30</b> Sampling + 1 group
<b>New 11</b> Describe and complete aggregate sampling in the civil engineering industry Level: 4 Credits: <b>12</b>	<b>New 22</b> Describe and complete soil sampling in the civil engineering industry Level: 4 Credits: <b>10</b>	<b>12019</b> Carry out routine tests on fresh concrete Level: 3 Credits: 9	<b>New 37</b> Describe field tests in the civil engineering industry Level: 4 Credits: <b>15</b>	<b>New 41</b> Explain and complete asphalt sampling Level: 4 Credits: 5	<b>New 48</b> Explain and complete bituminous binder sampling Level: 4 Credits: <b>8</b>
New 7 Describe aggregate source property tests in the civil engineering industry Level: 4 Credits: <b>8</b>	New 16 Describe soil classification tests in the civil engineering industry Level: 4 Credits: 10	<b>18342 version 3</b> Demonstrate knowledge of concrete production Level: 4 Credits: <b>10</b>	<b>New 38</b> Perform field tests in the civil engineering industry Level: 4 Credits: <b>15</b>	<b>New 42</b> Describe asphalt tests in the civil engineering industry Level: 4 Credits: <b>15</b>	New 46 Describe bitumen or modified bitumen tests in the civil engineering industry Level: 4 Credits: 15
New 8 Perform aggregate source property tests in the civil engineering industry Level: 4 Credits: <b>16</b>	New 17 Perform soil classification tests in the civil engineering industry Level: 4 Credits: 10	<b>12020 version 4</b> Demonstrate knowledge of concrete materials technology Level: 4 Credits: <b>8</b>		<b>New 43</b> Perform asphalt tests in the civil engineering industry Level: 4 Credits: <b>15</b>	New 47 Perform bitumen or modified bitumen tests in the civil engineering industry Level: 4 Credits: 15
New 9 Describe aggregate production tests in the civil engineering industry Level: 4 Credits: <b>10</b>	New 18 Describe soil density and compaction tests in the civil engineering industry Level: 4 Credits: <b>8</b>	<b>18340 version 3</b> Test concrete Level: 4 Credits: <b>10</b>			New 49 Describe bitumen emulsion tests Level: 4 Credits: <b>10</b>
New 10 Perform aggregate production tests in the civil engineering industry Level: 4 Credits: <b>18</b>	New 19 Perform soil density and compaction tests in the civil engineering industry Level: 4 Credits: 12	<b>Unit standards in bold are compulsory within a strand</b>  Highlighted credits have been amended slightly to ensure the intended qualification structure is achieved.			New 50 Perform bitumen emulsion tests Level: 4 Credits: <b>12</b>
	New 20 Describe soil density and compaction tests in the civil engineering industry Level: 4 Credits: <b>8</b>  New 21 Perform soil Strength tests in the civil engineering industry Level: 4 Credits: 12				

## Working Document Core Compulsory & Elective for Senior Technician Qualification

Level 1 = 8 level 2 = 11 Level 3 = 28 Level 4 = 8 level 5 = 8 (sum 73) *elective range between level 3 & 7 with credits range between 3 & 25*

<b>Core Compulsory</b>			<b>Core elective</b>
<b>Health and Safety</b>	<b>Communications</b>	<b>Equipment operation and maintenance</b>	<i>Complete one of the following</i>
497 Demonstrate knowledge of workplace health and safety requirements Level: 1 Credits: 3	1277 version 5 Communicate information in a specified workplace Level: 2 Credits: 3	New 2 Operate and maintain basic civil engineering laboratory equipment Level: 3 Credits: 10	5607 Implement workplace health and safety management requirements Level: 4 Credits: 25
17593 version 3 Apply safe work practices in the workplace Level: 2 Credits: 4	9707 version 5 Demonstrate knowledge of workplace communications requirements Level: 1 Credits: 5	New 6 Calibrate and maintain laboratory test equipment in the civil engineering industry Level: 4 Credits: 8	New 3 Operate and maintain pressure measurement equipment Level: 3 Credits: 3
19522 version 2 Undertake job safety analysis Level 2 Credit 4	1312 version 4 Give oral instructions in the workplace Level: 3 Credits: 3		New 4 Operate and maintain force measurement equipment Level: 3 Credits: 3
<b>Planning &amp; Scheduling</b>	<b>Quality Management Systems</b>	<b>Knowledge of Sampling</b>	7460 Develop, implement and review quality management system Level: 7 Credits: 10
New 1 Plan and conduct daily laboratory testing activities in the civil engineering sector Level: 3 Credits: 10	8440 version 4 Comply with laboratory quality management systems Level: 5 Credits: 4	New 5 Demonstrate knowledge of field sampling for testing of engineering materials Level: 3 Credits: 5	8084 Audit quality management systems for compliance with quality standards Level: 7 Credits: 14
	8441 version 4 Describe laboratory quality systems Level: 5 Credits: 4		21335 Lead a group/team to achieve an objective(s) Level: 4 Credits: 5

**Working Document endorsements (called Strands) for Senior Technician qualification**

<b>Soils strand = 91</b>		<b>Aggregate strand = 102</b>	
<b>Minimum Total = 30</b> Sampling plus one group	<b>Minimum Total = 61</b> Three groups?	<b>Minimum Total = 36</b> Sampling + one group	<b>Total = 66</b> Both groups
<b>New 22</b> <b>Describe and complete soil sampling in the civil engineering industry</b> <b>Level: 4 Credits: 10</b>	New 25 Explain soil classification tests in the civil engineering industry Level: 5 Credits: 20	<b>New 11</b> <b>Describe and complete aggregate sampling in the civil engineering industry</b> <b>Level: 4 Credits: 12</b>	<b>New 12</b> <b>Explain aggregate source property tests in the civil engineering industry</b> <b>Level: 5 Credits: 18</b>
New 16 Describe soil classification tests in the civil engineering industry Level: 4 Credits: 10	New 26 Evaluate and troubleshoot soil classification tests in the civil engineering industry Level: 5 Credits: 5	New 7 Describe aggregate source property tests in the civil engineering industry Level: 4 Credits: 8	<b>New 13</b> <b>Evaluate and troubleshoot aggregate source property tests in the civil engineering industry</b> <b>Level: 5 Credits: 14</b>
New 17 Perform soil classification tests in the civil engineering industry Level: 4 Credits: 10	New 27 Explain soil density and compaction tests in the civil engineering industry Level: 5 Credits: 12	New 8 Perform aggregate source property tests in the civil engineering industry Level: 4 Credits: 16	<b>New 14</b> <b>Explain of aggregate production tests in the civil engineering industry</b> <b>Level: 5 Credits: 20</b>
New 18 Describe soil density and compaction tests in the civil engineering industry Level: 4 Credits: 8	New 28 Evaluate and troubleshoot soil density and compaction tests in the civil engineering industry Level: 5 Credits: 6	New 9 Describe aggregate production tests in the civil engineering industry Level: 4 Credits: 10	<b>New 15</b> <b>Evaluate and troubleshoot aggregate production tests in the civil engineering industry</b> <b>Level: 5 Credits: 14</b>
New 19 Perform soil density and compaction tests in the civil engineering industry Level: 4 Credits: 12	New 29 Explain soil strength tests in the civil engineering industry Level: 5 Credits: 12	New 10 Perform aggregate production tests in the civil engineering industry Level: 4 Credits: 18	<p><b>Unit standards in bold are compulsory within a strand</b></p> <p>Highlighted credits have been amended slightly to ensure the intended qualification structure is achieved.</p>
New 20 Describe soil strength tests in the civil engineering industry Level: 4 Credits: 8	New 30 Evaluate and troubleshoot soil strength tests in the civil engineering industry Level: 5 Credits: 6		
New 21 Perform soil strength tests in the civil engineering industry Level: 4 Credits: 12	New 23 Explain specialist soil tests in the civil engineering industry Level: 5 Credits: 24		
	New 24 Evaluate and troubleshoot specialist soil tests in the civil engineering industry Level: 5 Credits: 18		

Continued - endorsements for Senior Technician qualification

Asphalt Strand Total = 65		Bituminous binder Strand Minimum Total = 70	
Level 4 Total = 35	Level 5 Total = 32	Minimum Total = 30 Sampling + one group	Total = 40 Sampling + two group
<b>New 41</b> Explain and complete asphalt sampling Level: 4 Credits: 5	<b>New 44</b> Explain asphalt tests in the civil engineering industry Level: 5 Credits: 20	<b>New 48</b> Explain and complete bituminous binder sampling Level: 4 Credits: 8	New 51 Explain bitumen or modified bitumen tests Level: 5 Credits: 20
<b>New 42</b> Describe asphalt tests in the civil engineering industry Level: 4 Credits: 15	<b>New 45</b> Evaluate and troubleshoot asphalt tests in the civil engineering industry Level: 5 Credits: 12	New 46 Describe bitumen or modified bitumen tests in the civil engineering industry Level: 4 Credits: 15	New 52 Evaluate and troubleshoot bitumen or modified bitumen tests Level: 5 Credits: 10
<b>New 43</b> Perform asphalt tests in the civil engineering industry Level: 4 Credits: 15		New 47 Perform bitumen or modified bitumen tests in the civil engineering industry Level: 4 Credits: 15	New 53 Explain bitumen emulsion tests Level: 5 Credits: 8
<b>Unit standards in bold are compulsory within a strand</b>  Highlighted credits have been amended slightly to ensure the intended qualification structure is achieved.		New 49 Describe bitumen emulsion tests Level: 4 Credits: 10	New 54 Evaluate and troubleshoot bitumen emulsion tests Level: 5 Credits: 7
		New 50 Perform bitumen emulsion tests Level: 4 Credits: 12	New 55 Explain bitumen sprayer tests in the civil engineering industry Level: 5 Credits: 10 New 56 Perform bitumen sprayer tests Level: 5 Credits: 15

Continued - endorsements for Senior Technician qualification

Concrete strand = 69		Field Testing Strand = 65	
L3 = 9 L4 = 28 Total = 37	Level 5 = 32 Compulsory + One group	Level 4 = 30	Level 5 = 35
<b>12019</b> Carry out routine tests on fresh concrete Level: 3 Credits: 9	<b>18341 version 3</b> Design concrete mixes Level: 5 Credits: 12	<b>New 37</b> Describe field tests in the civil engineering industry Level: 4 Credits: 15	<b>New 39</b> Explain field tests in the civil engineering industry Level: 5 Credits: 25
<b>12020 version 4</b> Demonstrate knowledge of concrete materials technology Level: 4 Credits: 8	<i>New 31</i> Explain fresh concrete tests in the civil engineering industry Level: 5 Credits: 10	<b>New 38</b> Perform field tests in the civil engineering industry Level: 4 Credits: 15	<b>New 40</b> Evaluate and troubleshoot tests in the civil engineering industry Level: 5 Credits: 10
<b>18340 version 3</b> Test concrete Level: 4 Credits: 10	<i>New 32</i> Evaluate and troubleshoot fresh concrete tests in the civil engineering industry Level: 5 Credits: 10		
<b>18342 version 3</b> Demonstrate knowledge of concrete production Level: 4 Credits: 10	<i>New 33</i> Explain non-destructive testing for hardened concrete in the civil engineering industry Level: 5 Credits: 10		
<b>Unit standards in bold are compulsory within a strand</b>  Highlighted credits have been amended slightly to ensure the intended qualification structure is achieved.	<i>New 34</i> Evaluate and troubleshoot non-destructive testing for hardened concrete in the civil engineering industry Level: 5 Credits: 10	Please note new <b>Concrete</b> unit standards 31 – 36 were drafted outside the advisory group to complement the technician unit standards and maintain the technician and senior technician model. The ranges of tests were based on those quoted within the registered unit standards and will need to be confirmed.	
	<i>New 35</i> Explain testing for hardened concrete in the civil engineering industry Level: 5 Credits: 10 <i>New 36</i> Evaluate and troubleshoot testing for hardened concrete in the civil engineering industry Level: 5 Credits: 10		