

National Diploma in Surveying

with an optional strand in Mine Surveying

Level Six – 252 Credits



InfraTrain
New Zealand

Training Plan

(Full name)

The National Diploma in Surveying is a Level 6 qualification, comprising 252 credits. To be awarded the qualification, candidates must complete:

- Core Compulsory Units
- Core Elective Units

An Optional Strand in Mine Surveying can be completed in addition to the above, if required.

Please note: The ticked units can only be achieved by attending an off-job course.

Core Compulsory Units – All the units listed below are required.

Unit No.	Unit Standard Title	Level	Credit	Pre-requisites	Off Job	Comments
2785	Create a computer spreadsheet to provide a solution for organisation use	3	5			2784 recommended Not listed in this qualification
2990	Read texts to research information	3	4			
3488	Write business correspondence for a workplace	2	6			
5268	Manipulate trigonometric expressions, sketch graphs of trigonometric functions, and solve equations	3	4			
5627	Operate as a Traffic Controller (TC) for low volume and Level 1 roads	3	4	Transit TC Level 1	✓	
8800	Apply mathematics to surveying	4	15			5251 recommended
8801	Use contemporary software to carry out survey computations	4	6			Not listed in this qualification
8764	Produce a topographical survey plan	5	8			
8766	Survey and set out building and construction control	5	6			
8782	Demonstrate knowledge of land legislation and land development in New Zealand in a surveying context	5	12			23872 recommended
8784	Demonstrate knowledge of the New Zealand surveying system	5	6			
8798	Work safely in a surveying workplace	3	6			
8799	Calculate areas, contours, and volumes for survey purposes	3	8			5251 recommended Not listed in this qualification
9685	Write an analytical report	5	5			
11153	Design infrastructure and services for subdivisions	6	15			
11414	Prepare working drawings for an engineering project	4	6			
18756	Use and maintain a computer database for business reporting and decision making	3	4			
19355	Produce scale production drawings using computer aided draughting (CAD) programs	3	8			
23859	Demonstrate knowledge of geodetic reference systems and describe the New Zealand geodetic datums	6	4			
23872	Describe land administration in relation to land development and surveying	4	6			
23873	Confirm the reliability of existing land survey marks	6	12			
23874	Produce survey data for a cadastral dataset	6	10			

05/2011 - qualification version 5

Core Compulsory Units – Continued

Unit No.	Unit Standard Title	Level	Credit	Pre-requisites	Off Job	Comments
23875	Demonstrate knowledge of, and set up, survey instruments and targets	3	8			
23876	Demonstrate knowledge of, perform, and record linear field measurements for survey practice	4	8			
23877	Explain, perform, and record angular field measurements using standard surveying instruments	4	6			
23878	Determine differences in height for survey practice	4	7			
23879	Demonstrate knowledge of safety for survey practice	2	6			
23880	Explain and use the Global Positioning System (GPS) for survey practice	4	10			
23881	Demonstrate knowledge of legislation for survey practice	5	6			
26298	Perform and explain geodetic computations	6	5			

Core Elective Units – A minimum of 36 credits of which a minimum of 28 credits at Level 6 are required.

Tick to select

Unit No.	Unit Standard Title	Level	Credit	Pre-requisites	Off Job	Comments	
1304	Communicate with people from other cultures	3	2				
1312	Give oral instructions in the workplace	3	3				
5095	Describe and explain the interacting natural processes operating within a geographic environment	3	4				
5269	Apply mathematics to conic sections and other curves	4	4				
5628	Operate as a Site Traffic Management Supervisor (STMS) for low volume and Level 1 roads	5	3		✓	Level 1 STMS course/ 5627 recommended	
6147	Analyse the different views Māori and Pākehā have in relation to the natural world	3	4				
6360	Identify geological features from recorded visual information	2	2				
6442	Supervise daily activities on an infrastructure works site	4	16				
6450	Apply plans and specifications to calculate quantities for infrastructure works projects	5	4				
8643	Demonstrate knowledge of wave theory	4	3				
8644	Demonstrate knowledge of geometric optics	4	4				
8645	Demonstrate knowledge of electrostatics	4	3				
8646	Demonstrate knowledge of electromagnetics	4	4				
8772	Demonstrate knowledge of land administration requirements for subdivisions	5	6			8782 recommended	
8779	Implement a resource consent in a surveying context	6	3			8782 recommended	
8785	Demonstrate knowledge of legislation as it relates to Māori land and survey practice	4	3				
8786	Describe Māori land judicial and administrative systems and prepare an application for a partition	5	6				
11102	Use algebraic formulae, equations and graphs to solve problems	4	3				
11104	Use integration techniques to model and solve problems	4	3				
11105	Use differential equations to model, solve and interpret physical situations	4	3				

Core Elective Units – Continued.

Tick to select

Unit No.	Unit Standard Title	Level	Credit	Pre-requisites	Off Job	Comments	
11106	Use the properties of vectors to solve physical problems	5	2				
11107	Use determinants and matrices to solve problems that can be modelled by systems of linear equations	5	2				
11109	Represent functions by power series to solve problems	5	2				
11152	Assess a site for subdivision and prepare the proposed subdivision plans and design report	6	15				
11402	Demonstrate knowledge of engineering projects and the role of project management	6	3				
11405	Prepare estimates of engineering project costings	5	4				
11406	Demonstrate knowledge of engineering contract law and documentation	6	4				
11417	Establish characteristics of soils for engineering purposes	4	9				
11422	Describe engineering solutions for mitigating the effects of natural hazards	5	7			6365 recommended Not listed in this qualification	
21614	Describe the geological history of an area in the Southwest Pacific	3	3				
23860	Demonstrate knowledge of, and calculate on, map projections	6	4				
23861	Explain height differences, and carry out a levelling survey, for geodetic surveying	6	4				
23862	Demonstrate knowledge of GNSS, and carry out a geodetic control network survey, for geodetic surveying	6	8				
23863	Demonstrate knowledge of spatial information systems	5	9				
23864	Demonstrate knowledge of data capture, and acquire and load data for a spatial information system	6	15				
23865	Present information from a spatial information system	6	8				
23870	Establish quality requirements, manage, and monitor the installation of subdivision infrastructure	6	18				
23871	Prepare and present a resource consent application in a surveying context	6	5			8772 recommended	
23882	Demonstrate knowledge of the principles of remote data acquisition and its use in New Zealand	6	18				
23885	Create digital cadastral datasets for submission as e-surveys	5	12				
Total Elective Credits							

Optional Strand

Mine Surveying Optional Strand – All the units listed below are required.						<input type="checkbox"/> Tick to select strand
Unit No.	Unit Standard Title	Level	Credit	Pre-requisites	Off Job	Comments
7146	Demonstrate basic knowledge and ability required to work in an underground mine	2	6			
15665	Demonstrate knowledge of the geology of surface extraction	4	5			
15666	Demonstrate knowledge of geology for underground extraction	4	10			
17696	Describe and apply basic skills and knowledge required to work at a surface extraction site	2	4			
17741	Demonstrate specialist underground survey techniques	6	15			
17742	Survey and draw an underground extractive site plan	6	20			
17745	Survey and draw a surface extractive site plan	5	10			
The following unit is not required for the award of the Mine Surveying Optional Strand. However, it may be required in some mine surveying employment contexts.						
21281	Interpret and test for gases in an underground extraction site	4	15	7146		