

# National Diploma in Surveying with an optional strand in Mine Surveying Level Six - 252-347 Credits

## Training Plan

(Full name)

The National Diploma in Surveying is a Level 6 qualification, comprising 252-347 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 letters and memoranda	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			
11132	Perform geodetic computations	6	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			

## Core Compulsory Units – Continued

Unit No.	Unit Standard Title	Level	Credit	Pre-requisites	Off Job	Comments
23874	Produce survey data for a cadastral dataset	6	10			
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			

## 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	2	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 civil construction activities on a single site	4	10				
6450	Apply plans and specifications to calculate quantities for civil construction projects	4	8				
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				

Continued overleaf...

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				
<b>Total Elective Credits</b>							

## Mine Surveying Optional Strand – All the units listed below are required.

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			
<b>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.</b>						
21281	Interpret and test for gases in an underground extraction site	4	15	7146		