

Certificate I in Construction

CPCCCM1011A Undertake Basic Estimation and Costing



ABOUT THESE RESOURCES

The Construction Industry Training Board (CITB) has developed this set of Learner Guides and accompanying documents to support people undertaking the Certificate I in Construction CPC10108. The Learner Guides have been written to directly correspond with each of the core Units of Competence and a number of elective Units of Competence.

Each Learner Guide contains information that will help students meet the underpinning knowledge requirements of the corresponding Unit of Competence. To form a complete learning program each Learner Guide should be delivered with as much opportunity to apply this knowledge in a practical situation as is possible. Further advice to trainers about structuring an effective learning program is provided in the Assessment Plans resource.

DISCLAIMER

The contents of this Learner Guide are intended for general educational purposes. The Learner Guide does not purport to be and should not be taken as being, or providing, professional advice and guidance.

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TO THE TRAINEE

This Learner Guide is one in a series of guides that have been prepared to help you achieve competence in the Certificate I in Construction. Your answers to the questions contained in this guide will be assessed as an important part of your course work so please keep it in good condition.

If you already have experience, knowledge or skills that relate to the content of this Learner Guide it is your responsibility to draw this to the attention of your trainer. If you are able to provide evidence of your experience, knowledge or skills you may be given recognition for your current competence.

TERMINOLOGY

These Learner Guides and their accompanying documents are designed for use by school students, trainees, apprentices undertaking the Certificate I in Construction in a learning environment such as a school, public or private training organisation.

The terms trainer and trainee, which are used throughout the guides, can also mean:

Trainer: teacher, supervisor, lecturer, facilitator, Registered Training Organisation (RTO).

Trainee: student, apprentice, new apprentice, learner, participant.

CONTENTS

INTRODUCTION	1
AIM	1
TOPIC 1: GATHER INFORMATION	2
TOPIC 2: ESTIMATE MATERIALS, LABOUR AND TIME REQUIREMENTS	6
TOPIC 3: CALCULATE COSTS AND DOCUMENT DETAILS	12
Calculate Costs	12
Total Job Calculation	16
Final Job Estimate	16
Software	17
TOPIC 4: QUOTATIONS	19
ASSESSMENT TASKS	22
APPENDIX A: GLOSSARY OF TERMS	31
APPENDIX B: EMPLOYABILITY SKILLS	32
APPENDIX C: SUGGESTED RESOURCES	34

INTRODUCTION

In the construction industry estimating can play a major role in your daily activities; especially if you are self-employed within the industry. To gain business you must be able to estimate the cost of projects in order to provide quotations to your customers - to remain in business these estimations must be accurate.

Estimating is carried out by:

- professional estimators employed by, or contracted to, construction companies
- contractors for tendering
- subcontractors for subcontracting.

To provide an accurate estimate you will need organisational and investigative skills to gather information, technical skills to estimate and calculate cost, and communications skills to relay this information to potential clients/customers.

Estimating can be divided into four distinct tasks:

- gathering of information
- estimation of material, time and labour
- calculation of costs
- documentation of the estimation and the process used to arrive at it.

AIM

The aim of this unit is to provide the trainee with the ability to:

- gather the information required to make estimations
- accurately estimate materials, time and labour
- accurately cost projects
- document estimate details appropriately.

TOPIC 1: GATHER INFORMATION

When planning and preparing to estimate materials or cost a project you will need to gather information from a range of sources and about a variety of matters. The more complete your information is, the more accurate your estimate/ costing is likely to be.

COMMUNICATION

Regardless of the size of the project you will need to communicate with others in order to determine the estimation/ costing requirements and details. Good communication is essential to:

- determine the task requirements
- ask clarifying questions and gain additional information
- follow supervisor's/ client's instructions
- convey any concerns, constraints etc
- build rapport and trust.

The people that you may have to communicate with include:

- client/ customer
- architect
- project manager
- site supervisor
- suppliers of goods and services.

On small jobs the communication might be all verbal e.g. site meetings or phone calls, whilst on larger jobs communication might be a mixture of verbal and written e.g. emails, letters, contracts.

PLANS AND SPECIFICATIONS

In the building industry most of the information and instruction for a project will be detailed in plans and/or specifications, which are prepared based on information supplied by the client.

To estimate a project accurately it is necessary to be able to interpret plans, details and specifications accurately. Refer to the Read and Interpret Plans and Specifications Learner Guide.

Plans and specifications provide specific details such as:

- the location and size of the spaces in a building
- the materials to be used
- the location of the building on the site
- special fittings, fixtures and features
- the layout of service such as power and gas.

It is from these plans and/or specifications that the process of gathering information should commence. You should be able to ascertain most of the project requirements such as:

- site location
- site accessibility
- materials to be used
- required fittings and fixtures
- finishes required
- products and/or services required, such as mechanical services, fire protection, electrical services, sprinkler services, lifts and escalators
- required labour and/or tradespersons.

SITE CONDITIONS

Prior to estimating/ costing a construction project it may be necessary to carry out a site inspection. This will allow you to determine if:

- any extra equipment will be required such as scaffolding for sloping blocks
- the site is accessible and if not develop a contingency plan e.g. cranes, narrow plant
- drainage is satisfactory, and if not, set up appropriate storm water management
- any relevant environmental concerns are present
- site boundaries have been set up correctly
- amenities will need to be provided e.g. a toilet.

TOOLS, EQUIPMENT, PLANT AND TRANSPORTATION

From the site inspection, plans and specifications you will also need to determine if you have the necessary tools, equipment and plant to complete the project. If additional items are need to be purchased or hired you need to take into account the cost of these items in your estimate. In some

instances consideration will need to be given to methods of transportation. For example, if a site has an access point, which limits the size of delivery vehicles, materials may need to be transported in smaller quantities on smaller trucks.

HISTORICAL DATA

Historical data is an important source of information. If you have provided estimates in the past for projects similar to your current project you can use your past estimates as a guide for the current estimate.

DOCUMENTATION

To effectively and accurately estimate a project you will need to obtain a wide range of information. This information should be documented accurately and in a manner that makes it easy to read at a later date. When making notes on site e.g. whilst in a meeting with a client, a site book is a good way to store this information as it keeps all the notes in one place and can be easily referred back to.

When making notes relating to pricing and suppliers, ensure that you note who the supplier was, the date that the price was obtained and any other important information. This will make sure that you don't accidentally use information that is no longer current.

When you are ready to start preparing your estimate/ costing you will need to collate your source information into a useable format. It is preferable to group like items together to ensure that nothing is missed or duplicated when you estimate the quantities of materials, labour and time requirements.

Some organisations will have templates or proformas that you must use when gathering estimating/ costing information and collating it. These are often spreadsheets that help automate the calculations. Using templates helps to ensure consistency across jobs, makes it easier to

compare one job to another and helps to ensure quality standards are met.

To assist with the next step of the estimating process document your materials requirements information in a table as shown below.

Item	Description of item	Unit of measure	Quantity	Rate	\$
75mm Colonial Skirting	Supply Skirting				

Make sure that you record each item neatly and accurately to minimise the risk of error.

TOPIC 2: ESTIMATE MATERIALS, LABOUR AND TIME REQUIREMENTS

CALCULATING MATERIALS

From the Plans and Specifications you should have gathered a list of all material requirements for a specified project; you now need to calculate the amounts of materials required. To estimate materials accurately it is necessary to be able to measure and calculate material requirements. A summary of the formulae for calculating materials is listed below. For more advanced calculations used to calculate material requirements refer to the Carry out Measurements and Calculations Learner Guide.

Calculating Linear Measurements

Calculating linear measurements is straightforward, using the appropriate tool, measure the perimeter of an object and that would equal the linear measurement required.

Calculating Area Measurements

As area measurements are two dimensional to calculate the surface area you multiply the length by the width.

$$\text{Area} = \text{Length} \times \text{Width}$$

Calculating Volume Measurements

Volume measurements are three dimensional therefore to calculate the cubic content of a space you multiply the length by the width by the depth/ height.

$$\text{Volume} = \text{Length} \times \text{Width} \times \text{Depth}$$

QUALITY REQUIREMENTS

When estimating and costing a project it is essential that you use the right quality of materials required. Failure to do so might result in your quote being less than the cost of the project and/ or having to re-do work because the wrong grade of material was supplied.

Quality standards can be stipulated by:

- the client/ customer
- your organisation
- environmental regulations
- manufacturer's specifications
- Australian Standards.

ESTIMATING MATERIALS

When you have compiled the list of materials needed for your project you have to calculate the amount of each item that is required. These calculations can then be added to your estimate. For example.

Item	Description of item	Unit of measure	Quantity	Rate	\$
Material	Supply Skirting	Lm	161 linear m		

Many materials are sold in unit lengths, for example 75mm MDF primed skirting is available in 5.4m lengths. When purchasing in unit lengths, some wastage is inevitable even though short lengths can generally be used somewhere on the project. A good estimator plans jobs to minimise wastage but also purchases enough to ensure they do not run out of materials.

Continuing with our example of estimating skirting 161m (the minimum requirement) must be divided by 5.4m – the unit length. This equals 30 lengths. From previous experiences you may conclude that 10% wastage may occur – therefore instead of ordering 30 lengths you order 33.

However, rather than use a set percentage to calculate waste it is more accurate to calculate the actual waste from the plans and specifications.

Item	Description of item	Unit of measure	Quantity	Rate	\$
Materials	Supply Skirting to cover 161 linear metres	5.4m length	33		

ESTIMATING MISCELLANEOUS REQUIREMENTS

There may be some additional items or services that you must ensure that you purchase or hire in order to complete the job. These can include, but are not limited to:

- safety signs
- safety equipment
- access equipment
- security fencing
- removal of waste/ recycling/ hazardous waste
- site repair/ remediation.

These items can be recorded in a separate table of your estimation documentation.

If you do not account for these items at this stage of your planning you might forget to include them in your final project costing – an oversight which will cost you money.

ESTIMATING LABOUR REQUIREMENTS

Labour can be one of the highest expenses in a construction project and yet it can also be one of the most difficult to estimate as there are a great number of different factors that can affect the time it takes to finish a project and each of the components within it.

Estimating time and labour requirements can range from a simple calculation to a very complex procedure depending on the task or project at hand.

Factors that need to be considered when calculating time and labour requirements include:

Complexity of project

As the complexity of a project or task increases so too does its time and labour requirements. A critical consideration is the number of different trades required; can one person perform all the tasks or are a number of people needed?

There are also some tasks that a person can manage on their own whilst there are others that require several people. For example a person flushing plasterboard can perform his/ her job by themselves whereas a 1st fix carpenter constructing framework will require at least 2 workers to complete the task efficiently. This may include an apprentice.

Time frame

The time frame that you have to work within can impact on the number of people on the job at any one time. For example if your client has set a very tight time frame you might employ two gangs of brick layers rather than one.

However, remember that not all jobs can be completed faster with more people. This is especially true of work that has to be carried out in small spaces e.g. tiling a bathroom.

Worker experience

The amount of experience a particular worker has often has a direct impact on how quickly they are able to complete tasks. For example the labour output of an apprentice may be considerably less than a construction worker who has worked in the construction industry for a long period of time.

Availability of skilled workers

A reduction in the availability of skilled workers may result in time delays if workers are unavailable when required. Also labour costs may increase due to demand for services.

Site conditions

Site conditions that need to be considered include:

- site accessibility – is there restricted access that may cause delays for workers?

- site location – is the site an open site where inclement weather may cause delays?
- site management – a well organised and managed site will increase worker productivity and efficiency
- site size – is there enough space for the required number of workers. If not, limiting the number of workers will increase time requirements
- height of building/elevated work area- consideration will need to be given to the extra time and labour required for manual/mechanical handling. For example bricklaying a two storey wall will add considerable costs to the project.
- site availability – if access to the site is restricted to certain times, labour costs may vary due to penalty rates.

Industrial conditions

When estimating and costing labour requirements you must take into consideration any industrial conditions that will impact the job. For example you must allow sufficient time for breaks, there may be limits on the number of hours in any one day that you can ask an employee to work, you must pay the appropriate over time and penalty rates.

Environmental conditions

There might be environmental conditions that impact on the labour requirements for a project e.g. restrictions on times noise can be made.

Plant

Plant can reduce labour and time requirements. However consideration will need to be given to whether the use of plant is possible and appropriate.

DOCUMENTING LABOUR ESTIMATES

When you have calculated the time and labour requirements for your project they should be documented in the manner required by your organisation. For example.

Item	Description of item	Estimated time required	Rate p/hr (GST inc)	Total cost
Labour	2 nd Fix Carpentry (Install Skirting)	12 hours		

Estimating time and labour requirements is a skill that will develop over time. From your experiences within the general construction industry you will gain knowledge of both the time and labour required to complete particular tasks.

TOPIC 3: CALCULATE COSTS AND DOCUMENT DETAILS

CALCULATE COSTS

Now that you have estimated the materials, miscellaneous items and labour requirements for a project the next step is to calculate the actual cost.

It is important that this step is carried out accurately as a mistake at this stage can make the difference between a project being profitable or not.

MATERIAL COSTS

The first step in calculating material costs is to contact suppliers to determine actual costs of supplies. Supply costs do vary so it may be necessary to contact several suppliers to achieve the best price. Make sure you also enquire about the availability of materials and their delivery costs as these also vary.

To calculate the cost of the required material for a specified project or task you must take into account the amount needed, including wastage, plus any delivery and storage charges.

For example, if you are cornicing a 4m x 4m room. You need to purchase 4 lengths of 4.8m to allow for wastage. Each length costs \$20 therefore the 4 lengths that you require will total \$80.

Delivery

You might choose to pick up materials yourself or you might choose to have them delivered to the site. Delivery usually attracts an additional charge that needs to be added to the material costs.

Continuing with our cornicing example, if delivery is quoted at \$50 your total material cost would actually be \$130 (\$80 + \$50).

Storage

If materials are required to be stored on site you will also need to consider the storage facilities and determine the likelihood of theft or breakage of stored materials and then factor this into your total material costs.

MISCELLANEOUS COSTS

Miscellaneous costs are likely to be unique to each job and therefore can be listed as a direct cost. E.g. If you need to purchase bales of hay for a silt trap and they cost \$50 you add this \$50 to your estimate.

LABOUR COSTS

If you are a sole trader your labour costs are straight forward. That is you will have a set hourly rate. However, if you have employees, in addition to the hourly rate of labour, you have to factor into the labour costs additional amounts to cover – these are often referred to as on-costs and include:

- supervisor rates
- apprentice rates
- penalty rates
- site allowances
- travel allowances
- holiday and sick pay
- superannuation
- inclement weather
- superannuation contributions
- work cover payments
- payroll tax if applicable
- crib time
- redundancy contributions
- incentive and bonus schemes.

OVERHEADS

Overheads are the costs incurred in running a business. The cost of overheads will vary depending on the size of your business. They include items such as:

- computing and phone equipment
- professional development
- advertising costs
- insurance e.g. professional indemnity, public liability
- bank charges
- travel and vehicle expenses
- office maintenance
- stationery
- cost of new tools, equipment and plant
- maintenance of tools, equipment and plant
- licence fees
- motor vehicle.

All of these items need to be factored into the estimate.

There are a number of ways that overheads can be calculated ranging from very sophisticated accounting tools used by large corporations to simple methods favoured by sole traders and sub-contractors.

A simple method to calculate the overheads of a small business are as follows.

Collect all of the bills that relate to the above list of overheads for one year. Add the amounts together to get a total annual overhead expense. Divide this amount by the number of days in the year that you worked (e.g. 240 days) to give you a daily over head rate. If you cost your projects by the hour, divide your daily rate by the average number of hours in your working day (e.g. 8 hours).

Overhead calculation example.

Total of overhead bills for 1 year	\$28,800
Divided by 240 days	\$120
Divided by 8 hours	\$15



Therefore the rounded up overhead rate that you must add to each hour of work that you do equals \$15

A common mistake when calculating overheads this way is to divide your annual bills by 365 days. If you do this it means that you would have to work every single day of the year to recoup your overhead costs. Therefore it is essential that you work out the average number of days that you work each year and use this figure to divide your bills by.

CONTINGENCY ALLOWANCE

A good estimator always allows for contingencies in their calculations - especially if the project will be undertaken over a considerable length of time. Contingencies are those unexpected events that can impact on a job. They include sick leave, project slippage, job re-work etc.

Contingency allowances protect the project estimate against inflation and also cover:

- minor changes
- omissions
- uncertainties
- risks.

Contingencies can be calculated in a number of ways. Some estimators choose to add a percentage to the total job cost e.g. 10%, other estimators increase the amount of hours allocated to the job or increase the hourly rate.

MARK-UP PERCENTAGES

A mark-up percentage is added to an estimate to ensure the project results in a net profit. The mark-up percentage can vary depending on factors such as the size of the project or the competitiveness of the market.

An example of calculating mark-up is given below.

The total cost of labour and materials for a given project is \$75,000 a mark-up percentage of 10%

would add \$7500 to the estimate resulting in a total cost of \$82,500.

TOTAL JOB CALCULATION

Once you have estimated and costed all the components of a job you are ready to calculate the total job cost. The total job cost is made up of:

materials costs
+
labour costs
+
miscellaneous costs
+
overhead costs
+
Contingencies
+
mark up percentage

FINAL JOB ESTIMATE

Prior to finalising and documenting your estimate, checks should be made to ensure all costs and calculations are correct. After you have completed these checks all your information and calculations can be transferred to the final estimate. The actual format for the final estimate will depend on whether you are:

- an employee producing an estimate for an employer who may require you to use a standardised estimate form
- self employed in which case you can develop your own form.

As estimates need to be organised, neat, accurate and easily understood, most are presented in a table format.

Using the table layout included in the previous sections, your final estimate to supply and fit skirting may look something like this:

Item	Description of item	Unit of measure	Quantity	Rate	\$
Materials	Supply Skirting to cover 161 linear metres	Lengths	33	\$18.50	\$610.50
	Delivery of skirting to site	Each	N/A	\$100	\$100
Labour	2nd Fix Carpentry (Install Skirting)	Hr	12	\$40.00	\$480.00
Miscellaneous	N/A	N/A	N/A	N/A	\$0
Overheads	Annual overheads	Hour	12	\$15	\$180
Contingencies	Hours added for contingencies	Hour	1	\$40.00	\$40
				Sub total	\$1410.50
Mark up		Percent		10%	\$141.05
				Total	\$1551.55



This now gives you the total cost of performing this job in a format that you can use internally in your business. You do not give your final estimate figures to a client – you use them to generate a quote. This is covered in topic 4.

SOFTWARE

Simple jobs can easily be documented by hand although care must be taken to ensure that all calculations are accurate. Most small businesses have a computer – taking the time to learn the basics of Microsoft Excel or the Macintosh equivalent can save you considerable time when documenting estimates and will help to ensure a high degree of accuracy in calculations.

Large companies that need to estimate on large and complex jobs use purpose built software. There are many estimating software packages on the market including but not limited to:

- Bid4Build
- ProContractorMX
- BID2WIN

- EasyEst Estimating
- CAD Estimator
- Estimate Master
- CBD Estimating.

OTHER RESOURCES

When estimating, other resources you can use include:

- materials suppliers who will do the take-off for you
- software programmes specifically created for estimating building costs
- publications produced as a guide for estimating construction work.

RECORD KEEPING

A copy of all completed estimates should be kept as a resource for future estimates. If you bid for a similar project you can refer back to the original estimate potentially saving you time as you will not have to work the cost out again.

You must ensure that you file your estimates in the manner required by your organisation. This can include filing hard copies in an arch file or a filing cabinet and storing soft copies in specific electronic folders.

TOPIC 4: QUOTATIONS

The final estimate can be used to produce a written quotation for your client. The format will need to be adapted as obviously you would not detail such items as overheads, contingencies and mark-ups on a quotation. You may also need to add additional items such as GST.

BUILDING IN COSTS

The way that you 'build in' your overhead, contingency and mark-up costs is up to you.

Common techniques include:

- increasing the hourly labour rate to include overheads and mark up
- increasing the number of hours allocated to a job to allow for contingencies
- increasing the cost of materials to include your overhead costs for ordering etc.

It is common practice for customers to obtain three quotes for any job. This allows them to compare rates as well as other factors. When preparing your quote you need to ensure that you cost the job so that it is profitable for you but you must also cost it so that you are competitive.

Be aware that if you quote the number of hours and then take less time to complete the job your customer may question the bill.

Also, many customers will ring and check materials costs directly with the supplier so any significant increase may appear to be dishonest.

ROUNDING UP/ DOWN

In quotations it is also common to round costs up or down to the nearest 50 cents or whole dollar.

When preparing a quotation it is important that you state the time frame that it is valid for. This protects you from having to absorb inflation costs should a customer take a long time to decide to go ahead with the job.

CONDITIONS

In some instances you might stipulate on your quotation that a deposit is required. This is particularly useful:

- to ensure the customer does not change their mind
- when you have to purchase materials up front
- when you have to order custom built/ one-off items.

In your quotation you can also state any terms that apply to the job. For example, that you require full payment on completion of the job.

QUOTATION EXAMPLE

In the example quotation the overheads, contingencies and mark up rate have been factored into the labour price given to the customer. GST has also been calculated and added to the final cost.

ABC Construction

123 Long Rd, Anywhere SA 5000
Phone: 08 81234567
Fax: 08 81234567
Email: abcd@xyz.com.au

QUOTATION

To: Mr Smith
456 Short Rd
Somewhere SA 5000

Quotation #: 1
Date: 10/08/10
Customer ID: 9876

ITEM	DESCRIPTION OF WORK	COST
1	Supply and delivery of 178 linear metres of 75mm Colonial Skirting	\$710.50
2	Fit 170 lm of 75mm Colonial Skirting	\$841.00
	Sub Total	\$1,551.50
	GST	\$155.15
	Total	\$1,706.65

Quotation valid for 30 days.
Quotation prepared by: A. Builder.

To accept this quotation, sign here and return:

Print Name

Signature

Date

ASSESSMENT TASKS

Complete these assessment tasks in your copy of the student answer book.

Exercise 1

1. List 5 sources of information for project requirements.

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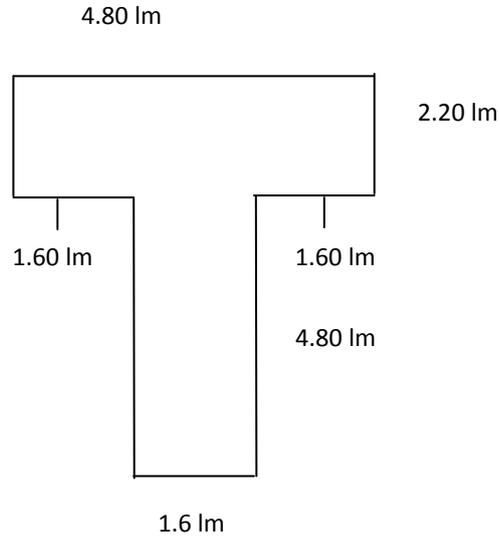
2. List 3 variables that may affect material requirements.

--

3. List 3 variables that may affect labour requirements.

--

7. For the room above how much would your material cost if the skirting is supplied in 5.4m lengths at a cost of \$18.50 per length, taking wastage into consideration?



Show working

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Answer =

8. For the room above calculate how many lengths of 5.4m you require and how much waste is left over.

Show working

--

Answer =

9. List 5 extra costs an employer must consider when calculating labour costs.

--

10. An employee costs \$18 an hour however additional costs equate to \$8000 per annum for this employee working a 38 hour week. Calculate the actual hourly rate of the employee that you would use in an estimate.

Show working

--

Answer =

11. List 4 overheads a sub-contractor would need to factor into estimates.

--

12. If a sub-contractor's annual overheads are \$25,000, and he works an average of 300 days per year, how much should the subcontractor add to an estimate for a project that will take 8 weeks (working 6 days per week) to complete?

Show working

--

Answer =

13. If a total project is estimated at \$72,000 how much would you add to this figure if your mark-up percentage is 12.5%?

Show working

--

Answer =

Exercise 2

A customer has asked you to quote on a job to replace 11 internal doors of a house. On a site visit you discuss with the client the scope of work and determine that this includes new hinges and door furniture but is not to include replacing the door stops. The doors will be painted by the client once the job is finished. From your catalogue the client has chosen a Corinthian Stamford 4-panel door which you can purchase for \$50 and standard chrome handles at \$20 per set. The delivery charge for the 10 doors and door furniture is \$100. The hinges that you will use cost \$2.00 each.

You estimate that the job will take both you and your apprentice 11 hours. Your hourly charge out rate is \$55 and your apprentice is \$20. These rates include your overheads. You decide to add 1 hour as contingency to the project, there are no miscellaneous items and you will add a 10% mark up.

Complete the next set of questions using the information in the case study given above. Document all of your answers in a materials take-off table - use the sample one below (adding extra lines where needed) or create your own.

1. List and quantify all of the materials to be used in the project.
2. List and quantify the types of fixings to be used and any special treatments of fixings. For example nails, screws, galvanised bolts.
3. List and quantify all other products or services that need to be included in the estimate.
4. Add any delivery costs.
5. Estimate your labour requirements for your project.
6. Document your contingencies.
7. Add your mark up percentage.
8. Total the final cost of your project.

Estimation for Job :					
Item	Description	Unit of Measure	Quantity	Rate	Total \$
Materials					
Delivery					
Labour Item	Description		Est. time req'd	Rate p/hr	Total cost
Miscellaneous					
Contingencies					
Over heads					
				Sub total	
Mark up percentage			Rate		
				Final Cost	

Exercise 3

Complete the next set of questions using the plans and specifications for a specific, simple construction task that your trainer gives you.

Document all of your answers in a materials take-off table - use the sample one below (adding extra lines where needed) or create your own.

Note to trainers: for labour costs either use the figures provided in the main notes or use your own information.

1. List and quantify all of the materials to be used in the project.
2. List and quantify the types, sizes of fixings to be used and any special treatments of fixings. For example nails, screws, galvanised bolts.
3. List and quantify all other products or services that need to be included in the estimate.
4. Add any delivery charges.
5. List and cost any miscellaneous items that need to be factored in.
6. Estimate your labour requirements for your project, for example, carpentry 8hrs, plumbing 2hrs.
7. Add an appropriate amount for contingencies.
8. Your annual overhead costs are \$120 p/day. You average 8 hour days. Calculate the overheads on this project.
9. Add a mark up percentage of 10%.
10. Total the final cost of your project.

Estimation for Job :					
Item	Description	Unit of Measure	Quantity	Rate	Total \$
Materials					
Delivery					
				Subtotal	
Labour Item	Description		Est. time req'd	Rate p/hr	Total cost
Miscellaneous					
Contingencies			Rate		
Over heads			Rate		
				Sub total	
Mark up percent			Rate		
				Final Cost	

APPENDIX A: GLOSSARY OF TERMS

Contingency Allowance	An allowance included in the project cost estimates to allow for adverse conditions that will add to base costs
Estimate (<i>noun</i>)	A statement indicating the likely cost of a job
Final Cost	
Mark up	Mark up is the amount that a seller of goods or services charges over and above the total cost of delivering its product or service in order to make a desired profit
Overheads	the ongoing expenses of operating a business
Total Job	
Quotation	An estimate of costs submitted by a sub contractor to a client
Quote	An informal word for quotation

APPENDIX B: EMPLOYABILITY SKILLS

The following table contains a summary of the key employability skills covered by this workbook.

Employability Skills	Industry/enterprise requirements for this qualification include
Communication	<ul style="list-style-type: none"> ▪ Communicates with clients, colleagues and others using effective and appropriate communication techniques, including: <ul style="list-style-type: none"> ▪ Clear and direct communication ▪ Active listening ▪ Verbal and non-verbal language ▪ Questioning to identify and confirm requirements ▪ Language and concepts appropriate to cultural differences ▪ Understands, interprets and applies information as required from relevant: <ul style="list-style-type: none"> ▪ Environmental and OHS requirements ▪ Codes and standards ▪ Plans and drawings ▪ Specifications ▪ Safety signs and symbols ▪ Organisational policies and procedures ▪ Designs ▪ Understands relevant definitions, terminology, symbols, abbreviations and language ▪ Records relevant information using standard workplace documentation ▪ Applies measurements and calculations using appropriate equipment, formulas and records as required
Initiative and enterprise	<ul style="list-style-type: none"> ▪ Identifies opportunities to improve resource efficiency and makes suggestions as appropriate ▪ Responds to change and workplace challenges ▪ Puts ideas into action ▪ Maximises use of resources by recycling, re-using or using appropriate disposal methods
Planning and organising	<ul style="list-style-type: none"> ▪ Selects and uses appropriate materials, tools and equipment ▪ Identifies requirements, applies relevant resources and sequences tasks using time management techniques
Self management	<ul style="list-style-type: none"> ▪ Completes daily work activities ▪ Identifies own roles and responsibilities

Employability Skills	Industry/enterprise requirements for this qualification include
	<ul style="list-style-type: none">▪ Contributes to workplace responsibilities, such as current work site environmental/sustainability frameworks or management systems▪ Manages own performance to meet workplace standards▪ Seeks support to improve work performance▪ Cleans up work area
Technology	<ul style="list-style-type: none">▪ Uses calculators▪ Uses computers and relevant software▪ Uses and operates a range of tools and equipment correctly and safely

APPENDIX C: SUGGESTED RESOURCES

A series of videos relating to estimating for construction projects.

www.ehow.com viewed 8/7/01.

- How to Estimate the Home Building Cost Per Square Foot
- How to Estimate Building Materials for Home Construction
- How to Get an Accurate Roofing Estimate
- How to Learn Construction Estimating

Fatzinger, James A. S, 2003, *Basic Estimating for Construction 2nd Edition*, Prentice Hall, NY.

KESAB – Clean Site information 2010, <http://kesab.asn.au> Viewed 23 March 2010

Pratt, David J, 2004, *Fundamentals of Construction Estimating*, Thomson Delmar Learning, NY

Stone, Michael, 1999, *Mark up and Profit a Contractor's Guide*, Craftsman Book, London.