Preparedness of accounting graduates in lean accounting in South Africa

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DECLARATION

I, **NC FONOU DOMBEU**, declare that **Preparedness of accounting graduates in lean accounting in South Africa** is my own work and that all the sources I have used or quoted have been indicated and acknowledged by means of complete references. This dissertation has not previously been submitted by me or any other author to any other university.

SIGNATURE **DATE**

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ABSTRACT

Lean accounting is an innovative management accounting strategy that is being implemented by organisations worldwide to achieve business objectives and maintain economy competitiveness. The current economic situation in South Africa requires organisations to adopt innovative solutions such as lean accounting. However, the literature shows that South African organisations have not yet embarked on lean accounting adoption. Furthermore, case studies in various countries have revealed that a shortage of employees with knowledge of lean principles is one of the main barriers to the adoption of lean accounting in organisations. So far, no study has been conducted on the capacity of South African human resources to adopt lean principles. Moreover, it is not known the extent to which accounting curricula at South African institutions of higher learning has been updated to include content that would prepare students to participate in lean accounting projects after graduation.

This study investigated whether the prescribed textbooks at South African universities include sufficient lean content to prepare accounting graduates to participate in lean accounting projects. The study followed a qualitative approach based on document analysis. First, a literature review was conducted of published articles that focus on lean accounting. A content analysis of the articles was performed to select the relevant publications for the study. The content of the selected publications was analysed further to identify and record all the lean principles and methods, as well as the practical methodologies of lean strategy implementation. Secondly, lists of prescribed textbooks in use at accounting departments at several South African universities were collected and the content of these textbooks was analysed to identify all sections pertaining to aspects of lean. These sections were recorded for further analysis. Finally, the information obtained on lean concepts discussed in various sections of the collected accounting textbooks was matched to the definitions of lean concepts from the literature.

The findings revealed that, out of the 14 existing lean principles identified in the literature, only three (21.4%) were discussed in the prescribed accounting textbooks. Likewise, out of the 10 existing lean methods identified in the literature, only five (50%) were discussed in the prescribed textbooks. Moreover, the data analysis indicated that the prescribed accounting textbooks at South African universities do not emphasise

lean concepts. Lean concepts identified in prescribed textbooks are discussed in isolation and there are no complete sections or chapters dedicated to lean methods and/or principles. Further, none of the prescribed textbooks allocated a full chapter or section to the discussion of any aspect of lean. The main finding of the study was that prescribed textbooks at South African universities do not include sufficient lean content to prepare accounting graduates to successfully participate in lean projects after graduation.

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LIST OF ABBREVIATIONS

5S	Sorting, setting, sweeping, standardising and sustaining
ABC	Activity-based costing
CEO	Chief executive officer
CVC	Create value for the customer
JIT	Just in time
LM	Lean method
LSS	Lean six sigma
LP	Lean principle
NMMU	Nelson Mandela Metropolitan University
NWU	North-West University
PB	Prescribed textbook
SA	South Africa
SAICA	South African Institute of Chartered Accountants
SAIHL	South African institutes of higher learning
TPM	Total productive maintenance
TPS	Toyota Production System
TQM	Total quality management
UCT	University of Cape Town
UK	United Kingdom
UL	University of Limpopo
Unisa	University of South Africa
VSM	Value stream mapping
VUT	Vaal University of Technology
Wits	University of Witwatersrand

REMARK TO THE READER

The following are brought to the attention of the reader:

- The **Havard referencing style** used in this Dissertation adheres to the North-West University referencing guide of 2012.

- This Dissertation was formatted according to the guidelines prescribed by the North-West University.

- The lists of prescribed accounting textbooks collected for this study could not be integrated into this Dissertation due to the differences in their formats. Therefore, these lists are added as **Appendix A** at the end of the printed Dissertation without page numbers.

- The following **article** (19 pages) was compiled from the Dissertation and **submitted to a DHET accredited journal** for publication:

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  The abovementioned article was edited according to the submission guidelines of the journal. A note confirming the submission is provided in **Appendix B**.

CHAPTER 1
INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 INTRODUCTION

The success of any organisation is dependent on the sound management of its critical functions, operations, human resources, marketing, finance and purchases. Effective and efficient management of these functions requires a fully aligned management accounting system (Bergh & Adervall, 2013:10; Drury, 2012:17; Niemand *et al.*, 2006:12). The management accounting system coordinates, directs and supports the activities of each function towards the overall organisational strategy. It also provides useful information that helps managers to plan, organise and control the organisational process (Ashfaq *et al.*, 2014:104).

Initially, organisations operated in stable environments and were interested only in developing strategies to realise target profits. In these environments traditional accounting systems supported the profit maximisation objective (De Arbulo & Fortuny-Santos, 2010:578; Majunath & Bargerstock, 2011:48; Salah & Zaki, 2013:87). However, in the current competitive business environment, organisations are being forced to develop new strategies which not only focus on profit, but also, and primarily, on customer satisfaction (Manjunath & Bargerstock, 2011:48; Manzouri *et al.*, 2014:9180).

The focus on customer satisfaction has required organisations to change their way of doing business and adopt innovative philosophy, such as lean thinking. Lean thinking is a new way of managing business by using lean strategy. Lean strategy focuses on customer value and waste elimination in each organisational function. The shift from the traditional way of doing business to lean thinking has also required organisations to shift from the management accounting system to a new system that supports lean strategy known as lean accounting. Lean accounting is an innovative accounting system that was created to address the weaknesses of traditional accounting systems, such as the distortion of cost and profitability information, low attention to customer value, and complex reports (Enoch, 2013:509; Maskell & Baggaley, 2007:60; Ramasamy, 2005:7).

Owing to its benefits, lean strategy has been adopted over the past six years in various industry and service sectors such as manufacturing, health care, banking and insurance

in various countries worldwide (Holden, 2011:265; Leite & Vieira, 2015:529; Moori *et al.*, 2013:92). Naveen *et al.* (2013:1) support the findings of Shah and Ward (2007:791), Kennedy and Widener (2008:304) and Fine and Golden (2009:26) that lean strategy enables organisations to improve performance, flexibility and productivity, as well as increases customer satisfaction. Furthermore, research has shown (Taj, 2007:218) that countries such as China which have adopted lean strategy have witnessed significant improvement in their economy. In fact, lean strategy enables the improvement of business performance by allowing organisations to focus on simplified operations, increase competitive advantage by being able to provide the best quality product or service to the customer, as well as motivate and empower employees. The improvement in the economy of such countries can be ascribed to the advantages of lean.

One of the main advantages of lean is the elimination of waste in the production process. 'Waste' is any activity that does not add value to the end product or service. In the manufacturing sector, waste includes overproduction, production defects, transportation, and motion (Muslimen *et al.*, 2011:3; O'Rourke, 2005:10; Singh & Belokar, 2012:71). In health care, waste encompasses long waiting time by patients before receiving the care needed, medical errors, and inappropriate procedures (Hirisatja *et al*., 2014:86; Poksinska, 2010:3). According to Leite and Vieira (2015:535) and Erdem & Aksoy (2009:173), waste in the banking and insurance sectors include long waiting time by customers before being serviced and unnecessary paperwork.

The following subsections define and discuss the theoretical background for understanding lean concepts and the underlying challenges that hamper lean adoption in organisations.

1.1.1 Lean thinking

Organisations are interested in improving both performance and customer satisfaction to increase profitability, competitiveness and sustainability in the market *(*Manzouri *et al.*, 2014:1). To this end, lean is seen as a suitable approach (Woehrle & Shady, 2010:67). The term 'lean' originated from the Toyota manufacturing company in the 1900s (Grove *et al.*, 2010a:1). Lean is a strategy used to improve business performance with the focus on customer satisfaction and waste reduction in the production process. Waste, as defined above, is any activity that does not add value to the end product and

includes overproduction, waiting time, production defects, keeping high levels of inventory, waste in transportation, waste of processing and waste of motion (Chiarini, 2012:682; Fine & Golden, 2009:28; Singh & Belokar, 2012:71).

Lean thinking is a new way of managing business based on lean principles and methods and allows organisations to eliminate waste in the production process in order to improve performance, flexibility and productivity (Ofileanu & Topor, 2014:342). There are five main principles that guide organisations in applying lean thinking (Robinson *et al.*, 2012:191; Singh & Belokar, 2012:72; Woehrle & Shady, 2010:68): (1) identify what constitutes value for the customer and only manufacture products that satisfy customer needs; (2) identify the steps required to design and manufacture the product; (3) continuously maintain the flow of the value added activity; (4) only manufacture when a customer has placed an order; and (5) always seek perfection through continuous improvement. Lean thinking involves several methods which include:

- **Value stream mapping (VSM**) – This refers to a costing method that focuses on waste elimination and summarises the direct cost and profitability attributable to a product or transaction (Abuthakeer *et al.*, 2010:52; Maskell & Kennedy, 2007:70);
- **Kaizen** – A technique used to detect areas in the manufacturing process that need improvement (Matt & Rauch, 2013:424; Ofileanu & Topor, 2014:348);
- **5S** – Sorting, setting, sweeping, standardising and sustaining. This is a technique used in manufacturing to simplify product design (Nordin *et al.*, 2010:378; Zidel, 2006:12);
- **Lean six sigma (LSS)** – A practice that focuses on the continuous improvement of the production process of an organisation (Psychogios *et al.*, 2012:123; Yeh *et al.*, 2011:12359);
- **Kanban** – Another lean technique used to minimise cost by the elimination of overproduction (Kewalkumar, 2011:22; Rahman *et al.*, 2013:176); and
- **Just in time (JIT)** – A manufacturing technique aiming to reduce cost by keeping minimum inventory on hand (Kennedy & Widener, 2008:301; Kootanaee *et al.*, 2013:8).

The application of the above-mentioned methods of lean thinking in an organisation leads to the following benefits: (1) cost reduction and increase in profitability as a result

of the elimination of waste in the manufacturing process; (2) increase in customer value by satisfying their needs; and (3) increase in business performance. According to Bahadir (2011:8) and Fullerton *et al.* (2013:50), the organisation's management accounting system must be adapted in order to reap the benefits of lean thinking.

1.1.2 Management accounting systems

Accounting can be defined as the identification, recording and processing of economic transactions pertaining to a business in order to provide financial information to the user for decision-making purposes (Berry *et al.*, 2008:4). Accounting is divided into two fields, namely financial accounting and management accounting. Financial accounting is concerned with the provision of financial information to external users, whereas management accounting is concerned with the provision of financial information to internal users (Drury, 2015:6; Niemand *et al.*, 2006:5). Management accounting deals with enterprise planning and control. Planning is the process of setting goals and designing actions needed to attain these goals. Control refers to the process of directing, monitoring and influencing people towards the achievement of setting goals (Ramasamy, 2005:2). The use of management accounting to achieve the organisation's objectives is referred to as management accounting system (Sarraf *et al*., 2013:121). There are different types of management accounting systems, including the traditional accounting system, activity-based costing (ABC) system, target costing system, and lean accounting system (De Arbuto-Lopez & Fortuny-Santos, 2010:595; Ramasamy, 2005:23; Zawawi *et al.*, 2010:506).

Traditional accounting system

The traditional accounting system is an accounting system that uses traditional costing methods to determine the costs incurred to manufacture a product and the revenue generated by the product (Bergh & Adervall, 2013:2; Enoch, 2013:509). In this system, the costs required to manufacture a product include the costs of direct material, direct labour and overheads (Drury, 2012:428; Myers & Moyne, 2009:133). Overheads, also called indirect costs, are allocated to product cost based on a small number of cost drivers such as the machine and labour hours or the volume produced (Dwommor, 2012:2; Drury, 2012:45). The use of a small number of cost drives is a drawbacks of the traditional accounting system. Maskell and Kennedy (2007:61), Salah and Zaki (2013:87) and Ofileanu and Topor (2014:345) argued that the allocation of overheads

based on a cost driver leads to misleading information relating to product cost and pricing decisions. This, in turn, leads to the adoption of another management accounting system, namely the ABC system.

Activity-based costing system

The ABC system is a costing method that was developed in the 1980s to address the misallocation of production cost under the traditional accounting system (Niemand *et al*., 2006:112; Ramasamy, 2005:8; Rasiah, 2011:85). In the ABC system, the costs needed to manufacture a product are allocated based on the activities required to produce it (De Arbulos-Lopez & Fortuny-Santos, 2010:582). In other words, in the ABC system the costs of a product are caused by the activities used to the create it (Cardos & Pete, 2011:153). The steps used in the ABC system to allocate the activities to a product are: (1) identifying the main activities of the organisation necessary to manufacture a product; (2) identifying elements that have an impact on the costs of the activities; (3) selecting a suitable cost centre for each activity; and (4) assigning the cost centre to each activity (Drury, 2012:259; Niemand *et al.*, 2006:112; Ramasamy, 2005:24).

Although the ABC system was developed to address the misallocation of overheads under the traditional accounting system, researchers have argued that it is a complex and very costly and time-consuming process (De Arbulo-Lopez & Fortuny-Santos, 2013:582; Rasiah, 2011:86). Consequently, an alternative management accounting system was developed, namely target costing.

Target costing

Target costing is a management accounting system that focuses on the creation of value for the customer (Maskell & Baggaley, 2006:38). It is a strategy used to design and determine the cost of a product before it is manufactured; the product is designed taking into account the customer's needs, market price and value-added activity for the product (Abuthakeer *et al*., 2010:53). Target costing is used by an organisation to satisfy customer needs by offering them the best quality products at reduced prices (Bahadir, 2011:35; Feil *et al.*, 2004:10). These two attributes of target costing form part of lean principles (Ofileanu & Topor, 2014:348). Target costing is a management accounting system which is complementary to lean accounting (Bahadir, 2011:35; Ofileanu & Topor, 2014:348).

Lean accounting

Lean accounting is an emerging management accounting system that aims to facilitate the changes required in the organisation to implement lean thinking (Ofileanu & Topor, 2014:343). It is also regarded as the application of lean thinking in accounting. Contrary to the traditional accounting and ABC systems, which primarily adopt a cost-based approach to management accounting, lean accounting adopts a value-based approach (Manjunath & Bargerstock, 2011:48).

A value-based approach is a lean method based on VSM. It is a method used to identify the value stream for each product, that is, to identify activities that add value to the customer (products that satisfy customer needs and for which they are willing to pay). VSM enables the visual representation of all activities needed for the manufacturing of a product, starting from the customer's order to the delivery of the product to the customer; its goal is to eliminate all types of waste in the manufacturing process (Salah & Zaki, 2013:90).

In the lean accounting system, the cost of a product is determined using all activities included in the value stream, that is, the actual direct cost incurred to manufacture a product. These costs include: (1) actual cost of material used in the value stream, (2) actual cost of labour allocated to the value stream, (3) machine and equipment costs including depreciation, repairs and maintenances which are represented in the value stream, (4) facility costs such as rent costs, and (5) other costs included in the value stream such as suppliers and travelling costs (Salah & Zaki, 2013:91). The allocation of the product cost based on the value stream leads to the following benefits, which are the five principles of lean accounting (Enoch, 2013:510; Maskell & Baggaley, 2006:36):

- Simplification of the accounting process – This is done by applying lean methodology in the accounting process;
- Adoption of an accounting system that supports lean transformation – Lean transformation requires an organisation to change its costing methods and its way of doing things, with a focus on improving productivity, enhancing flexibility and increasing customer value (Maskell & Kennedy, 2007:60);
- Presentation of understandable and timely accounting information – The financial reports must be clear and easily understood by all employees in the organisation;

- Planning based on lean thinking – Management decisions should be based on long-term philosophy which is aligned with lean principles and methods; and
- Strengthening of internal accounting control – This is done by ensuring that work within the organisation is properly assigned to staff and segregated.

Lean accounting is a new management accounting system that was created to overcome the weakness of the traditional accounting and ABC systems (De Arbulo-Lopez & Fortuny-Santos, 2010:579; Enoch, 2013:509). However, some organisations are reluctant to change the management accounting system to lean accounting due to the challenges or barriers to lean accounting implementation (Moori *et al.*, 2013:92; Naveen *et al.*, 2013:3; Poksinska, 2010:330).

1.1.3 Barriers to lean accounting adoption

As mentioned previously, lean accounting is a new management accounting system that requires organisations to change their way of doing things; the changing process, however, does not take place without challenges. Commonly reported barriers to lean accounting adoption are a lack of knowledge of lean principles and methods, a lack of literature or resources that provide guidelines on lean implementation, and the management accounting system used by the organisation.

The lack of knowledge of lean principles and methods by people in the organisation has been emphasised as one of the barriers to lean accounting implementation (Martinez-Jurado & Moyano-Fuentes, 2012:334; Muslimen *et al*., 2011:1; Poksinska, 2010:374; Punnakitikashem *et al*., 2013:3). This means employees do not have the relevant theoretical background or education to participate in lean initiatives; even top managers and senior accountants are not equipped with the skills required to direct the organisation towards the implementation of a new management accounting system supporting lean adoption.

Another prevalent barrier to lean accounting implementation is the lack of literature illustrating step by step how to implement lean strategy (Abdulmalek & Rajgopal, 2006:263; Carnes, 2005:28; Grove *et al*., 2010b:209; Nordin *et al*., 2010:374; Tatikonda, 2007:27). This lack of knowledge could be a result of the unpreparedness of accounting graduates.

1.1.4 Preparedness of accounting graduates

Macmillan English Dictionary (2012) defines the word 'preparedness' as the state of being ready for something. In this research, the question as to the preparedness of accounting graduates in lean thinking refers to whether graduates are ready to participate in lean projects in organisations. Thus, 'being prepared' in this study means having acquired the necessary theoretical knowledge of lean principles and methods upon obtaining an accounting qualification at university to be able to fully participate and drive lean projects in the business environment.

1.1.5 Motivation

Many researchers (Bahadir, 2011:8; Maskell & Baggaley, 2006:35; Salah & Zaki, 2013:86; Sarraf *et al.*, 2013:120) have argued that the adoption of lean in any organisation requires an upgrade of the existing management accounting systems to lean accounting. In practical terms, this requires staff to be knowledgeable in lean principles and methods to be able to fully and efficiently participate in lean implementation projects.

Furthermore, the current literature presents case studies of lean adoption in the manufacturing, health care, banking and insurance sectors in countries such as the United States, United Kingdom, China, Italy, Canada, Turkey, India, Brazil, Malaysia and Bangladesh. However, no case study was found on lean adoption in South Africa; in fact, to date, only a study on the analysis of the feasibility of implementing lean in the Gauteng health care organisation has been reported by Kruger (2014:2701).

As mentioned previously, Taj (2007:218) reported that countries such as China whose organisations have adopted lean strategy have witnessed significant improvement not only in business performance of organisations, but also in their whole economy. For this reason, the adoption of lean would be beneficial to South Africa as an instrument for promoting economic growth and improving the current economic situation of the country. This would require competent accountants with relevant knowledge of lean to participate in the lean adoption process. But, at present, there is no study that has investigated the status of inclusion of lean concepts in the South African accounting curricula to provide accounting graduates with the required knowledge to participate in lean projects. There is thus a dire need for empirical information on the level of

preparedness of accounting graduates to take on the challenge of lean adoption in the country.

1.2 PROBLEM STATEMENT

Lean accounting is an innovative management accounting strategy that is being implemented by organisations worldwide to achieve business objectives and create economic competiveness in the respective countries. The current economic situation in South Africa requires organisations in the country to adopt innovative solutions such as lean accounting. However, the literature shows that South African organisations have not yet embarked on lean accounting adoption (Kruger, 2014:2701).

Dickson *et al.* (2009:508), Rahman *et al*. (2013:177) and Matt and Rauch (2013:422) presented case studies from various countries in the world and revealed that a lack of employees with knowledge of lean principles is one of the main barriers to lean accounting adoption. So far, no study has been conducted on the capacity of South African human resources to take on lean adoption. Moreover, it is not known the extent to which accounting curricula at South African institutions of higher learning (SAIHL) have been updated to include content that prepares students for participation in lean accounting projects after graduations. It is therefore relevant to investigate the level of preparedness of South African accounting graduates to participate in lean accounting projects in the business environment.

1.3 RESEARCH OBJECTIVES

The following objectives were formulated for the study:

1.3.1 Primary objective

The primary objective of this research was to investigate the level of preparedness of accounting graduates from SAIHL to participate in lean accounting projects in the country, with reference to the current prescribed text books.

1.3.2 Secondary objectives

In order to achieve the main objective, the following secondary objectives were formulated:

- To investigate the current level of preparedness of South African accounting graduates to participate efficiently in future lean implementation projects in the country by considering the current prescribed textbooks.
- To determine whether the current prescribed accounting textbooks at SAIHL have been updated to include lean principles and methods to prepare accounting graduates for lean thinking.

1.4 RESEARCH DESIGN AND METHODOLOGY

A qualitative approach based on document analysis was used to conduct this study. According to Elo and Kyngas (2007:108), document analysis is a structured research method which aims to describe and quantify a phenomenon. Bowen (2009:27) further defines document analysis as a qualitative research method that focuses on examining document content. Target documents usually include journal articles, textbooks, newspapers, maps, charts, advertisements, survey data, reports, and so forth. In this study, the documents to be analysed included relevant published research (journal articles, conference papers, theses and dissertations) and prescribed accounting textbooks.

1.4.1 Literature review

Keyword searches in major search engines such as Google Scholar and the computer database of journals in the library as well as the EBSCOhost research database were conducted to collect literature for the study. Other sources such as prescribed accounting textbooks from SAIHL, theses and dissertations were obtained from the NWU library and consulted.

1.4.2 Population

The population of the study was SAIHL, more precisely the different South African universities. Lists of prescribed accounting textbooks were obtained from these universities to collect data.

1.4.3 Data collection procedure and data analysis

Firstly, a literature review was used to gather published articles focusing on lean accounting. A content analysis of all the articles was performed to select the relevant

publications for the study. The content analysis consisted of reading the title, abstract, introduction and conclusion of related publications. The content of the selected relevant publications was further analysed to identify and record all lean principles and methods, as well as the practical methodologies of lean strategy implementations.

Secondly, lists of prescribed textbooks from accounting departments at South African universities was obtained to identify all prescribed accounting textbooks in use at local universities. The content of these textbooks was analysed to identify all sections that discuss any aspect of lean. These sections were recorded for further analysis. Finally, the information obtained on lean concepts discussed in various sections of the accounting textbooks was matched to the definitions of lean concepts obtained from the literature to determine the extent to which the content of prescribed textbooks could prepare accounting graduates for lean thinking.

The results of the content analysis of both the literature and prescribed textbooks were captured in various tables. The tables compiled during content analysis were further analysed using Excel and/or the Statistical Package for the Social Sciences (SPSS).

1.5 CONTRIBUTION OF THE STUDY

The outcome of the study would be useful to South African organisations in planning for lean adoption in future. It would also provide insight to academics in the field and editors of accounting textbooks to facilitate the upgrade of accounting curricula and, in so doing, ensure the readiness of accounting graduates to effectively contribute towards lean adoption in the country upon completion of their studies.

1.6 ETHICAL CONSIDERATIONS

Secondary data obtained from different sources such as the computer database of journals in the NWU Library, Google Scholar, EBSCOhost research database and prescribed accounting textbooks were used to conduct the study. These sources are publically available; therefore, no ethical clearance was required. The study complied with the minimum ethical standards pertaining to academic research, and data obtained from the literature and prescribed accounting textbooks were used only to reach the objectives of the study.

1.7 CHAPTER CLASSIFICATION

The study is divided into the following five chapters:

Chapter 1: Introduction and background to the study: This chapter introduces the study, provides background on lean and underlying concepts and presents the motivation of the study. The problem statement, objectives and methodology used to conduct the study are described as well.

Chapter 2: Lean and lean accounting: an overview of the literature: A discussion of related studies is provided in this chapter. This entails a thorough discussion of the literature focusing on defining and presenting lean principles and methods, as well as practical case studies of lean implementation.

Chapter 3: Research methodology: This chapter explains the research design and method, followed by the data collection and analysis.

Chapter 4: Data analysis and findings: The results obtained from the data analysis in chapter 3 are discussed to draw the key findings of the study.

Chapter 5: Conclusion and recommendations: A summary of the research as well as the recommendations and future direction of research are provided.

1.8 CONCLUSION

This chapter presented the background on lean strategy and identified and discussed the different management accounting systems. Lean accounting is defined as the newest management accounting system that is currently being adopted by organisations worldwide to achieve their business objectives. The chapter also reported that, in spite of many cases studies of lean accounting implementation in countries worldwide, no study has been conducted on the human resources capacity available in South Africa to take on lean adoption. Furthermore, it is not known the extent to which accounting curricula at SAIHL has been updated to include content that prepare students for participation in lean accounting projects after graduations. Therefore, the chapter stated the aim of this study, which was to investigate, with reference to current prescribed textbooks, the level of preparedness of accounting graduates from SAIHL to participate in lean accounting projects. The chapter provided the primary and secondary

objectives as well as the research methodology followed to achieve these objectives. Finally, the contribution of the study was outlined. The next chapter focuses on an overview of the literature review on lean and lean accounting.

CHAPTER 2
LEAN AND LEAN ACCOUNTING – AN OVERVIEW OF THE LITERATURE

2.1 INTRODUCTION

The constant changes in technology, customer expectations and market trends are forcing organisations to adopt innovative business strategies in order to remain competitive. One such innovative strategy is called lean. Lean is a business strategy that was developed to improve organisational performance by focusing on eliminating waste in all functions of the business. In the management accounting function, lean strategy addresses the weaknesses of the accounting costing methods under the traditional accounting system (Bahadir, 2011:8). Moving away from the traditional accounting system, the advent of lean was accompanied by the development of a new accounting system, namely lean accounting, to support its implementation in organisations (Maskell & Baggaley, 2006:35).

This chapter reviews the literature on lean concepts. Firstly, the chapter presents the historical background on lean and the Toyota Production System (TPS), which is the foundation of lean strategy. Secondly, the chapter defines 'lean strategy'. Thirdly, existing lean principles and methods are identified and discussed. Fourthly, lean implementation in diverse industry sectors, as well as barriers or challenges encountered during lean implementation and the requirements for the successful implementation of lean strategy, are reviewed and discussed. Fifthly, 'lean accounting' is defined and emphasised as the accounting system that supports the implementation of lean strategy. Finally, related studies that focus on curriculum in accounting education are reviewed and discussed.

2.2 HISTORICAL BACKGROUND ON LEAN

Lean originated from the Japanese automobile industry in the 1900s (Chakrabortty & Kumar, 2011:11; Holden, 2011:265). First called the Toyota Production System (TPS), it was an innovative strategy that Japanese organisations developed to rebuild the economy after World War II (Abdullah, 2003:5; Abdulmalek & Rajgopal, 2007:224). According to Shah and Ward (2007:77), and supported by Degirmenci (2008:2), the

TPS was developed based on the manufacturing system created by Henry Ford between 1914 and 1927. However, the Ford manufacturing system enabled mass production for one specification and was unable to produce multiple varieties of the same product to meet customer demands (Bahadir, 2011:12). Despite this limitation, the TPS was successful in continuous-flow process; this inspired the Japanese motor industry to develop the TPS. Therefore, the TPS is a refined and improved version of the Ford manufacturing system. A detailed description of the TPS as foundation of lean strategy is presented in the next section.

2.3 THE TOYOTA PRODUCTION SYSTEM

According to Kewalkumar (2011:1) and Fullerton *et al*. (2013:50), in the automobile industry, the TPS is considered to be the most advanced manufacturing system in the world. It focuses on efficiency in the production of vehicles and its core values are to provide the best quality product to customers and be accountable to stakeholders, including employees, customers, investors and communities (Kewalkumar, 2011:7). These values are translated into the following objectives:

- Continuously improve the quality of products offered to customer;
- Lower the costs and shorten the lead time, that is, the time between the reception of an order from the customer and the delivery of the end product to the customer; and
- Develop a positive working environment through a culture of team work, learning, safety, empowerment, motivation and involvement of all employees in the achievement of organisational goals.

According to Lander and Liker (2007:3681), Fricke (2010:11), Kewalkumar (2011:1) and Bahadir (2011:14), two techniques, namely Jidoka and Just in time (JIT) were used by Toyota to achieve the above-mentioned objectives. The two techniques are said to be the pillars of the TPS.

Jidoka is a system for automating human intelligence (Bahadir, 2011:13). It is comparable to a machine and is designed in such a way that it detects any human error or abnormality during the production process. Once such an error is detected, the machine would automatically stop, identify the cause and fix the error instead of producing a defective product (Fricke, 2010:12).

JIT is a complementary technique to Jidoka in the TPS; it is a manufacturing technique that aims to minimise cost by eliminating waste in the production process. Using the JIT technique, the organisation would start the production process only when a customer has placed an order. In this way, the inventory on hand is reduced and the organisation will only manufacture products that are going to be delivered to the customer shortly. According to Drury (2012:186) and Kootanaee *et al*. (2013:7), the result of applying JIT in an organisation is the elimination of all waste from overproduction, excess inventory and storage space, as well as the reduction of production cost.

Despite the above-mentioned advantages, Kootanaee *et al*. (2013:12) and Rahman *et al*. (2013:176) argued that some prerequisites must be put in place by the organisation for the JIT technique to be efficient, namely:

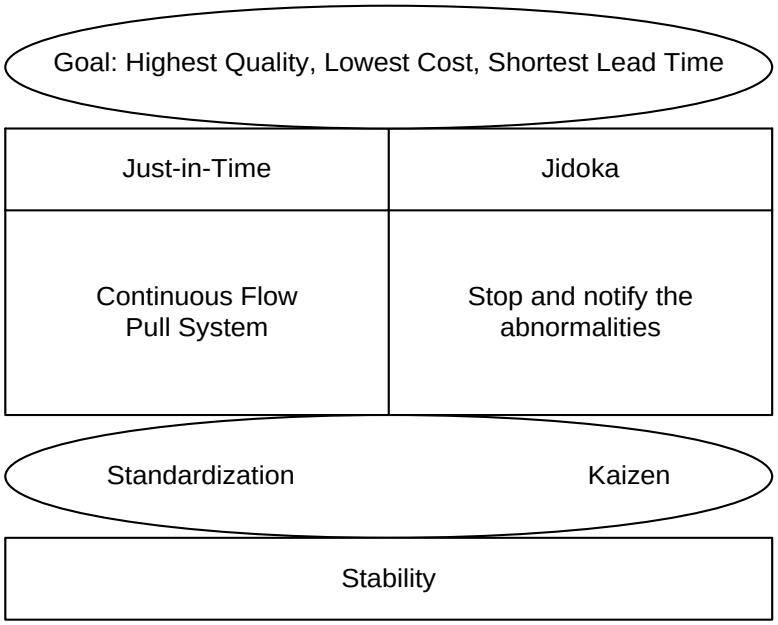
- **Effective inventory management** – With the JIT system, inventory is not kept in stock, and production only starts when there is a demand for a product. Therefore, managing inventory is complex and difficult and proper inventory management is crucial for JIT to function efficiently;
- **Timely delivery from the suppliers** – Suppliers play an important role in the JIT, seeing that the organisation relies on the timely delivery of raw material by suppliers to be able to start the production upon reception of the customer's order;
- **Management dedication and employee involvement** – Managers must be committed and must encourage employees to participate in the implementation of JIT; there must be flexible communication between the two parties; and
- **Achieving competitive advantage –** Organisations wishing to implement JIT must have an objective of achieving competitive advantage; in fact, JIT requires the organisation to only manufacture quality products for the customer on demand, thereby, putting a particular interest on customer satisfaction.

According to Liker (2004:6), standardisation is another concept that supports the two pillars of the TPS. Standardisation is a method of organising work in such a way that the sequence of each process or activities that need to be performed is properly arranged and constantly monitored by employees. Liker (2004:6) and Degirmenci (2008:14) argued that the purpose of standardisation is to enhance efficiency of operations by maintaining higher productivity, quality and employee safety. According to Liker (2004:6), at Toyota, standardisation was used not only to establish stability in the

process, but also to train and empower employees in achieving the organisation's objectives. Furthermore, the 5S (sorting, straightening, shining, standardisation and sustaining) tool was applied to facilitate the standardisation of work. A study in Zidel (2006:12) explained that the 5S is a lean tool that is used to standardise work within an organisation, ensure smooth flow processes and clarify the areas in the processes that need improvement.

The TPS is illustrated in Figure 2.1. In terms of structure, the TPS is an integrated system with many interdependent components which need to interact together for the system to function as a whole. These components include the two pillars of the TPS discussed above, namely Jidoka and JIT, and a set of lean principles and methods.

Figure 2.1: The Toyota Production System



(Source: Bahadir, 2011:14)

The main objectives of the TPS, which are also the outcomes of lean implementation (Fricke, 2010:11; Kewalkumar, 2011:41), are to improve productivity, increase flexibility, produce higher quality products at lower cost, and develop a culture of continuous improvement by everyone in the organisation. The next section defines 'lean strategy'.

2.4 LEAN STRATEGY

As mentioned earlier, the term 'lean' originated from the Japanese automobile industry, more precisely from the Toyota company, in the 1900s (Grove *et al*., 2010a:1). The lean strategy was developed and founded by Mr Taiichi Ohno, a manager at Toyota. Lean is a business strategy used to improve business performance with the focus on customer satisfaction and waste elimination in the production process (Nordin *et al*., 2010:374; Rahman *et al.*, 2013:175). The objective of lean is to seek perfection by continuously improving the production process, improving efficiency in operation and providing the best quality product and service to customer (Chakrabortty & Kumar, 2010:11; Satao *et al*., 2012:253). Since its inception at Toyota, the lean strategy has been adopted worldwide by companies (Kennedy & Widener, 2008:1). In the literature, three terms are commonly used to refer to lean strategy, namely 'TPS', 'lean production' and 'lean manufacturing'.

Lean is a waste elimination strategy (Krishnan & Mallika, 2013:1; Leam, 2011:11). Waste is defined as any activity that does not add value to the end product, or simply a non-value-added activity (Singh & Belokar, 2012:71). Value is viewed from the customer's perspective and is seen as anything that the customer is willing to pay for (Fine & Golden, 2009:27).

Lean strategy identifies seven types of waste in the manufacturing process (Fine & Golden, 20011:12; Muslimen *et al*., 2011:3; O'Rourke, 2005:10) including:

- **Overproduction** – This refers to the production of unnecessary items or products which are not required by customers and for which they are not willing to pay. In other words, it is the act of producing more than what is needed to satisfy customer demand or producing too early or too late. The pioneer of lean strategy, Mr Taiichi Ohno, considered overproduction as the 'fundamental waste' because it leads to other forms of waste such as an increase in storage space, labour cost and material (Fricke, 2010:21).
- **Transportation** – In this context, transportation refers to the movement of material, product or information that is not needed in the manufacturing process. For instance, transport or movement of material or work in progress from one operation to another is time consuming and can cause the handling of damages which might occur during the movement (O'Rourke, 2005:10; Robinson *et al.*, 2012:188).

- **Surplus inventory** – This refers to the keeping of inventory that is not required to meet the customer's order; this inventory can be raw material, work in progress or finished goods. Holding unnecessary inventory requires storage space and transportation, which are costly to the organisation (Fricke, 2010:21).
- **Motion** – This refers to the movement of people or equipment more than what is required to perform a task in the production process. It involves, for instance, excessive machine movement and walking of people that add no value to the end product.
- **Waiting** – This relates to the fact that the production process has several steps and the time it takes to move from one step to another. The unutilised time to move from one step to another or any waiting due to machine breakdowns, work sequence, out of stock and delay is considered to be a waste (O'Rourke, 2005:10; Robinson *et al*., 2012:188).
- **Overprocessing** – This relates to wasteful activities that occur due to the production of defective products. This could cause rework and excess inventory which require the handling of inventories and storage space.
- **Defects** – This refer to errors, mistakes or inefficiency that occur during the production process that do not meet the expectations of the customer and require repairs. These are a waste of resources that create a great deal of paper work and cause customer dissatisfaction.

The above-mentioned wastes must be identified and eliminated in the manufacturing process of any organisation that wishes to be called a 'lean organisation'. This can be achieved by adopting lean thinking in the organisation (Ofileanu & Topor, 2014:344). According to Kumar *et al*. (2013:997) and Krishnann and Mallika (2013:1), 'lean thinking' is a term that was first used by Womack and Jones in their book titled *The machine that changes the world*. It refers to the development of a lean culture in an organisation, that is, the adoption of a culture of continuous improvement of the operations by everyone in the organisation. Lean thinking is also described as the application of lean principles and methods in all fundamental areas of business including operation, marketing, human resources, purchasing and supply (Chakrabortty & Sanjoy, 2010:11; Enoch, 2013:509; Maskell & Kennedy, 2007:60). The next sections expand on lean principles and methods.

2.5 LEAN PRINCIPLES

In the literature, lean principles are presented by Tatikonda (2007:28) and Woehrle & Shady (2010:68) on the one hand, and Liker (2004:4) on the other hand.

Tatikonda (2007:28), Poksinska (2010:7) and Woehrle & Shady (2010:68) present and describe five lean principles referred to as the Womack and Jones principles that were initially developed by the latter in the book titled *Lean thinking*. The five Womack and Jones lean principles are:

- **Specify value for the customer** – The customer is the main focus of lean manufacturing. An organisation should be able to identify customer needs and only manufacture a product or service that will add value to the customer. As stated earlier, value is anything that the customer is willing to pay for.
- **Identify the VSM** – The VSM is described as all the steps or activities necessary to design or produce a product or service with the view to eliminate wasteful activities. The value stream classifies the activities into three groups: (1) value-added activities which are activities that will satisfy customer needs, (2) type 1 activities which are non-value-added activities but which are needed for product development, order filling or production system, and (3) type 2 activities which are unneeded non-value-added activities or waste that need to be eliminated immediately (Bahadir, 2011:15; Fricke, 2010:14). An organisation can classify its activities as value added, type 1 and type 2 using the questions in Table 2.1. This classification enables the elimination of unnecessary activities and shifts the focus to those activities that contribute to the achievement of organisational goals.

Table 2.1: Questions enabling the classification of activities

Activities	**Questions**		
Value added	Would the activity contribute to the achievement of a competitive advantage?	Does the activity add value to the customer?	Does the activity lead to the best quality product/service?

Activities	Questions		
Type 1	If the organisation failed to perform the activity, would it be an infringement of the regulation?	Is there any relationship between the activity and the financial risk of the business?	If the activity were to be removed, would it be a problem to smoothly continue the process?
Type 2	Does the activity deal with the movement of material, delay in the process, inspection, transport of material and equipment or paper work?	Does the reduction in lead time lead to a reduction in distribution centres?	Does the cost reduction or the elimination of the activity lead to better utilisation of the facility?

(Source: O'Rourke, 2005:12)

- **Create a continuous flow for value-added activities** – Once the type 2 activities have been identified and eliminated, the value-added and type 1 activities should be organised in such a way that work flows easily without interruption in order to eliminate the waste of waiting time.
- **Introduce pull system** – Pull system requires an organisation to only manufacture what is requested by the customer; in other words, the production should start only when a customer has placed an order; this will help prevent overproduction and surplus inventory (Bahadir, 2011:13).
- **Seek perfection** – An organisation should always pursue perfection by continuously seeking to improve of its operations.

The five lean principles by Womack and Jones presented above provide a partial representation of the TPS system; therefore, Liker (2004:4) extended them into 14 lean principles to provide a complete representation of the TPS. To this end, Liker (2004:4) created four classes of lean principles to represent the complete TPS, including long-term philosophy, process, development of people and partners, and continuous problem solving. These classes of lean principles are discussed below:

- **Long-term philosophy** – Managerial decisions should be based on long-term objectives, even at the expense of short-term financial objectives. This is explained in the first lean principle by Liker (2004:4) as follows:

  Principle 1 – The long-term goals of an organisation should not be based only on achieving the financial objectives, but also on creating value for customers, society and the economy (Liker, 2004:5). In other words, when formulating its medium- to long-term objectives, an organisation should take into account all stakeholders, including customers, suppliers, competitors, communities and the environment.

- **Process** – An organisation should design processes that will bring about the expected results. To achieve this, Liker (2004:5) developed the following seven lean principles (Principles 2 to 8):

  Principle 2 – An organisation should design its production process in such a way that continuous flow is maintained, that is, there should be no interruption in the production process. Continuous flow refers to the smooth movement of employees, material and information that intervene in the production process in order to avoid any waste that might occur in the process. The continuous-flow process method forces employees to stop all activities whenever a problem occurs in the production process and immediately and collectively fix the problem before moving to the next step. This brings quality, flexibility and continuous improvement in the production process.

  Principle 3 – An organisation should use the pull production method, that is, it should start production only when a customer has placed an order to avoid overproduction. Such a production system requires an organisation to order material from suppliers only when needed. In this way, waste from inventory holding, carrying and storage space would be avoided.

  Principle 4 – The level out production should be used to deal with uneven or unpredictable customer demand. Levelling customer demand would permit the effective use of resources such as labour, machines and materials in the production process.

  Principle 5 – The Jidoka method should be used for quality control; Jidoka is a Japanese word which means mechanism for automating human intelligence

(Bahadir, 2011:13). It enables the detection of mistakes or defects that could occur during the production process. The Jidoka method prescribes that whenever a problem or mistake occurs, the production process must be stopped and the problem fixed or corrected in order to avoid producing defective products.

Principle 6 – Work within an organisation should be standardised, that is, appropriate methods should be used to schedule and plan works in such a way that each employee knows what to do and when to do it. This constitutes the prerequisite for continuous flow (Principle 2) and pull production (Principle 3). Standardisation is also a way of empowering employees; in fact, by doing repetitive tasks, they learn the processes over time which, in turn, reduces or eliminates the errors or mistakes that could occur when performing these tasks.

Principle 7 – Managers should use visual control tools to assess whether employees perform their tasks according to standard. In this way, management can ensure that no problem or error goes undetected and that the work production process is continuously improved.

Principle 8 – Organisations should use reliable technologies in the production process. Furthermore, the intention should not be to replace employees, but to assist them instead.

- **Development of people and partners to create value for the organisation** – This class focuses on leaders, employees and suppliers of the organisation and is expanded into three lean principles (Principles 9 to 11) by Liker (2004:5):

  Principle 9 – The leaders in an organisation are responsible for directing employees to achieve the organisation's objectives. To carry out this responsibility, they need to clearly understand the organisation philosophy, possess the required skills/knowledge and be committed to transferring these to employees. Moreover, there must be flexible communication between leaders and employees (Fricke, 2010:19; Liker, 2004:7). These are translated into the next two lean principles (Liker, 2004:7), namely Principles 10 and 11.

  Principle 10 – Employees are the key components and important assets of a lean organisation (Nordin *et al*., 2010:375) and should be trained, motivated and empowered to follow the organisation's culture. Team work should be encouraged

and all team members must participate in the day-to-day activities of the organisation towards the achievement of common long-term objectives (Liker, 2004:8).

Principle 11 – In the decision-making process an organisation should take into consideration all its stakeholders and establish a long-term and durable relationship with them, since stakeholders contribute to the sustainability of the organisation (Liker, 2004:8).

- **Continuously solving root problems to drive organisational learning –** This class is explained and formulated by Liker (2004:10) into three lean principles (Principles 12 to 14) which prescribe successive steps to creating a learning organisation.

  Principle 12 – The cause of a problem should be clearly identified. When a problem occurs during operations, managers must ascertain for themselves what the problem is in order to understand the situation and determine the root causes of the problem (Liker, 2004:10).

  Principles 13 – Once the root causes of a problem have been identified (Principle 12), managers should discuss the problem with other employees in the organisation in order to obtain all viewpoints and find a collective solution (Liker, 2004:10).

  Principle 14 – The organisation should continuously improve its operations in order to become a learning organisation, in other words, an organisation should evaluate itself regularly and learn from its mistakes. This should be achieved by regularly applying lean principles to identify and eliminate all types of waste in its activities.

The application of lean principles is facilitated by using a wide variety of management practices, tools and techniques called lean methods (Bahadir, 2011:16; Krishnan & Mallika, 2013:1; Nordin *et al*., 2010:375; Singh & Belokar, 2012:71).

2.6 LEAN METHODS

Many lean methods have been developed to support the implementation of lean principles (Shah & Ward, 2007:788; Singh & Belokar, 2012:71). These methods are presented and summarised in Table 2.2.

Table 2.2: Lean methods

Lean methods	Descriptions	References
Value stream mapping	Enables the visual representation of all activities needed to manufacture a product	Woehrle & Shady (2010:67); Satao *et al*. (2012:256); Chakrabortty and Sanjoy (2010:13)
Kaizen	Reduces costs and identifies areas that need continuous improvement in manufacturing processes	Nordin *et al*. (2010:378); Muslimen *et al*. (2011:4); Singh and Belokar (2012:71); Matt and Rauch (2013:424); Ramezani and Razmeh (2014:44)
Total quality management	A continuous improvement tool that aims at providing quality products to customers	Shah and Ward (2007:788);
Kanban	Minimises costs in the production process by eliminating overproduction	Rahman *et al*. (2013:174)
Just in time	Eliminates waste associated with excess inventory and overproduction	Shah and Ward (2007:788); Satao *et al*. (2012:255); Muslimen *et al*. (2011:4)
Lean six sigma	A continuous improvement tool which enables the organisation to achieve zero defect production	Satao *et al*. (2012:255); Zhang *et al*. (2012:117); Psychogios *et al*. (2012:122)

Lean methods	Descriptions	References
Total productive maintenance	An equipment maintenance tool which aims at avoiding breakdown of equipment during the production process	Ghosh (2013:114); Singh and Belokar (2012:71)
5S (sort, set in order, shine, standardise and sustain)	Used to reduce waste by properly organising the work place	Nordin *et al*. (2010:378); Matt and Rauch (2013:424)
Jidoka	A system that stops when errors occur, and fixes and prevents the error from occurring again	Fricke (2010:12)
Cellular manufacturing	Organises all the resources required to produce a product or group of products into groups or cells in order to facilitate the operation	Ramasamy (2005:21); Abdulmalek and Rajgopal (2007:224)

(Source: Own research)

Table 2.2 above presents the lean methods found in the literature. A brief explanation of each of the methods is provided below.

- **Value stream mapping** (VSM) – A method used to visually represent all the activities needed to manufacture a product (Woehrle & Shady 2010:67). According to Chakrabortty and Sanjoy (2010:13), VSM consists of identifying all the necessary and unnecessary steps in the production process and then eliminating the latter steps. This entails drawing the current process for manufacturing a product, determining and correcting the inefficiencies, and drawing the desired state of production.
- **Kaizen** – A cost reduction method that focuses on identifying areas in the organisation that need improvements. Titu *et al. (*2010:1) and Ramezani and

Razmeh (2014:44) described it as the adoption of a philosophy of continuous improvement by everyone in the organisation towards the achievement of the following objectives: improvement in productivity, business operation, quality of product or service delivery to customers. Kaizen is, therefore, used as a tool to improve all tasks performed in an organisation in order to improve business performance.

- **Total quality management** (TQM) – A management practice that emphasises customer satisfaction, team work and continuous improvement of business processes (Shah & Ward, 2007:788). Similar to Kaizen, TQM is a continuous improvement method that focuses on providing the best quality products to customers at lower cost and increasing efficiency in the production process.
- **Kanban** – A production strategy that aims at minimising the cost by eliminating overproduction (Rahman *et al*., 2013:174). Under Kanban, organisations only manufacture products that are to be delivered shortly to the customer; thus, overproduction is eliminated and production costs are reduced.
- **Just in time** (JIT) – A production system that focuses on the elimination of excess inventory or overproduction like the Kanban method. Under JIT, an organisation should start the production process only once an order has been received from the customer (Muslimen *et al*., 2011:4). This will lead to the reduction of storage costs and improved efficiency in the manufacturing process.
- **Lean six sigma** (LSS) – This is a continuous improvement method that focuses on the elimination of waste in all aspects of the business (Psychogios, 2012:124). According to Yeh *et al*. (2011:12359), the following steps should be followed to implement LSS in an organisation: (1) define the problem, set improvement objectives and identify customer needs, (2) use VSM to identify value- and non-value-added activities in the current process and collect data for the desired state of process, (3) analyse the current process and collect data to investigate and determine the causes of non-value-added activities, (4) search for solutions to improve the current process, and (5) seek perfection by controlling the future states of the process. O'Rourke (2005:20) and Yeh *et al*. (2011:12357) add that organisations implement LSS to achieve the following goals: increase customer and employee satisfaction, reduce costs, improve operations, and increase competitive advantage.

- **Total productive maintenance** (TPM) – A programme which aims at improving the production process by maintaining machine and equipment in an organisation (Ghosh, 2011:114). Bakri *et al.* (2012:488) described it as a key method of the lean strategy which focuses on preventing the breakdown of equipment during the production process, eliminating waste in the production process and producing the best quality product for the customer. Similarly, Ahmed *et al*. (2004:93) mentioned that TPM, TQM and JIT are important elements of lean; all three methods are used in an organisation to implement lean strategy.
- **5S** – A continuous improvement method used to eliminate waste by properly organising the work place (Abdullah, 2003:11; Matt & Rauch, 2013:424; Nordin *et al*., 2010:378). This method enables employees to easily identify problems. According to Zidel (2006:12) and Katkamwar *et al.* (2013:1751), the 5S consists of five elements: (1) sorting, which entails identifying and keeping what is needed and eliminating unnecessary items, (2) setting, which means putting everything in order, (3) shining, which requires checking whether everything is where it should be, (4) standardising, which refers to the efficient organisation of all tasks performed in the organisation, and (5) sustaining, which entails a disciplined maintenance of the workplace by everyone in the organisation to always keep it clean.
- **Cellular manufacturing** – A manufacturing process in which all resources needed to manufacture products are arranged into cells in order to facilitate the manufacturing process (Abdulmalek & Rajgopal, 2007:224; Ramasamy, 2005:21). According to Abdullah (2003:10), cellular manufacturing is mainly used by organisations which offer a multiple variety of products to customers. Organising the production process into cells enables the grouping of resources needed to manufacture products according to their similarity which, in turn, allows flexibility in the production process. Abdullah (2003:10) further states that cellular manufacturing is a key element of lean organisation due to the following benefits: improvement in productivity, elimination of waste in the production process, and increase in communication and team work among employees.

In light of the above discussion of lean methods, it appears that lean methods are related to one another and are used in an organisation to eliminate waste in order to improve business performance, which is the core goal of lean strategy.

2.7 LEAN IMPLEMENTATION

This section presents case studies of lean implementation in industry. Thereafter the barriers to and requirements for the successful implementations of lean are discussed.

2.7.1 Evidence from industry

The literature presents several case studies that describe the implementation of lean strategy in various manufacturing and service industries. These case studies are discussed in the following subsections.

Lean implementation in the manufacturing industry

In the manufacturing sector, the common term used to refer to lean strategy is 'lean manufacturing'. Owing to the success of the TPS, many manufacturing organisations around the world have been applying lean manufacturing to achieve business objectives; this is evidenced in several case studies of lean implementation reported in the literature.

Rahman *et al*. (2013:177) studied some Malaysian manufacturing companies that have successfully implemented the lean method of Kanban. The authors visited selected companies and interviewed the managers with the purpose of understanding how the manufacturing processes of these companies were affected by the use of Kanban. The study found that these companies were using the same production practices under Kanban with different process flow. Consequently, the authors designed an internal Kanban flow for the Malaysian manufacturing companies. The study further suggested the following as prerequisites for the successful implementation of Kanban: effective inventory management, reliability of suppliers with regard to timely delivery, manager and employee dedication, and quality improvement and control.

Another study, byMatt and Rauch (2013:422), focused on the implementation of lean manufacturing in small-sized enterprises in Italy. The authors interviewed ten small manufacturing firms in Italy to determine why they do not apply lean principles. The summarised responses included: a lack of knowledge of lean tools, a lack of manager education on the benefit of lean, continuous use of the traditional system, and a lack of resources. As a solution, Matt and Rauch (2013:422) suggested new lean tools suitable for small enterprises including VSM, Kaizen, Zero Default, First-in-First-out (FIFO), JIT,

5S and Kanban. Furthermore, these tools were empirically applied to implement lean production in a small-sized enterprise in the north of Italy.

Singh and Belokar (2012:72) used the Kaizen tool to implement lean manufacturing in a company in India called assembly shop of tractor. They started by observing and analysing the existing manufacturing process in this company to identify the weaknesses of the existing manufacturing system and to find solutions which involve the use of lean tools. The study found that the major problem in the existing system was the increased cycle time of the machines used in the production process. The authors used Kaizen to formulate a new process flow diagram that would reduce the cycle time used by each machine and, therefore, reduce waste, provide efficient use of machines, and increase the capacity of gear box assembly and production without defect.

A study by Kumar *et al*. (2013:998) developed a structural model using the Interpretive Structural Modelling (ISM) approach to implement lean manufacturing in the Indian automobile industry. Based on their literature review, the authors identified 18 variables used for lean implementation, conducted interviews with experts and grouped these variables into dependent and independent categories. The dependent variables were those related to cost saving, whereas the independent variables were related to top manager dedication. The authors further used the ISM approach to identify the correlation between the different variables and develop a structured approach for lean manufacturing implementation using these variables. The study concluded that the structured approach would facilitate the understanding of the interdependency between the variables and, in turn, facilitate lean manufacturing implementation in the Indian automobile industry.

Chakrabortty and Sanjoy (2010:13) presented a framework for implementing lean manufacturing in a garment company in Bangladesh. The authors first analysed the existing manufacturing process to find its limitations. They then used VSM to identify value- and non-value-added activities in order to propose a layout and process flow aligned with lean principles including: increase in productivity, effective inventory management, timely availability of accessories, and garment quality. To measure the changes, they compared the existing and the proposed process using the Arena simulation software to visualise the result of the new system. The next subsection presents lean implementation in service sector.

Lean implementation in the service industry

In the service sector, lean strategy is being implemented in health care, banking, insurance and telecommunication (Leite & Vieira, 2015:536). In the health care sector, lean is commonly referred to as 'lean health care'. Lean health care has been a subject of interest to many researchers in recent years (Dickson *et al*., 2009:508; Grove *et al*., 2010a:1; Skeldon *et al*., 2014:993). Dickson *et al*. (2009:508) studied the implementation of lean principles for waste elimination in the emergency departments of four US hospitals. The authors visited each of the four hospitals and interviewed managers involved in the implementation process of the lean principles. They found that these hospitals were using the Kaizen system and that an improved version of Kaizen suitable for health care was further developed. Finally, the authors compared the results of lean implementation in each of the four hospitals and concluded that each hospital implemented lean in its own way, but that they used the same method and reaped the same overall benefit, namely performance improvement.

In Skeldon *et al*. (2014:993), the implementation of lean principles in Canadian clinics was performed. The study conducted an analysis of the existing system and used VSM to identify the imperfections in the existing system. Thereafter, VSM and RIEs (Rapid Improvement Events) methods were used to implement a new system aligned to lean principles. The outcomes of the implementation included: increased patient satisfaction, reduction of patient cycle time, and increased effectiveness.

Another experience of lean implementation in a large primary care trust service in the UK is presented in (Grove *et al*., 2010a:1). The authors participated in a thirteen months lean implementation project in which the following lean tools were applied: VSM, stakeholder mapping and time-motion study. During the project, staff were trained through a series of workshops. The VSM method was used to identify useful and non-useful activities in order to continuously improve efficiency, whereas time-motion study was employed to quantify non-useful activities with the view of evaluating the improvement made.

In South Africa, Kruger (2014:2701) illustrated how the LSS method could be implemented in the health care organisations in the Gauteng Province with the aim to evaluate and improve the services. This was done after several workshops with LSS

experts and some CEOs of health care facilities in Gauteng on how to implement lean sigma in health care and its benefits.

The banking sector has also embarked upon lean adoption. Erdem & Aksoy (2009:173) presents a case study of lean implementation in a Bank in Turkey. The author analysed the banking operations before and after the implementation of lean strategy and reported the following outcomes: increased efficiency in the utilisation of resources, reduction of customer waiting time before being served, and increased profitability due to cost reduction.

Leite and Vieira (2015:535) discussed the current state of lean adoption in the service sector, based on selected insurance and banking organisations that have successfully implemented lean strategy. They reported that these organisations have benefited from adopting the lean strategy in terms of improvement in operations, reduction in costs and increases in profitability and customer satisfaction.

The lean strategy has also been adopted in the telecommunication industry. Psychogios *et al*. (2012:128) studied two telecommunication companies in Greece that have successfully implemented LSS. The authors interviewed managers and employees involved in the implementation process with the purpose of obtaining knowledge about how the implementation was done, the difficulties encountered and the outcomes of the implementation. They learned that the deployment process was done through intensive training; after the training the project was initiated and implemented. The main obstacle was identified as employees' lack of knowledge of lean methodology, but this challenge was overcome through training. In both companies, the application of LSS improved the quality of service delivered to customers and increased in profitability.

From the above discussion of case studies of lean adoption, it is clear that some challenges can hinder the smooth implementation of lean strategy in organisations. These challenges or barriers are discussed in detail in the next subsection.

2.7.2 Barriers to lean implementation

Nordin *et al.* (2010:374) and Bhasin (2011:406) argued that the lack of knowledge of lean principles and methods by people in the organisation is a main barrier to lean implementation initiatives. In fact, human resources are a challenge to lean implementation because there are few people with good knowledge of lean principles

and methods. Many people in the organisation do not understand lean concepts, even managers themselves do not know much about lean and do not have the leadership required to direct its implementation (Muslimen *et al*., 2011:1). Furthermore, Punnakitikashem *et al*. (2013:3) contended that poor management and leadership style lead to unsuccessful lean implementation in some organisations.

Lack of capital resource is another barrier to lean implementation. This is supported by Punnakitikashem *et al*. (2013:3) who claimed that lean implementation requires significant investment and demands a great amount of capital investment that an organisation might not have.

Another barrier to lean implementation is the culture of the organisation (Fricke, 2010:29). In fact, Martinez-Jurado (2012:337) and Sabry (2014:96) have argued that one of the critical success factors for lean transformation is the adoption of lean culture by everyone in the organisation, that is, developing a mindset of quality, continuous improvement and learning, team work, and commitment and involvement of all people in the organisation (Fricke, 2010:29). Therefore, a lack of lean culture is seen as an obstacle to lean transformation.

Other barriers to lean implementation which can be observed only in the health care sector are the non-focus on customers and the difficulty to define waste. In fact, in health care, one does not really know who the customer is. According to Poksinska (2010:11), there is confusion as to the identification of customers in health care, since the customer can be the patient, the relatives of the patient who settle the bill, the local community, charities and insurance organisations. This ambiguity in customer definition is a big challenge for lean implementation in health care. One of the principles of lean is to increase customer satisfaction by identifying what is value and non-value to the customer. Thus, if the customer cannot be clearly defined, it will be difficult to apply lean and derive the benefits. Grove *et al*. (2010b:213) argued that the direct consequence of the lack of a clear definition of the customer in health care is the difficulty to determine what waste is in the service delivery process.

The management accounting system used by organisations is another barrier to lean implementation. According to Ramasamy (2005:22), De Arbulo-Lopez and Fortuny-Santos (2010:582), Bahadir (2011:8), Bhasin (2011:408), and Manjunath and Bargerstock (2011:47), the traditional accounting and ABC systems are obstacles to

lean transformation. The management accounting system refers to the accounting practices, costing, control and measurement methods used by organisations to process their daily transactions (Kennedy & Widener, 2008:301). The management accounting system directs the organisation towards the achievement of its goals by providing information that is useful for decision-making purposes and monitoring the employees towards the achievement of predefined goals (Bahadir, 2011:23). Bahadir (2011:38) further argued that changing the organisation's strategy requires a change of its management accounting system; this implies that, in order to successfully adopt a new strategy like lean, an organisation must change its management accounting system to a system that will support lean strategy. Therefore, organisations that embark on lean adoption must align their management accounting system to lean principles and methods. This requires changing the traditional accounting and ABC systems to the new innovative management accounting system, namely lean accounting. Maskell and Kennedy (2007:60) emphasise that traditional accounting systems are anti-lean and therefore an obstacle to the implementation of lean strategy. Manjunath and Bargerstock (2011:48) and Ofileanu and Topor (2014:345) present the incompatibility of the traditional accounting system to lean environment as follows:

- The traditional accounting system is based on mass production and promotes overproduction which, according to lean thinking, is wasteful and promotes non-valued-added activities.
- In the traditional accounting system, the cost of a product is misallocated. Manufacturing overheads are assigned based on the volume of a cost driver. A cost driver is a factor that causes a cost to be incurred on machine hour and direct labour. The total cost of a product is determined by using absorption costing. Under absorption costing, the cost of a product includes only manufacturing costs, namely material, labour and overheads. Non-manufacturing costs are not taken into account, which leads to misleading information relating to product costs and pricing decisions (Ramasamy, 2005:7; Salah & Zaki, 2013:87).
- The traditional accounting system is complex and provides reports that are difficult to understand by those without knowledge of accounting.

The problem with the ABC system in lean environment was explained in Chapter 1, Subsection 1.1.2.2.

To avoid or mitigate challenges during the implementation of lean strategy in an organisation, some prerequisites need to be put into place. The next subsection discusses the requirements for the successful implementation of lean strategy in an organisation.

2.7.3 Requirements for the successful implementation of lean

According to Psychogios *et al*. (2012:124), the requirements or factors that could facilitate the successful implementation of lean strategy are: flexible organisational culture, commitment of manager and involvement of employees, training, establishment of long-term relationship with customers, timely delivery from suppliers, and adoption of a lean accounting system. These requirements are discussed below.

- **Flexible organisational culture** (Moori *et al*., 2013:95; Rose *et al*., 2014:1192) – There should be clear and open communication between managers and employees; employees should be involved in the decision-making process so that their behaviour can support the adoption of the new strategy. Further, it has been argued that team work and collaborative decision making be viewed as crucial elements for cultural change and facilitation of the implementation of new strategy in the organisation (Kumar *et al*., 2013:998).
- **Commitment of managers and involvement of employee** (Punnakitikashem *et al*., 2013:3; Sabry, 2014:95; Skeldon *et al*., 2014:996) – Managers at all levels should be engaged in lean implementation projects and they should motivate and support staff to participate in the change process.
- **Training** (Fine & Golden, 2009:34; Grove *et al*., 2010a:3; Holden, 2011:269) – For an organisation to implement a new strategy successfully, the people in the organisation should have knowledge about the new strategy; thus, training needs to be provided and responsibilities assigned to employees to enable them to act on their own and undertake the change required to successfully apply lean principles and methods.
- **Establishment of a long-term relationship with customers** – Maintaining good relations with customers is an important success factor in lean manufacturing (Naveen *et al*., 2013:4). This can be achieved by providing value-added activities to customers; these are the products that the customers are willing to pay for. By

satisfying customer needs, the company is setting up durable relationships with them and, hence, achieves the lean principle of increased customer value.

- **Timely delivery from suppliers** (Rahman *et al*., 2013:176; Rose *et al*., 2014:1192) – In manufacturing firms, suppliers are responsible for the supply of the raw materials needed to start the production process. These materials need to be delivered on time in order for the organisation to meet customer demands. Lean principles prescribe that the organisation places an order from suppliers when the customer has requested the product. In this way, the organisation can eliminate waste by not keeping a high quantity of inventory and not overproducing, which are considered to be non-value-added activities.
- **Adoption of a lean accounting system** (Enoch, 2013:509; Maskell & Kennedy, 2007:60; Ofileanu & Topor, 2014:350) – As mentioned earlier, one of the barriers to lean adoption is the current management accounting system followed in the organisation. To facilitate the implementation of lean strategy, an organisation must change its current management accounting system to lean accounting. The next subsection expands on lean accounting.

2.8 LEAN ACCOUNTING

Lean accounting is a new management accounting system for lean organisations, namely any organisation that adopts the lean strategy. In simple terms, it is a change that needs to be done within an organisation to support the implementation of lean principles and methods (Maskell & Baggaley, 2006:36).

The concept of lean accounting was first introduced in 2005 at the lean accounting summit with the following objectives (Bahadir, 2011:23; Maskell & Baggaley, 2006:35):

- Provision of information that is accurate, easy to understand, and on time for decision-making purposes;
- Empowerment and motivation of people in the organisation to adopt a lean culture;
- Utilisation of lean methods to remove waste in all the areas of the business; and
- Compliance with generally accepted accounting practices.

Lean accounting uses three key elements to implement lean principles and methods in an organisation, namely value stream management, visual management, and

continuous improvement (Maskell & Kennedy, 2007:65). These are discussed in detail in the next subsection.

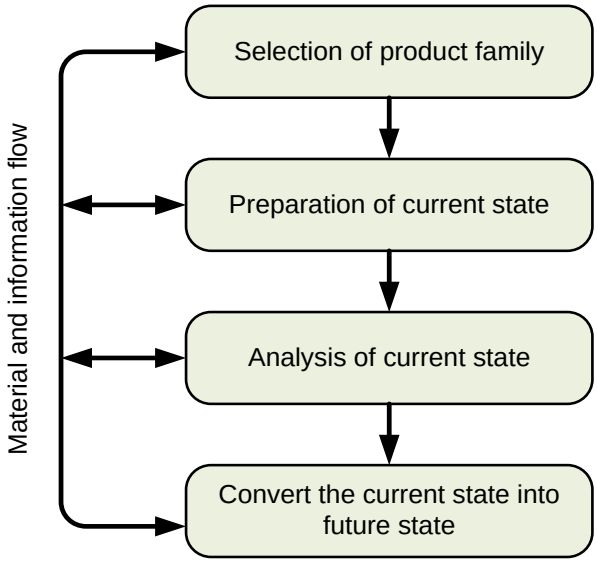
2.8.1 Value stream management

Unlike the traditional accounting system, which uses absorption costing or ABC to determine the cost of a product, lean accounting uses value stream costing. As stated earlier, in absorption costing, great emphasis is put on the cost of individual products, including material, labour and overhead; overhead is allocated on an arbitrary basis (Els *et al*., 2012:224). With ABC, product cost is determined in the same manner as with absorption costing, except that, under ABC, overhead is allocated based on the activity which caused the cost to be incurred (Swanepoel, 2014:145). Value stream costing allocates the cost of a product based on all activities included in the value stream.

A value stream is a sequence of activities in an organisation that are needed to deliver the end product to the customer; these activities include value- and non-value-added activities (Abdulmalek & Rajgopal, 2007:224; Irani & Zhou, 2011:1). Value-added activities are activities that add value to the end product, whereas non-value-added activities are activities that do not add value to the end product; these activities are viewed as wasteful and need to be eliminated from the production process (Bahadir, 2011:15).

Enoch (2013:510) calls VSM all the steps necessary to design, manufacture and deliver the product to the customer. VSM is also described by Abdulmalek and Rajgopal (2007:224) as a lean accounting tool that is used to classify activities in the organisation into value-added activities and non-value-added activities. It enhances the flow of material and information and aims to identify and eliminate all types of waste in the daily activities of the organisation as well as determine the actions or steps in the process that add value to the customer (Abdulmalek & Rajgopal, 2006:225; Abuthakeer *et al.*, 2010:52; Ahasan *et al.*, 2013:587;). VSM is represented in the form of a chart with several steps (Abdulmalek & Rajgopal, 2007:226; Abuthakeer *et al.*, 2010:54) as illustrated in Figure 2.2.

Figure 2.2: Value stream mapping steps



(Source: Abuthakeer *et al.*, 2010:54)

As shown in Figure 2.2, the first step in VSM is the identification of a product or family of products that satisfies customer needs. In the second step, the current state of the product is created; this involves illustrating the current production process, namely how the end product is currently being designed, manufactured and delivered to the customer. The third step concerns the analysis of the current process and all the activities in order to detect areas in the process that need improvement; this step also involves the classification of activities into value-added and non-value-added activities, with the purpose of eliminating non-value-added activities. The last step (bottom of Figure 2.2) is to create the future state of the product; this entails representing a picture of what the process should look like after the non-value-added activities have been eliminated and improvement made.

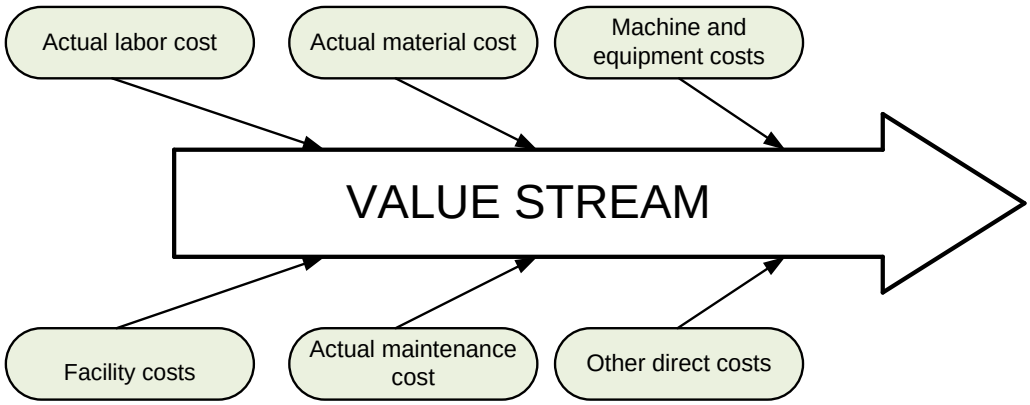
In lean organisations, value stream is used to control both the flow of material and information; this is important as the material and information flows tell employees exactly what to do after each process which, in turn, increases the efficiency of operations (Chakrabortty & Sanjoy, 2010:13). Once VSM has been designed, value stream management is used to coordinate, check and control all activities along the value stream, including the quality of the product, customer service, and the revenue obtained from the value-added activities (Maskell & Kennedy, 2007:69).

Salah and Zaki (2013:90) use the term ‘value stream costing’ to refer to the lean accounting tool that is used to determine the product cost and product contribution to profits. Value stream costing is a costing method that assigns production costs based on the value stream. As depicted in Figure 2.3, these costs are the actual direct costs incurred to manufacture the product and include:

- Actual cost of material used in the value stream,
- Actual cost of labour allocated to the value stream, in other words, the cost of people working in the value stream,
- Machine and equipment costs, including depreciation, repairs and maintenance,
- Facility costs such as rent costs, and
- Other costs included in the value stream, for instance, supplier and travelling cost.

Value stream costing does not take into consideration indirect costs; costs are allocated based on the activities in the value stream. Therefore, costs that do not form part of the value stream are excluded in the calculation of costs; the costs of a product reflect the true expenses or resources used to manufacture it (Bahadir, 2011:32).

Figure 2.3: Value stream costing



(Source: Ofileanu & Topor, 2014:347)

The advantage of using value stream costing in a lean organisation is obtaining accurate actual product costs and profitability information simply and timely for decision-making purposes; this, in turn, contributes to sound management of the value stream and allows the organisation to clearly see the benefits of lean strategy (Maskell & Baggaley, 2006:38). In the lean accounting system, once the cost has been organised

into the value stream, another practice called visual management is applied to visually represent the flow of information along the value stream. The next subsection expands on the concept of visual management.

2.8.2 Visual management

Visual management is a practice in lean accounting that is followed to monitor the flow of information within the value stream and throughout the organisation. It is a way of making information available when it is needed and in a form that can be understood by everyone in the organisation (Maskell & Kennedy, 2007:65). According to Bahadir (2011:23), visual management is a practice used to empower employees, as it not only allows flexible communication between top managers and employees, but makes all information for decision making transparent and known to everyone in the organisation. To enable the simple presentation of information, visual management makes use of performance measurement tool and the box score (Maskell & Baggaley, 2006:38; Ofileanu & Topor, 2014:348). The performance measurement tool ensures that (1) customer needs are satisfied, (2) the predefined objectives of the organisation are reached, (3) the activities that are being done in the organisation are presented visually, and (4) the strengths and weaknesses of the organisation are identified. All these aspects are important to improve performance and decision making within the organisation (Maskell & Kennedy, 2007:66).

The box score serves to visualise the financial and non-financial impacts of lean improvement (Woehrle *et al.*, 2010:72). Maskell and Kennedy (2007:68) add that the box score shows the weekly report of the value stream performance and areas along the value stream that need improvement. The box score clearly depicts the information regarding the organisation's use of resources to generate revenue, as well as areas of inefficiency, and can be easily understood by everyone in the organisation. Continuous improvement methods are then used to rectify the inefficiencies discovered.

2.8.3 Continuous improvement

While VSM and visual management are used to detect areas in the process that need improvement, other continuous improvement tools like Kaizen and target costing are used to correct the inefficiencies in the process (Maskell & Kennedy, 2007:72; Ofileanu & Topor, 2014:348).

Kaizen costing is a method used during the design of a product to reduce cost and enable continuous improvement; it is a complementary tool to target costing. Target costing is a strategy followed to determine in advance the production cost of a product. Then, during the design, Kaizen is used to reduce cost and identify areas that need improvement. According to Ofileanu and Topor (2014:348) and Maskell and Kennedy (2007:72), both tools focus on cost reduction, continuous improvement and the design of products that satisfy customer needs. The benefits of lean accounting to an organisation are presented in the next subsection.

2.8.4 Benefits of lean accounting

Lean accounting is a holistic management accounting system that applies a combination of tools to monitor lean organisation (Maskell & Kennedy, 2007:65). Maskell *et al.* (2011:5) explain the following benefits of lean accounting:

- Profitability is increased through the provision of timely and accurate information for decision-making purposes. Contrary to the traditional accounting system that uses complicated and complex production costing methods, lean accounting uses simple costing methods to determine product costs and profitability which, in turn, provides useful information for decision-making purposes.
- The application of lean principles and methods is facilitated in the organisation through the support of lean initiatives and the development of a lean culture in the organisation.
- The financial and operational impact of the implementation of lean strategy in the organisation can be illustrated. As explained earlier, lean accounting applies the box score and performance measurement tools to display the operational and monetary gains obtained from lean transformation.
- Financial reports are provided that are easy to understand by all employees in the organisation.

As explained earlier, lean accounting was developed to overcome the limits of the traditional accounting system and to support the implementation of lean strategy. Many organisations around the world have shifted from the traditional accounting system to lean accounting in the process of lean adoption. However, the literature shows that

accounting education is still emphasising the traditional accounting system. This is discussed in the next section.

2.9 THE GAP BETWEEN ACCOUNTING EDUCATION AND PRACTICE

According to Maskell and Kennedy (2007:60) and Kennedy and Widener (2008:301), the discipline that provides the required knowledge for the successful implementation of lean strategy is the field of accounting. However, a gap has been reported between accounting education and practical accounting; in fact, Carnes (2005:28) and Tatikonda (2007:27) claim that accounting curricula, with their strong emphasis on the traditional accounting system, are outdated.

The literature presents many studies that report on accounting curricula. Cable *et al.* (2009:44) examined management accounting curricula by reviewing the tables of content of seven of the most used accounting textbooks. The authors aimed to determine whether these textbooks covered topics that reflect the needs or requirements of business organisations. The study revealed a gap between what accounting educators teach and what accountants do in practice. The authors concluded that accounting textbooks need amendment in order to reflect the needs of businesses or organisations where accounting methods are being applied.

Siegel *et al.* (2010:29) also expressed their concern about management accounting curricula. They reported that, while organisations have adopted the newest accounting methods to stay competitive, accounting education still emphasises traditional accounting methods which are incompatible with current business environments. The study also pointed to a discrepancy between accounting curricula and what accountants do in the work place.

Zarzycka and Dobroszek (2015:54) studied the accounting curriculum in some higher institution in Europe. The results of the study indicated that what is being taught at accounting faculties is insufficient to equip accounting graduates with the knowledge required to better serve the industry. According to the authors, the problem is caused by the slow response of accounting programmes to changes in today's competitive business environment.

A study byTatikonda (2007:28) suggests ways in which to apply lean strategy in the education process to improve the quality of accounting education. The author emphasises that accounting education is outdated and that education is a process similar to the manufacturing process. Therefore, because lean is used in manufacturing to improve processes, it can also be applied in academic institutions to upgrade the accounting curriculum to ensure its alignment to the requirements of businesses.

Van Romburgh (2014:59) interviewed Chartered Accounting graduates registered with the South African Institute of Chartered Accountants (SAICA) to determine whether the knowledge they had acquired at university met the requirements of the industry. The study found that accounting graduates from South African universities were not well prepared for a career in accounting because the accounting programmes taught at university did not meet the needs of employers.

Walters (2015:2) and Carnes (2005:33) stated that organisations are constantly changing their accounting methods and business strategy to cope with the environment, but accounting educators do not respond timely to these changes in organisations. Walters (2015:3) developed an assignment that exposes students to innovative management accounting practices without compromising the coverage of fundamental management accounting topics taught at academic institutions. Furthermore, Carnes (2005:34) discussed lean accounting practice and stressed the fact that accounting graduates should be the people equipped with knowledge of lean strategy to support its implementation in organisations. Yet, it seems that this is not the case in practice, as leadership in lean strategy implementation is being provided by engineers and software providers.

2.10 CONCLUSION

In this chapter a detailed discussion of lean concepts was provided. Lean strategy was defined as the strategy used by organisations wishing to remain competitive and sustainable in the market place. It was also indicated that lean strategy originated from the Toyota Production System and is implemented in organisations according to the guidelines of lean principles and methods. Several case studies were provided on the practical implementation of lean strategy in diverse industry sectors as well as challenges in implementing lean strategy. It was shown that the challenges can be overcome by changing from the management accounting system to lean accounting.

This chapter made it clear that lean accounting supports the implementation of lean strategy and provides many benefits when it is applied properly. However, in accounting in general, and lean in particular, there seems to be a gap between the knowledge taught at university and the needs of industry. The next chapter presents the research design and methodology of the study.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 INTRODUCTION

In the previous chapter, an overview of the literature on lean and lean accounting was provided. The purpose of this chapter is to discuss the research methodology used to conduct the study. The research methodology consists of research design and methods (Burns & Grove, 2011:20). The chapter starts with a discussion of existing research paradigms to guide the choice of the research design and method for the study (Mackenzie & Knipe, 2006:194). Thereafter, the research design and methods are discussed. The research design is in terms of the different types of research design techniques including qualitative, quantitative and mixed research design techniques. The research method concerns existing techniques such as ethnography, phenomenology, case study, ground theory and content analysis. The research design and method chosen for this study is explained and motivated in this chapter. Finally, the target population and sampling for the study are presented and a description is given of the data collection and analysis processes undertaken. The validity and reliability of the collected data are also discussed.

3.2 RESEARCH PARADIGM

A paradigm is a set of practices or beliefs that guide a discipline (Morgan, 2007:49). Morgan (2007:50) and Leavy (2014:3) presented it as the universe that guide the discovering of knowledge. A research paradigm is defined by Fossey *et al*. (2002:718) as a set of ideas, assumptions or worldviews used by the researcher to create knowledge. In simple terms, a research paradigm is a way of thinking about a situation or phenomenon under investigation or study.

According to Harrits (2011:151), a paradigm is the combination of two assumptions: epistemology and ontology. The word ‘epistemology’ is described as a domain of philosophy that focuses on the study of knowledge (Krauss, 2005:758). Tracy (2013:38) adds that epistemology refers to the nature of knowledge. Similarly, ontology is described as the way people perceive the world and the nature of social reality (Leavy, 2014:3). A paradigm is referred to by Castellan (2010:4) as a philosophical perspective.

There are two common research paradigms, namely positivist and interpretivist. The positivist paradigm is a synonym of realist, scientist or empiricist philosophy (Krauss, 2005:760; Mackenzie & Knipe, 2006:194; Tracy, 2013:39). In this paradigm, it is assumed that reality already exists and that it is the task of the researcher to discover the truth about this reality (Harwell, 2011:149). Creswell (2014:36) adds that a positivist conducts research to verify an experiment or theory that can be generalised. Within the positivist paradigm, data collection tools include experiments, quasi-experiments and tests (Mackenzie & Knipe, 2006:198).

Contrary to the positivist paradigm, the interpretivist paradigm seeks to understand the behaviour of people (Fossey *et al*., 2002:720). According to Harwell (2011:148), in the interpretivist paradigm, research is conducted to investigate, understand and interpret a phenomenon of interest. The common techniques used for data collection in the interpretivist paradigm are interviews, observations and document reviews (Mackenzie & Knipe, 2006:198).

According to Mackenzie and Knipe (2006:194), De Vos *et al*. (2011:41) and Tronvoll *et al*. (2011:563), the research paradigm influences the manner in which knowledge is examined and understood; it guides the choice of research design and method for a particular study. The current study was conducted within the interpretivist paradigm since it aimed to investigate a situation of interest, namely the level of preparation of accounting graduates in lean accounting at SAIHL. Furthermore, the study reviewed documents, including relevant publications and prescribed accounting textbooks, to collect data. The research design of the current study is discussed in the next section.

3.3 RESEARCH DESIGN

Maxwell (2012:2) describes ‘research design’ as a procedure used to address the research problem. Van Wyk (2011:4) further defines research design as a method for collecting and analysing data to answer the research question. Research design is an important step in any research due to the fact that it provides the necessary guidelines for answering the research questions (Kumar, 2014:39). To introduce the research design used in this study, types of research design including qualitative, quantitative and mixed research (Creswell, 2009:4) are presented in the following subsections.

3.3.1 Qualitative research

Marshall and Rossman (2014:33) defined qualitative research as an investigative method used in social sciences to explore, understand and explain a phenomenon or a situation of interest. According to Creswell (2009:4), qualitative research is an approach which seeks to collect, analyse and interpret qualitative data. 'Qualitative data' refers to the existing and available data from sources such as books, journal articles, conference proceedings, theses and dissertations, and research reports (Kumar, 2014:196; Sue, 2008:73). Qualitative research has the following characteristics (De Vos *et al*., 2011:65):

- Data are collected from multiple sources;
- Data are collected by examining documents, observing people's behaviour or interviewing participants;
- The researcher seeks to understand or interpret a situation of interest; and
- The research focuses on developing a complex and holistic view of a social phenomenon.

The next subsection explains quantitative research.

3.3.2 Quantitative research

Borrego *et al*. (2009:53) defined quantitative research as the explanation of a phenomenon using numerical data obtained from a sample in a population. Creswell (2009:4) and Harwell (2011:148) further argued that quantitative research focuses on collecting and analysing quantitative data using statistical procedure. Quantitative research is useful for analysing the relationship between variables of the problem being investigated (O'Rourke, 2005:38). A more comprehensive definition by Castellan (2010:7) states that quantitative research is an educational research which focuses on (1) discovering an objective reality, (2) using experiments to control and identify the correlation between variables, (3) using instruments such as surveys and tests in numerical or statistical format to collect the data and (4) analysing data using a deductive approach or statistical procedure. The next subsection provides a comparative discussion of qualitative and quantitative research.

3.3.3 Qualitative vs quantitative research

According to Williams (2007:67) and Castellan (2010:7), the distinction between qualitative and quantitative research lies with regard to their philosophical perspective, the types and purpose of the research, and the type of data collection and analysis. These differences are further explained below.

- **Philosophical perspective** – A philosophical perspective, also called paradigm, is described by Creswell (2014:35) as a worldview, that is, the way people view the world. Leavy (2014:3) described a philosophical perspective of research as the way in which people believe research should be conducted. Qualitative research falls within the interpretivist worldview (Devetak *et al*., 2010:79). In this view, research is conducted to investigate a phenomenon or situation of interest which has not yet been explored. On the other hand, quantitative research falls within the positivist worldview. According to Welman *et al.* (2005:7), a positivist researcher is interested in observing and measuring objectively a phenomenon being studied in order to generate a theory that can be generalised. In quantitative research, the researcher acts independently from what is being investigated, whereas in qualitative research the researcher interacts with the phenomenon under investigation.
- **Type of research** – Qualitative research includes various types of studies, namely the case study, ethnographic study, ground theory study, phenomenological study and content analysis study (Williams, 2007:6), whereas quantitative research includes experimental and non-experimental studies (Castellan, 2010:4).
- **Purpose of the research** – The goal of qualitative research is to explore, describe or compare a social phenomenon (Russell & Gery, 2010:8). This is in contrast with quantitative research which aims to determine facts and relationships among variables and verify hypotheses (Castellan, 2010:5).
- **Type of data collection and analysis** – According to Creswell (2014:234), the types of data collection used in qualitative research include observation, interviews, documents and audio-visual material. Data analysis in qualitative research follows an inductive process; in other words, the researcher collects and encodes the data, observes the patterns amongst the data and develops explanations or theories (Harwell, 2011:149). Consequently, the results obtained from data analysis in

qualitative research are subjective in that they are a reflection of the researcher's interpretation of the data (Zikmund *et al*., 2013:134).

- Conversely, in quantitative research, data are collected from sources such as questionnaires, surveys and tests, and the analysis of the collected data follows a deductive process. In quantitative research, the researcher focuses on testing a theory or searching for causality amongst the data in order to move from a general to a specific situation or to derive objective and replicable results from the data (De Villiers, 2015:30). Therefore, the results in quantitative research are independent from the researcher's subjective interpretation, and different researchers should obtain the same results when performing the same study (Sue, 2008:16; Zikmund *et al*., 2013:135).

A qualitative research design was used in this study. The study was conducted from the philosophical perspective of interpretivism because it sought to investigate a situation of interest, namely the level of preparedness of accounting graduates in lean accounting at SAIHL. To achieve the objectives of the study, content analysis as research method was applied to examine the content of relevant publications and prescribed accounting textbooks. The data for the study were collected from documents and analysed using an inductive process. Mixed-method research is discussed in the next subsection.

3.3.4 Mixed-method research

Mixed-method research combines both qualitative and quantitative research to achieve the purpose of the study. Kumar (2014:20) defines 'mixed-method research' as the collection and analysis of both qualitative and quantitative data to reach the research objectives. It is further argued that the mixed-method research takes advantage of the strengths of both qualitative and quantitative research approaches to provide a better understanding of the research problem and enhances the accuracy of the findings of the study (Harwell, 2011:151; Kumar, 2014:20).

Castellan (2010:2) argued that none of the existing research design approaches is better than others, since the choice of the approach depends on the nature of the study and each approach leads to the discovery of new knowledge. The author further contended that the selection of a research design approach is dependent on the research question and the type of information the researcher is seeking. Williams (2007:65), Creswell (2009:3) and Devetak *et al*. (2010:77) suggested that the selection

of a research design approach is influenced by the purpose of the study and the type of data needed to conduct the study.

The purpose of the current study was to determine the preparedness of accounting graduates in lean accounting at SAIHL. The type of data gathered from the literature, namely books, journal articles, conference proceedings, theses and dissertations, research reports and prescribed accounting textbooks, is an indication that the qualitative research approach was found to be the most suitable for this study. The next section discusses existing research methods and indicates the research method used in this study.

3.4 RESEARCH METHOD

A research method refers to the procedure or technique used to collect and analyse the data (Colin, 2014:6; De Vos *et al*., 2011:74). According to Williams (2007:68) and Sue (2008:81), the common types of research methods used in qualitative research to collect and analyse the data are ethnographic, phenomenological, case study, ground theory and content analysis research. These qualitative research methods are discussed below.

- **Ethnographic research** – The purpose of ethnographic research is to study the culture of people belonging to the same group or sharing the same characteristics over a period of time in order to understand their behaviour (Creswell, 2003:14). It is also described by Russell and Gery (2010:341) as a type of qualitative analysis research which aims at predicting the behaviour of people. Williams (2007:68) identified the following processes used in an ethnographic study: (1) access the location of people to be studied, (2) establish trust relationships with these people, (3) conduct interviews with them in order to understand their culture, and (4) collect relevant data for the study.
- **Phenomenological research** – According to Welman *et al.* (2005:192), in this research approach, the researcher does not observe reality, but interpret it. In other words, the researcher is interested in perceiving a social phenomenon from the viewpoint of the people involved. The focus of the researcher is on understanding the perception and experience of participants. William *et al.* (2005:192) further stated that a phenomenological researcher conducts interviews to collect the data. The interviews are based on questions that guide people to talk about their experiences.

Pretorius (2013:132) added that these interviews are conducted to obtain data with which the researcher could explain and analyse the experiences and behaviours of people.

- **Case study research** – Kumar (2014:155) described case study research as the profound exploration and understanding of the case being studied; the case can be an individual, social communities, institutions or organisations. Kumar (2014:155) further stated that the data collection and analysis procedure is very flexible, as the researcher does not focus on the population as a whole but on a specific group of choice. Zikmund *et al*. (2013:140) claimed that the main advantage of case study research is that the researcher focuses on the in-depth study of a particular case and pay special attention to each detail. O'Rourke (2005:40) and Martinez-Jurado and Moyano-Fuentes (2014:334) argued that case studies are suitable for answering the 'how' and 'why' research questions and that data for the case study are collected from various sources such as the literature, observation or interview.
- **Ground theory research** – This is a research method used to collect and analyse data in order to generate inductive theory (Evans & Liverpoll, 2013:37). In this research approach, the researcher starts with the data from which the theory is drawn; this research method is suitable for comparative analysis (Kenny & Fourie, 2014:2).
- **Content analysis research** – Williams (2007:69) and Berg and Lune (2014:335) defined content analysis research as a detailed examination of the content of documents such as books, newspapers and reports to extract relevant information for the particular study. Russell and Gery (2010:287) described content analysis research as a method used in social and human sciences to consistently codify and analyse written or verbal messages. Welman *et al*. (2005:221) add that 'content analysis is the quantitative analysis of qualitative data'. This statement is supported by Elo and Kyngas (2007:107), De Vos *et al*. (2011:380) and Flick (2011:133) who said that content analysis research focuses on quantifying the data obtained from texts, words or phrases. Content analysis is also referred to as document analysis (Elo & Kyngas, 2007:107). The two terms will be used interchangeably in this study.

According to Bowen (2009:29), the purposes of using documents in the research process are to (1) gather the background information that enables understanding of the

issue under investigation, and (2) provide the information that would help the researcher to generate the data for the research and confirm the findings from other sources.

This study used the content analysis method. Data were collected by an analysis of published studies and prescribed accounting textbooks in use at SAIHL. The following prescribed steps in content analysis research (Flick, 2011:134; Williams, 2007:69) were applied in this study: (1) identify relevant documents, (2) review the document and extract relevant information in the form of tables, (3) codify texts in order to quantify data and facilitate the analysis, and (4) analyse the collected data and report on the findings.

3.4.1 Data collection

In qualitative research, the following techniques are used to collect the data: observation, case studies, interviews and documents (Castellan, 2010:7; Creswell, 2014:234; Van Wyk, 2011:12). Documents include journal articles, textbooks, newspapers, maps, charts, advertisements, survey data, reports, and so forth (Bowen, 2009:27). In this study, the target documents for analysis included relevant published research such as journal articles, conference papers, theses and dissertations, and prescribed accounting textbooks.

Creswell (2014:241) proposed the following advantages of using documents to collect data: (1) the researcher can access the data at a convenient time, (2) data are collected from sources that are well known to the researcher, and (3) the textual nature of the data saves the time and expenses required to put it into written form. The data collection for this study is presented in the next subsections. The next subsection defines a ‘population’ and presents the target population for this study.

Population and sampling

Welman *et al*. (2005:52) and Sue (2008:48) defined a ‘population’ as a group of people or elements with the same characteristics that are of interest to the researcher and from which only a sample is to be selected to conduct a particular study.

The target population for the current study was the 26 institutions of higher learning in South Africa, more precisely South African universities. Lists of prescribed accounting textbooks were obtained from 9 of these universities to collect the data for the study.

According to Russel and Ryan (2010:357) and Zikmund *et al*. (2013:66), sampling is the selection of a subset or portion of the unit of analysis from the target population to represent the entire population. Welman *et al*. (2005:56) distinguished between two types of sampling: probability and non-probability sampling. In probability sampling, each unit of the population has an equal chance of being selected or included in the sample, whereas in non-probability sampling units in the population have no equal chance of being selected. The fact that all South African universities had an equal chance to be chosen for this study indicated that probability sampling was found to be appropriate for this study.

Data collected from the literature

A literature review was carried out to identify relevant publications, books and theses that focus on lean concepts. These documents were collected from different sources, including the computer database of journals in the NWU Library, Science Direct, EBSCOhost research database, Google Scholar search engine and prescribed accounting textbooks. Content analysis of all the documents collected was performed to select the relevant publications for the study. The content analysis consisted of reading the title, abstract, introduction and conclusion of related publications. The contents of the selected relevant publications were further analysed to identify all the existing lean principles and methods, as well as the practical methodologies for lean strategy implementation. This analysis enabled the researcher to compile a list of lean principles and methods, provided in Tables 3.1 and 3.2. This chapter does not expand on lean principles and methods; they were explained in detail in Chapter 2, Section 2.5.

Table 3.1: List of existing lean principles

Code	Lean principles
LP01	Long-term goals of the organisation should create value for the customer, society and the economy.
LP02	The processes of an organisation should enable continuous flow in the production process.
LP03	Production should only start when a customer has placed an order to avoid overproduction (pull system).

Code	Lean principles
LP04	The level out production should be used to deal with uneven or unpredictable customer demands.
LP05	The Jidoka method should be used for quality control.
LP06	The work in an organisation should be standardised.
LP07	Visual control tools should be used to assess whether employees have performed their tasks according to standard.
LP08	Organisations should use reliable technologies in the production process.
LP09	Leaders should have the skills and knowledge to direct others to achieve the organisation's objectives.
LP10	Employees should be trained, motivated and empowered to follow the organisation's culture.
LP11	Decision making should involve stakeholders for long-term and durable relationship.
LP12	The cause of a problem should be clearly identified.
LP13	The root cause of problems should be addressed collectively by managers and employees.
LP14	An organisation should evaluate itself regularly and learn from its mistakes through continuous improvement.

(Source: Own research)

Table 3.1 presents a summary of the lean principles found in the literature. In the first column, a code is assigned to each lean principle; the code has four characters 'LPXX', where LP stands for lean principle and XX is the order number of the lean principle. For instance, the code LP01 means lean principle 1. Encoding the data collected from secondary sources is prescribed in qualitative research (Welman *et al*., 2005:213) and it is further argued by Kumar (2014:297) that encoding secondary data is useful to

facilitate data analysis. The second column of Table 3.1 displays the summary of lean principles obtained from the literature.

Table 3.2 is organised the same way as Table 3.1 and presents the existing lean methods from the literature. The first column presents the codes assigned to existing lean methods and the second column shows the name of the lean methods. For instance, the code LM01 is used to encode lean method number 1, namely cellular manufacturing.

Table 3.2: List of existing lean methods

Code	Lean method
LM01	Cellular manufacturing
LM02	Kaizen
LM03	Kanban
LM04	Just in time
LM05	Jidoka
LM06	Lean six sigma
LM07	Total quality management
LM08	Total productive maintenance
LM09	5S (sort, set in order, shine, standardise and sustain)
LM10	Value stream mapping

(Source: Own research)

Data collection from prescribed accounting textbooks

Data were gathered from prescribed accounting textbooks used by SAIHL. Textbooks were chosen as a source of data collection in this study due to the fact that they are vital in higher education, as they provide detailed information about a subject (Pope,

2002:50; Stevens, 2010:33). Furthermore, Bargate (2012:115) argued that the textbook is the main instrument that supports teaching and learning in the field of accounting.

Relevant textbooks were identified from the lists of prescribed textbooks collected from SAIHL. These lists were collected through online searches of SAIHL websites and physical enquiry at the accounting departments of some of the institutions. The researcher was able to gather the lists of prescribed textbooks for the academic year 2016 from nine out of 26 universities, which represent 35% of universities in South Africa. The universities from which lists of prescribed textbooks were collected included: North-West University (NWU), University of South Africa (Unisa), University of Cape Town (UCT), University of Witwatersrand (Wits), University of Johannesburg (UJ), Vaal University of Technology (VUT), University of Limpopo (UL), Nelson Mandela Metropolitan University (NMMU) and Monash South Africa (MSA). The complete lists of prescribed textbooks obtained are provided in Annexure A.

From the collected lists, the textbooks that focus on management accounting were specifically targeted. The discipline of accounting is divided into financial accounting and management accounting; financial accounting deals with the provision of financial reports that are useful to external users, whereas management accounting is concerned with the provision of information to internal users. Julyan and Nel (2005:2) and Correia (2008:12) stated that management accounting has two main purposes: (1) provision of information that helps managers make better decisions towards the achievement of the organisation's objectives, and (2) formulation and implementation of the organisation's strategy to help managers improve the efficiency of operations and competitive advantage. Ramasamy (2005:2) further argued that management accounting deals with the costing method, that is, the method used by an organisation to determine the cost of products. The above-mentioned definitions of management accounting are also characteristics of lean accounting; in fact, according to Maskell and Kennedy (2007:73) and Ofileanu and Topor (2014:343), lean accounting is an innovative management accounting system that enables organisations to improve decision making and increase efficiency, competitive advantage and productivity by using simple costing methods. In light of the above, only the management accounting textbooks were selected from the collected lists of prescribed accounting textbooks. The final list of prescribed textbooks identified for this study is given in Table 3.3.

Table 3.3: List of selected prescribed textbooks

Book code	Book title and edition	Author and year of publication
PB01	Management accounting – Information for managing and creating value, SA edition	Correia, C., Smith, K., Thorne, H. & Hilton, R.W. (2008)
PB02	Management and cost accounting, 8th ed.	Drury, C. (2012)
PB03	Management and cost accounting, 9th ed.	Drury, C. (2015)
PB04	Cost accounting: a managerial emphasis, 15th ed.	Horngren, C., Datar, S. & Rajan, M.V. (2014)
PB05	Cost and management accounting, 1st ed.	Marimuthu, F., Du Toit, E., Jodwana, T., Mungal, A., Du Plessis, A. & Panicker, M. (2016)
PB06	Fundamental cost and management accounting, 5th ed.	Niemand, A.A., Meyer, L., Botes V.L. & Van Vuuren, S.J. (2006)
PB07	Cost and management accounting, 2nd ed.	Van Rensburg, M. & Evangelou, O. (2008)
PB08	Managerial accounting, 4th ed.	Vigario, F. (2007)
PB09	Financial and managerial accounting, 13th ed.	Warren, C.S., Reeve, J.M. & Duchac, J. (2015)

(Source: Own research)

In Table 3.3, each of the books is encoded with four characters ‘PBXX’, where PB stands for ‘prescribed book’ and XX is the order number of the book in the list. For instance, the code PB01 means prescribed book number 1. Table 3.3 further provides the title, author and year of publication of each identified prescribed textbook.

Table 3.4 presents the South African universities that have prescribed the identified textbooks, the level of study at which the books are prescribed and the academic year of prescription of the books.

Table 3.4: South African universities using identified prescribed textbooks

Book code	Institution	Level	Year prescribed
PB06	Unisa	2nd level	2016
PB02 or PB03	Unisa	3rd level	2016
PB08	NWU	2nd level	2016
PB04	NWU	2nd, 3rd and honours level	2016
PB01	UCT	1st level	2016
PB02 or PB03	UCT	2nd and 3rd level	2016
PB03	Wits	2nd and 3rd level	2016
PB01	UJ	2nd level	2016
PB03	UJ	3rd level	2016
PB05	VUT	Level 1	2016
PB07	VUT	Level 2	2016
PB02 or PB03	UL	Level 5 (MBA)	2016
PB09	UL	Level 5 (MBA)	2016
PB03	NMMU	2nd and 3rd level	2016
PB03	MSA	4th level	2016

(Source: Own research)

The identified prescribed textbooks in Table 3.3 were collected from NWU and VUT Libraries and from Van Schaik Bookstore. The content of the textbooks was analysed to learn about the coverage of lean concepts in these books. The content analysis consisted of examining the table of content and chapter sections of each book with the aim of finding items or sections related to lean concepts. The data obtained from the content analysis of the collected prescribed textbooks are presented in Table 3.5.

Table 3.5: List of lean-related concepts identified in prescribed textbooks

Book code	Lean themes or concepts	Page numbers covering lean concepts	Total number of pages covering lean concepts	Total number of pages of the book
PB01	Create value for customer (value- and non-value-added activities)	708–709	2	1 210
	Target costing	720–725	6	
	Continuous improvement	724	1	
	JIT	775–779	5	
	Pull system	775–776	1	
	Kanban	776	1	
	TQM	792–793	2	
	Customer value	987	1	
PB02	Lean manufacturing	12	1	783
	TQM	13, 557	2	
	Continuous improvement	14, 20	2	
	JIT	93, 553–557, 570	7	

Book code	Lean themes or concepts	Page numbers covering lean concepts	Total number of pages covering lean concepts	Total number of pages of the book
	Target costing	233, 544–548	6	
	Kaizen costing	549, 570	2	
	Cellular manufacturing	555, 569	2	
	Kanban	555	1	
	Pull manufacturing	555, 570	2	
	Create value for customer (value- and non-value-added activities)	550, 570	2	
PB03	Lean manufacturing	12	1	827
	TQM	13, 576	2	
	Continuous improvement	14, 22	2	
	JIT	98, 572–579, 588–589, 664	12	
	Target costing	237, 562–566	3	
	Kaizen costing	567, 588	2	
	Create value for customer (value- and non-value-added activities)	568, 569	2	
	Cellular manufacturing	574, 588	2	
	Kanban	574	1	

Book code	Lean themes or concepts	Page numbers covering lean concepts	Total number of pages covering lean concepts	Total number of pages of the book
	Pull manufacturing	574, 588	2	
PB04	TQM	30	1	960
	Kaizen	242	1	
	Continuous improvement	288	1	
	Target costing	544–550	2	
	JIT	795–811	17	
	Lean accounting	811–813	3	
PB05	JIT	61	1	455
	Target costing	406	1	
PB06	JIT	48, 185–194	15	697
	Target costing	455	1	
PB07	JIT	54–57	4	376
	Non-value-added activities	57	1	
	Target costing	329–330	2	
PB08	Nothing found			617
PB09	Could not get this book			

(Source: Own research)

In Table 3.5, the list of lean-related concepts found in each prescribed textbook is presented. Table 3.5 has five columns. The first column indicates the prescribed

textbook codes as assigned in Table 3.3 and the second column displays the lean-related concepts found in the corresponding prescribed textbook; these lean-related concepts include both the lean principles and methods. The page numbers or range of page numbers in the prescribed textbooks where lean concepts were found are given in the third column. The fourth column includes the total number of pages in the prescribed textbooks that were devoted to lean concepts, and the total number of pages of the prescribed textbooks are provided in the last column. Tables 3.6 and 3.7 present the matching of lean-related concepts identified in the prescribed textbooks (Table 3.5) to the existing lean principles and methods obtained from the literature (Tables 3.1 and 3.2). The aim of the matching was to determine the extent to which the prescribed textbooks cover or discuss existing lean principles and methods.

Table 3.6: Matching of prescribed textbook content to existing lean principles

Code	PB01	PB02	PB03	PB04	PB05	PB06	PB07	PB08
LP01	Customer value	Value-added activity	Value-added activity	Quality product	None	None	None	None
LP02	None	None	None	None	None	None	None	None
LP03	Pull system	Pull manufacturing	Pull manufacturing	None	None	None	None	None
LP04	None	None	None	None	None	None	None	None
LP05	Quality	None	None	None	None	None	None	None
LP06	None	None	None	None	None	None	None	None
LP07	None	None	None	None	None	None	None	None
LP08	None	None	None	None	None	None	None	None
LP09	None	None	None	None	None	None	None	None
LP10	None	None	None	None	None	None	None	None
LP11	None	None	None	None	None	None	None	None
LP12	None	None	None	None	None	None	None	None
LP13	None	None	None	None	None	None	None	None
LP14	None	Continuous	Continuous	Continuous	None	None	None	None

Code	PB01	PB02	PB03	PB04	PB05	PB06	PB07	PB08
		improvement	improvement	improvement				

(Source: Own research)

Table 3.6 presents the matching of the lean principles from Table 3.1 to the lean-related concepts identified in the prescribed textbooks (second column of Table 3.5). Table 3.6 is organised as follows: the first column includes the codes of existing lean principles (Table 3.1). The cells of columns 2 to 9 match the lean concepts identified in the prescribed textbooks to corresponding lean principles; in other words, each cell in Table 3.6 includes either a reference to an existing lean principle or the word 'None' to indicate that no reference to the corresponding lean principle was found in the corresponding prescribed textbook. For instance, the cell at the intersection of lean principle LP03 and prescribed textbook PB03 include 'pull manufacturing' which is a short name for principle LP03 (Liker, 2004:5). Many cells in Table 3.6 contain 'None', meaning that no lean concepts relating to the corresponding lean principles were found in the corresponding prescribed textbooks. Table 3.7 is structured in the same way as Table 3.6 to match the prescribed textbooks to existing lean methods.

Table 3.7: Matching of prescribed textbooks content to existing lean methods

Code	PB01	PB02	PB03	PB04	PB05	PB06	PB07	PB08	Total
LM01	0	1	1	0	0	0	0	0	2
LM02	0	1	1	0	0	0	0	0	2
LM03	1	1	1	0	0	0	0	0	3
LM04	1	1	1	1	1	1	1	0	7
LM05	0	0	0	0	0	0	0	0	0
LM06	0	0	0	0	0	0	0	0	0
LM07	1	1	1	1	0	0	0	0	4
LM08	0	0	0	0	0	0	0	0	0
LM09	0	0	0	0	0	0	0	0	0

LM10	0	0	0	0	0	0	0	0	0

(Source: Own research)

The first column of Table 3.7 presents the codes of the existing lean methods found in the literature. Columns 2 to 9 indicate the results of the matching of the content of the prescribed textbooks to existing lean methods; the cells in these columns contain either 1 or 0 to indicate that the corresponding lean method in the row was or was not found in the corresponding prescribed textbook in column, respectively. For instance, the cell at the intersection of lean method LM04 and prescribed textbook PB03 contains the number 1, that is, lean method LM04 was found or covered in prescribed textbook PB03. Several cells in Table 3.7 contain the number 0, meaning that the corresponding lean methods were not found or covered in the corresponding prescribed textbooks. The rightmost column in Table 3.7 contains the number of prescribed textbooks that have covered or discussed each of the existing lean methods in the first column. The next subsection defines data analysis.

3.4.2 Data analysis

Data analysis involves summarising the relevant information obtained from the data gathered (Zikmund, 2013:68). Russell and Gery (2010:109) defined data analysis as determining the patterns in the collected data and ideas which give an explanation of these patterns. More information on the analysis of the data collected in this study is provided in the next chapter.

3.4.3 Ethics in research

Ethics is an important aspect of any research (Welman *et al*., 2005:181). According to Greener (2008:41), ethics in research is concerned with the honesty, integrity, objectivity, carefulness, confidentiality and social responsibility in data collection and analysis and reporting the findings. Welman *et al*. (2005:181) add that ethics is concerned with respecting the rights of participants or individuals involved in research; it is the standard of conduct that deals with what is acceptable or unacceptable, right or wrong (Fouka & Mantzorou, 2011:1). Therefore, ethics governs the morality, personality, professionalism and fairness of the scholar in conducting research.

Ethical issues were minimal in this study because no contributions by participants were necessary. The data used in the study were secondary in nature and publicly available. Furthermore, the Ethics Committee of the North-West University has cleared this research project under the ethical clearance approval number ECONIT-2016-026.

3.5 VALIDITY AND RELIABILITY

According to Welman *et al*. (2005:142), the validity of data is the extent to which the findings of the study reflect what has been investigated. Golafshani (2003:599) stated that validity has to do with whether or not the research measured what it was supposed to measure or whether the results are true. Reliability, on the other hand, is concerned with the degree to which the measurement of an instrument is consistent or accurate (Dane, 2011:140; Flick, 2011:200). Validity and reliability are usually associated with quantitative research, but are as applicable to qualitative research (Golafshani, 2003:597).

In qualitative research, reliability is measured with regard to the credibility of the data used to conduct the study (Golafshani, 2003:599). Potter and Levine-Donnerstein (1999:258) and Elo *et al*. (2014:2) contended that, with content analysis, the issue of reliability and validity should be addressed with regard to the quality or trustworthiness of the data collected, the data analysis and the presentation of findings. In this study, data were collected from trusted sources including relevant publications and prescribed accounting textbooks from South African universities; therefore, the data used in this study were valid and reliable.

3.6 CONCLUSION

The research design and method play an important role in any study, since they provide the guidelines for conducting the study (Kumar, 2014:129). Understanding the research design and method is therefore necessary to fulfil the purpose of the study. This chapter discussed the different types of research paradigm, design and method, and explained why the interpretivist paradigm and qualitative research design were suitable for this study. The chapter also discussed the different types of research methods used in qualitative research and indicated that content analysis research was chosen as the appropriate method for the study. The target population for the study, namely the different South African universities, was presented and it was indicated that lists of

prescribed accounting textbooks were obtained from a sample of these universities. The chapter explained that data were collected from the literature and the prescribed accounting textbooks, and the collected data were presented and described in detail. Finally, a brief definition of the data analysis process was outlined and the issue of reliability and validity of the data collected for the study was also addressed. The next chapter focuses on the analysis and interpretation of the data collected in this chapter.

CHAPTER 4
DATA ANALYSIS AND FINDINGS

4.1 INTRODUCTION

The previous chapter discussed existing research methodologies and indicated those that were found suitable for this study. It also presented the data collected from the literature and prescribed accounting textbooks from SAIHL. This chapter presents the analysis and discussions of the data collected in Chapter 3.

Russell and Gery (2010:109) defined data analysis as the determination of patterns in the collected data and the explanation of these patterns. Creswell (2015:235) argued that the purpose of data analysis is to make sense of the texts or images collected to answer the research question. The author suggested the following steps to analysing qualitative data: preparation and organisation of data, exploration and coding of data, analysis of the encoded data to develop a pattern, and reporting of the findings. Creswell (2015:236) further suggested that these steps be followed consecutively

- **Preparation and organisation of data** – This entails preparing and organising the data; this can be done by putting the data in the form of tables according to their type.
- **Exploration and coding of data** – This step requires the data to be encoded into themes. Kumar (2014:297) is of the view that coding the data facilitates the analysis thereof as it categorises the data according to different themes of interest.
- **Analysis of the encoded data to develop a pattern** – In this step, the encoded data should be used to develop a pattern and explain or tell a story about a phenomenon. The themes derived from the data should help the researcher to understand and interpret the data.
- **Reporting of the findings** – This entails presenting and discussing the findings. In this step, the researcher should summarise the findings, present her personal reflections or remarks about the findings obtained and state whether the findings support or contrast the literature or past studies.

The content analysis research method was used to collect and analyse data obtained from textbooks in Carnes (2005:33), Cable *et al.* (2009: 45) and Zarzycka and

Dobroszek (2015:55). This study adopted the same approach and applied the above-mentioned steps suggested by Creswell (2015:235) to analyse the qualitative data collected from the literature and prescribed accounting textbooks in use at SAIHL. Creswell's first two steps, namely preparation and organisation of data, and exploration and encoding of data, were carried out in Chapter 3, Subsection 3.4.1.2 and 3.4.1.3, respectively. The data collected were organised and encoded into several tables. The remaining steps (3 and 4) of Creswell's process were carried out and are set out in the following sections.

4.2 DATA ANALYSIS OF PRESCRIBED TEXTBOOKS

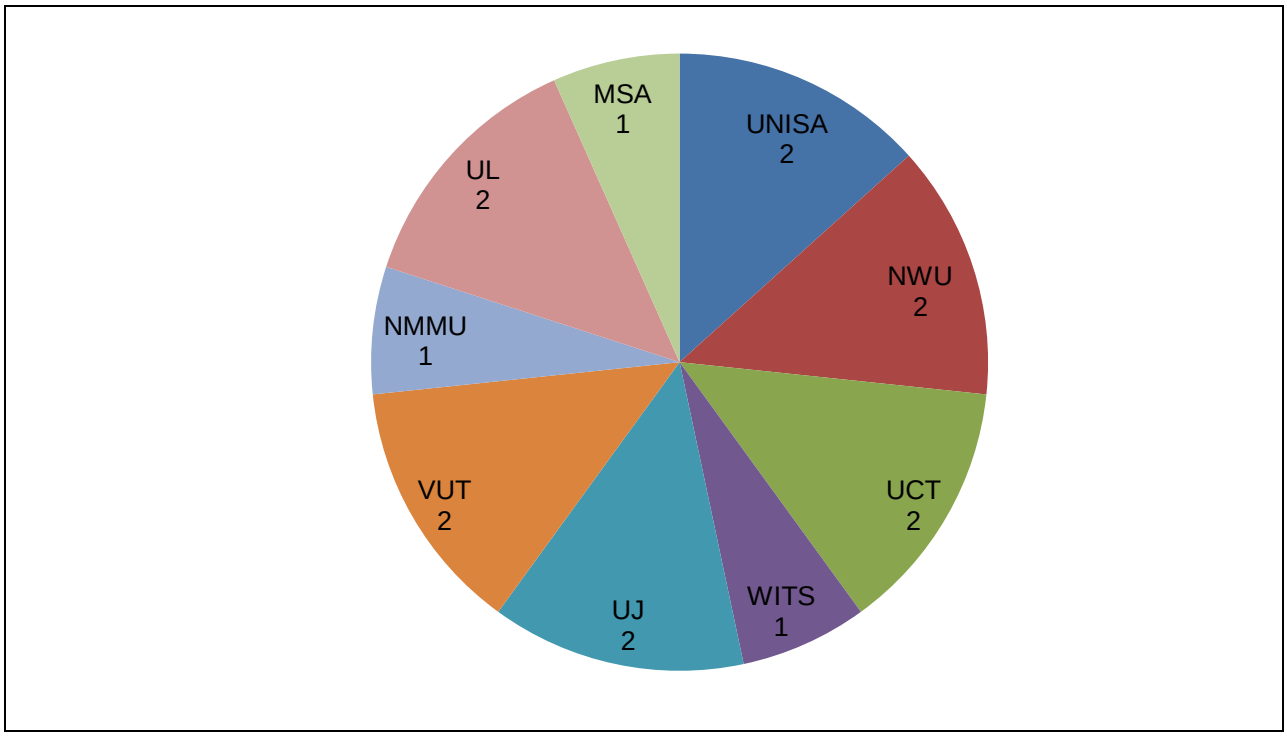
The data analysis performed for this study is discussed in this section under the followings subsections: (1) number of universities and prescribed textbooks, (2) lean-related concepts found in prescribed textbooks and (3) volume of prescribed textbooks allocated to lean concepts.

4.2.1 Number of universities and prescribed textbooks

Lists of prescribed management accounting textbooks were collected from nine South African universities. These prescribed textbooks were tabled in Tables 3.3 and 3.4 in Chapter 3, Subsection 3.4.1.2.

Figure 4.1 presents the nine South African universities where the prescribed textbooks were collected, along with the number of textbooks they prescribed. It is clear from Figure 4.1 that each of the universities prescribed at least one management accounting textbook that is likely to contain lean-related concepts or topics. Figure 4.1 also depicts that, in most cases, two management accounting textbooks were prescribed per university: Unisa, NWU, UCT, UJ, VUT and UL prescribed only two management accounting textbooks for 2016. One management accounting textbook was prescribed by Wits, NMMU and MSA.

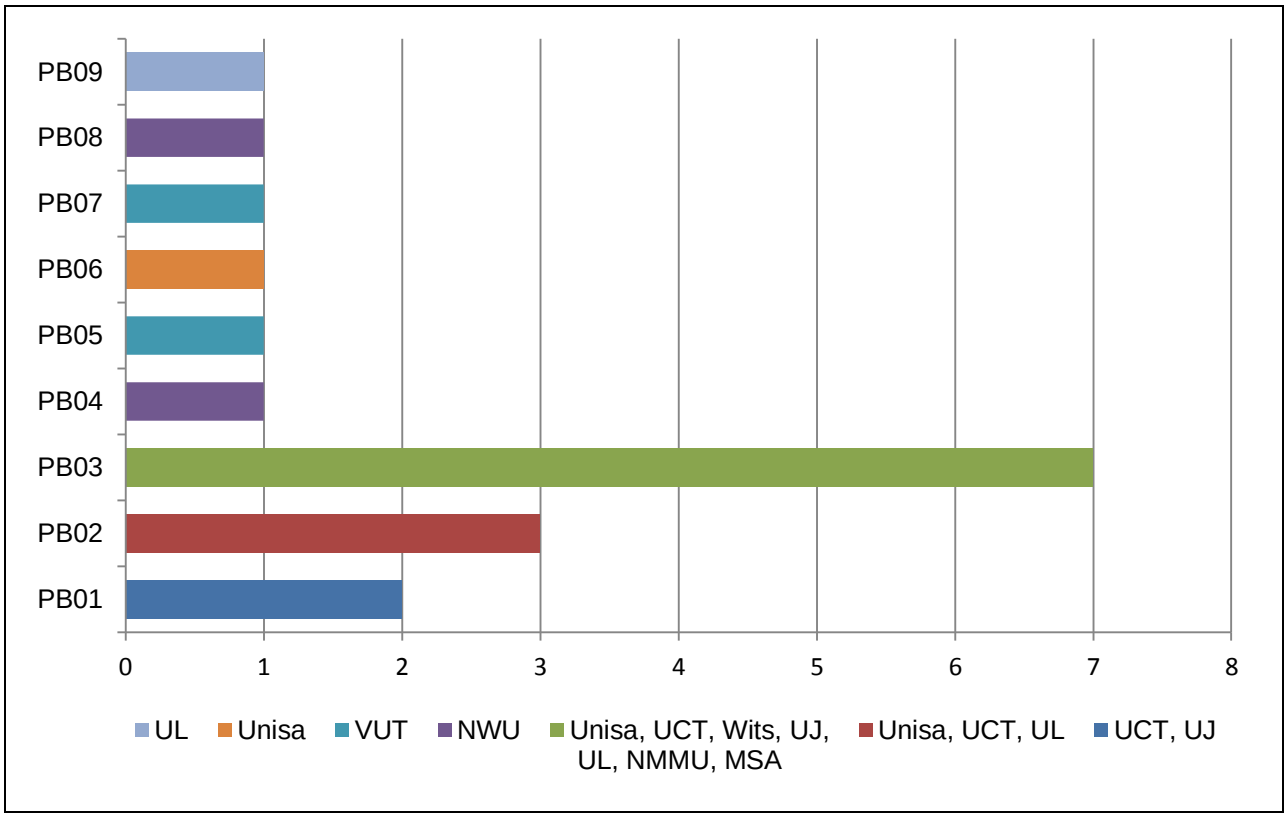
Figure 4.1: Number of prescribed textbooks per SA university



(Source: Own research)

Figure 4.2 depicts the universities and the corresponding management accounting textbooks they prescribed. It is shown in Figure 4.2 that some universities, including NWU, UCT, Wits and NMMU, prescribed the same management accounting textbook at different academic levels for different subjects. This is not surprising; in fact, it has been demonstrated in Carnes (2005:33) that, although the accounting courses focused on financial and management accounting, the majority of subjects in these courses focused on financial accounting; only a quarter of accounting subjects focused on management accounting.

Figure 4.2: Number of SA universities prescribing the same textbooks



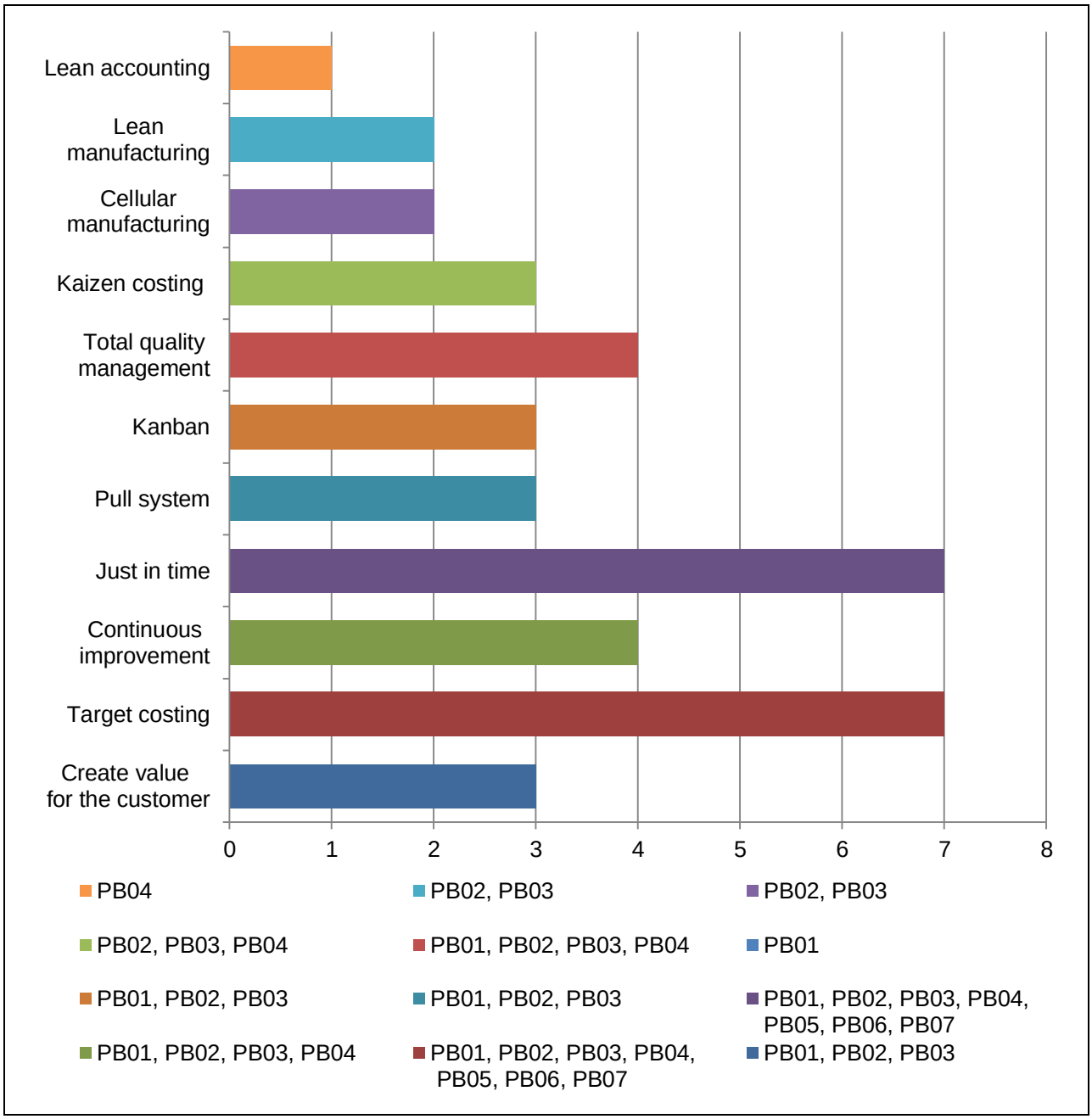
(Source: Own research)

Figure 4.2 reveals that the majority of participating universities including UNISA, NWU, UCT, UJ, Wits, UL, NMMU and MSA, prescribed the same management accounting textbook. This commonly prescribed textbook is the management and cost accounting textbook provided in Chapter 3, Table 3.3 under the codes PB02 and PB03 representing the 8th and the 9th editions of the textbook, respectively. The lean-related concepts identified by means of the content analysis of the prescribed textbooks are presented and analysed in the next subsection.

4.2.2 Lean-related concepts identified in prescribed textbooks

The lean-related concepts identified in each prescribed textbook were captured in Table 3.5 of Chapter 3, Subsection 3.4.1.2. Figure 4.3 displays these lean-related concepts and the corresponding prescribed textbooks in which they were identified. It appears that most of the lean-related concepts identified are covered in many of the prescribed textbooks.

Figure 4.3: Lean-related concepts in prescribed textbooks



(Source: Own research)

Based on the literature and Tables 3.1 and 3.2, the lean-related concepts in Figure 4.3 can be grouped into three classes, namely lean principles, lean methods and lean themes. The class of lean principles encompasses the lean-related concepts in Figure 4.3 including continuous improvement, value- and non-value-added activities and pull system. The descriptions of these concepts correspond to some of the existing lean principles provided in Table 3.1 of Chapter 3.

The lean-related concepts in Figure 4.3, including JIT, Kanban, Kaizen costing and cellular manufacturing belong to the class of lean methods. These concepts have the same names or have similar descriptions as some of the existing lean methods provided in Table 3.2 of Chapter 3. The lean themes class encompasses the remaining lean-related concepts in Figure 4.3 including target costing, lean manufacturing and lean accounting. In effect, target costing is the name of the management accounting system used in lean accounting (Bahadir, 2011:35; Ofileanu & Topor, 2014:348), whereas the explicit mention of the word 'lean' in 'lean manufacturing' and 'lean accounting' suggests that they are lean themes. In the following subsections, the above-mentioned three classes of lean-related concepts identified in the prescribed textbooks (Figure 4.3) are used to provide a structured discussion of the extent to which lean is covered in the prescribed textbooks.

Lean principles in prescribed textbooks

This subsection discusses the lean-related concepts of create value for the customer, pull system and continuous improvement which were classified earlier as belonging to the class of lean principles.

Create value for the customer

The lean-related concept of create value for the customer (CVC) concerns the value-added and non-value-added activities in the production process and is included in only three prescribed textbooks as shown in Figure 4.3. The value-added activity is part of the existing lean principle encoded LP01 in Table 3.1 of Chapter 3. In the prescribed textbooks PB01 (p. 708), PB02 (p. 550) and PB03 (p. 568), value-added activity is presented as any activity that satisfies customer needs and contributes to the effective management of costs. In other words, value-added activities are interdependent activities or tasks within the organisation that contribute to the manufacturing of products that meet customer demands. On the other hand, non-value-added activity is described in the prescribed books PB01 (p. 709), PB02 (p. 551), PB03 (p. 569) and PB07 (p. 57) as an activity that does not add value to the customer, that is, non-value-added activity is a waste in the production process; such activity should be eliminated from the production process. Examples of non-value-added activities are presented in PB07 (p. 57) including (1) the moving time of products from one step of the production to another, (2) the time of stay of products in the manufacturing department before

processing, (3) the storage time of material and work in progress in the storage space before transformation into final products, and (4) the storage time of finished products in the storage space till the delivery to the customer. Table 4.1 summarises the descriptions of the CVC concept in both the literature and prescribed textbooks.

Table 4.1: Descriptions of CVC in the literature and prescribed textbooks

Lean principle	Description/Characteristic	
	Literature	**Prescribed textbooks**
Create value for the customer	Part of lean strategy (Poksinska, 2010:7; Woehrle *et al*., 2010:68)	Not described as part of lean strategy (PB01, PB02, PB02)
	Identifies customer needs (Woehrle *et al*., 2010:68)	Identifies customer needs (PB01, PB02, PB03)
	Identifies value- and non-value-added activities under the lean accounting system (Bahadir, 2011:24; Maskell & Baggaley, 2006:36)	Identifies value- and non-value-added activities under the ABC system (PB01, PB02, PB03)
	Uses VSM to classify activities into value- and non-value-added activities (Enoch, 2013:509; Maskell & Baggaley, 2006:37)	Uses the ABC system to classify activities (PB01)

The first row of Table 4.1 shows that the CVC concept is simply defined and explained in prescribed textbooks without any reference to the lean strategy. It is shown in the second row of Table 4.1 that, in both the literature and prescribed textbooks, CVC requires the identification of customer needs. In particular, the third row of Table 4.1 shows that the concepts of value- and non-value-added activities are commonly discussed in the literature and prescribed textbooks; these concepts are discussed as part of cost management under lean accounting and the ABC system in the literature and prescribed textbooks, respectively. However, it has been demonstrated that the ABC system is an obstacle to lean strategy (De Arbulo-Lopez & Fortuny-Santos, 2010:582; Ofileanu & Topor, 2014:346; Salah & Zaki, 2013:86). This is why Bahadir

(2011:38) recommends changing the existing management accounting systems such as the ABC system to lean accounting prior to the implementation of lean strategy in an organisation. Therefore, although the lean concepts of value- and non-value-added activities are covered in the prescribed textbooks, they are not discussed as part of cost management under lean strategy (Fine & Golden, 2009:26; O'Rourke, 2005:12; Woehrle & Abou-Shady, 2010:68). Furthermore, it is shown in the last row of Table 4.1 that the literature and the prescribed textbooks report different methods for classifying the activities under CVC. The lean principle of pull system is discussed next.

Pull system

Pull system is the short name for the existing lean principle encoded LP03 in Table 3.1 of Chapter 3. A summary of the descriptions of pull system in the literature and prescribed textbooks are presented in Table 4.2.

Table 4.2: Description of pull system in the literature and prescribed textbooks

Lean principle	Description/Characteristic	
	Literature	**Prescribed textbooks**
Pull system	Part of lean strategy (Bahadir, 2011:13; Woehrle & Shady, 2010:68;)	Not described as part of lean strategy
	Used under JIT (Liker, 2004:4; Pettersen, 2009:129)	Important feature of JIT (PB01, PB02, PB03)
	Uses Kanban (Bahadir, 201113; Shah & Ward, 2007:788)	Uses Kanban to signal the purchase of material (PB01, PB02, PB03)
	Manufacturing system that only starts when the customer has placed an order (Bahadir, 2011:13; Liker, 2004:4; Shah & Ward, 2007:788)	Manufacturing system that only starts when the customer has placed an order (PB01, PB02, PB03)

Lean principle	Description/Characteristic	
	Literature	**Prescribed textbooks**
	Helps avoid overproduction or surplus inventory (Bahadir, 2011:13; Liker, 2004:4; Shah & Ward, 2007:788)	Helps avoid overproduction or surplus inventory (PB01, PB02, PB03)
	Helps reduce carrying and storage costs (Bahadir, 2011:13; Liker, 2004:4; Shah & Ward, 2007:788)	Helps reduce carrying and storage costs (PB02, PB03)

The first row of Table 4.2 reveals that the concept of pull system is not discussed in prescribed textbooks as part of lean strategy compared to the literature. The second row of Table 4.2 indicates that pull system in both the literature and prescribed textbooks is presented as a technique used in the JIT system. Pull system prescribes that an organisation only starts the purchase or the production process once the customer has placed an order (third row of Table 4.2). The fourth row of Table 4.2 shows that pull system is described, in both the literature and prescribed textbooks, as a manufacturing system that starts only when a customer has placed an order. Other similarities in the descriptions of pull system between the literature and prescribed textbooks are reported in the two bottom rows of Table 4.2 and concern the benefits of using pull system, that is, the avoidance of overproduction and the reduction of carrying and storage costs. In fact, overproduction and carrying and storage costs are non-value-added activities or wastes which, according to pull system, should be eliminated in the production process. The lean principle of continuous improvement is discussed next.

Continuous improvement

Continuous improvement is amongst the most prevalent lean-related concepts covered in the prescribed textbooks as is clear from Figure 4.3. Continuous improvement is a lean concept that focuses on identifying mechanisms for reducing waste in organisational activities towards a state of perfection (Maskell & Kennedy, 2007:72).

Table 4.3 summarises the descriptions of this concept in the literature and prescribed textbooks.

Table 4.3: Description of continuous improvement in the literature and prescribed textbooks

Lean principle	Description/Characteristic	
	Literature	**Prescribed textbooks**
Continuous improvement	Part of lean strategy (Dickson *et al*., 2009:505; Sim & Rogers, 2009:38)	Not described as part of lean strategy
	Ongoing search of opportunities to reduce cost, improve activities in the organisation and increase customer satisfaction (Dickson *et al*., 2009:505; Sim & Rogers, 2009:38)	Ongoing search of opportunities to reduce cost, improve activities in the organisation and increase customer satisfaction (PB01, PB02, PB03, PB04)
	Uses Kaizen and target costing to correct inefficiencies in the production process (Bahadir, 2011:19; Ofileanu & Topor, 2014:348)	Uses Kaizen (PB04) and target costing (PB01) to reduce cost in the production process
	Used to seek perfection and learn from mistakes (Bahadir, 2011:18; Liker, 2004:11)	None

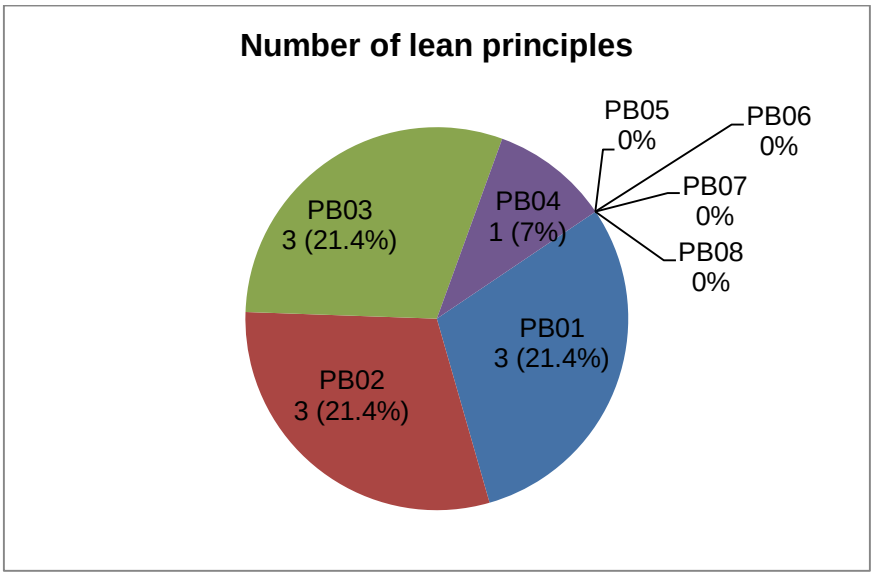
As expected, continuous improvement is discussed in isolation in the prescribed textbooks compared to the literature where it is presented as a part of the lean strategy. It is further shown in the second row of Table 4.3 that, in both the literature and prescribed textbooks, continuous improvement is described as an ongoing search of ways or techniques to reduce cost, streamline the production process and improve the quality of products offered to customers. Another point of similarity between the

description of continuous improvement in the literature and prescribed textbooks is provided in the third row of Table 4.3 and concerns the use of Kaizen and target costing techniques to reduce or correct inefficiencies in the production process. However, the literature further provides guidelines on how an organisation can apply continuous improvement to implement lean strategy (Chapter 2, Sections 2.3 and 2.8.3). Furthermore, the bottom row of Table 4.3 reveals that, unlike the prescribed textbooks, the literature presents continuous improvement as a lean principle that enables organisations to seek perfection by continuously learning from their mistakes.

In summary, the only lean principles identified in the prescribed textbooks are (1) CVC, (2) pull system and (3) continuous improvement. CVC concerns the value- and non-value-added activities in the productions process. Value-added activities are interdependent activities or tasks within the organisation that contribute to the manufacturing of products that meet customer demands, whereas non-value-added activities are any waste in the production process. Pull system is a technique used in the JIT system and prescribes that an organisation only starts the manufacturing of a product upon reception of a customer order. This enables the organisation to avoid overproduction and reduce carrying and storage costs. Continuous improvement is an ongoing search of ways or techniques to reduce cost, streamline the production process and improve the quality of products offered to customers. These three lean principles discussed in the prescribed textbooks represent only part of the existing lean principles. Figure 4.4 depicts the distribution of lean principles in prescribed textbooks. It shows that only the above-mentioned three out of the 14 existing lean principles are covered in the respective textbooks PB01, PB02 and PB03; this represents 21.4% of existing lean principles.

Figure 4.4 also indicates that the prescribed textbook PB04 covers only one lean principle, that is, 7% of existing lean principles, and that the majority of prescribed textbooks including PB05, PB06, PB07 and PB08 do not discuss any lean principle at all. Despite the similarities in the descriptions of the three lean principles discussed above (Tables 4.1 to 4.3) in the literature and the prescribed textbooks, some differences do exist.

Figure 4.4: Number of lean principles discussed per prescribed textbook



(Source: Own research)

The literature provides more detailed information on these lean principles than the prescribed textbooks in some cases. In particular, it is shown in Table 4.1 that the concepts of value- and non-value-added activities that constitute the lean principle of CVC are discussed as part of lean accounting in the literature and as part of ABC in the prescribed textbooks. Furthermore, the literature and the prescribed textbooks report different techniques for classifying activities in lean accounting and ABC systems (bottom row of Table 4.1). The literature also provides guidelines on the application of the lean principle of continuous improvement during the implementation of lean strategy. The most prevalent difference in the descriptions of these lean principles in the literature and the prescribed textbooks is that they are discussed in the literature as part of lean strategy, unlike in the prescribed textbooks. The 11 remaining lean principles that are not covered in the prescribed textbooks are encoded LP02, LP04, LP05, LP06, LP07, LP08, LP09, LP10, LP11, LP12 and LP13 in Table 3.1 of Chapter 3. They constitute a significant proportion (78.6%) of existing lean principles; therefore, accounting students would not acquire enough knowledge of lean by only studying the current prescribed textbooks. Moreover, in the literature, all existing lean principles are related to one another to form an integrated lean system (Bahadir, 2011:16; Fullerton *et al*., 201350; Yeh *et al*., 2011:12357). Evidently, the inclusion of only three lean principles out of 14 in the prescribed textbooks would equip accounting students with very little knowledge of lean.

The lean methods identified in the prescribed textbooks are discussed in the next subsection.

Lean methods in prescribed textbooks

In this subsection, the lean-related concepts belonging to the class of lean methods, including JIT, TQM, Kanban, cellular manufacturing and Kaizen costing, are discussed.

Just in Time (JIT)

Figure 4.3 portrays JIT as amongst the most common lean-related concepts covered in the prescribed textbooks. Specifically, the discussion or coverage of JIT is done in five pages in PB01 (pp. 775–779), seven pages in PB02 (pp. 93, 553–557 and 570), 12 pages in PB03 (pp. 98, 572–579, 588–589 and 664), 17 pages in PB04 (pp. 795–811), one page in PB05 (p. 61), 15 pages in PB06 (pp. 48, 185–194) and four pages in PB07 (pp. 54–57). In the prescribed textbooks PB01 to PB07, JIT is defined as a pull method that enables organisations to control the flow of raw material, work in progress and inventory in the production process. The discussion of JIT in these textbooks focuses mainly on its key characteristics that are summarised as:

- Use of manufacturing cells in the production process, that is, grouping different types of equipment used in the manufacturing process;
- Reduced set-up time, that is, the time it takes to organise the equipment and material to start the manufacturing process;
- Focus on quality to reduce the manufacturing of defective products;
- Constant training of employees to enable them to perform all tasks in the production process, including maintenance of equipment; and
- Selection of suppliers based on their ability to deliver good quality material timely.

Table 4.4 summarises the descriptions of JIT in both the literature and prescribed textbooks. It is clear from Table 4.4 that the description of JIT is largely similar in the literature and the prescribed textbooks.

Table 4.4: Descriptions of JIT in the literature and prescribed textbooks

Lean method	Description/Characteristic	
	Literature	**Prescribed textbooks**
JIT	Important element of lean strategy (Bahadir, 2011:8; Fricke, 2010:11; Kewalkumar, 2011:1; Ofileanu & Topor, 2014:344)	Not described as part of lean strategy
	Production system that starts only when order is received from the customer (Kennedy & Widener, 2008:304; Muslimen *et al*., 2011:4; Satao *et al*., 2012:255)	Production system that starts only when order is received from the customer (PB01, PB02, PB03, PB04, PB05, PB06, PB07)
	Improvement of manufacturing process by elimination of waste such as overproduction and surplus inventory (Satao *et al*., 2012:255; Shah & Ward, 2007:788)	Improvement of manufacturing process by elimination of waste such as overproduction and surplus inventory (PB01, PB02, PB03, PB04, PB05, PB06, PB07)
	Used to coordinate production (Kootanaee *et al*., 2013:8; Shah & Ward, 2007:788)	Used to coordinate production (PB01, PB02, PB03, PB04, PB05, PB06, PB07)
	Use of Kanban, pull system and cellular manufacturing (Kootanaee *et al*., 2013:12; Shah & Ward, 2007:788)	Use of Kanban, pull system and cellular manufacturing (PB01, PB02, PB03, PB04, PB05, PB06, PB07)
	Choose reliable supplier based on quality and timely delivery (Kootanaee *et al*., 2013:12; Rahman *et al*., 2013:176)	Choose reliable supplier based on quality and timely delivery (PB01, PB02, PB03, PB04, PB05, PB06, PB07)

In the second row of Table 4.4, JIT is described in both the literature and prescribed textbooks as a production system that starts only when an order has been received from the customer. Some benefits of JIT are reported in both the literature and prescribed textbooks in the third and fourth rows of Table 4.4.; the third row of Table 4.4 indicates that JIT improves the manufacturing process by eliminating waste such as overproduction and surplus inventory, whereas the fourth row of Table 4.4 presents JIT as an important tool for coordinating the production process. The fifth row of Table 4.4 reveals that other lean tools such as Kanban, pull system and cellular manufacturing are used in JIT. Table 4.4 further indicates in the sixth row that JIT requires the suppliers to be chosen based on the quality of products and ability to deliver timely. However, in the first row of Table 4.4, it is shown that, although the prescribed textbooks devoted many pages to the JIT system, most of them fail to present JIT as an important element of lean strategy as compared to the literature. In fact, JIT is presented in the literature as one of the pillars of lean strategy supporting the implementation of lean principles (Fricke, 2010:11; Kewalkumar, 2011:1). The other lean method covered in the prescribed textbooks, namely TQM, is discussed next.

Total quality management (TQM)

TQM is a lean method encoded as LM07 in Table 3.2 of Chapter 3, Subsection 3.4.1.2. TQM is discussed in the prescribed textbooks PB01, PB02, PB03 to PB04. In these textbooks, TQM is described as a management philosophy that focuses on meeting customer expectations through the continuous improvement of the quality of product or service. It is further explained in PB04 (p. 30) that the implementation of TQM in an organisation empowers each employee with a culture of quality in the deliveries, that is, employees are trained to produce quality products for the customer. Moreover, PB03 (p. 577) states that organisations are interested in adopting TQM to address the shortcoming of traditional accounting systems of producing defective products due to the absence of quality analysis. Finally, several features of TQM are presented in PB01 (p. 792) as follows:

- TQM is an entire organisational approach that should be applied in all the functions of the organisation to empower each employee with a philosophy of quality;
- TQM is centred on customers, that is, each employee in the organisation should focus on satisfying customer needs; and

- TQM involves the empowerment and continuous improvement, that is, the fact that customer needs change frequently, employees should be constantly trained on techniques that enable them to continuously seek the satisfaction of customer needs.

Table 4.5 presents the summary of the descriptions of TQM in the literature and the prescribed textbooks.

Table 4.5: Descriptions of TQM in the literature and prescribed textbooks

Lean method	Description/Characteristic	
	Literature	**Prescribed textbook**
Total quality management	Core element of lean which focuses on quality (Manzouri *et al*., 2014:9181; Nordin *et al*., 2010:375)	Not described as part of lean strategy
	Focuses on satisfying customer needs by continuously improving the quality of product or service (Bahadir, 2011:19; Shah & Ward, 2007:788)	Focuses on satisfying customer needs by continuously improving the quality of product or service (PB01, PB02, PB03, PB04)
	Production with zero defect (Bahadir, 2011:19; Shah & Ward, 2007:788)	Production with zero defect (PB01, PB02, PB03, PB04)
	Involves empowerment of employees (Fullerton *et al*., 2013:52; Kennedy & Widener, 2008:306)	Involves empowerment of employees (PB01)
	Involves all functions in the organisation (Bahadir, 2011:19; Shah & Ward, 2007:788)	Involves all functions in the organisation (PB01, PB02, PB03, PB04

Table 4.5 shows that the above description of TQM in the prescribed textbooks coincides with its description in the literature, that is, TQM is concerned with the satisfaction of customer needs through continuous improvement of the quality of product and service (second row of Table 4.5). Its application involves all the functions in the organisation (fourth row of Table 4.5), produces products with zero defect (third row of Table 4.5) and requires the empowerment of all employees (fifth row of Table 4.5). However, the first row of Table 4.5 indicates that the textbooks do not present TQM in the context of lean strategy implementation or adoption. In fact, in the context of lean strategy, TQM is a lean method that is used to implement the continuous improvement process in the organisation (Bahadir, 2011:16; Krishnan & Parveen, 2013:604). Another lean method covered in the prescribed textbooks, namely Kanban, is discussed next.

Kanban

Kanban is encoded as LM03 in Table 3.2 of Chapter 3 as an existing lean method. In PB01 (p. 776), PB02 (p. 555) and PB03 (p. 574), Kanban is described as a method used in a pull system to record or visually signal the need or movement of raw material at each stage of the production process. In other words, Kanban initiates the purchase or movement of raw material from one step to another in the production process.

The summary of the descriptions of Kanban in the literature and prescribed textbooks is provided in Table 4.6. Table 4.6 shows the similarities between the features of Kanban as defined in the literature and the prescribed textbooks.

Table 4.6: Descriptions of Kanban in the literature and prescribed textbooks

Lean method	Description/Characteristic	
	Literature	**Prescribed textbook**
Kanban	Core element of lean (Manzouri *et al*., 2014:9182; Shah & Ward, 2007:788; Singh & Belokar, 2012:71)	Not described as part of lean strategy

Lean method	Description/Characteristic	
	Literature	**Prescribed textbook**
	Used to implement pull system (Abdulmalek & Rajgopal, 2007:224; Bahadir, 2011:33)	Used to implement pull system (PB01, PB02, PB03)
	Used to avoid overproduction and increase productivity (Abdulmalek & Rajgopal, 2007:224; Rahman *et al*., 2013:180)	Used to avoid overproduction under JIT (PB01, PB02, PB03)
	Important element of JIT (Abdulmalek & Rajgopal, 2007:224; Marek *et al*., 2001:922)	Important element of JIT (PB01, PB02, PB03)
	Case studies of implementation (Abdulmalek & Rajgopal, 2007:228; Rahman *et al*., 2013:178)	None

The literature presents Kanban as a core element of lean (first row of Table 4.6) and provides case studies of its implementation (bottom row of Table 4.6), unlike the prescribed textbooks. However, the descriptions of most of the features of Kanban are the same in the literature and prescribed textbooks as is evident in the second, third and fourth rows of Table 4.6. Kanban is an important element of JIT (fourth row of Table 4.6) which is used to implement the pull system (second row of Table 4.6) and to avoid overproduction in the organisation (third row of Table 4.6). The other lean method of cellular manufacturing covered in the prescribed textbooks is discussed next.

Cellular manufacturing

Cellular manufacturing is encoded as LM01 in Table 3.2 of Chapter 3 as an existing lean method. In PB02 (p. 555 and PB03 (p. 574), it is stated that cellular manufacturing is used to reorganise the production process in a simple way. This entails grouping the products into cells according to their similarities – the products pertaining to the same cell follow the same production line and the steps of the production process are

sequenced to avoid excessive work in progress or lead time. Table 4.7 summarises the descriptions of cellular manufacturing in the literature and prescribed textbooks.

Table 4.7: Descriptions of cellular manufacturing in the literature and prescribed textbooks

Lean method	Description/Characteristic	
	Literature	**Prescribed textbook**
Cellular manufacturing	Manufacturing process that forms part of lean (Abdullah 2003:10; Chakrabortty & Kumar, 2011:13; Manzouri et al., 2014:9182; Singh & Belokar, 2012:71)	Not described as part of lean strategy
	Simplifies the production process by grouping similar products into cells (Abdulmalek & Rajgopal, 2007:224; Ramasamy, 2005:21)	Simplifies the production process by grouping similar products into cells (PB02, PB03)
	Used to eliminate waste including excessive work in progress and lead times (Singh & Belokar, 2012:71)	Used to eliminate waste including excessive work in progress and lead times (PB02, PB03)
	Key feature of JIT (Abdallah & Matsui, 2007:5; Kootanaee et al., 2013:18)	Key feature of JIT (PB02, PB03)
	Case studies of implementation (Chakrabortty & Kumar, 2011:15)	None

It is shown in Table 4.7 that the features of cellular manufacturing are described similarly in the literature and prescribed textbooks. According to Table 4.7, cellular manufacturing is commonly presented in the literature and prescribed textbooks as an important tool of JIT (fourth row of Table 4.7) that simplifies the production process by grouping similar products into cells (second row of Table 4.7) which enables the

elimination of waste such as excessive work in progress and lead times in the production process (third row of Table 4.7). However, the literature presents cellular manufacturing as part of lean strategy (first row of Table 4.7) and provides case studies of its application (bottom row of Table 4.7), unlike the prescribed textbooks. Kaizen costing, the last lean method covered in the prescribed textbooks is discussed next.

Kaizen costing

Kaizen costing is an existing lean method encoded LM02 in Table 3.2 of Chapter 3. It is briefly presented in PB02 (p. 549), PB03 (p. 567) and PB04 (p. 242) as a cost reduction method that is used to continuously improve the production process. The descriptions of Kaizen costing in both the literature and prescribed textbooks are presented in Table 4.8.

Table 4.8: Descriptions of Kaizen costing in the literature and prescribed textbooks

Lean method	Description/Characteristic	
	Literature	**Prescribed textbook**
Kaizen	Important part of lean (Dickson et al., 2009:504; Singh & Belokar, 2012:71; Zidel, 2006:3)	Not described as part of lean strategy
	Used to continuously reduce costs (Nordin et al., 2010:378; Singh & Belokar, 2012:71)	Used to continuously reduce costs (PB02, PB03, PB04)
	Empowers employees to improve operations and manage costs (Bahadir, 2011:23; Ramezani & Razmeh, 2014:44; Titu et al., 2010:1)	Empowers employees to improve operations and manage costs (PB02, PB03, PB04)

Lean method	Description/Characteristic	
	Literature	**Prescribed textbook**
	Identifies all the activities performed in the organisation, classifies those activities into value- and non-value-added activities, and designs the future state of processes (Dickson et al., 2009:506; Singh & Belokar, 2012:73)	None
	Case studies of implementation (Dickson et al., 2009:506; Singh & Belokar, 2012:73)	None

The first row of Table 4.8 indicates that Kaizen costing is not presented in prescribed textbooks as part of a discussion of the lean strategy, unlike in the literature. This is evidenced by the fact that, in PB02 and PB03, Kaizen costing is discussed in a section of a chapter titled 'Strategic cost management' whereas, in PB04, it is presented in a section of a chapter titled 'Master budget and responsibility accounting'. Furthermore, the two bottom rows of Table 4.8 show that the literature provides further details on the application of Kaizen costing that are not discussed in the prescribed textbooks. However, some features of Kaizen costing are described in both the literature and prescribed textbooks as reported on in rows 2 and 3 of Table 4.8. Kaizen costing enables the empowerment of employees in such a way that they are capable of improving and managing costs (row 3 of Table 4.8), thereby continuously reducing costs in the organisation (row 2 of Table 4.8).

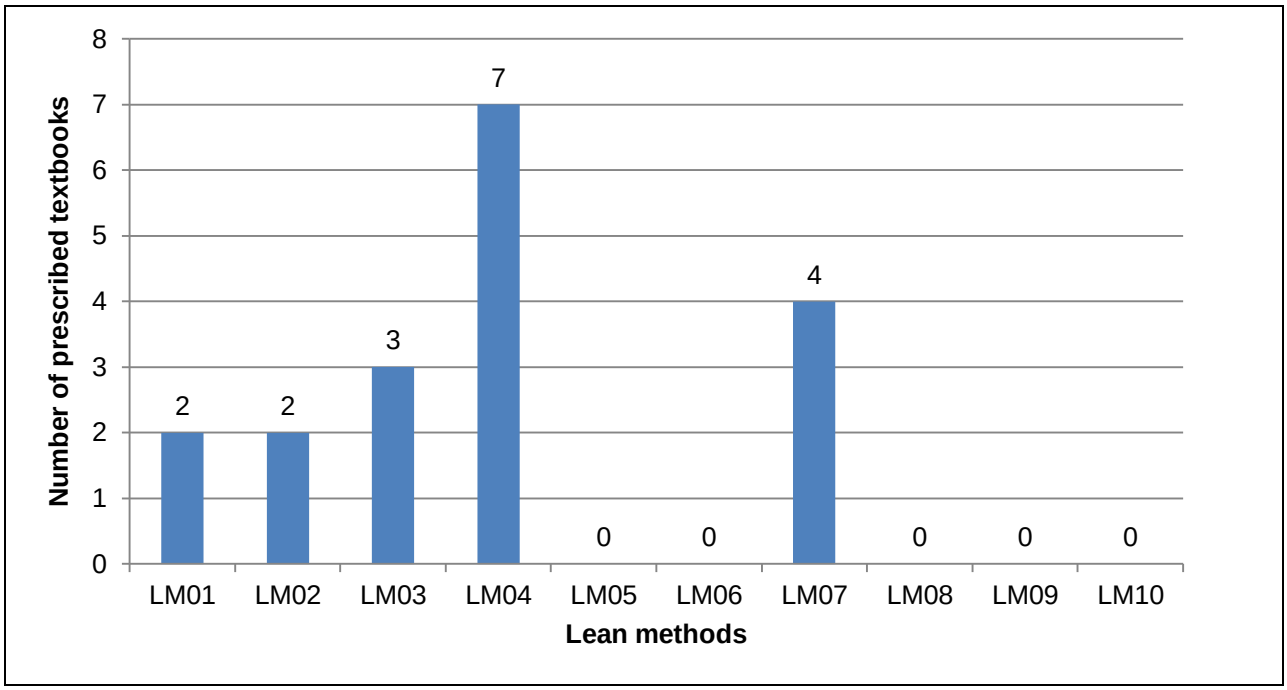
In this subsection, lean methods including JIT, TQM, Kanban, cellular manufacturing and Kaizen costing were discussed. A brief summary of these lean methods is as follows:

- JIT – A method that enables organisations to control the flow of raw material, work in progress and inventory in the production process.

- TQM – A management philosophy that focuses on meeting customer expectations through the continuous improvement of the quality of product or service. TQM requires employees to be trained to produce quality products for the customer and it enables organisations to address the shortcoming of the traditional accounting system of producing defective products due to the absence of quality analysis.
- Kanban – A method used in a pull system to record or visually signal the need or movement of raw material at each stage of the production process; it initiates the purchase or movement of raw material from one step to another in the production process.
- Cellular manufacturing – A method used to reorganise the production process by grouping products into cells according to their similarities; the products pertaining to the same cell follow the same production line and the steps of the production process are sequenced to avoid excessive work in progress or lead time.
- Kaizen costing – A cost reduction method that is used to continuously improve the production process.

The methods discussed above are five (50%) out of 10 existing lean methods as shown in Figure 4.5. Figure 4.5 represents the distribution of these lean methods in prescribed textbooks; it shows that the existing lean methods LM04, LM07, LM03, LM02 and LM01 are discussed in seven, four, three and two prescribed textbooks, respectively.

Figure 4.5: Number of textbooks that include lean methods



(Source: Own research)

According to Tables 4.4 to 4.8, there are strong similarities in the descriptions of lean methods in the literature and prescribed textbooks, particularly in the definitions and functionalities of these lean methods. However, unlike the prescribed textbooks, the literature further provides, in some cases, practical information on the application of these methods in lean strategy implementation through detailed descriptions of the steps or tasks (Tables 4.7 and 4.8) and case studies (last row of Tables 4.6 to 4.8) of the application of these methods. Furthermore, the literature discussed the five lean methods above as instruments for lean strategy implementation, unlike the prescribed textbooks where these methods are described in isolation. The five remaining lean methods not covered in prescribed textbooks are encoded LM05, LM06, LM08, LM09 and LM10 in Table 3.2 of Chapter 3. They represent an important proportion (50%) of existing lean methods and the fact they are not discussed at all in the prescribed textbooks would provide accounting graduates with only limited knowledge of lean methods. Furthermore, lean is presented in the literature as an integrated system of principles and methods where the methods are instruments for implementing the principles (Bahadir, 2011:16; Fullerton *et al*., 2013:50; Yeh *et al*., 2011:12357). Therefore, the acquisition of partial knowledge of lean methods and principles would not

completely prepare accounting graduates for participation in lean implementation projects.

The remaining list of lean-related concepts found in prescribed textbooks and classified as lean themes early in this chapter are discussed in the next subsection.

Lean themes in the prescribed textbooks

As stated previously, the lean themes is the class of lean-related concepts found in the prescribed textbooks that are also key elements in forming the lean strategy as mentioned in the literature. These lean themes include target costing, lean manufacturing and lean accounting and they are the least covered lean-related concepts in prescribed textbooks as portrayed in Figure 4.3. The first lean theme to be discussed is target costing.

Target costing

Target costing is a management accounting system that is used in lean accounting (Bahadir, 2011:35; Ofileanu & Topor, 2014:348). Target costing is defined in the prescribed textbooks PB01 to PB07 as a system for determining the price of a product in advance based on customer needs, market information, competitor price and product lifecycle. Each of the studied textbooks presented a detailed description of target costing. The purpose of target costing in an organisation is to improve the quality of products offered to customers as compared to that offered by competitors and to reduce the cost of production of these products (PB07, p. 329). The steps of target costing are presented in PB02, PB03, PB04 and PB07 as follows:

1. Determine the target selling price, that is, the price the customer is willing to pay for a given product or service,

2. Determine the organisation's desired profit margin,

3. Deduct this profit margin from the target selling price to obtain the target cost; the target cost is defined in PB01 (p. 723) as the cost to manufacture a product if the product is to be sold at a target selling price,

4. Determine the estimated cost of manufacturing the product, that is, the estimation of the actual cost the organisation will incur to manufacture the product, and

5. In case where the estimated cost is higher than the target cost, the organisation should reduce the estimated cost to reach the target cost. In PB04 (p. 547) and PB05 (p. 406) a guideline is given on how the estimated cost can be reduced in such a case. To reduce the estimated cost, an organisation should identify the value- and non-value-added costs; thereafter, the non-value-added costs should be eliminated as these costs do not contribute to satisfying customer needs. On the contrary, value-added costs are incurred by the organisation to satisfy customer demands.

Table 4.9 presents the descriptions of target costing in the literature and prescribed textbooks.

Table 4.9: Descriptions of target costing in the literature and prescribed textbooks

Lean theme	Description/Characteristic	
	Literature	**Prescribed textbook**
Target costing	Key element of lean (Enoch, 2013:510; Maskell & Kennedy, 2007:72; Ofileanu & Topor, 2014:348)	Not described as part of lean strategy
	Used in parallel with Kaizen in lean organisations (Bahadir, 2011:36; Ofileanu & Topor, 2014:348)	None
	Waste elimination and cost reduction strategy in the value stream (Bahadir, 2011:36; Ofileanu & Topor, 2014:348; Sharaf-Addin *et al*., 2014:91)	Waste elimination and cost reduction strategy (PB01, PB02, PB03, PB04, PB05, PB07)
	Enables organisation to understand how value is created for the customer (Bahadir, 2011:35; Maskell & Baggaley, 2006:38; Maskell & Kennedy, 2007:72)	Enables organisations to understand how value is created for the customer (PB01, PB02, PB03, PB04, PB05, PB07)

Lean theme	Description/Characteristic	
	Literature	**Prescribed textbook**
	Used to determine target cost when new product is designed (Bahadir, 2011:35; Maskell & Baggaley, 2006:38; Maskell & Kennedy, 2007:72; Sharaf-Addin *et al*., 2014:91)	Used to determine target cost when new product is designed (PB01, PB02, PB03, PB04, PB05, PB06, PB07)

As expected, the first row of Table 4.9 shows that target costing is not described in the prescribed textbooks as a key component of lean strategy, unlike in the literature. The literature describes target costing as an important lean approach that is used to achieve lean principles which focus on customer value and continuous improvement (Bahadir, 2011:35; Maskell & Kennedy, 2007:72; Ofileanu & Topor, 2014:34). Contrary to the prescribed textbooks, the literature reveals that target costing is used in parallel with Kaizen (second row of Table 4.9). However, the last three rows of Table 4.9 show strong similarities in the definitions of the functions of target costing in the literature and prescribed textbooks. In fact, in both the literature and prescribed textbooks, target costing is described as a strategy for waste elimination and cost reduction (row 3 of Table 4.9); it enables the organisation to understand how value is created for the customer (row 4 of Table 4.9) and it is used to determine the target cost when a new product is designed (row 5 of Table 4.9). The lean theme of lean manufacturing is discussed next.

Lean manufacturing

Lean manufacturing is described in PB02 (p. 12) and PB03 (p. 12) as an advanced manufacturing technique that seeks to reduce waste in the production process by implementing JIT; it simplifies and improves the production process. This definition of lean manufacturing in the prescribed textbooks is, in essence, similar to the definition of lean manufacturing provided in the literature, as per the first row of Table 4.10.

Table 4.10: Descriptions of lean manufacturing in the literature and prescribed textbooks

Lean concept	Description/Characteristic	
	Literature	**Prescribed textbook**
Lean manufacturing	Advanced manufacturing technique that uses various management practices to eliminate waste in the production process, increase productivity and customer value, and improve business performance (Kennedy & Widener, 2008:301; Sarraf *et al*., 2013:121)	Advanced manufacturing technique that uses JIT system to eliminate waste in the production process (PB02, PB03)
	Synonym of lean, TPS, lean production (Abdulmalek & Rajgopal, 2007:224; Dickson *et al.*, 2009:504; Muslimen *et al.*, 2011:1; Shah & Ward, 2007:76)	None
	Integrated system that uses a combination of lean methods to implement the lean principles (Bahadir, 2011:16; Bhasin, 2011:405; Yeh *et al.*, 2011:12357)	None

The prescribed textbooks (PB02 and PB03) only give a brief description of lean manufacturing in one paragraph, without any emphasis on its being a synonym of lean, TPS or lean production as in the literature (row 2 of Table 4.10). Furthermore, according to the third row of Table 4.10, the literature states that, as the synonym of lean or TPS, lean manufacturing uses a set of lean methods to implement lean principles. Lean accounting, which is the last lean theme covered in the prescribed textbooks, is discussed next.

Lean accounting

Lean accounting is covered in only PB04 (p. 811). In this textbook, lean accounting is presented as a simple cost production system that can be used with JIT. The textbook

further specifies that lean accounting enables the removal of waste in the accounting process and focuses on the value stream, which are the value-added activities required to manufacture and deliver products to customers. Moreover, the prescribed textbook, PB04, presents lean accounting as a simplified accounting system compared to the traditional costing system. Finally, the textbook provides a detailed example of how to calculate product cost under the lean accounting system based on value stream. Table 4.11 presents the summary of the descriptions of lean accounting in the literature and prescribed textbooks.

Table 4.11: Descriptions of lean accounting in the literature and prescribed textbooks

Lean concept	Description/Characteristic	
	Literature	**Prescribed textbook**
Lean accounting	Simple accounting system compared to traditional accounting system (Enoch, 2013:509; Maskell & Baggaley, 2006:35)	Simple accounting system compared to traditional accounting system (PB04)
	Elimination of waste in the accounting process and focuses on value stream activities (Bahadir, 2011:24; Maskell & Baggaley, 2006:36)	Elimination of waste in the accounting process and focuses on value stream activities (PB04)
	Accounting system that facilitates the implementation of lean strategy in an organisation (Enoch, 2013:509; Maskell & Baggaley, 2006:35; Ofileanu & Topor, 2014:346)	None

Table 4.11 shows that only a little coverage of lean accounting is provided in PB04. In both the literature and prescribed textbooks, lean accounting is described as a simplified accounting system compared to the traditional accounting system (first row of

Table 4.11); it enables the elimination of waste in the accounting process and focuses on value stream activities (second row of Table 4.11). The third row of Table 4.11 indicates that lean accounting is described in the literature as a system that focuses on the implementation of lean principles and methods within an organisation, unlike in the prescribed textbooks. A detailed discussion of lean accounting is provided in Chapter 2, Section 2.8.

This subsection discussed three key concepts of lean strategy, namely target costing, lean manufacturing and lean accounting. A summary of the definition and functionalities of these lean themes are provided below:

- Target costing – A management accounting system that is used in lean accounting and which enables organisations to (1) determine the price of a product in advance based on customer needs, market information, competitor price and product lifecycle, (2) improve the quality of products offered to customers as compared to that offered by the competitors, and (3) reduce cost of production of products.
- Lean manufacturing – An advanced manufacturing technique that seeks to reduce waste in the production process by implementing the lean method of JIT; it enables the simplification and improvement of the production process.
- Lean accounting – A simplified accounting system for lean strategy which enables the removal of waste in the accounting process. It also focuses on the value stream, which are the value-added activities required to manufacture and deliver products to customers.

Once again, the literature and the prescribed textbooks provide similar definitions and functionalities of the above lean themes (Tables 4.9 to 4.11). However, the literature provides additional information on these lean themes, for instance, by describing target costing as an important tool for implementing the lean principles that focus on customer value and continuous improvement, unlike the prescribed textbooks. Furthermore, the literature reveals that target costing can be implemented in conjunction with Kaizen costing, unlike the prescribed textbooks. With regard to lean manufacturing, unlike the prescribed textbooks, the literature holds that it is a synonym of lean or TPS and that it uses a set of lean methods to implement lean principles. Finally, very little information is provided on lean accounting in prescribed textbooks, unlike in the literature. The next subsection provides the overall summary of this section.

Summary

It is evident from the above analysis of lean concepts found in prescribed textbooks that some concepts complement others, for instance, pull system, Kanban and cellular manufacturing are part of JIT. Similarly, the lean concepts of Kaizen costing, value- and non-value-added activities and target costing are part of the lean principle of continuous improvement.

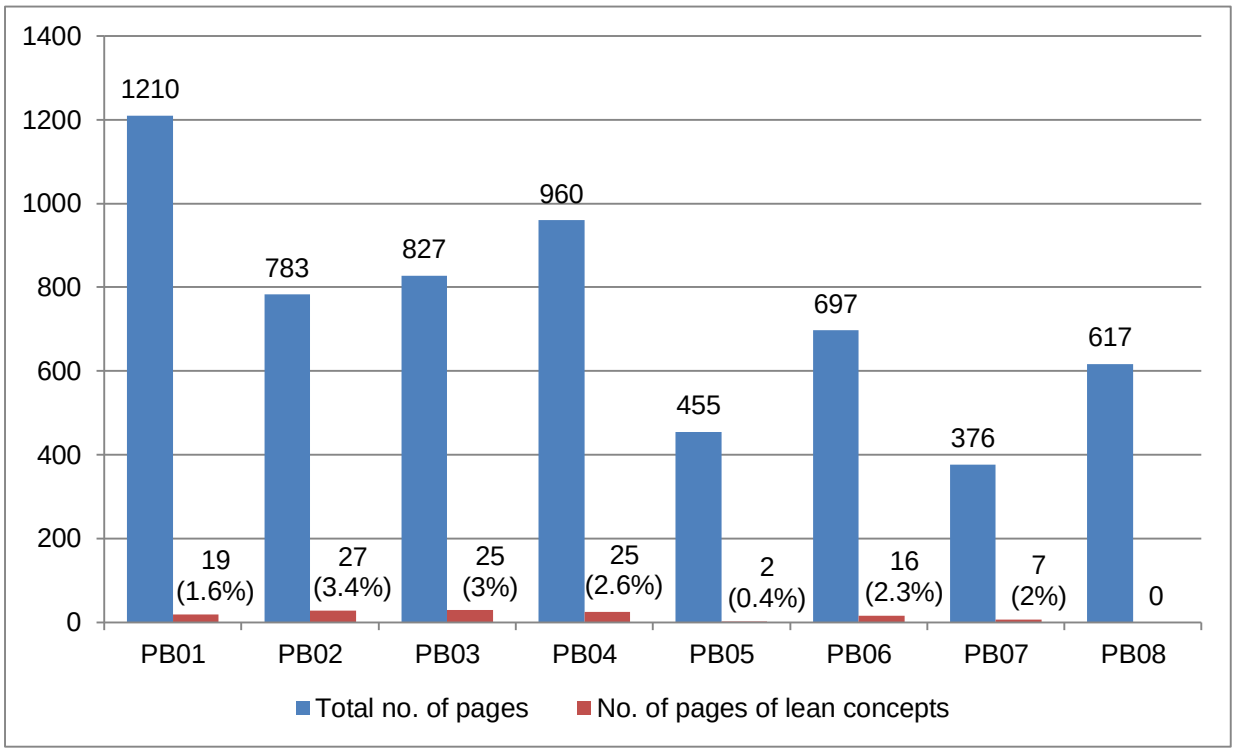
However, these concepts are discussed in isolation in the prescribed textbooks and do not form part of complete chapters or sections on lean methods and/or principles. It appears that, although the above-mentioned lean concepts were identified in the prescribed textbooks, none of these textbooks allocated a full chapter or section to any aspect of lean. In fact, lean is an integrated system comprising a set of principles and methods that cannot be separated when discussing lean (Bahadir, 2011:16; Fullerton *et al*., 2013:50; Kennedy & Widener, 2008:301; Shah & Ward, 2007:79; Yeh *et al*., 2011:12357).

Moreover, the lean concepts presented in Figure 4.3 and discussed above are primarily concepts of management accounting which are also part of lean; therefore, they are discussed in the prescribed textbooks within the context of the traditional accounting and ABC systems. The volume of prescribed textbooks allocated to lean concepts is discussed in the next section.

4.2.3 Volume of prescribed textbooks allocated to lean concepts

Figure 4.6 presents the volume or number of pages of prescribed textbooks devoted to lean concepts. It is shown in Figure 4.6 that the total number of pages of prescribed textbooks ranged from 376 to 1 210, indicating that the prescribed textbooks are quite large in size or volume. However, Figure 4.6 portrays a very low percentage of the volume of prescribed textbooks allocated to lean concepts.

Figure 4.6: Total number of pages per prescribed textbook and corresponding number of pages covering lean concepts



(Source: Own research)

Figure 4.6 shows that only 19 pages of PB01 out of a total number of 1 210 pages are devoted to lean concepts, which represent 1.6% of the textbook; only 27 out of 783 pages are allocated to the discussion of lean concepts in PB02, which represent 3.4% of the textbook. Similar results are displayed for the other prescribed textbooks in Figure 4.6. This indicates that the authors of prescribed management accounting textbooks at South African universities have devoted very little space to the discussion of lean concepts, which would not contribute to adequately preparing accounting graduates for lean accounting. The discussion and findings of the study are presented in the next section.

4.3 PRESENTATION AND DISCUSSION OF FINDINGS

From the data analysis set out above, the following findings were made: (1) common definitions and functionalities of lean concepts were found in the literature and prescribed textbooks, (2) limited discussions of lean concepts were found in prescribed textbooks, (3) partial discussions of lean principles and methods were found in prescribed textbooks, and (4) limited space was found to be allocated to lean concepts

in prescribed textbooks. The next subsections present and discuss these findings, as well as similar findings from related studies.

4.3.1 Common definitions and functionalities of lean concepts in the literature and prescribed textbooks

Subsection 4.2.2 presented and analysed the lean-related concepts found in the prescribed textbooks. It appears that the definitions and functionalities of these concepts are largely similar in both the literature and prescribed textbooks. The similarities in the definitions and functionalities of the (1) three lean principles (CVC, pull system and continuous improvement), (2) five lean methods (JIT, TQM, Kanban, cellular manufacturing and Kaizen costing), and (3) three lean themes (target costing, lean manufacturing and lean accounting) are displayed in Tables 4.1 to 4.3, Tables 4.4 to 4.8 and Tables 4.9 to 4.11, respectively. This finding reveals that the accounting prescribed textbooks do provide the relevant definitions and functionalities of the above-mentioned lean concepts to accounting students. However, simply defining and outlining the functionalities of lean concepts would not be sufficient to prepare accounting students to actively participate and drive lean projects upon completion of their studies. This conclusion is substantiated in the following subsections.

4.3.2 Limited discussion of lean concepts in prescribed textbooks

The analysis in subsection 4.2.2 also indicated that, in most cases, the descriptions of lean-related concepts in prescribed textbooks are limited. In fact, as reported earlier, only the definitions and functionalities of lean-related concepts are provided in the prescribed textbooks in most cases; in general, neither the steps nor case studies of the application of these concepts are provided to guide accounting students on how they could be applied in organisations. Moreover, the lean-related concepts discussed in prescribed textbooks are primarily concepts of management accounting which are also part of lean (PB01 to PB07), but they are discussed in the prescribed textbooks in the context of the traditional accounting and ABC systems (PB01, PB02 and PB03) and not as concepts of lean accounting as would be expected. Furthermore, it prevailed in the analysis in subsection 4.2.2 that lean related concepts are discussed in isolation in the prescribed textbooks without any mention of them as being part or elements of lean strategy (Tables 4.1 to 4.11). This is a major limitation of prescribed accounting textbooks as they expose accounting students to lean-related concepts but not to lean

as an integrated system of principles and methods (Fullerton *et al*., 2013:50; Yeh *et al*., 2011:12357). This limitation is further evidence that the prescribed accounting textbooks at SAIHL do not provide accounting students with the relevant knowledge of lean that would enable them to participate and drive lean projects upon completion of their studies.

4.3.3 Partial discussion of lean principles and methods in prescribed textbooks

It was found in the data analysis in Subsection 4.2.2 that only parts of lean principles and methods are covered in prescribed textbooks. In fact, only three out of 14 (21%) existing lean principles (Subsection 4.2.2.1) and five out of 10 (50%) existing lean methods (Subsection 4.2.2.2) are discussed in prescribed textbooks. This shows that only partial knowledge of lean principles and methods is provided to accounting students in these textbooks which would not be sufficient to prepare students to participate in lean projects upon completion of their studies.

4.3.4 Limited space allocated to lean concepts in prescribed textbooks

The data analysis in Subsection 4.2.2 also revealed the limited space allocated to the discussion of lean concepts in prescribed textbooks. The lean-related concepts identified in prescribed textbooks are discussed in isolation and do not form part of complete sections or chapters on lean methods and/or principles. Also, none of the prescribed textbooks allocated a full chapter or section to the discussion of any aspect of lean. Despite the fact that the prescribed textbooks are voluminous (total number of pages ranging from 376 to 1 210), a very low percentage of pages have been allocated to the coverage of lean concepts; in fact, 0.4% to 3.4% of prescribed textbooks have been allocated to the discussion of lean-related concepts (Subsection 4.2.3). This finding reveals the low level of inclusion of lean concepts in prescribed textbooks and indicates that the authors and editors of prescribed accounting textbooks do not yet regard lean as an important topic of accounting in the context of South Africa. Consequently, the current prescribed accounting textbooks do not contribute to preparing South African accounting students for participation in lean projects upon completion of their studies. Similar findings from related studies are presented in the next subsection.

4.3.5 Similar findings in related studies

In the past decade, the topic of accounting curriculum has been of interest to many researchers, as described in Chapter 2, Section 2.9, who reached similar findings as those reported in this study. An interesting study closely related to the current research was carried out by Cable *et al.* (2009:44). These authors reviewed seven accounting textbooks to assess management accounting curricula at institutions of higher learning. The main finding of the study was the existence of a gap between what accounting educators teach and what accountants do in practice. The authors then recommended that accounting textbooks be amended to include contents that reflect the needs of organisations.

Carnes (2005:33) reviewed the tables of content of management and cost accounting textbooks of leading academic publishers and reported the little coverage of innovative accounting practices, as well as the absence of lean concepts, in those textbooks.

A similar finding as that reported in this study (Subsection 4.3.2), namely that accounting textbooks at academic institutions are still emphasising traditional accounting systems and methods, has been reported by Carnes (2005:28), Tatikonda (2007:27) and Siegel *et al.* (2010:29). Siegel *et al.* (2010:29) further stated that organisations have adopted the newest accounting methods to cope in today's competitive business environments, but pointed out the discrepancy between accounting curricula and what accountants actually do in the work place.

Another prevalent finding of this study (Subsections 4.3.1 to 4.3.4) that is similar to the finding reported by Van Romburgh (2014:59) and Zarzycka and Dobroszek (2015:54) is that the current accounting curriculum at institutions of higher education does not sufficiently prepare accounting graduates to be competent and ready to practice new accounting systems and methods. Van Romburgh (2014:59) interviewed SAICA-accredited graduates to determine whether the knowledge they had acquired at university met the requirements of the industry. The main finding of the study was that South African accounting graduates are not well prepared for a career in accounting because the accounting programmes taught at university do not meet the needs of employers. Similarly, Zarzycka and Dobroszek (2015:54) studied the accounting curriculum in some higher institutions in Europe and found that what is taught at accounting faculties is insufficient to equip accounting graduates with the knowledge

required to practice accounting in the industry. The authors ascribed this gap to the slow response of accounting programmes to changes in today's competitive business environment.

4.4 CONCLUSION

In this chapter, the data collected in Chapter 3 from the literature and the prescribed accounting textbooks from SAIHL were analysed to derive the findings of the study. The study found that the prescribed accounting textbooks partially covered lean concepts. Out of the 14 existing lean principles presented in the literature, the study found that only three (21.4%) are discussed in current prescribed accounting textbooks. Likewise, out of the 10 existing lean methods presented in the literature, only five (50%) are discussed in the prescribed textbooks. Another finding revealed that the definitions and functionalities of the lean concepts covered in the prescribed textbooks agree with those in the literature. However, the prescribed textbooks do not discuss the lean concepts in detail, as is the case in the literature. Moreover, the data analysis indicated that the prescribed accounting textbooks used at South African universities do not emphasise lean concepts. The lean concepts identified in prescribed textbooks are discussed in isolation and there is no complete section or chapter in these textbooks focusing on lean methods and/or principles.

The prevalent finding of the study is that South African accounting graduates are not equipped with the knowledge that would enable them to successfully participate in lean projects after graduations. Finally, similar findings from related studies in the field of accounting curriculum were discussed to validate the findings of the study against the literature. The conclusion of the study is drawn in the next chapter and recommendations are made.

CHAPTER 5
CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

The main objective of this study was to determine the preparedness of accounting graduates in lean accounting in South Africa (Chapter 1, Section 1.3). Lean accounting is an innovative management accounting system which addresses the weaknesses of traditional and ABC systems and supports the implementation of lean strategy in organisations. The preparedness of accounting graduates in lean accounting refers to graduates' readiness to participate in lean projects in organisations. In other words, prepared graduates have acquired the theoretical knowledge of lean principles and methods upon completion of their accounting qualification at university to equip them to fully participate and drive lean accounting projects in the business environment.

To achieve the main objective, two secondary objectives were set: (1) Investigate the level of preparedness of South African accounting graduates to participate efficiently in future lean implementation projects in the country by considering the current accounting prescribed text books, and (2) determine whether the current prescribed accounting textbooks used in South African academic institutions have been updated to include lean principles and methods to prepare accounting graduates for lean accounting. This chapter demonstrates how each of the secondary objectives have been reached in this study. Thereafter, the limitations of the study and recommendations or suggestions for further study are outlined.

5.2 RESEARCH OBJECTIVES

This section demonstrates how the secondary objectives were attained in support of the main objective.

5.2.1 Secondary objective 1

Investigate the level of preparedness of South African accounting graduates to participate efficiently in future lean implementation projects in the country by considering the current prescribed accounting textbooks

This objective was attained in Chapter 4, Subsection 4.2.2. To achieve this objective, the study drew on relevant literature and prescribed accounting textbooks in use at nine South African universities. Lists of prescribed accounting textbooks (Annexure A) were obtained through an online search of South African university websites and enquiry at the secretaries of accounting departments of some universities (Chapter 3, Section 3.4.1.2). From the collected lists of prescribed accounting textbooks, relevant textbooks were identified and captured in Chapter 3, Tables 3.3 and 3.4. Thereafter, content analysis of the prescribed textbooks was performed in order to identify whether they cover lean concepts. The lean-related concepts found in these textbooks were presented in Chapter 3, Table 3.5 and further analysed in Chapter 4, Subsection 4.2.2.

The analysis revealed the limited coverage of lean concepts in the prescribed accounting textbooks currently in use at South African universities. In most instances, only the definitions and functionalities of lean-related concepts are provided in these textbooks (Chapter 4, Subsection 4.3.1). In general, these textbooks do not provide practical information such as steps and case studies of application of lean concepts to guide accounting students in how they could apply these concepts in organisations (Chapter 4, Subsection 4.3.2, paragraph 1). Furthermore, the lean-related concepts found in the textbooks are discussed in the context of traditional accounting and ABC systems, not as concepts of lean accounting as would be expected. It also appeared that these textbooks do not emphasise lean, seeing that they contain no sections or chapters on lean. In addition, less than 5% of the volume of each prescribed textbook is devoted to lean-related concepts (Chapter 4, Subsections 4.2.2.4, paragraph 2; 4.3.2, paragraph 1; 4.3.4, paragraph 2).

In light of the above, the limited coverage of lean concepts in the prescribed accounting textbooks is an indication that South African accounting graduates are not equipped with sufficient knowledge to participate in lean implementation projects.

5.2.2 Secondary objective 2

Determine whether the current prescribed accounting textbooks at academic institutions in South Africa have been updated to include lean principles and methods to prepare accounting graduates in lean thinking

This objective was achieved in Chapter 4, Subsection 4.2.3. In order to reach this objective, the study identified and encoded the existing lean principles and methods in the literature as presented in Chapter 3, Tables 3.1 and 3.2. Thereafter, the content of prescribed accounting textbooks from South African universities was analysed to ascertain whether these textbooks cover any lean principles and methods. The lean principles and methods identified in the textbooks were recorded, along with the corresponding page numbers, as well as the total number of pages of each textbook, in Chapter 3, Table 3.5. Lean principles and methods identified in the textbooks were then matched to the existing lean principles and methods in Chapter 3, Tables 3.6 and 3.7, respectively.

The analysis of Table 3.6 revealed that only three out of the 14 existing lean principles (21%) and five out of 10 lean methods (50%) are covered in the prescribed textbooks (Subsections 4.2.2.1 and 4.3.3). Furthermore, the analysis of Table 3.6 indicated that only limited space in the prescribed textbooks has been allocated to the discussion of lean concepts. No complete section or chapter has been allocated to the discussion of lean principles and/or methods in the prescribed textbooks; in fact, none of the prescribed textbooks have allocated a full chapter or section to the discussion of any aspect of lean. Despite the large volume of the prescribed textbooks (total number of pages ranging from 376 to 1 210), only a small number of pages (0.4% to 3.4%) have been allocated to the discussion of lean concepts (Sections 4.2.3 and 4.3.4, paragraph 2). This shows the low level of inclusion of lean concepts in prescribed textbooks and indicates that the authors and editors of prescribed accounting textbooks do not yet regard lean as an important topic of accounting in the South African context. Therefore, the current prescribed accounting textbooks would not be sufficient to prepare South African accounting graduates for participation in lean projects. The limitations of the study are presented in the next section.

5.3 LIMITATIONS OF THE STUDY

Despite the significant findings presented above, this study has one main limitation: the researcher was able to collect lists of prescribed accounting textbooks from only nine out of the 26 existing SAIHL. Therefore, some relevant prescribed accounting textbooks might have been omitted in the study. However, the analysis of the nine lists of prescribed textbooks collected (Annexure A) revealed that the same textbooks are

being prescribed by many universities (Chapter 4, Subsection 4.2.1, paragraph 3). Furthermore, the findings from related studies in the field of accounting curriculum were discussed in Chapter 4, Subsection 4.3.5 to validate the findings of the study against those from the literature. Therefore, the above-mentioned limitation would not significantly affect the findings of the study.

5.4 RECOMMENDATIONS FOR FURTHER STUDY

The following areas for further research have been identified:

- The prevalent finding of the study was that the current prescribed accounting textbooks at South African universities do not include a sufficient amount of lean content to prepare accounting graduates for participation in lean projects. It is, therefore, suggested that further research be carried out to investigate a framework for inclusion of more lean concepts into the accounting curriculum at South African universities.
- This study investigated the preparedness of accounting graduates for participation in lean accounting projects based on prescribed accounting textbooks. The study can be expanded by investigating whether South African organisations are actually applying lean strategy to achieve their business objectives. Findings from such a study could identify other barriers to lean adoption in the country and find solutions to overcome them in future to strengthen the adoption of lean in South Africa.

5.5 CONCLUDING REMARKS

From the findings of this study, it can be submitted that lean accounting is an innovative management accounting system which addresses the weaknesses of traditional and ABC systems and supports the implementation of lean strategy in organisations. However, this study found that prescribed accounting textbooks currently in use at South African universities have not been updated to include a sufficient amount of lean concepts to prepare accounting graduates for participation in lean accounting implementation projects. The findings of this study would provide insight to academics and editors of accounting textbooks to bring about an upgrade of accounting curricula to not only include in-depth discussions of lean concepts, but also ensure the readiness of accounting graduates to effectively and efficiently contribute to lean adoption in the country upon completion of their studies.

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Appendix A: Lists of prescribed accounting textbooks

NELSON MANDELA METROPOLITAN UNIVERSITY

PRESCRIBED BOOKS FOR: 2016

DEPARTMENT: AUDITING & TAXATION

KURSUS COURSE	TITEL TITLE	OUTEUR AUTHOR	UITGEWER PUBLISHER UITGAWE EDITION	ISBN	DOSENT LECTURER	JAAR YEAR	SEM	STUDENTE GETAL STUDENT NUMBERS	
RE201/RE251 **Ethics & Corporate Governance**	Ethics for Accountants and Auditors (Latest Edition)	Rossouw, Prozesky, Burger, du Plessis and van Zyl	Oxford University Press	9780195984958	Ms J Christian	2	1	300	Updated for 2016
RO202/RO252 **Auditing 202/252**	Accounting Information Systems	Marshall Romney and Paul Steinbart	(Latest Edition)		Ms J Christian	2	2	350	Updated for 2016
RO301/351 **Auditing 301/351** RGO301/RO351 **General Auditing 301/351**	Auditing Notes for South African Students	Jackson and Stent	LexisNexis Latest Edition	978040905763	Prof G Radder	3	3	350	Updated for 2016
	Graded Questions on Auditing	Gowar and Jackson	LexisNexis Latest Edition	9780409118582	Prof G Radder	3	3	350	Updated for 2016
RO302/352 **Auditing 302/352** RGO302/352 **General Auditing 301/351**	Ethics for Accountants and Auditors (Latest Edition)	Rossouw, Prozesky, Burger, du Plessis and van Zyl	Oxford University Press 2012 3rd Edition	9780199042456	Prof G Radder	3	1	350	Updated for 2016
	Accounting Information Systems	Marshall Romney and Paul Steinbart	(Latest edition)		Prof G Radder	3	2	350	Updated for 2016

1 = 1ste semester 2 = 2de semester 3 = heel jaar
2 = 2nd semester 2 = 2nd semester 3 = full year

6 = 1ste kwartaal van 1ste semester
7 = 2 de kwartaal van 1ste semester
8 = 1ste kwartaal van 2 de semester
9 = 2 de kwartaal van 2 de semester

6 = 1st term of 1st semester
7 = 2nd term of 1st semester
8 = 1st term of 2nd semester
9 = 2nd term of 2nd semester

APPROVED :

Course Co-Ordinator **Date**

NELSON MANDELA METROPOLITAN UNIVERSITY

PRESCRIBED BOOKS FOR: 2016

DEPARTMENT: FINANCIAL ACCOUNTING

KURSUS COURSE	TITEL TITLE	OUTEUR AUTHOR	UITGEWER PUBLISHER UITGAWE EDITION	ISBN	DOSENT LECTURER	JAAR YEAR	SEM	STUDENTE GETAL STUDENT NUMBERS
R101/R151 Accounting 101/151 **RS101 Accounting 1s 101** **RP101 Accounting 101 (Legal) R102/R152 Accounting 102/152** **RG102/RG152 General Accounting 102/152** **RF112, RF102 & RGF102 Extended Programme modules**	Introductory Accounting	LD de Villiers, A Prinsloo, BI Prinsloo, JE Rowlands	Acc Joint Venture Latest Edition	0-620-31234-3	Mrs B Prinsloo	1	3	800
RP102 Accounting 102 (Legal)	**No Book required for 2016**							
RF100/RF150 Accounting Foundation Programme George Campus & Missionvale Campus	Accounting: Foundational Principles of Financial Accounting	A Prinsloo	AuReT Publishing	978-0-620-63670-4		1	3	**100**
RNC101, RNC102 Non-Continuous Accounting 1 modules	Accounting: Foundational Principles of Financial Accounting	A Prinsloo	AuReT Publishing	978-0-620-63670-4		1	3	400
RNC102 Non-Continuous Accounting 1 modules	**Lorelle de Villiers is in the process of obtaining approval for a textbook called Accounting for non-accountants by L. De Villiers & S. James (ISBN 978-0-620-70656-8) which we plan to precribe for RNC102.**					1	3	400

1 = 1ste semester 2 = 2de semester 3 = heel jaar
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8 = 1st term of 2nd semester

9 = 2nd term of 2nd semester

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Section Head **Date**

NELSON MANDELA METROPOLITAN UNIVERSITY jd

PRESCRIBED BOOKS FOR: 2016 **VOORGESKREWE WERKE VIR:.....**

DEPARTMENT: MANAGEMENT ACCOUNTING AND FINANCE **DEPARTEMENT:.....**

KURSUS COURSE	TITEL TITLE	OUTEUR AUTHOR	UITGEWER PUBLISHER UITGAWE EDITION	ISBN	DOSENT LECTURER	JAAR YEAR	SEM	STUDENTE GETAL STUDENT NUMBERS	
RK202 **Management Accounting 202**	Management and Cost Accounting & Student's Manual (shrink wrapped)	Colin Drury	Cengage Learning 9th Edition	978-1-4080-9393-1 & 978-1-4080-9394-8	J Pienaar	2	2	400	Updated for 2016
RK301/RK351 **Management Accounting 301/351** RGK301/351 **General Management Accounting 301/351**	Books to be used from 2nd year ManAcc studies (as per RK202 above)				M de Lange	3	1	350	Updated for 2016
RK302/RK352 **Management Accounting 302/352** RGK302/352 **General Management Accounting 302/352**	Financial Management	Correia, Flynn, Uliana, Wormald	Juta 8th Edition	978-1-48510-277-9	M de Lange	3	2	350	Updated for 2016
RK400 **Management Accounting 400**	Books to be used from 3rd year ManAcc & Finance studies (as per RK301 and RK302 above)				J Dillon	4	3	130	Updated for 2016

1 = 1ste semester 2 = 2de semester 3 = heel jaar
2 = 2nd semester 2 = 2nd semester 3 = full year

6 = 1ste kwartaal van 1ste semester
7 = 2 de kwartaal van 1ste semester
8 = 1ste kwartaal van 2 de semester
9 = 2 de kwartaal van 2 de semester

6 = 1st term of 1st semester
7 = 2nd of 1st semester
8 = 1st term of 2nd semester
9 = 2nd term of 2nd semester

APPROVED : _____ _____

Course Co-Ordinator **Date**

NELSON MANDELA METROPOLITAN UNIVERSITY

PRESCRIBED BOOKS FOR: 2016

DEPARTMENT: ACCOUNTING SCIENCES (TAXATION SECTION)

KURSUS COURSE	TITEL TITLE	OUTEUR AUTHOR	UITGEWER PUBLISHER UITGAWE EDITION	ISBN	DOSENT LECTURER	JAAR YEAR	SEM	STUDENTE GETAL STUDENT NUMBERS
RIT400 **Taxation & Estate Planning 400**	Notes on SA Income Tax 2015	K P K Haupt	H & H Publications Latest Edition	To be advised	Prof A J N Brettenny Prof A Singleton	4	3	140
	SAICA Legislation Handbook 2014/2015	SAICA	LexisNexis Latest Edition	To be advised	Prof A J N Brettenny Prof A Singleton	4	3	140
	A Student's Guide to the Value Added Tax - 2015 edition	A J N Brettenny	LexisNexis Latest Edition	To be advised	Prof A J N Brettenny Prof A Singleton	4	3	140
	A Student's Guide to Capital Gains Tax - 2015 edition	A J N Brettenny	Tax Research & Publications	978-0-620-67882-7	Prof A J N Brettenny Prof A Singleton	4	3	140
	A Student's Guide to Advanced Tax - 2015 edition	A J N Brettenny & A Singleton	Tax Research & Publications	978-0-620-67881-0	Prof A J N Brettenny Prof A Singleton	4	3	140

1 = 1ste semester 2 = 2de semester 3 = heel jaar 7 = 2 de kwartaal van 1ste semester 6 = 1st term of 1st semester
2 = 2nd semester 7 = 2nd term of 1st semester

Course Co-Ordinator

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NELSON MANDELA METROPOLITAN UNIVERSITY

PRESCRIBED BOOKS FOR: 2016

DEPARTMENT: AUDITING & TAXATION

KURSUS COURSE	TITEL TITLE	OUTEUR AUTHOR	UITGEWER PUBLISHER UITGAWE EDITION	ISBN	DOSENT LECTURER	JAAR YEAR	SEM	STUDENTE GETAL STUDENT NUMBERS	
RT101 Fundamentals of Taxation	A Student's approach to Income Tax Natural Persons	Venter, De Hart, Coetzee, Koekemoer	2016 Edition		Ms M Skotidas	2	1	100	Updated for 2016
	Tax Workbook	Hamel et al	2016 Edition		Ms M Skotidas	2	1	100	Updated for 2016
RT202 Taxation & Management Accounting	A Student's Approach to Income Tax Natural Persons	Venter, De Hart, Coetzee, Koekemoer	2016 Edition		Ms M Skotidas	2	2	400	Updated for 2016
RT301 Taxation 301/351 RGT301 General Taxation 301/351 RT302 Taxation 302/352 RGT302 General Taxation 301/351	Notes on South African Income Tax 2016	P Haupt	H & H Publications Latest Edition		Mr D Joubert	3	3	300	Updated for 2016
	Graded Questions on Income Tax in SA 206	L D Mitchell & K Mitchell	LexisNexis Butterworths Latest Edition		Mr D Joubert	3	3	300	Updated for 2016
	SAICA Legislation Handbook 2015/2016	SAICA	LexisNexis Butterworths Latest Edition		Mr D Joubert	3	3	300	Updated for 2016
	A Student's Guide to the VAT Act 2016	A J N Brettenny	LexisNexis Butterworths Latest Edition		Mr D Joubert	3	3	300	Updated for 2016

	A Student's Guide to Capital Gains Tax 2016	A J N Brettenny	Tax Research & Publications Latest Edition		Mr D Joubert	3	3	300	Updated for 2016

1 = 1ste semester 2 = 2de semester 3 = heel jaar
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APPROVED :

Course Co-Ordinator **Date**

NELSON MANDELA METROPOLITAN UNIVERSITY

PRESCRIBED BOOKS FOR: 2016

DEPARTMENT: AUDITING & TAXATION

KURSUS COURSE	TITEL TITLE	OUTEUR AUTHOR	UITGEWER PUBLISHER UITGAWE EDITION	ISBN	DOSENT LECTURER	JAAR YEAR	SEM	STUDENTE GETAL STUDENT NUMBERS
RO4 Auditing 400	Auditing Notes for South African Students	Jackson & Stent	Latest Edition		Prof FE Prinsloo	4	3	30
	Advanced Case Studies in External Auditing & Corporate Governance	Prinsloo	12th Edition	978-0-620-67749-3		4	3	100
	Graded Questions in Auditing	Gowar & Jackson	2015 Edition			4	3	35
	SAICA Members Handbook Volume 2B. The R4 students will also require this text book. **Please Do Not Duplicate this order**	LexisNexis	Latest Edition			4	3	130
Recommended Reading	**Title: Auditing Fundamentals in A South African Context 1e**	**G Penning, R Butler, D Nathan, R Kunz, V Moth**	**Oxford University Press**	**ISBN-13: 9780195998214**				

1 = 1ste semester 2 = 2de semester 3 = heel jaar 6 = 1ste kwartaal van 1ste semester 6 = 1st term of 1st semester
2 = 2nd semester 2 = 2nd semester 3 = full year 7 = 2 de kwartaal van 1ste semester 7 = 2nd term of 1st semester

APPROVED : _____ _____

Course Co-Ordinator **Date**

NELSON MANDELA METROPOLITAN UNIVERSITY

PRESCRIBED BOOKS FOR: 2016

DEPARTMENT: AUDITING & TAXATION

KURSUS COURSE	TITEL TITLE	OUTEUR AUTHOR	UITGEWER PUBLISHER UITGAWE EDITION	ISBN	DOSENT LECTURER	JAAR YEAR	SEM	STUDENTE GETAL STUDENT NUMBERS	
RE201/RE251 **Ethics & Corporate Governance**	Ethics for Accountants and Auditors (Latest Edition)	Rossouw, Prozesky, Burger, du Plessis and van Zyl	Oxford University Press	9780195984958	Ms J Christian	2	1	300	Updated for 2016
RO202/RO252 **Auditing 202/252**	Accounting Information Systems	Marshall Romney and Paul Steinbart	(Latest Edition)		Ms J Christian	2	2	350	Updated for 2016
RO301/351 **Auditing 301/351** RGO301/RO351 **General Auditing 301/351**	Auditing Notes for South African Students	Jackson and Stent	LexisNexis Latest Edition	978040905763	Prof G Radder	3	3	350	Updated for 2016
	Graded Questions on Auditing	Gowar and Jackson	LexisNexis Latest Edition	9780409118582	Prof G Radder	3	3	350	Updated for 2016
RO302/352 **Auditing 302/352** RGO302/352 **General Auditing 301/351**	Ethics for Accountants and Auditors (Latest Edition)	Rossouw, Prozesky, Burger, du Plessis and van Zyl	Oxford University Press 2012 3rd Edition	9780199042456	Prof G Radder	3	1	350	Updated for 2016
	Accounting Information Systems	Marshall Romney and Paul Steinbart	(Latest edition)		Prof G Radder	3	2	350	Updated for 2016

1 = 1ste semester 2 = 2de semester 3 = heel jaar
2 = 2nd semester 2 = 2nd semester 3 = full year

6 = 1ste kwartaal van 1ste semester
7 = 2 de kwartaal van 1ste semester
8 = 1ste kwartaal van 2 de semester
9 = 2 de kwartaal van 2 de semester

6 = 1st term of 1st semester
7 = 2nd term of 1st semester
8 = 1st term of 2nd semester
9 = 2nd term of 2nd semester

APPROVED :

Course Co-Ordinator **Date**

NELSON MANDELA METROPOLITAN UNIVERSITY

PRESCRIBED BOOKS FOR: 2016

DEPARTMENT: AUDITING & TAXATION

KURSUS COURSE	TITEL TITLE	OUTEUR AUTHOR	UITGEWER PUBLISHER UITGAWE EDITION	ISBN	DOSENT LECTURER	JAAR YEAR	SEM	STUDENTE GETAL STUDENT NUMBERS
RO4 Auditing 400	Auditing Notes for South African Students	Jackson & Stent	Latest Edition		Prof FE Prinsloo	4	3	30
	Advanced Case Studies in External Auditing & Corporate Governance	Prinsloo	12th Edition	978-0-620-67749-3		4	3	100
	Graded Questions in Auditing	Gowar & Jackson	2015 Edition			4	3	35
	SAICA Members Handbook Volume 2B. The R4 students will also require this text book. **Please Do Not Duplicate this order**	LexisNexis	Latest Edition			4	3	130
Recommended Reading	**Title: Auditing Fundamentals in A South African Context 1e**	**G Penning, R Butler, D Nathan, R Kunz, V Moth**	**Oxford University Press**	**ISBN-13: 9780195998214**				

1 = 1ste semester 2 = 2de semester 3 = heel jaar 6 = 1ste kwartaal van 1ste semester 6 = 1st term of 1st semester
2 = 2nd semester 2 = 2nd semester 3 = full year 7 = 2 de kwartaal van 1ste semester 7 = 2nd term of 1st semester

APPROVED : _____ _____

Course Co-Ordinator **Date**

APPENDIX A:

PRESCRIBED BOOKS FOR: 2016 NMMU

DEPARTMENT: FINANCIAL ACCOUNTING

KURSUS COURSE	TITEL TITLE	OUTEUR AUTHOR	UITGEWER PUBLISHER UITGAWE EDITION	ISBN	DOSENT LECTURER	JAAR YEAR	SEM	STUDENTE GETAL STUDENT NUMBERS
R201/R251 **Accounting 201/251**	Gripping GAAP	CL Service	LexisNexis 2016 Edition	ISBN 9780409107746	Mrs S Diedericks	2	3	450
RG201/R251 **General Accounting 201/251**								
R202/R252 **Accounting 202/252**	GAAP: Graded Questions	DL Kolitz and CL Service	LexisNexis 2016 Edition	ISBN 9780409107753				
RG202/RG252 **General Accounting 202/252**								
	Notes on Group Financial Statements	K Prinsloo, D Forsyth	Natal School of Accounting Latest Edition	ISBN 9780992196608	Mrs S Diedericks	2	2	400
R202/R252 **Accounting 202/252**								
RG202/RG252 **General Accounting 202/252**								
R301 **Accounting 301/351** RG301/RG351 **General Accounting 301/351** R302/R352 **Accounting 302/352** RG302/RG352 **General Accounting 302/352**	Notes on Group Financial Statements	K S Prinsloo, D Forsyth	Natal School of Accounting 16th Edition		Mr J Barnard	3	3	450
	Students Guide to International Financial Reporting	L Stainbank, D Oakes, M Razak	S & O Publishing Latest Edition		Mr J Barnard	3	3	450
	SAICA Members Handbook (A Guide Through IFRS)	SAICA	LexisNexis Latest Edition		Mr J Barnard	3	3	450
R400 **Accounting 400**	Notes on Group Financial Statements	K S Prinsloo, D Forsyth	Natal School of 16th Edition		Prof D Forsyth	4	3	120
	SAICA Members Handbook (A Guide Through IFRS)	SAICA	LexisNexis Latest Edition		Prof D Forsyth	4	3	120

1 = 1ste semester 2 = 2de semester 3 = heel jaar
2 = 2nd semester 2 = 2nd semester 3 = full year

6 = 1ste kwartaal van 1ste semester
7 = 2 de kwartaal van 1ste semester
8 = 1ste kwartaal van 2 de semester
9 = 2 de kwartaal van 2 de semester

6 = 1st term of 1st semester
7 = 2nd term of 1st semester
8 = 1st term of 2nd semester
9 = 2nd term of 2nd semester

APPROVED :

Course Co-Ordinator	Date

Contact information

Name: **Yolanda van der Rheede**

Tel No: (021) 6502295

Prescribed booklist for 2016 (**Download prescribed 2016 CSV**)

Course	Student No	Author	Title & (Edition)	Publisher	Year
ACC1006F	1130	Kew, J; Watson, A	Financial Accounting, An Introduction (4th Edition)	Oxford University Press	2012
ACC1106F	260	Kew, J; Watson, A	Financial Accounting, An Introduction (4th Edition)	Oxford University Press	2012
ACC2022F	390	Corriea, C; Langefield-Smith, K; Thorne, H; Hilton, RW	Management Accounting - Information for Managing and Creating Value (SA Edition)	McGraw Hill	2008
ACC2023F	310	Carpenter, Parsons, West	Fundamentals of South African Income Tax (6th Edition)	Hedron CC	2016
ACC2012W	700	SAICA	IFRS for SME's	Lexis Nexis	2016
ACC2112W	180	SAICA	IFRS for SME's	Lexis Nexis	2016
ACC2112W	180	Lubbe, Modack & Watson	Financial Accounting: IFRS Principles (4th Edition)	Oxford University Press	2014
ACC3004H	600	S Parsons (editor), M Ungerer, R Mabutha, L Steenkamp, R Carpenter & A Becker	Questions on SA Tax (17th Edition)	Juta	2016
ACC3004H	600	Phillip Haupt	Notes on South African Income Tax (35th Edition)	Hedron CC	2016
ACC3004H	600	Integritas SAICA	SAICA Legislation Handbook	Lexis Nexis	2015/2016
ACC3009W	520	SAICA	A Guide through IFRS	Lexis Nexis	July 2015
ACC3009W	520	SAICA	SAICA Handbook (Volumes 2 & 3)	Lexis Nexis	2015/2016
ACC3020W	100	Lubbe, Modack & Watson	Financial Accounting: IFRS Principles (4th Edition)	Oxford University Press	2014
ACC3022H	550	SAICA	Member's Handbook (Volumes 1 - 4)	SAICA	2015/2016
ACC3022H	550	IRBA	IRBA Code of Professional Conduct (latest edition)	IRBA	2015/2016
ACC3022H	550	Pieter von Wielligh, Frans Prinsloo	Auditing Fundamentals in a South African Context (1st Edition)	Oxford University Press	2014
ACC4000H	460	Corriea, Flynn, Uliana and Wormald	Financial Management (8th Edition)	Juta	2014
ACC4002H	360	S Parsons (editor), M Ungerer, R Mabutha, L Steenkamp, R Carpenter & A Becker	Advance Questions on SA Tax (1st Edition)	Juta	2016
ACC4002H	360	Phillip Haupt	Notes on South African Income Tax (35th Edition)	Hedron CC	2016
ACC4002H	360	SAICA	SAICA Legislation Handbook	Lexis Nexis	2015/2016
ACC4020W	360	Corriea, Flynn, Uliana and Wormald	Financial Management (8th Edition)	Juta	2014
ACC4020W	360	Colin Drury	Management and Cost Accounting (9th Edition)	Southern Western Cengage Learning	2014

ACC4023W	360	IASCF	A Guide through International Financial Reporting Standards (latest edition)	Lexis Nexis	2016
ACC4025H	360	Jackson & Stent	Auditing Notes for South African Students (8th or 9th Edition)	Lexis Nexis	2014
ACC4025H	360	SAICA	SAICA Legislation Handbook	Lexis Nexis	2015/2016
ACC4025H	360	IRBA	Manual of Information	IRBA	2012
ACC4025H	360	SAICA	Member's Handbook (Volumes 1 - 4)	Lexis Nexis	2015/2016
ACC3500W	30	Graham, M; Winfield, J	Understanding Financial Statements (2nd Edition)	Cape Business Seminars	2010
ACC3500W	30	Lubbe, Modack & Watson	Financial Accounting: IFRS Principles (4th Edition)	Oxford University Press	2014
ACC3500W	30	Lubbe, Modack, Herbert & Hyland	Financial Accounting, Groups (1st Edition)	Oxford University Press	2014
ACC3500W	30	SAICA	SAICA Legislation Handbook (Volumes 1, 2 and 3)	Lexis Nexis	2015/2016
ACC3500W	30	SAICA	SAICA Handbook (Volumes 2 & 3) (Volumes 2 & 3)	Lexis Nexis	2015/2016
ACC3500W	30	SAICA	A Guide through IFRS (Parts A, B1 and B2)	Lexis Nexis	2015
ACC3501W	30	Corriea, Flynn, Uliana and Wormald	Financial Management (8th Edition)	Juta	2014
ACC3501W	30	Colin Drury	Management and Cost Accounting (8th Edition)	Southern Western Cengage Learning	2014
ACC3502H	30	Jackson & Stent	Auditing Notes for South African Students (8th Edition)	Lexis Nexis	2012
ACC3502H	30	Kopel	A Guide to Business Law (4th Edition (revised))	Oxford University Press	2014
ACC3502H	30	Pieter von Wielligh, Frans Prinsloo	Auditing Fundamentals in a South African Context (1st Edition)	Oxford University Press	2014
ACC4038H	20	Fourie, M-L; Opperman, L	Municipal Finance and Accounting (2nd Edition)	Fourie & Opperman	2011
ACC4038H	20	J.S.H Gildenhuys	Public Financial Management (8th Impression)	van Schaik Uitgewers	2012
ACC4038H	20	Thornhill	JJN Cloete's South African Public Administration and Management (English - 10th revised edition)	Pretoria: Van Schaik	2012
ACC4039H	20	Hendrikse, JW & Hefer-Hendrickse, L	Corporate Governance Handbook - Principles and Practice (2nd Edition)	Juta	2012
ACC4505H	30	Corriea, Flynn, Uliana and Wormald	Financial Management (8th Edition)	Juta	2014
ACC3503H	30	Phillip Haupt	Notes on South African Income Tax (35th Edition)	Hedron CC	2016
ACC3503H	30	SAICA	SAICA Legislation Handbook	Lexis Nexis	2015/2016
ACC3503H	30	S Parsons (editor), M Ungerer, R Mabutha, L Steenkamp, R Carpenter & A Becker	Questions on SA Tax (17th Edition)	Juta	2016
ACC4039H	20	SAICA	SAICA Student Handbook (Volume 2D)	Lexis Nexis	2015/2016

University of Johannesburg (UJ)

UJ PRESCRIBED BOOK LIST FOR 1ST SEMESTER 2016 - Version 1 (1 Oct 2015)

Faculty	Department	Code	Module	ISBN	Title	Author	Publisher	No. Students	Campus
Faculty of Economic and Financial Sciences	Department of Accountancy	ACC300	Accountanty 3	9781485102793	Accounting standards	Oppermann, H.R.B.; Booysen, S.F.; van der Merwe, N.	Juta & Company Ltd	400	Auckland Park Kingsway Campus
Faculty of Economic and Financial Sciences	Department of Accountancy	BCTA102	BCTA102	9781485102793	Accounting standards	Oppermann, H.R.B.; Booysen, S.F.; van der Merwe, N.	Juta & Company Ltd	400	Auckland Park Kingsway Campus
Faculty of Economic and Financial Sciences	Department of Accountancy	ACC300	Accountanty 3	9780409118438	Descriptive accounting	Koppeschaar, Z.R.; Rossouw, Jacobus; Deysel, D.J.; Sturdy, J.; van Wyk, H.A.	LexisNexis South Africa	200	Auckland Park Kingsway Campus
Faculty of Economic and Financial Sciences	Department of Accountancy	ACC300	Accountanty 3	9780409057003	Groepstate		LexisNexis South Africa	20	Auckland Park Kingsway Campus
Faculty of Economic and Financial Sciences	Department of Accountancy	BCTA102	BCTA102	9780409057003	Groepstate		LexisNexis South Africa	400	Auckland Park Kingsway Campus
Faculty of Economic and Financial Sciences	Department of Accountancy	ACC300	Accountanty 3	9780409057027	Group statements	Binnekade, C.	LexisNexis South Africa	400	Auckland Park Kingsway Campus
Faculty of Economic and Financial Sciences	Department of Accountancy	BCTA102	BCTA102	9780409057034	Group statements	Binnekade, C.	LexisNexis South Africa	400	Auckland Park Kingsway Campus

University of Johannesburg (UJ)

Faculty of Economic and Financial Sciences	Department of Accountancy	REK0A01	REK0A01	9780409106350	Inleiding tot finansiele rekeningkunde	Dempsey, Amanda	LexisNexis South Africa	10	Auckland Park Kingsway Campus
Faculty of Economic and Financial Sciences	Department of Accountancy	REK0A01	REK0A01	9780409106367	Introduction to financial accounting		LexisNexis South Africa	700	Auckland Park Kingsway Campus
Faculty of Economic and Financial Sciences	Department of Accountancy	RHR07X7	INTERNAL AUDIT HONOURS	9780409057089	Performing internal audit engagements	Plant, Kato; Coetzee, Philna; du Bruyn, Rudrik; Fourie, Houdini	LexisNexis South Africa	45	Auckland Park Kingsway Campus
Faculty of Economic and Financial Sciences	Department of Accountancy	ACC300	Accountanty 3	9781485102809	REKENINGKUNDIGE STANDAARDE	Oppermann H		20	Auckland Park Kingsway Campus

UNIVERSITY OF LIMPOPO
TURFLOOP GRADUATE SCHOOL OF LEADERSH
P.O. Box 756, FAUNA PARK, 0787
Telephone: 015 290 2856
Telefax: 015 290 2832/35
MBA Email: Daphney.Lebea@ul.ac.za

MBA PROGRAMME: 2015

COURSE: INTEGRATED ACCOUNTING
SUBJECT CODE: CMBB191

STUDY GUIDE AND COURSE OUTLINE

1. Lecturing Dates.
2. Module Designation.
3. Entry Assumptions
4. Notional Hours.
5. Syllabus.
6. Moderation.
7. Facilitator and Contact Information.
8. Consultation Hours.
9. Specific Outcomes.
10. Instructional Style and Methodology.
11. Course Content.
12. Prescribed Book.
13. Recommended Reading.
14. Assessment.
15. Assignments.
16. Study Schedule and Test Dates.

1. **LECTURING DATES :**

Month	Date
February	06
February	28
March	26
April	16
May	7
May	21

‘

2. MODULE DESIGNATION

Qualification standard (s)	: MBA
Faculty	: Management and Law
School	: Graduate School of Leadership
Department	: MBA Programme
Discipline	: Management
Name of Module	: Integrated Accounting
Module Code	: **CMBB191**
NQF Field	: Management
NQF Sub – Field	: Business Management
NQF Level	: 09
Year Level	: 01
Credit Total	: 12
Issue Date	: 01 January 2015
Implementation date	: 01 January 2015

3. ENTRY ASSUMPTIONS

First degree plus honours (or equivalent)

4. NOTIONAL HOURS

Student Activity	**Hours for whole module**
Lectures	40
Reading	50
Assessment	30
TOTAL	**120**

5. SYLLABUS

- Concepts/principles and techniques of financial and management accounting
- Concepts of social and environmental accounting and integrated reporting
- Financial statement analysis
- Real world industry case examples of application of accounting techniques
- Locating, extracting, and analysis of performance variances from multiple sources
- Assessing the extent of corporate reporting of non-financial performance
- Types of quantitative and qualitative measures of organizational performance (ROI, RI, EVA, balanced score card)

6. MODERATION

External

7. FACILITATOR AND CONTACT INFORMATION:

Name: Professor Collins C Ngwakwe, PhD
Tel: (015) 290 2835
Fax: (015) 290 2852
E-mail: collins.ngwakwe@ul.ac.za
Office: TGSL Block B, Room 1007 Edupark
University of Limpopo

8. CONSULTATION HOURS

Days	Time
Monday	9 - 11
Wednesday	9 -12

9. SPECIFIC OUTCOMES

After completion of this module, the student will be able to:

- Explain the core concepts, principles and techniques of both financial and management accounting
- Evaluate the concepts underpinning social and environmental accounting and integrated reporting.
- Utilise accounting/financial formulae and techniques to analyse financial statements and other accounts.
- Apply and critically analyse accounting/financial models in a real-world context.
- Locate, extract and analysis performance variances based on various operating data (material, labour, overhead etc)
- Critically assess the reporting of non-financial aspects of organisational performance.
- Identify quantitative and qualitative measures for assessing an organisation's (integrated) performance.

10. INSTRUCTIONAL STYLE AND METHODOLOGY

The aim of this course is to apply practice-oriented lecturing to enable the student to apply the knowledge in the work environment. The instructional style consists of:

- Lectures
- Individual Assignments
- Group Discussions & projects
- Case Study
- Tests
- Examination

Emphasis is placed on the practical application of theory.
The aim of the course is student-orientated. Students must consistently attempt to reach a high level of independent study. Study units must be prepared in advance of lectures and in accordance with the course content and course programme. Students must further enhance their learning experience by doing extra reading from the list of recommended reading.

11. COURSE CONTENT

- Principles and techniques of both financial and management accounting
  - Basic accounting concepts, conventions and techniques
    - Accounting concepts and conventions
    - The balance sheet and income statement
  - Management accounting concepts/techniques for managerial decision making
    - Introduction to costs terms and concepts
    - Cost behaviour and Cost volume profit analysis
    - Relevant costs and revenues for decision making
    - Cost management
    - Strategic management accounting
- Concepts of social and environmental accounting and integrated reporting
  - Environmental Accounting as a Business Management Tool –Concepts and Techniques
  - Integrated Reporting –Concepts & Emerging Framework
    - The concept of integrated reporting
    - The need for integrated reporting
    - Business case for integrated reporting
    - Integrated reporting framework
    - King III practice note on integrated reporting
    - IR pilot programme 2012
- Financial Statement Analysis
- Real world industry case examples of application of accounting techniques
- Analysis of Variances from various data sources (material, Price, labour, overhead)
- Assessing the reporting of non-financial aspects of organisational performance
- Types of quantitative and qualitative measures of organizational performance (ROI, RI, EVA, balanced score card)

12. PRESCRIBED BOOKS

- Kolitz, D.L; Quinn, A.B and McAllister (2011) Financial Accounting 4th Ed. JUTA & Co.publishers: Lansdwone. ISBN: 978-0-70217-749-1
- Drury C. (2007, 2012, or 2015)Management & Cost Accounting 7th, 8th or 9th Ed. South Western Cengage Learning publishers: London
- South African Institute of Chartered Accountants (2012) Green 11 JUTA & Co Publishers: Cape Town. ISBN:978-0-7021-9462-7
- Warren, CS; Reeve JM and Duchac, J (2015) financial and managerial accounting 13ed., Cengage Learning, ISBN-13: 9781285866307 / ISBN-10: 1285866304
- Fisher P., Taylor W., and Cheng R (2012) Advanced Accounting 11ed., Cengage Learning, ISBN-13: 9780538480291 / ISBN-10: 0538480297

Online Resources:

- ***http://www.sustainabilitysa.org/*** ***(****Sustainability SA* ***– integrated reporting)***
- ***http://www.theiirc.org/*** ***(****the international integrated reporting council* ***–IIRF Resources)***
- EPA: http://www.epa.gov/ppic/pubs/busmgt.pdf
- Triple Bottom Analysis: http://www.csiro.au/Outcomes/Environment/Population-Sustainability/BalancingAct.aspx

13. 13.1 RECOMMENDED READING

Textbooks:

- Schalteger, S & Burritt, R. (2000) Contemporary environmental Accounting – Issues Concepts and Practices, Green Leaf Publishing: Sheffield. ISBN:1874719349
- Wood, F & Macdonald, D (1997) Business Accounting – South African Ed., Pearson Education Publihers:London SBN:9780273621263

Journals:

- Accounting Auditing & Accountability Journal http://www.emeraldgrouppublishing.com/products/journals/journals.htm?id=AAAJ
- Sustainability Accounting Management & Policy Journal http://www.emeraldgrouppublishing.com/products/journals/journals.htm?id=sampj
- Journal of Industrial Ecology http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1530-9290
- Managing Global Transitions – International Research Journal http://www.fm-kp.si/zalozba/ISSN/1581-6311.htm
- International Journal of Sustainable Development http://www.inderscience.com/jhome.php?jcode=ijsd
- Journal of Cleaner Production http://www.journals.elsevier.com/journal-of-cleaner-production/

13.2 DATABASES USED BY UNIVERSITY OF LIMPOPO LIBRARY

1. www.sabinet.co.za

SA E – Publications
User ID: 350010j0
Password: 3500diw

For online reference services on Sabinet
User ID: 350010w9
Password: 3500

2. http://search.epnet.com

ebscohost
USER ID: S8403295
Password: Password

3. www.sciencedirect.com
Science Direct
No Password required

4. www.emeraldinsight.com
Emerald
User ID: zstud
Password: student

13.3 Hard Copy Journals in the Library of University of Limpopo

Financial Management Journals

1. Financial Forum
2. Financial Mail
3. Fin Week
4. Public Finance Review
5. Public Finance Quarterly

14. ASSESMENT OF STUDENTS

Forms of Assessment:

Individual assignments, group assignments, case studies, presentations, tests and examination

14.1 Formative Assessments

50% of the final mark

Refer to section 16 (tests and assignments).

14.2 Summative Assessment:

Final mark: = (Year mark + Exam mark) ÷2)

A minimum of 50% in formative assessments (year mark) and a minimum of 50% in Exam mark must be obtained to pass this module.

Please Take Note: a 50% year mark is required for examination entry in all MBA modules.

15. ASSIGNMENTS

PLEASE TAKE NOTE OF THE FOLLOWING:

Assignments must be handed in on the scheduled due date where applicable. The following penalties will apply for the late handing in of assignments:

- 10% reduction within the first three (3) days.
- 20% reduction within seven (7) days.
- No assignments will be accepted after seven (7) days.

NB
It is the responsibility of the student and not TGSL to forward assignments handed in to the appropriate lecturer (via E-mail, fax, or registered mail). TGSL will not forward any late assignments to outside lectures on the student's behalf!

Please find attached the mark sheets **APPENDIX A** for Individual Assignments and **APPENDIX B** for Group Assignments. Use the mark sheet as a guide.
The students must take note of the main headings and technical requirements that have to be adhered to in the mark sheet.

Pay special attention to references and quotes used in your assignments. THE HARVARD method of reference is used for all management sciences subjects. Furthermore, make sure that your references, quotes and bibliography are technically correct.
Contact the librarian of the Faculty of Management on (015) 268 2321 or 015 268 2959 if you need advise on how to do references, quotes and how to meet the technical requirements of your bibliography or for any assistance in the Library.

15.1 INDIVIDUAL ASSIGNMENTS

Questions will be handed out in class to individual students.

15.2 GROUP ASSIGNMENTS (if applicable)

Group assignment will be handed to class.

16. STUDY SCHEDULE: CMBB191

LECTURE DATES	TOPICS	READING	TEST DATES
Feb 06	**Principles and techniques of financial accounting** ○ Basic accounting concepts, conventions and techniques. - Accounting concepts and conventions ○ The balance sheet and income statement	Kolitz, Quinn and McAllister: Part 1 & 2	
Feb 28	**Principles and techniques of management accounting** ○ Management accounting concepts/techniques for managerial decision making - Introduction to costs terms and concepts (Drury 2) - Cost behaviour and Cost volume profit analysis (Drury 8) - Relevant costs and revenues for decision making (Drury 9) - Cost management (Drury 21) Strategic management accounting (Drury 22)	Drury –Chp. 2, 8, 9, 21, 22.	
		Study topics covered in block 1 lectures of Feb15	Feb 29 Time: 8-10am Written Test

March 26	**Concepts of social and environmental accounting and integrated reporting** ○ Environmental Accounting as a Business Management Tool –Concepts and Techniques ○ Integrated Reporting –Concepts & Emerging Framework - The concept of integrated reporting - The need for integrated reporting - Business case for integrated reporting - Integrated reporting framework - King III practice note on integrated reporting (see King 111 chap 9) - IR pilot programme 2012	EPA: http://www.epa.gov/ppic/pubs/busmgt.pdf Green 11: part 1; part 2: 1&5 King III Chp.9 *http://www.sustainabilitysa.org/* *http://www.theiirc.org/*	
		Study topics covered in block-2 lectures of April 12.	April 26 Assignment 1
April 16	• Financial Statement Analysis • Real world industry case examples of application of accounting techniques • Analysis of Variances from various data sources (material, Price, labour, overhead)	Kolitz, Quinn and McAllister: Part 6: 21&22 Real world views from: Drury and Horngren et al. Drury chp. 17	
		Study topics covered in block-3 lectures of April 26.	April 16 Assignment 2
May 07	• Assessing the reporting of non-financial aspects of rganizational performance • Types of quantitative and qualitative measures of organizational performance (ROI, RI, EVA, balanced score card)	Green 11: part 2: 1&5 Triple Bottom Analysis: http://www.csiro.au/Outcomes/Environment/Population-Sustainability/BalancingAct.aspx Drury Chp.19	
May 21	Revision	Revision	

*A doctor's certificate must be provided to the appropriate lecturer to qualify for a test on medical grounds.

APPENDIX A: INDIVIDUAL ASSIGNMENT ASSESEMENT TEMPLATE

UNIVERSITY OF LIMPOPO
TURFLOOP GRADUATE SCHOOL OF LEADERSH
P.O. Box 756, FAUNA PARK, 0787

Email: Collins.ngwakwe@ul.ac.za

STUDENT NR. _____
SURNAME _____
INITIALS _____

1.	Title Page, Table of Contents List of Illustrations	5	
2.	The Introduction	10	
3.	Content, Analysis and Presentation	45	
4.	Language and Technical Formatting	10	
5.	The Selection and Systemization of Information	10	
6.	Conclusion and Recommendation	15	
7.	Reference Technique: References and Quotes and Bibliography	5	
	SUB : TOTAL	100	%

COMMENTS:

APPENDIX B: GROUP ASSIGNMENT ASSESEMENT TEMPLATE

UNIVERSITY OF LIMPOPO
TURFLOOP GRADUATE SCHOOL OF LEADERSH
P.O. Box 756, FAUNA PARK, 0787

Email: collins.ngwakwe@ul.ac.za

MARK SHEET: GROUP ASSIGNMENT

STUDENT NO._____ STUDENT NO._____STUDENT NO._____
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1.	Title Page, Table of Contents List of Illustrations	5	
2.	The Introduction	10	
3.	Content, Analysis and Presentation	40	
4.	Language and Technical Formatting	10	
5.	Oral Presentation	15	
6.	Conclusion and Recommendation	15	
7.	Reference Technique: References and Quotes and Bibliography	5	
	SUB : TOTAL	100	
	TOTAL	**100**	

PERCENTAGE MARK %

COMMENTS:

BOOKLIST - JANUARY 2016 FOR SEMESTER 1 AND 2 – Vaal University of Technology

FACULTY: **MANAGEMENT SCIENCES**
DEPARTMENT: **ACCOUNTANCY** **VANDERBIJLPARK CAMPUS**

SUBJECT	CODE	COURSE CODE	LECTURER & E	BOOK TITLE	EDITION	AUTHOR	ISBN	PUBLISHER	STUDENTS
FINANCIAL MANAGEMENT 1	BAMRX1A		SIBANDA DENNIS	CORPORATE FINANCE	2ND	L .ALSEMGEEST	9780195996012	OXFORD	100
FINANCIAL MANAGEMENT 4	BAFEX4A BAFNX4A		SIBANDA DENNIS	FINANCIAL MANAGEMENT IN SOUTHERN AFRICA		MARX J, DE SWARDT C, BEAUMONT-SMITH M, NAICKER B, ERASMUS P	(350998)-9781775788102	PEARSON	235
	BATMX2B		SIBANDA DENNIS	BASIC ACCOUNTING FOR NON ACCOUNTANTS	5-TH	CLOETE, A & MARIMATHU F	(186889) 9780627032905	VAN SCHAIK	90
TAXATION 1	BATRX1A		MKHIZA-MI irvinm@vut.ac.za	SILKE:- SA INCOME TAX		SILKE	978-0-40911959-6	LEXISNEXIS	400
TAXATION 1	BATRX1A		MKHIZA-MI irvinm@vut.ac.za	GRADED QUESTIONS ON INCOME TAX IN SA-2016		KEVIN & LINDSAY MITCHEL	978-0-409-11957-2 (383260)	LEXISNEXIS	400
TAX-2.1	BATRX2A	COST, INTERNAL AUDITING, FIS	MITTON MS magdam@vut.ac.za	NOTES ON SA INCOME TAX-2015	1'ST	HAUPT P	9781874929 75-5	H & H PUBLICATIONS	STUDENTS BOUGHT BOOK-2015
TAX- 2.1	BATRX2A	COST, INTERNAL AUDITING, FIS	MITTON MS magdam@vut.ac.za	GRADED QUESTIONS ON INCOME TAX IN SA-2015	1'ST	K & L MITCHELL	9780409011 957-2	LEXISNEXIS	STUDENTS BOUGHT BOOK-2015
TAX-2.2	BATRY2A	COST, INTERNAL AUDITING, FIS	MITTON MS magdam@vut.ac.za	NOTES ON SA INCOME TAX-2015	2'ND	HUXHAM, K 7 HAUPT P	9781874929 76-5	H & H PUBLICATIONS	STUDENTS BOUGHT BOOK-2015

SUBJECT	CODE	COURSE CODE	LECTURER & E	BOOK TITLE	EDITION	AUTHOR	ISBN	PUBLISHER	STUDENTS
TAX-2.2	BATRY2A	COST, INTERNAL AUDITING, FIS	MITTON MS magdam@vut.ac.za	GRADED QUESTIONS ON INCOME TAX IN SA-2014	2'ND	K & L MITCHELL	9780409011957-2	LEXISNEXIS	STUDENTS BOUGHT BOOK-2015
AUDITING-2.1	BAARX2A	ND MANAGEMENT ACCOUNTING & FIS	MITTON DM	AUDITING NOTES FOR SOUTH AFRICAN STUDENTS -2015	2015	JACKSON RDC & STENT WJ	9780409057 2639	LEXISNEXIS	300
COSTING 2	BKKMA2B	ND COST & MANAGEMENT ACCOUNTING	RADEBE L lizzie@vut.ac.za	COST AND MANAGEMENT ACCOUNTING		VAN RENSBURG, M & EVANGELOUO	978-0627-02-7239 (186046)	VAN SCHAIKS	O/S
DESCRIPTIVE STATISTICS	BADSZ1A	HRM, MANAGEMENT OF TRAINING	CHILOBVUM mariamc@vut.ac.za	APPLIED BUSINESS STATISTICS: METHODS AND EXCEL-BASED APPLICATIONS	3'rd	TREVOR WEGNER	9781485111931 (383836)	JUTA	150
	BAFAX1A	MARKETING	MAKHUVELE, E Ephraim@vut.ac.za	ACCOUNTING FOR all	1'st	SHUTTE M	9781485102182	JUTA	O/S
FINANCIAL ACCOUNTING 2.2	BAFRX2A BAFRY2A		NGOBESE THULLY nokuthulan@vut.ac.za MOSIA WILLIAM william@vut.ac.za	FINANCIAL ACCOUNTING:- IFRS-PRINCIPLES	4- ED	ILLSE LUBBE ALEX WATSON		OXFORD	450
FINANCIAL ACCOUNTING 2.2	BAFRX2A BAFRY2A		NGOBESE N nokuthulan@vut.ac.za	GAAP-GRADED QUESTIONS-2015	2015		(357986)	LEXISNEXIS	O/S
	BAFRX3A BAFRY3A	ND CMA, FIS,IA	VAN RENSBURG IRNA	FINANCIAL ACCOUNTING – IFRS PRINCIPLES	4	LUBBE MODDACK & WATSON	9780199049233 (356932)	OXFORD	250

SUBJECT	CODE	COURSE CODE	LECTURER & E	BOOK TITLE	EDITION	AUTHOR	ISBN	PUBLISHER	STUDENTS
FINANCIAL ACCOUNTING 4	BAFRGX 4A		MASEKO GJ Johannes@vut.ac.za	GRIPPING GAAP		SERVICE, CL	9780409057 23-2 (383290)	LEXISNEXIS	100
HOSPITALITY	BAFHX1 A	HOSPITA LITY	MAKHUVEL E, E Ephraim@vut .ac.za	ACCOUNTING FOR all	1'st	SHUTTE M	9781485102 182	JUTA	80
	BAFHX1 A	RETAIL	MAKHUVEL E, E Ephraim@vut .ac.za	ACCOUNTING FOR all	1'st	SHUTTE M	9781485102 182	JUTA	60
	BAIRX2A	ND INTERNA L AUDITIN G	VENZKE S Shirley@vut. acza	INTERNAL AUDITING: AN INTRODUCTION-2016	2016	COETZEE GP, DU BRUYN R, FOURIE H & PLANT K	9780409119 855	LEXISNEXIS	300
	BAIRY2A	ND INTERNA L AUDITIN G	VENZKE S Shirley@vut. acza	PERFORMING INTERNAL AUDIT ENGAGEMENT	2015	COETZEE GP, DU BRUYN R, FOURIE H & PLANT	9780409119 794 (358018)	LEXISNEXIS	300
	BAER01 A		VENZKE S Shirley@vut. acza	ETHICS FOR ACCOUNTANTS & AUDITORS	1 ST	KRETZCHMA R L PRINLOO	9780199042 456 (311324)	OXFORD UNIVERSITY PRESS	250
QUANTITATIVE TECHNIQUES	BAJEX1 B	MARKETI NG	CHIKOBVU M mariamc@vu t.ac.za	APPLIED BUSINESS STATISTICS: METHODS AND EXCEL-BASED APPLICATIONS	3'rd	TREVOR WEGNER	9781485111 931 (383836)	JUTA	350
RESEARCH METHODOLOGY	BANGX1 A		BENEKE J	RESEARCH METHODOLOGY :- BUSINESS & MANAGEMENT CONTEXTS	4'TH	BRYMAN & BELL	978019907- 6130 (360225)	OXFORD	120 -VDPK 20 - SECUNDA
COST ACCOUNTING 1.1 1.2	BACRX1 A BACRY1 A	COST & MANAGE MENT ACC	BENEKE J	COST & MANAGEMENT ACCOUNTING FUNDAMENTALS		MARIMUTHU	9781485111 900	JUTA	450 –VDBP 100 –EKHU 10 –UPING 50 -SECUN
COST & ESTIMATING	BKBKX1 A BKBKY1 A		BENEKE J	COST & MANAGEMENT ACCOUNTING FUNDAMENTALS		MARIMUTHU	9781485111 900	JUTA	200

SUBJECT	CODE	COURSE CODE	LECTURER & E	BOOK TITLE	EDITION	AUTHOR	ISBN	PUBLISHER	STUDENTS
COSTING 2	BKKMA2B		BENEKE J	COST & MANAGEMENT ACCOUNTING FUNDAMENTALS		MARIMUTHU	9781485111900	JUTA	20
QUANTITATIVE TECHNIQUES	BAQTX1A	SAFETY MANAGEMENT	CHILOBVUM mariamc@vut.ac.za	APPLIED BUSINESS STATISTICS: METHODS AND EXCEL-BASED APPLICATIONS	3RD	TREVOR WEGNER	9781485111931 (383836)	JUTA	250
STATISTICS 1.1	BASRX1A	COST, INTERNAL AUDITING, FIS	CHILOBVUM mariamc@vut.ac.za	APPLIED BUSINESS STATISTICS: METHODS AND EXCEL-BASED APPLICATIONS	3RD	TREVOR WEGNER	9781485111931 (383836)	JUTA	300
INTERNAL AUDITING 3	BKAGX3A	ND INTERNAL AUDITING	POOE B Brenda@vut.ac.za	CLEIM CIA REVIEW PART-1 CLEIM CIA REVIEW PART-2	2015	IRVIN N GLEIM	1)-9781581943740 (343460) 2)-9781581943757 (352879)	GLEIM-IIA	40 40
INTERNAL AUDITING 4.1	BKAGX4A	ND INTERNAL AUDITING	MITTON D dmitton@vut.ac.za	CLEIM CIA REVIEW PAT1 & 2-		IRVIN N GLEIM	9781581943740	GLEIM-IIA	STUDENTS BOUGHT BOOK IN 2015
SYSTEM & PROJECT MANAGEMENT	BKPGX4A BKPGY4A	B-TECH INTERNAL AUDITING	DU PLESSIS ANEL aneldp@vut.ac.za	A GUIDE TO PROJECT MANAGEMENT	2 ND		9781485105558 (367512)	JUTA	55
SYSTEM & PROJECT MANAGEMENT	BKPGX4A BKPGY4A	B-TECH INTERNAL AUDITING	DU PLESSIS ANEL aneldp@vut.ac.za	PROJECT MANAGEMENT WORKBOOK			9781785111978	JUTA	55

SUBJECT	CODE	COURSE CODE	LECTURER & E	BOOK TITLE	EDITION	AUTHOR	ISBN	PUBLISHER	STUDENTS
BAFH02B	BAFH02 B		SIBANDA DENNIS	HOSPITALITY MAN ACCOUNTING	9'TH	MARTIN G	156459	JOHN WILLY & SONS	O/S
COST & MANAGEMENT ACCOUNTING 3 BACRX3A BACRY3A	BACRX3 A BACRY3 A		FOUCHE G	COST & MANAGMENT ACCOUNTING-OPERATIONS AND MANAGEMENT A SA APPROACH		MARIMUTHU	9781485102 816 (358536)	JUTA	250
	BACRX1 A BACRY1 A		KOLOKO M-belinak@vut.ac.za	COST & MANAGMENT ACCOUNTING-2008	2'nd	V RENSBURG M KOORTZEN PJ	(186046) 9780627027 239	VAN SCHAIKS	O/S
BAFRGX1A	BAFRGX 1A		MASEKO J	ABOUT FINANCIAL ACCOUNTING-VOLUME 1-4	5-th		9780409106 213 (357978)	LEXIS NEXIS	300
				SEMESTER- 2-2016					
BIS 2.2	**BABRO3 A**		**POOE B Brenda@vut.ac.za**	**BUSINESS INFORMATION SYSTEM:TECHNOLOGY,DEVELOPMENT**	**5TH**	**BOCIJ, GREASLY & HICKIE**	**9780273736 455**	**PRENTICE HALL PERSON**	**O/S**
I-AUDIT 3.2	**BAIRY3 A**		**POOE B Brenda@vut.ac.za**	**ADVANCE INTERNAL AUDIT TOPICS**	**3RD**	**COETZEE, DE BRUYN**	**9780409057 072 (383272)**	**LEXIS NEXIS**	**60**

SUBJECT	CODE	COURSE CODE	LECTURER & E	BOOK TITLE	EDITION	AUTHOR	ISBN	PUBLISHER	STUDENTS
I-AUDIT 2.2	**BAIRY2A**	**ND INTERNAL AUDITING**	**VENZKE S Shirley@vut.acza**	**PERFORMING INTERNAL AUDIT ENGAGEMENT**	**4 ED**	**COETZEE GP, DU BRUYN R, FOURIE H & PLANT**	**9780409119794 (358018)**	**LEXIS NEXIS**	**O/S**
FINANCIAL MANAGEMENT	**BATMX2B**		**SIBANDA DENNIS dennissi@vut.ac.za**	**THE ABC OF FINANCIAL MANAGEMENT**		**FCH Lovemore**	**9780627025297**	**VAN SCHAIK**	**90**
ACC FOR HR	**BAAAZIA**		**MAKHUVELE, E Ephraim@vut.ac.za**	**BASIC ACC FOR NON-ACCOUNTANTS**	**2 ND**	**CLOETE,M**	**978062703290**	**VAN SCHAIK**	**O/S**
ACC FOR IT	**BAACIA**		**MAKHUVELE, E Ephraim@vut.ac.za**	**BASIC ACC FOR NON-ACCOUNTANTS**	**2 ND**	**CLOETE,M**	**978062703290**	**VAN SCHAIK**	**/O/S**
FINANCIAL ACCOUNTING	**BAFRGX1A**		**MASEKO GJ Johannes@vut.ac.za**	**ABOUT FINANCIAL ACCOUNTING:-VOLUME 2**	**5TH**	**F DOUSSY, JS JANSEN V RENSBURG**	**978040905711**	**LEXIS NEXIS**	**O/S**

FACULTY OF COMMERCE, LAW AND MANAGEMENT

SCHOOL OF ACCOUNTANCY

2016 Book List Coordinator: Jumarah Musetha (011) 717 8033, FNB C1,
Jumarah.Musetha@wits.ac.za

Author	Title	Publisher
Accounting I: ACCN1006/5 (Estimated Students: 900)		
Kolitz, DL	Questions, Exercises & Problems Accounting: Introductory. 5th 2015 Prescribed : ISBN : (978 0 1 48510 235 9)	Juta
Kolitz, DL;	Concepts Based Introduction Financial Accounting. 5th edition Prescribed Book : ISBN : (978 0 70219 785 7)	Juta
Accounting Information Systems: ACCN1009 First semester One(estimated Students: 700		
Hall	Accounting Information Systems. 8th edition ISBN: 978 1 111 97214 1 Recommended	South Western Cengage learning
Business Accounting: ACCN100 Please contact the School of Accountancy		
Financial Accounting I: ACCN1010 (Estimated Students:750)		
Kolitz, DL	Concepts Based Introduction to Financial Accounting 5th 2015 Prescribed : ISBN: (978 0 7019 785 7)	Juta
Kolitz, DL	Question, Exercises & Problems Accounting: Introductory 5th edition 2015 Prescribed : 978 1 48510 235 9)	Juta
Accounting II: ACCN2000/9 (Estimated Students (450)		
SIACA	The IFRS for Small Enterprises'(SME) Handbook (latest edition) Prescribed	SAICA
School of Accountancy, University of the Witwatersrand	IFRS for SME's : A Tutorial book	Juta
Accounting III: ACCN3004/10 (Estimated Students: 250)		
SAICA	The IFRS for Small Enterprises' (SME's) (latest edition) Prescribed	SAICA

Author	Title	Publisher
School of Accountancy, University of the Withwatersrand	IFRS for SME's : A tutorial book	Juta
Financial Accounting II: ACCN2002 (Estimated Students:550)		
Lubbe & Watson	Accounting: GAAP Principles. 4th edition Recommended : ISBN (97 801 9598 1278)	Oxford Press
Financial Accounting III: ACCN3001/8 (Estimated Students: 600)		
Vorster, Q; Koen M & Koornhof, C	Descriptive Accounting. 20th (2016) latest edition Recommended	LexisNexis
SAICA	Student handbook-A guide to IFRS.2015/2016 Prescribed	SAICA
Financial Accounting IV: ACCN4000/5000		
SAICA	Student Handbook - A Guide through IFRS. 2015/2016 edition Prescribed	SAICA
Vorster, Q; Koen M & Koornhof, C	Descriptive Accounting. 20th 2016 Recommended	LexisNexis
Management Accounting & Finance II: ACCN2006 2nd Semester (Estimated Students: 700		
Drury, C	Management & Cost Accounting. 9th edition & Students' Manual Pack. (Prescribed : ISBN (978 1 4808 9393 1)	South-Western Cengage Learning
Correira, C et al	Financial Mangement. 8th edition (2015) Prescibed : ISBN (978 1 4851 0277 9)	
Managerial Accounting & Finance III: ACCN3007/3012 1st & 2nd Semester (Estimated Students: 1000		
Semester 1 Drury, C	Management & Cost Accounting. 9TH edition & Students' Manual Pack. ((2015) Prescribed : ISBN (978 1 4808 9393 1). Students normally buy this book in their second year.	South-Western Cengage Learning
Semester 2 Correira, C; *et al*	Financial Management. 2015 8th edition Prescribed : ISBN: 978 1 4851 0277 9)	Juta
Managerial Accounting & Finance IV: ACCN4017/4022/4027/5003 (Estimated Students: 400)		
Semester 1 Correira, C; *et al*	Financial Management. (8th edition (2015) Prescribed: ISBN: (978 1 4851 0277 9) Students normally buy this book in their third year.	Juta

Author	Title	Publisher
Semester 2 Drury, C	Management & Cost Accounting. 8TH edition & Students' Manual Pack. 2015 Students normally buy this book in the second year and use it through their degree Prescribed : ISBN (978 1 4808 9393 1)	South-Western Cengage Learning
Auditing II: ACCN2015/2016 (Estimated Students: 500		
Rossouw,D Prozesky,M, Prinsloo,F&Kretzschmar	Ethics for Accountants and Auditors, 3rd edition Prescribed	Oxford University Press
AUDITING III: ACCN3003/9 (Estimated Students: 650		
SAICA	Student Handbooks 2015/2016 editionPrescribed	SAICA
Prinsloo, FE	Advanced Case Studies in External Auditing and Corporate Governance. 2016 edition Prescribed : ISBN (9780 620 547 635)	ArUet Publishing
Prinsloo, F & Von Weilligh P	Auditing Fundamentals in a South African Context Prescribed: ISBN(978 019 599821 4)	Oxford University Press
AUDITING IV: ACCN4001 (Estimated Students: 350)		
SAICA	Student Hanbooks . 2015/2016 Prescribed	SAICA
Prinsloo, FE & Von Weiligh Prinsloo,	Auditing Fundamentals in a South African Context Prescribed :ISBN: 978 019 599821 4	Oxford University Press
Prinsloo, FE	Advanced Case Studies in External Auditing and Corporate Governance. 2015 edition Prescribed : ISBN (9780 620 547 635)	ArUet Publishing
TAXATION II (ACCN2013, ACCN2014		
Stiglingh, Koekemoer, Van Schalkwyk, Willocks and De Swardt: LexisNexis	Silke: First Touch to Tax(2016)	LexisNexis
TAXATION III: ACCN 3013/3014 (Estimated Students: 850		
Stiglingh M *et el*	Silke on South African Income Tax. 2016 Prescribed	LexisNexis
Parsons S, et al	Advanced Question on SA Tax. Prescribed	Juta

Author	Title	Publisher
SAICA	SAICA Legislation Handbook. 2015/2016 editionPrescribed	SAICA
TAXATION IV: ACCN4025 & 5001 (Estimated Students: 320		
Stiglingh, M; *et el*	Silke on South African Income Tax. 2016 Prescribed	LexisNexis
SAICA	SAICA Legislation Handbook2015/2016 edition Prescribed	SAICA
MCom Theory of Finance & Corporate Policy		
Wessels; McGee; Prinsloo; Mc Gee & Van der Poll		Lexis Nexis

SCHOOL OF LAW

Book List Coordinator: Prof EC Schlemmer, Tel: (011) 717 8484 email: EngelaC.Schlemmer@wits.ac.za

Author	Title	Publisher
Access to Information and Privacy Law		
Milo, D	*A practical Guide to Media Law* (2013) ISBN: 9780409022315	LexisNexis
Access to Information and Privacy Law		
Milo, D	*A practical Guide to Media Law* (2013) ISBN: 9780409022315	LexisNexis
Administrative Law 1 LAWS 4034 Administrative Law semester 1 LAWS 4060 Administrative Law (Estimated Students: 294) LAWS 7002 Advanced Administrative Law (LLM, CORE) T2 (Estimated Students: 4) LAWS 7091 Advanced Administrative LAW (LLM, NON-CORE) T2 (Estimated Students: 5) LAWS 5067 Advanced Administrative Law (PG DIP) T2 (Estimated Students: 10)		
Hoexter, Cora	*Administrative Law in South Africa* 2 ed (2012) ISBN: 978 0 7021 94276 Prescribed	Juta
Advanced International Law (S2) (estimated student 460) LAWS7008/7093/5101 (Estimated Students:5 / 3 / 2)		
Malcolm N Shaw	*International Law* 6 ed (2008) ISBN: 9780521728140 Prescribed	Cambridge university Press
Antonio Cassese	*International law* 2 ed (2005) ISBN: 9780199259397 Prescribed	OUP

International students

The PGDip(Accounting) is open to all students wishing to qualify as South African Chartered Accountants.

Textbooks and other requirements

Unit	Prescribed Textbooks (latest vesions in each case)
Financial Reporting	• SAICA Handbook (LexisNexis)
Management Accounting & Finance	• Management and Cost Accounting by Drury (Chapman & Hall) • Management and Cost Accounting: Student's Manual by Drury (Chapman & Hall) • Financial Management by Correia et al (Juta)
Tax	• Silke on South African Income Tax (LexisNexis) • Student Guide To Advanced Taxation by Bretteny (Tax Research & Publications) • SAICA Legislation Handbook (LexisNexis)
Corporate Governance & Auditing	• Advanced Case Studies in External Auditing & Corporate Governance by Prinsloo (AuReT Publishing) • Auditing Notes for South African Students by Jackson & Stent (LexisNexis) • SAICA Handbook (LexisNexis) – *same as Financial Reporting* • SAICA Legislation Handbook (LexisNexis)–

	same as Tax

Award

Postgraduate Diplomas are awarded by Monash South Africa as a registered private higher education institution in South Africa.

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Appendix B: Note confirming the submission of article

Gmail yanine fonou <mawempombo@gmail.com>

Submission Confirmation for Preparedness of accounting graduates in lean accounting in South Africa

1 message

South African Journal of Accounting Research <em@editorialmanager.com> Wed, Nov 2, 2016 at 10:49 AM
Reply-To: South African Journal of Accounting Research <rsar-peerreview@tandf.co.uk>
To: Nyanine Chuele Fonou Dombeu <mawempombo@gmail.com>

Nov 02, 2016

Dear Mrs Fonou Dombeu,

Your submission entitled "Preparedness of accounting graduates in lean accounting in South Africa" has been received by journal South African Journal of Accounting Research

You will be able to check on the progress of your paper by logging on to Editorial Manager as an author. The URL is http://rsar.edmgr.com/.

Please verify the following information is accurate:
Additional Information

1. Nyanine Chuele Fonou Dombeu

Question	Response
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Do you have any conflict of interest? Please <a href='http://journalauthors.tandf.co.uk/permissions/reusingOwnWork.asp#link3'target=new'>click here for more information about disclosing a conflict of interest.	No
Is the manuscript a candidate for a special issue?	No

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Number of figures	5
Number of colour figures (For online publication only)	4
Number of tables	4
Number of words	7273
Number of manuscript pages (Note: do not include tables and figures)	15

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