FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

Tshwane University of Technology

We empower people

STUDENT COURSE GUIDE

NAME OF COURSE			
DEVELOPMENT SOFTWARE 3B			
NQF LEVEL	***NQF CREDITS***	***QUALIFICATION & SAQA ID***	***COURSE CODE***
6	**120**	**N.DIP in Information Technology** **SAQA ID No.: 72416**	**DS034BT**

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Revised by

CK Lepota

2019

Printed and distributed by:

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

Tshwane University of Technology

Private Bag X680

Pretoria

ORGANISATIONAL COMPONENT CONTENTS:

1. Welcome 5
2. Staff 5
   2.1 Contact Details 5
   2.2 Staff availability 6
3. Requirements, resources and recommended material 6
   3.1 Requirements for the course 6
4. Code of conduct 7
   4.1 Attendance 7
   4.2 Classroom behaviour 8
   4.3 Responsibilities of students 8
5. Overview of the course 8
   5.1 Purpose of the course 8
   5.2 Links to other subjects 8
   5.3 Course outcomes 8
6. Assessment 8
   6.1 Assessment methods and criteria 8
   6.2 Assessment rules 9
   6.3 Marking system 9
   6.4 semester mark 9
   6.5 Moderation 9
   6.6 Promotion requirements 9
7. Course content and schedule of tests and assignments 10
   7.1 Course structure and schedule of tests and assignments 10
   7.2 Learning outcomes and assessment criteria 11
   7.3 Generic outcomes and critical cross-field outcomes 15
8. Glossary of terms 16
9. Assessment Records 16

9.1 Example of a class test 16
9.2 Example of a practical report 16
9.3 Example of summative test and examination with memorandum. 16
10. Appendices 16
10.1 ExampleS of mark sheets FOR assessments during the course 16
Assessment 1 – Weight 7% 17
Assessment 2 – Weight 10% 17
Assessment 3 – Weight 13% 21
Assessment 4 – Weight 20% 26
Assessment 5 – Weight 50% 31
10.2 Referencing and citation 34

SECTION A ORGANISATIONAL COMPONENT

1. WELCOME

Welcome to Development Software 3B. This course may be seen as a culmination of everything that you have learnt up to now in the qualification. It integrates knowledge across all study fields of the qualification, including systems analysis and design, networking principles, project management, database design and implementation and programming. As such it is imperative that you make most of the theory and practical classes and other resources like the library and internet. Although the project will be done in groups, every learner must contribute, thereby ensuring that his/her understanding of the concepts covered, is up to standard. Bear in mind that you are the sole determinant of your success in the course. Assignments must be submitted in time, and no extension for project assessments will be given. Crashed/damaged flash drives or hard disks are always a possibility, so ensure that you have proper back-ups at all times.

2. STAFF

2.1 CONTACT DETAILS

NAME	CAMPUS	ROOM NO	TEL NO E-MAIL	CONSULTATION TIMES	ACADEMIC FUNCTION
Lepota CK	Soshanguve	20119	012 382 9014 lepotack@tut.ac.za		Subject Head
Chuene ND	Soshanguve	20118	012 382 9014 chuenend@tut.ac.za		Lecturer
	Emalahleni				Lecturer
	Polokwane				Lecturer(s)
Ms. L. Mathabela	Soshanguwe		+27 12 382 9505		Subject Librarian
Mrs. M. vd Merwe	Pretoria		+27 12 382 4126		Subject Librarian

Mrs R Segage	Emalahleni				Subject Librarian
Examiners					
Chuene ND	Soshanguwe	20-118	chuenend@tut.ac.za		Examiner
Lepota CK	Soshanguwe	20-119	Lepotack@tut.ac.za		Examiner
Moderator					
					Moderator

2.2 STAFF AVAILABILITY

If, after attending class and making every effort from your side to master content, you still have problems with understanding key concepts or principles or their application, lecturers are available for consultation. Lecturers are available for consultation as indicated on their timetables, but also via e-mail.

3. REQUIREMENTS, RESOURCES AND RECOMMENDED MATERIAL.

3.1 REQUIREMENTS FOR THE COURSE

3.1.1 PRESCRIBED RESOURCES

None. Notes will be distributed to students.

3.1.2 RECOMMENDED RESOURCES

The following recommend resources will enhance your understanding and knowledge in this course, and you are encouraged to use the following additional resources.

RECOMMENDED RESOURCES				
CATEGORY	**AUTHOR**	**NAME**	**PUBLISHER**	**ISBN NO**
BOOKS	Varallo, V.	ASP.NET 3.5 Enterprise Application Development with Visual Studio 2008: Problem-Design-Solution.	Wrox.	
	Sussman, D. & Homer, A.	*ASP.NET 2.0 Visual Web Developer 2005 Express Edition*.	Wiley Publishing inc.	
	Gibbs, M. and Howard, R.	*Microsoft ASP.NET coding strategies with the Microsoft ASP.NET team*.	Miscrosoft Press.	
	Bellinaso, M.	*ASP.NET 2.0 Website programming Problem-Design-Solution.*	Wiley Publishing inc.	
	Schach, S.R.	*Classical and Object-oriented Software Engineering with UML.*		

4. CODE OF CONDUCT

Please take note of the following regulations. These regulations are in addition to the standard rules and regulations as determined by the TUT. Please familiarise yourself with the TUT rules and regulations as set out in the student diaries received on registration.

4.1 ATTENDANCE

Regular attendance of the lectures is of primary importance. It is the learner's responsibility to sign the register each week. A minimum attendance of 75% is mandatory for all courses. In a 15 week semester, 8 classes that have not been attended and for which you have not furnished a valid doctor's letter or other proof of extenuating circumstances, amounts to 25% absenteeism. This level of absenteeism will lead to exclusion from the final moderation at the end of the semester, which means that you will fail the course and will have to repeat it the following year. **All evaluations are treated as work interview where student can't ask for postponement or second chance be on time with all equipment working. Print each assessment rubric for presentations.**

4.2 CLASSROOM BEHAVIOUR

Students are required to arrive on time for lectures.

The use a cell phone is permitted only in exceptional cases; it must be arranged with the lecturer beforehand if you may need to answer a call during class time.

Students who disrupt the class with unruly behaviour can face disciplinary action according to TUT rules.

4.3 RESPONSIBILITIES OF STUDENTS

It is your responsibility to make a success of learning in this course. To this end you are encouraged to attend class and submit assignments/projects on the set due dates. It is also your responsibility to seek help from the various structures when needed. **All evaluations are treated as work interview where student can't ask for postponement or second chance be on time with all equipment working. Print each assessment rubric for presentations.**

SECTION B LEARNING COMPONENT

5. OVERVIEW OF THE COURSE

Development Software 3B is a project-based subject. A web-based project is completed in groups. The groups decide which development environment to use. Groups must use a development environment that has not been studied during the diploma, thus excluding C++ Builder and Access. The focus in the course is setting up a web server, understanding 3-tiered development, building robust, secure, user-friendly applications and using a suitable test method to design test data for the system. The groups are also required to integrate their systems with existing components and/or code to enhance their systems.

5.1 PURPOSE OF THE COURSE

Upon completion of this course, the learner will be able to design and implement 3-tiered software solutions using a suitable open source database and development environment.

5.2 LINKS TO OTHER SUBJECTS

This subject integrates knowledge from Development Software 2A, Information Systems 3A and 3B, Development Software 3A and Systems Software 2A and B.

5.3 COURSE OUTCOMES

The learning schedule, as set out in section A, and ways in which you will be guided to master the content, will enable you to achieve the learning outcomes, as detailed under 7.2.

6. ASSESSMENT

6.1 ASSESSMENT METHODS AND CRITERIA

Assessment of this course will include project assessments as indicated in the schedule under section A. The purpose of assessment is to determine whether you have achieved the learning outcomes. The various

assessment methods therefore will focus on criteria that will enable the lecturer(s) to determine whether you have achieved the learning outcomes. The assessment criteria relevant to each learning outcome are detailed in section 3. This subject is a continuous assessment subject.

6.2 ASSESSMENT RULES

The general rules of TUT regarding assessment apply. You are advised to familiarise yourself with these rules, as they are applied stringently.

6.3 MARKING SYSTEM

Assessments 1 to 5 are group assessments for the chosen project. Each assessment is structured so that each individual in the group will get a specified work unit to complete and the individual will demonstrate the work unit for assessment purposes. An individual may be removed from a group if the group agrees that the individual is not contributing or sticking to deadlines.

6.4 SEMESTER MARK

The final mark is compiled as follows:

Assessment 1: 7%

Assessment 2: 10%

Assessment 3: 13%

Assessment 4: 20%

Assessment 5: 50%

6.5 MODERATION

Project assessments are moderated according to TUT regulations.

6.6 PROMOTION REQUIREMENTS

A student passes the subject if he/she obtains a final mark of at least 50%. There is no re-examination for continuous assessment subjects.

7. COURSE CONTENT AND SCHEDULE OF TESTS AND ASSIGNMENTS

There are no tests, but project assessments will be used to assess achievement of outcomes.

7.1 COURSE STRUCTURE AND SCHEDULE OF TESTS AND ASSIGNMENTS

WEEK N0	THEME	ASSIGNMENT/ TEST/PROJECT	WEEK COMMENCING
	Commencement of academic activities		21st January 2019
1	Classes start 3-tiered application architecture. Database maintenance (back up, restore, creating tables, relationships and users, assigning rights). Student groups start working on project proposal.	Introduction and System Topic proposal	11th February 2019
2	Inserts, Updates and Deletes on DetailsView, FormView and GridView.	Build database with 3 related tables using open source DBMS	18th February 2019
3	Master-detail relationships, DropdownLists, DataLists, ListViews.	Set up remote connection to database using chosen environment and/framework. Build interface for DML operations on database. Build system	25th February 2019 Soshanguve Class starts
4	Formatting pages, controls and the site. Other data-aware controls. Themes and styling sites.	Set up system as 3-tiered application. Setting up 3-tiered application in chosen environment	04th March 2019
5	Calendars, Images, FileUpload, RadioGroups, CheckBoxes. Stored procedures	Project proposal	04th March 2019
6	Testing strategies - Self-study, Menus	Get Form templates approved	11th March 2019

7	**Test week 1**		11th March 2019
	. RECESS		18th March 2019
8	Templates, Communication between pages	Evaluation 1: Assessment 1 and 2	25th March 2019
9	Security	Get Report templates approved	01st April 2019
10	Software integration		08th April 2019
11	Finalizing projects	Evaluation 2:Assessment 3 and 4: Project version 2	15th April 2019
12	**Test week 2**		22nd April 2019
13	**Test week 2**		29th April 2019
14	Finalizing projects		06th May 2019
15	Finalizing projects	Assessment 5: Final Project	13th May 2019
June/July 2018 Main examination starts 20th May			

***Please note that test dates may be moved on short notice where circumstances require such change. Also, take particular note of the rules regarding tests and assignments in section B, 2.6**

7.2 LEARNING OUTCOMES AND ASSESSMENT CRITERIA

The following tables clearly indicate what you have to achieve (the learning outcomes) and how you will be assessed (assessment criteria) to determine whether you have achieved the required knowledge and competences:

LEARNING OUTCOME 1	
The student can set up a small 3-tiered application using an open source database and suitable web server.	
Assessment criteria	**Assessment method**
The student can • Use an open source DBMS to create tables, relationships and users, assign rights to users on database structures such as tables or databases • Connect to the database using a suitable connection method • Set up a web server that accesses the database remotely • Connect to the web server from a client computer	Assessment 1 Practical group assessment

LEARNING OUTCOME 2	
The student can prepare a project proposal.	
Assessment criteria	**Assessment method**
The student can • Identify a suitable project • Identify project roles and use cases related to each role • Prepare a project proposal	Assessment 2 Project proposal document (group)

LEARNING OUTCOME 3	
The student builds an application based on the project description/proposal, using suitable controls and menu structure.	
Assessment criteria	**Assessment method**
The student can • Build a suitable menu structure to facilitate user-friendly access to all pages • Design and build user interfaces for data entry, updates and reports	Assessment 3 Practical group assessment Assessment 4 Practical group assessment Assessment 5 Practical group assessment

LEARNING OUTCOME 4	
The student can design test data for an application.	
Assessment criteria	**Assessment method**
The student can • explain the principles underlying test strategies • apply a suitable test methodology to design test data for the application	Assessment 3 Test cases document

LEARNING OUTCOME 5	
The student understands the importance of defensive programming and ensuring integrity of data.	
Assessment criteria	**Assessment method**
The student can • use suitable strategies to ensure integrity of data • use suitable strategies to handle page, database and other errors	Assessment 3 Practical group assessment Assessment 4 Practical group assessment Assessment 5 Practical group assessment

LEARNING OUTCOME 6	
The student understands how roles and/or users can be created using the chosen environment.	
Assessment criteria	**Assessment method**
The student can • create roles to manage access to parts of the application • create new users dynamically • record new user data in the database • display content related to the logged-on user • manage/restrict access according to logged-on user • adapt the menu according to the logged-on user	Assessment 4 Practical group assessment Assessment 5 Practical group assessment

LEARNING OUTCOME 7	
The student can create business-oriented reports, designed for different roles, that are properly filtered and that may be exported in different formats.	
Assessment criteria	**Assessment method**
The student can • provide different reports for different roles • provide different types of and level of detail in reports for different roles • provide a range of filters, e.g. filtering by date and/or by logged-on user to support business requirements • provide suitable default values on report filters to simplify user interaction with the system • build business-oriented reports • provide a choice of export options for the reports	Assessment 4 Practical group assessment Assessment 5 Practical group assessment

LEARNING OUTCOME 8	
The student understands how existing code may be integrated with a new application.	
Assessment criteria	**Assessment method**
The student can • integrate existing DLL's, API's or other components with the system to extend the functionality of the system • re-use code to simplify tasks • provide links to social networks or other web sites as applicable	Assessment 5 Practical group assessment

7.3 GENERIC OUTCOMES AND CRITICAL CROSS-FIELD OUTCOMES

Compliance with Critical cross-field Outcomes
The student must be able to: • Identify and solve IT systems problems in which responses display that responsible decisions using critical and creative thinking have been made • Work effectively with others as a member of a team, group, organization or community. The project groups nurtures this skill. • Organize and manage oneself and ones activities responsibly and effectively, as illustrated during assessments • Collect, analyse, organize and critically evaluate information. The analysis and design of the system support this outcome. • Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation. This outcome is illustrated by the documentation that is provided, as well as verbal contributions during assessments, amongst others. • Use science and technology effectively and critically, showing responsibility towards the environment and health of others • Demonstrate an understanding of the world as a set of related systems by recognizing that problem solving contexts do not exist in isolation. The relationship between this subject and other subjects illustrates this in a small way. • Reflecting and exploring a variety of strategies to learn more effectively • Participating as responsible citizens in the life of local and global communities • Being culturally and aesthetically sensitive across a range of social contexts. This should be reflected in the choice and development of the system. • Exploring education and career opportunities and • Developing entrepreneurial opportunities. The choice and development of the system is an excellent opportunity to develop these skills.

8. GLOSSARY OF TERMS

The following technical terms are used in this course, and you should be familiar with these terms and their meanings.

Web server

Multi-tiered application

Development framework

.Net framework

J2EE framework

Software integration

ODBC, ADO, JDB, DAO

COM objects, DLL and API

9. ASSESSMENT RECORDS

The following section gives examples of some of the Assessments.

9.1 EXAMPLE OF A CLASS TEST

N/A

9.2 EXAMPLE OF A PRACTICAL REPORT

Please refer to MyTUTOR for some examples.

9.3 EXAMPLE OF SUMMATIVE TEST AND EXAMINATION WITH MEMORANDUM.

N/A

10. APPENDICES

Examples of mark sheets for the assessments are given.

10.1 EXAMPLES OF MARK SHEETS FOR ASSESSMENTS DURING THE COURSE

ASSESSMENT 1 – WEIGHT 7%

Project Title ……

Group: _____

Members: _____ **Total: (30)** _____

_____ _____

_____ _____

_____ _____

Aspect to be evaluated	**Total mark**	**Learner mark**	**Comment**
OpenSource database	**10**		
ERD created (printed out). Field and table names conform to naming standards	3		
Database script created (printed out)	2		
At least 3 related example tables are created and populated (at least 5 records each) as per ERD.	3		
Relationships created as specified in ERD	2		
3-tiered application	**20**		
Web server set up, client can connect over network using Internet explorer or other web browser.	3		
Database on different machine from web server.	2		
Learner illustrates understanding of 3-tiered set-up.	3		
All pages are combined into one web site application. Pages can be accessed via menu links.	5		
Web application built to list, insert, update and delete data on selected tables. All functionality correct. **Every group member builds and demonstrates at least one page that can list <u>and</u> update (OR list <u>and</u> insert, or list <u>and</u> delete) database content. Students build <u>different</u> pages – one page must not be used by different students for this evaluation.**	2 marks for listing. 5 for update, delete or insert (each group member) Each group member gets individual mark		
Total	**30**		

ASSESSMENT 2 – WEIGHT 10%

An example of a project proposal is given. The mark for the aspect is given in bold, in brackets.

NAME OF SYSTEM **[1]**

Prison management system.

OBJECTIVE/VISION **[3]**

This project is aimed at developing a prison management system that is a collection of registers and reports for the effective management of data related to prisoners. Besides this, police and government officials can see crime/criminals' reports for their purpose. The management of prisoners includes prisoner admission and dismissal, prisoner release on parole, prisoner visits, prisoner movement and suitable reports regarding these aspects.

USERS OF THE SYSTEM **[2] (provide at least 3 roles)**

1. Police officers (Read only access)
2. Warden
3. Administrators (Jail admin/government officials)
4. Family members of prisoners
5. Data clerk

FUNCTIONAL REQUIREMENTS **[26]**

Bear in mind that functional requirements refer to what the system must be able to do. These aspects will typically appear in the final system as menu items. Non-functional requirements refer to constraints regarding performance, development environment, fault-tolerance, etc.

It is preferable that use cases (at least twenty) are used to document this. An event table is useful to record the information. Ensure that the roles of the system correspond with the **source** on the events table, which will correspond to the actors on the use cases.

Note how information is recorded using one use case, and the report related to this information is generated in another use case.

It is important to consider all the different users/roles of the system, and what information these users may be recording, need reports on.

You can also watch the video about the event table creation on YouTube at **http://www.youtube.com/watch?v=vEmE2dfC5NM.** You can also check **http://www.slideshare.net/wmomoni/modelling-system-requirements-events-things.**

Students are advised to study different approaches to event table modelling. Some approaches indicate that every event must have a response and destination, whereas others dictate that only reports should have a destination.

(Note that this is an adapted version of a student group's proposal, and may be incomplete).

Note that capturing of roles' data (e.g. registering users on the system should not form part of these 20 use cases).

The functionality of the system is summarised using the following event table:

Trigger	Event	Source	Use case	Response	Destination

Prisoner enters prison	Click on capture prisoner data	Administrator	Capture prisoner data		
Warden print prisoner tag	Click on print tag	Warden	Prints prisoner tag	Prisoner tag	Warden
Warden submits case details	Click on capture case data	Administrator	Capture case data		
Prisoner is moved inside prison	Click on Move prisoner	Warden	Record prisoner movement		
Administrator wants prisoner report	Click on Print prisoner report	Administrator	Print prisoner report	Prisoner report	Administrator
Administrator wants case report	Click on Print case report	Administrator	Print case report	Case report	Administrator
Time to produce release diary	Every day		Produce release diary	Release diary	Administrator
Prisoner released on parole	Click on Prisoner on parole	Administrator	Record parole information		
Administrator wants parole report	Click on Parole report	Administrator	Print parole report	Parole report	Administrator
Prisoner family request interview	Family member clicks on Request interview	Family member	Record interview request		
Prisoner family request interview per telephone	Data clerk clicks on Request per telephone	Data clerk	Record telephonic interview request		
Administrator needs interview request report	Administrator clicks on Interview request report	Administrator	Print interview request report	Interview request report	Administrator

Prisoner leaves prison	Clicks on Prisoner leaves prison	Administrator	Record prisoner leaving		
Administrator responds to interview requests	Administrator clicks on Response to Interview requests	Administrator	Administrator responds to interview request		
Family member requests response to interview request	Family member clicks on View response to interview request	Family member	Print interview request response	Interview request response report	Family member
Prisoner returns to prison	Administrator clicks on Prisoner returns	Administrator	Record prisoner return		
Official request in-out report	Click on Print in-out report	Warden	Print in-out report	In-out report	Warden
Prisoner gets visit	Clicks on Record visit	Administrator	Record visit		
Visitor leaves	Clicks on Record End of visit	Administrator	Record end of visit		
Administrator needs visit report	Click on Print visit report	Administrator	Print visit report	Visit report	Administrator
Administrator archives date	5 years after prisoner left prison	Administrator	Archive old data		

Use case additional detail (This will usually be done during the design phase, using formal use case descriptions):

Capture prisoner data: The details of the prisoner and his/her demographic details should be captured. A digital

photo comprising different views of the prisoner and the list of articles surrendered by prisoner during nominal roll are to be recorded.

Record prisoner leaving: This can be for various reasons, like court appearance, hospitalization, etc.

Also add any additional detail regarding the use cases here. The student can also use graphical use cases to illustrate actors of the use cases.

NON-FUNCTIONAL REQUIREMENTS **[2]**

At least 4 should be stated.

1. Secure access of confidential data
2. Classes must be used to facilitate re-use
3. The system must be able to handle at least 10000 prisoner records
4. Simultaneous access of 2000 users at a time must be handled by the server

OPTIONAL FEATURES **[1] (at least 2)**

1. Customizable colour scheme or skins
2. Help-pages of the application in the form of FAQ page

OTHER IMPORTANT ISSUES **[1] (at least 2)**

1. Website should be highly customizable and flexible
2. Team Size 4
3. Technologies to be used: ASP.NET
4. Tools to be used: Visual Studio 2010
5. Prisoner data must be archived **5 years after they leave the prison** into a set of Archive tables.

ASSESSMENT 3 – WEIGHT 13%

For this assessment, each group must indicate four main pages to be checked for inserts, updates and deletions. These pages will be evaluated in detail, but other pages for simple functionality must be provided to illustrate completeness of system. **Testing strategies must be in place to demonstrate that the system was thoroughly and systematically tested. Testing documentation with documented test cases must be provided.**

When selecting the pages for assessment, ensure that these pages illustrate the use of stored procedures, suitable controls, alternative controls such as drop-down lists, radio groups, images and calendars. These pages must also support the core functionality of the system. The different reports will be evaluated in Assessment 4, but the **menu system must include links to these pages already.**

Note that there is substantial individual assessment in this assessment. If a group member is absent for the assessment, he/she will forfeit these individual marks.

The learners must submit the design of proposed pages to be evaluated. The pages must be approved prior to the assessment. **This approval must happen at least 2 weeks before the evaluation date.**

The Form design template is provided, as well as an example of how it will typically be done.

FORM DESIGN TEMPLATE

Group name:_____ **Member:** _____

User/Role: _____ **Use case name:**_____

Page name:_____ **Stored procedure used:**_____

Filters (e.g. combobox, calendar control, text box for username)

Viewed on:_____ **(e.g. Mobile, Desktop)**

Put your filtering controls here (typically used for searches)	Tables used for filters (e.g. drop downs): Default values on filters: Ordering on filters:

Tables used for write operations: _____

Read operations: _____

Approved: _____

EXAMPLE FORM TEMPLATE

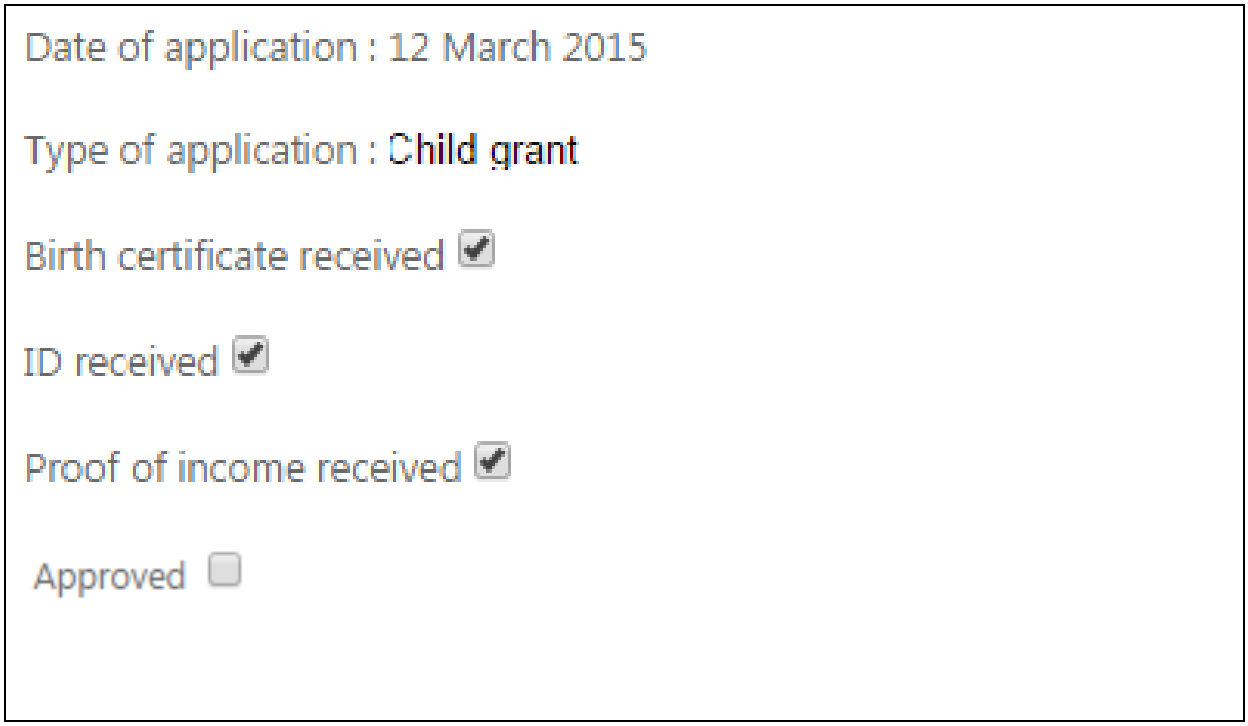
Group name: SASSA_____ **Member:** _____**Shireen**_____

User/Role: Administrator **Use case name: Process Grant**

Page name: Process_grant.aspx **Stored procedure used: proc_grant**

Filters (e.g. combobox, calendar control) **Viewed on:** Desktop **(e.g. Mobile, Desktop)**

	Tables used for filters (e.g. drop downs): **tblCustomer and tblApplication** Default values on filters: **First customer who applied, whose grant has not been processed.** Ordering: **Sort customers in ascending order of date applied**



Tables used for write operations: tblGrant (Create) , tblApplication (Update)

Read operations: tblCustomer, tblApplication, tblGrantType

Approved:

Project Title ……

Group: _____

Members: _____ **Total: (135)** _____

_____ _____

_____ _____

_____ _____

Aspect to be evaluated	Detail	Total mark	Learner mark	Comment
Database design	ERD	**10**		
Menu design		**7**		
Report pages not yet finished at this stage, but navigation to them (as empty pages) provided on menu. **Refer to your project proposal to ensure completeness.** **All pages must be included, even if some are still empty.**	Menu structure. Business terminology, ease of use.	2		
	Pages created which support business functionality. Any missing functionality when compared to project proposal -1/2.	5		
DML operations and correct business functionality.	**The +12 mark indicates each individual's mark for his/her page (multiplied by 2)**	**30** **+12**		
4 main pages to be checked. DML operations. If incorrect functionality on any of these pages, 0 for this section/group member.	Page 1	6		
	Page 2	6		
	Page 3	6		
	Page 4	6		
	At least **2** pages use **stored procedures** containing DML statements affecting more than one table	2x3		

User interface design		**46**		
	Form design templates approved.	5		
	The system appears professional. Alignment of controls, business terminology on controls. Any wrong aspect here **-2.**	3		
	Standardised look throughout site. Skins used to style controls. Stylesheet used to style html elements	2 5 3		
	Every page has a title. Any page without a title -1/2.	2		
	Drop downs where applicable (**all fk fields**). -1 for each missing dropdown.	4		
	All controls display suitable **business meaning.** (e.g. be careful of displaying PKs in drop-down list) Each group member evaluated individually on his/her page(s)	2		
	A range of suitable controls used for recording sets, enumerated types, lists, dates. 1 mark for each non-textbox, non-dropdownlist control to a maximum of 8.	8		
	Correct values are recorded in database when values are recorded using non-textbox controls (e.g. radiogroups, calendars, drop-down lists, checkboxes.) (-2 for any incorrect value) Each group member evaluated individually on his/her page(s). If no non-textbox controls are used learner gets **0.**	5		

	At least one databound image displayed	3		
	At least two default values are supplied inside a FormView, DetailsView or GridView. These default values assist in simplifying data entry.	4		
Testing	**+10** refers to each group member's individual score doubled.	**20+10**		
	Each group member provides use case descriptions and diagrams with test cases and test data for his/her page for testing the system (Hard copy). The test cases are complete. Each missing test case -3.	5 5 5 5		
Total		**135**		
Bonus	The middle tier is split into 2 or more tiers using classes for data access, for example. This is done for at least one page. 10 marks for each page using user-created class for data access.	**20**		

ASSESSMENT 4 – WEIGHT 20%

The learners must submit the proposed report pages to be evaluated. The pages must be approved **2 weeks** prior to the assessment. This assessment also focuses on security aspects.

REPORT TEMPLATE

Group name:_____ **Member:** _____ **User/Role:** _____

Use case name:_____**Report name:**_____ **Report type:**_____

Filters (e.g. combobox, calendar controls, text boxes) (summary/ detail/ exception)

Put your filters here	Tables used for **filters** (if applicable): Default values on **filters** (e.g. first day of previous month, last day of previous month on calendars): Constraints on filters (e.g. ddlTrans displays only transactions for currently logged on customer):

-	Ordering of records; Any other constraints on records or display (e.g. displayed on mobile device)

Tables used for report:_____

Approved:_____ Date: _____

Project Title ……

Group name: _____

Members: _____ (Total: 80) _____

_____ _____

_____ _____

_____ _____

_____ _____

Aspect to be evaluated	Detail	Total mark	Learner mark	Comment
Security and authentication		**25**		
	Access is restricted according to logged on user. Test for anonymous users and restricted users and roles.	3		
	New users can be created dynamically.	2		
	The user interface for creating new users is integrated with the business aspects. No duplicate data-entry (e.g. asking for username or email) is required	3		
	New users are assigned to correct role.	2		
	New user information is correctly recorded in DB.	3		
	Page content is displayed according to logged on user. Check for	4		

	update/delete pages.			
	Menu is adapted according to logged-on user using suitable method.	5		
	Default page is adapted according to logged-on user	3		
Reports		**25**		
	Report templates were submitted and were approved	3		
	There is at least one summary report page, **useful** for **management**.	1		
	There are at least three reports (different from the summary report), each of which displays data from more than one table.	3x1		
4 reports to be evaluated, 1 for each group member.	The report is properly filtered according to business requirements. 2 marks for each filter used per page (4) (e.g. dates). The report is also filtered according to the logged-on user where applicable (2).	6		
	The report filters use default values to simplify the filter selection, e.g. the filter shows beginning of current month.	3		

	Each student evaluated individually			
	The report is correct and complete. -1/2 for any missing field deemed important for business value. Check against template. 0 if the report content is incorrect in any respect. Every group member evaluated individually.	5		
	Each report can be exported to another format, e.g. PDF, CSV.	4x1		
Page-level error-handling for the four data-entry or update pages.	The +10 indicates each individual's marks for his/her error handling (multiplied by 2)	**20** **+10**		
In each case check error handling for empty fields (1), numeric and/or date data (1) and field lengths or ranges (1).	Page 1	5		
	Page 2	5		
	Page 3	5		
	Page 4	5		
Total		**80**		

ASSESSMENT 5 – WEIGHT 50%

This assessment focuses on the completed application, deployed in a 3-tiered architecture. Although some aspects have been evaluated in previous assessments, this assessment provides an opportunity to fix errors or improve the functionality of the system.

Project Title ……

Group name: _____

Members: _____ **Total: 130:** _____

_____ _____

_____ _____

_____ _____

_____ _____

Aspect to be evaluated	**Detail**	**Total mark**	**Learner mark**	**Comment**
Software Integration		**10**		
	The student demonstrates the use of external code or components to add functionality to the system.	8		
	The student provides useful links to external sites, including social network sites.	2		
Overall impression	The site appears neat and professional. Alignment of controls, standardized appearance, ease of navigation and logical navigation are addressed (4). Enough suitable **BUSINESS** data is displayed (at least 10 records in each table). This is demonstrated, for example, by displaying enough data when a report is opened first (4). The group understands the business (2).	**10**		

3-tiered implementation	The system is deployed on a web server and can be accessed from a remote client (6). The database is on a different machine from the web server (6).	**12**		
Security and authentication	Security and authentication are correct in the 3-tiered deployment. This includes **creation of users (3)** and **displaying content (3) and menu (3)** according to logged-on users. It also includes **restriction of users** on pages for which they are not authenticated **(3).**	**12**		
Integrity		**50**		
	All DML operations have the correct result in the 3-tiered deployment. Check 4 main pages. Any page with any integrity error gets 0.	4x6		
	Data integrity is ensured using defensive programming and database design. Any error not properly handled -8 (page level). Error messages that are not descriptive or specific enough -5.	16		
	Exception handling of exceptions at server level (4). Exception handling is done at the lowest possible level (6) - if an error can be handled at the page level, it should not be handled by the server. Any unhandled exception -5.	10		
Reports		**16**		

	The reports contribute to the business functionality and are correct and properly and logically filtered and ordered. Check 4 main reports. Any report without suitable filter(s) gets 0. Refer to Assessment 4. Any error related to correctness of information results in 0 for the report. Any report missing critical business information gets 0. Refer to Assessment 4.	4x3		
	All reports can be exported in alternative formats.	4x1		
Ready for use	The system is ready for use. Either a 10 or 0 to be assigned.	**10**		
Packaging	All documentation and softcopy is provided in a neat package: **Hard copy:** Fully attributed ERD, Project Proposal, Database scripts, Security information such as roles, users and passwords. Test cases. Installation/deployment instructions. **Softcopy:** Complete system on CD, including database script file -10 for any missing component/document.	**10**		
Total		**130**		
Bonus features	Not included in total. Any bells and whistles	**10**		

10.2 REFERENCING AND CITATION

Use the Harvard style for citations. A copy of the citation guide, which explains how to use the Harvard style, is available from MyTUTOR.
However, below are examples of citations from a book, a journal and a web site. You can use these examples as templates.

Book

CHORAFAS, D. 1998. Agent Technology Handbook. New York: McGraw-Hill.
You would cite this example in your text as (Chorafas, 1998).

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Journal

BERNASCHI, M. & CASTIGLIONE, F. 2005. Computational Features of Agent-Based Models. *International Journal of Computational Methods*, 2:33-48.
Note that the journal name is in italics, and volume and page number is included. You would cite this example in your text as (Bernaschi & Castiglione, 2005).

Web site

FRANKLIN, S. & GRAESSER, A. 1996. Is it an Agent, or just a Program?
[Online] Available from: http://www.msci.memphis.edu/ franklin/AgentProg.html
[Accessed: 2007/05/03]
You would cite this example in your text as (Franklin & Graesser, 1996).

A typical paragraph that uses these references will appear like this:

Chorafas (1998) states that agents are autonomous and rational. They are also software-based and may be mobile or stationary (Bernaschi & Castiglione, 2005). Agents are often used to combine information from various sites on the internet, to provide users with an integrated view of content (Franklin & Graesser). In many cases agents are used to facilitate on-line auctions (Chorafas, 1998; Bernaschi & Castiglione, 2005).

Note especially where the punctuation marks are used. Also note how, when an author name is used as part of a sentence, only the year of publication appears in the brackets. Also note that only surnames are used in the citations. Finally, the list of references will be listed in alphabetical order. More detailed information is available in the TUT citation guide, which is available on MyTUTOR. Also note the use of uppercase (author surnames), punctuation (full-stops and commas) and italics (journal names) in the reference list.