**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY**

**DEPARTMENT OF SOFTWARE ENGINEERING**

****

**STUDENT** **COURSE GUIDE**

|  |  |  |  |
| --- | --- | --- | --- |
| NAME OF COURSE: (FINANCIAL) INFORMATION SYSTEMS IIB | | | |
|  | | | |
| NQF LEVEL | NQF CREDITS | QUALIFICATION & SAQA ID | COURSE CODE |
|  |  | Diploma in Information Technology  Diploma in Financial Information Systems  SAQA ID No.: ….. | ISY23BT  FIS20BT |

**COMPILED BY: Thembi Patricia Msimanga**

**S2 2015**

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***Private Bag X680***

***PRETORIA***

***0001***

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**Tshwane University of Technology**

**Private Bag X680**

**Pretoria**

**0001**

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| **SECTION** | **A** | **ORGANISATIONAL COMPONENT** |

# 1. Welcome

Welcome to (Financial) Information Systems II B. This is a one-semester subject, which accommodates students from a broad spectrum of disciplines and interest. It includes a theoretical as well as a practical component. This module provides the knowledge and practical skills needed to complete the development and design phases of a system started in (Financial) Information Systems II A. The course is structured in such a way as to provide a sound foundation for System Analysis and complement the major courses in the ND: Information Technology.

# 2. Staff

## 2.1 Contact Details

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **NAME** | **CAMPUS** | | **ROOM NO** | **TEL NO E-MAIL** | **ACADEMIC FUNCTION** |
| Thembi Patricia Msimanga | Soshanguve | | 20: 114 | 012 382 9775 msimangap@tut.ac.za | Subject Head |
| **LECTURERS** | | |
|  | Polokwane | |  | [mokwenasn@tut.ac.za](mailto:mokwenasn@tut.ac.za) | Lecturer |
| Makgori Theodrine Mampana | Soshanguve | |  | 012 382 9245  mampanamt@tut.ac.za | Lecturer |
|  | Nelspruit | |  |  | Lecturer |
|  | eMalahleni | |  |  | Lecturer |
| **SUBJECT LIBRARIANS** | | |
| Miss*.* Makhanani Mashaba | Soshanguve campus*,* | | Bld 06:G04 | Tel: (012) 382-9509 | Subject Librarian |
| Mrs*.* E Lesenyane | Ga-Rankuwa campus, | |  | Tel: (012) 521-0515 | Subject Librarian |

## 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 within the specified consultation times provided by the lecturer. It is the student to first make an appointment with the lecturer for consultation.

# 3. Requirements, resources and recommended material.

## 3.1 Requirements for the course

##### 3.1.1 Prescribed resources

The following tables indicate what literature and other resources are essential for successful completion of this course. You are strongly advised to acquire all the prescribed resources.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **PRESCRIBED LITERATURE** | | | | |
| **CATEGORY** | **AUTHOR** | **NAME** | **PUBLISHER** | **ISBN NO** |
| **BOOKS** | **HarryJ. Rosenblatt** | **Systems Analysis and Design 10th ed** | **Shelly Cashman Series** | **Isbn-13 : 978-1-285-19248-2** |

##### 

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** | **VERSION** |
| **BOOKS** | *Whitten Jeffrey L., Bentley Lonnie D., Dittman Kevin C.* | ***Systems Analysis and Design Methods****.* | *McGraw-Hill.* | *ISBN 0-07-231539-3.* | *9* |

# 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 all lectures is of primary importance. It is the learner’s responsibility to sign the register each week. **A minimum attendance of 85% is mandatory for all courses including (Financial) Information Systems IIB in a 13 week year, 4 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 15% absenteeism. This level of absenteeism will lead to exclusion from the final moderation at the end of the year, which means that you will fail the course and will have to repeat it the following semester if the subject is offered.** Do not be late for class. (Do not enter the class if you are late)

## Classroom behaviour

Students are required to arrive on time for lectures.

Ensure that Cell phones are switched off during class times.

Do not eat or drink in the classes more especially in the practical classes.

##### 4.2.1. Usage of cell phones in classes

*All Cell phones must be kept on silence or switched off at all times during lectures, tests and examinations.*

## Responsibilities of students

***It is your responsibility to get your marked scripts back in CLASS. No scripts will be given in office. If you are absent during that day, ask your friends to collect it for you. We are not responsible for your scripts after publication / handed out in class. Check your marks on ITS after you have received your script. Do not wait until predicate day.***

It is your responsibility to make a success of learning in this course. To this end you are encouraged to attend classes, write set tests and hand in your assignments/projects on the set due dates. Strictly follow the schedule, unless otherwise stated. Look on the notice board outside the lecturer’s office, or on myTUTor, ITS for updates on marks and communication to students. Have a text book at all times and should prepare for each class by researching the chapter. See lecturer during consultation times; otherwise make an appointment with the lecturer for another time. Submit their sick note or death certificate or relevant documents within the specified time period.

|  |  |  |
| --- | --- | --- |
| **SECTION** | **B** | **LEARNING COMPONENT** |

# 1. Overview of the course

This course enables students to learn how to translate business requirements into Information Systems that support a company’s short-and long-term objectives. Case studies, assignments and a project will be given to students to teach them analytical and problem solving skills.

## 1.1 Purpose of the course

The general purpose of this subject is to provide the knowledge and practical skills needed to complete the development and design of a group project started in (Financial) Information Systems II A. The groups must present a complete computerized presentation of the system, as well as the implemented system.

## 1.2 Links to other subjects

This subject only applies to the fields mentioned here (In Alphabetical order):

Business Informatics

Financial Information Systems

Technical Application

Software Engineering

Support Services

Web and Multimedia Computing

This is a career focused Information and Communication Technology qualification that will enable a graduate to analyze business environments and design ICT solutions.

## 1.3 Course outcomes

The qualifying learner should have the ability to:

Apply the required strategies to manage an IT specialist area.

Apply advanced techniques in the design and implementation of solutions to IT oriented problems.

Effectively administer a certain IT specialist field

Analyze and design software solutions to industry related Information Technology problems

Utilize the required technical skills to effectively implement the designed solutions in a distributed IT environment.

Utilize the required technical skill to design and implement solutions in data communications, networks and the internet environment.

Demonstrate the effective utilization of business and management skills to bridge the gap between the IT discipline and the business functional areas in industry.

# 2. Assessment

## 2.1 Assessment methods and criteria

Assessment of this course will include 2 Class tests, 2 written (Semester) test, assignments, Project, as indicated in the schedule under section A. Tests will be written after certain chapters have been completed at set dates during class time. Students who have obtained less than 85% class attendance prior to the test will not be allowed to write the test, if the student insists on writing, the lecturer will not mark that test. All tests will be closed book tests. 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.

## 2.2 Assessment rules

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

All tests will be set by all lecturers that are presenting this course for this semester.

All tests to be moderated by the subject head presenting this course for this semester.

All tests will be handed out and discussed during class. If you do not attend the class your test will not be available for discussion later.

The relevant lecturers will publish all students’ marks on the notice boards/ myTUTOR / ITS. Students must check their marks and see the relevant lecturer if he/she disagrees, immediately. All C marks must be rectified within specified dates (week) stated on Section 3**. NO MARKS WILL BE CHANGED AFTER THOSE DATES!**

Lecturers will keep record (Mark-Sheet, attendance register) of his/her students as well as a personal subject file

The subject head will compile the subject file that includes all students mark sheets gathered from all lecturers involved.

If a student did not write a **semester test** due to illness or extraordinary circumstances (e.g. death of a family member), you will ONLY be allowed to write the sick test on the content of all the work, if the necessary acceptable documents of proof are submitted to the lecturer within **one week** after the test. The sick test will be written the week before the main examination.

**There is no sick test for any missed class test**.

**Get you’re your scripts in class. No lecture is responsible to keep scripts if you do not attend**.

## 2.3 Year mark

The final mark is calculated as follows:

SEMESTER TESTS 1 30%

SEMESTER TESTS 2 30%

PRACTICAL (Project) 10%

CLASS TESTS 1 15%

2 15%

**TOTAL 100**

Predicate marks are put on the faculty notice boards / ITS. **If you have queries about your mark, you must immediately consult your course lecturer (contact details are given above), before predicate day.** Once the predicate mark is entered on TUT’s mainframe computer, the mark **cannot** be changed.

## 2.4 Moderation

All assessments to be moderated by various lecturers

## 2.5 Promotion requirements

To pass the module, a student must:

obtain a final mark of at least 50% during the semester

# 3. Course content and schedule of tests and assignments

This course comprises both a theory and application component. Your mastery of that theory is assessed at regular intervals. More importantly, the application of theory is assessed through assignments/projects.

The following outline provides an overview of the content to be covered in this course and the ways in which your progress will be assessed.

## 3.1 Course structure and schedule of tests and assignments

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **WEEK#** | **ACADEMIC WEEK #** | **DATE** | **TUT Schedule** | **Additional ICT Dates** |  |
| 2 | 1 | 27 - 31 Jul | Semester 1  Classes Start | Introduction  Ch 5: DFD (context & diagram 0)  Method: See exercises | Revise project FIS21AT/ISY23AT |
| 3 | 2 | 03 – 07 Aug |  | Ch 5: DFD (diagram 0)(Continued)  Ch 9: Theory | Slide 9, Coding & Documentation |
| 4 | 3 | 10 – 14 Aug | **Class test 01**  Class Test 01 - (DFD context & diagram 0 (Ch5), & Ch 9 Theory  09 Aug (Sun) & 10 Aug (Mon): Public Holiday (Women’s Day). 4-day week | **(DFD context & diagram 0** (Ch5)**, & Ch 9 Theory** | Slide 9, Coding & Documentation |
| 5 | 4 | 17 – 21 Aug |  | ERD | Slide 10, Coding & Documentation |
| 6 | 5 | 24 – 28 Aug | **ICT Test Week Semester Test 01**#  ST1- DFD & **ERD & Ch 9 Theory)**  Test week starts: 22 Aug (Sat) to 29 Aug (Sat) Starts with Slot F. | **Normalization,** | Slide 11, Coding & Documentation |
| 7 | 6 | 31 Aug – 04 Sep |  | **Normalization,** | Coding & Documentation |
| 8 | 7 | 07 – 11 Sep |  | **Ch 10 (Self Study)**  Ch 07 | Coding & Documentation |
| 9 | 8 | 14 – 18 Sep |  | **Ch 10 (Self Study)**  & Ch08 | Coding & Documentation |
| 10 | 9 | 21 – 25 Sep | **ICT Test Week Semester Test 02# -**  ST2 – Normalization, Ch 07 & Ch 08 & Ch10)  21 Sep (Mon) - 1 Oct (Thu). Starts with Slot G. 24 Sep (Thu): Public holiday (Heritage Day) & 25 Sep (Fri): TUT Holiday. (3-day week) |  | Coding & Documentation |
| 11 |  | 28 Sep – 02 Oct | **ICT Test Week Semester Test 02# -**  ST2-  21 Sep (Mon) - 1 Oct (Thu). Starts with Slot G. 24 Sep (Thu): Public holiday (Heritage Day) & 25 Sep (Fri): TUT Holiday. (3-day week)  Test Week 2 - 21 Sep (Mon) - 1 Oct (Thu). TUT closes for recess Fri 2 Oct. |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 12 |  | 05 – 09 Oct | Recess | Recess :Sat 03 Oct – Sun 11 Oct |  |
| 13 | 10 | 12 -16 Oct | Class Test 02 | Ch 11 &  **Ch 12 (Self Study)** |  |
| 14 | 11 | 19 -23 Oct |  | **Presentation WEEK**  **Sick Test** |  |
| 16 | 12 | 26 – 30 Oct | **Predicate Day: Wed 28 Oct** | Ch 11 &  **Ch 12 (Self Study)**  DFD, ERD, Normalization Revision |  |
|  | 13 | 02 – 06 Nov | 02 Nov – Main Exams Starts |  |  |
| 17 | 14 | 09 – 13 Nov | Main Exams CNT |  |  |
|  | 15 | 16 – 20 Nov | 20 Nov Main Exams Ends |  |  |
| 18 | 16 | 23 – 27 Nov | 23 Nov Suppl Exams Start | Main Exam |  |
| 19 | 17 | 30 Nov – 04 Dec | 04 Dec Suppl Exams Ends | Main Exam |  |

\***Please note that test dates may be moved on short notice where circumstances require such** \***Please note that test dates may be moved on short notice where circumstances require such change.**

**Syllabus**

Only English words / abbreviations will be accepted in this course.

**Theory**

**Textbook**

The lecturer can decide which questions to review at the end of each chapter. The learning objectives for each topic are listed at the beginning of a chapter.

**Chapter 5 Data and Process Modeling**

**Outcomes:**

Describe the symbols used in data flow diagram (DFD0 – skip lower-level diagrams)

Explain the rules of the use.

**Assessment Criteria (AC):**

Draw data flow diagrams in a sequence, from context to diagram 0 –at a lower level

**Chapter 7 Development Strategies**

**Outcomes:**

Describe the concept of Software as a Service

Define Web 2.0 and Cloud computing

Explain software acquisition alternatives, including traditional and Web-based software development strategies

Describe software outsourcing options, including offshore outsourcing and the role of service providers

Explain advantages and disadvantages of in-house software development

Discuss cost-benefit analysis and financial analysis tools

Describe a request for proposal (RFP) and a request for quotation (RFQ)

Describe the system requirements documents

Explain the transition from systems analysis to systems design

**Assessment Criteria (AC):**

Software trends, acquisition and development strategies are described.

Traditional versus Web-based development is explained.

Outsourcing versus In-house development is explained.

System requirements document, prototyping, and preparing for the transition to the next SDLC phase are explained.

**Systems Design Phase**

**Chapter 8 User Interface Designing**

**Outcomes:**

Explain the concept of user interface design and human-computer interaction, including basic principles of user-centered design

Explain how experienced interface designers perform their tasks

Describe rules for successful interface design

Discuss input and output technology issues

Design effective source documents and forms

Explain printed output guidelines

Describe output and input controls and security

Explain modular design and prototyping

**Assessment Criteria (AC):**

An effective way of designing a user interface is explained.

Data security and control issues are explained.

The importance of user feedback and involvement in all design decisions, are outline and explained.

**Chapter 9 Data Design**

**Outcomes**

Explain file –oriented systems and how they differ from database management systems

Explain data design terminology, including entities, fields, common fields, records, files, tables, and key fields

Describe data relationships, draw an entity-relationship diagram, define cardinality, and use cardinality notation

Explain concept of normalization

Explain the importance of codes and describe various coding schemes

Explain data warehousing and data mining

Differentiate between logical and physical storage and records

Explain data control measures

**Assessment Criteria (AC):**

Data design skills necessary for constructing the physical model of the information systems are explained.

**Chapter 10 System Architecture**

**Outcomes:**

Provide a checklist of issues to consider when selecting architecture

Trace the evolution of system architecture from mainframes to current designs

Explain Client/Server Architecture including tiers, cost-benefits issues, and performance

Compare in-house e-commerce development with packaged solutions and service providers

Discuss the impact of cloud computing and Web 2.0

Define network topology, including hierarchical, bus, ring, star and mesh models

Describe wireless networking, including wireless standards, topologies, and trends

Describe the system design specification.

**Assessment Criteria (AC):**

Systems architecture is discussed.

Translation of logical design of an information system into a physical blueprint is described.

Servers, clients, processing methods, networks, and related issues are described.

**SYSTEM IMPLEMENTATION PHASE**

**Chapter 11 Managing Systems Implementation**

**Outcomes:**

Explain the importance of Software Quality Assurance and Software Engineering

Describe application development using structured, object-oriented, and agile methods

Draw a structured chart showing top-down design, modular design, cohesion, and coupling

Explain the coding process

Explain unit, integration, and system testing

Differentiate between program, system, operations, and user documentation

List the main steps in systems installation and evaluation

Develop training plans for various user groups, compare in-house and vendor training options, and describe effective training techniques

Describe data conversion and changeover methods

Explain post-implementation evaluation and the final report to management

**Assessment Criteria (AC):**

Application development, installation and evaluation are explained.

**SYSTEMS SUPPORT AND SECURITY PHASE**

**Chapter 12 Managing Systems Support and Security**

**Outcomes:**

Explain the Systems Support and Security phase

Describe User Support Activities including the User training and Service desk

Define the four types of Maintenance

Explain various techniques for managing systems maintenance and support

Describe techniques for measuring, managing, and planning system performance

Explain risk management concepts

Assess system security at six levels: physical security, network security, application security, file security, user security, and procedural security

Describe backup and disaster recovery

List factors indicating that a system has reached the end of its useful life

Assess future challenges and opportunities for IT professionals

Develop a strategic plan for career advancement and strong IT credentials

**Assessment Criteria (AC):**

Systems support and security tasks that continue throughout the useful life of the system are described.

User support is explained.

Systems maintenance, security, backup and disaster recovery, performance measurement, and systems obsolescence are explained.

## 3.2 Generic outcomes and critical cross-field outcomes

|  |
| --- |
| The following cross curriculum outcomes are emphasized: |
| Identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made;  Organize and manage oneself and one’s activities responsibly and effectively;  Collect, analyze, organize and critically evaluate information;  Use science and technology effectively and critically;  Being culturally and aesthetically sensitive across a range of social contexts. |

# 5. Assessment Records

All the previous test, Projects, exercises and examinations are available to serve as examples of the implementation of the assessment criteria and assessment method, as listed in the table 3.1, and you should be familiar with these examples to prepare and orientate yourself of how the various assessment criteria are used and applied in the various assessment methods. Visit <http://myTUTOR.tut.ac.za> to gain access to all assessment records.

5.1 Example of a class test:



|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| INSTRUCTIONS TO CANDIDATES  Write all your answers **on the test paper**  All answers must be in ink, **no pencil** answers will be marked  **No additional paper** may be used or handed in, Extra paper is added at the back of the test and must be handed in with the test  **NO CALCULATORS** or **ELECTRONIC DEVICE** may be used  **Sign** the declaration before proceeding **09 May** **2014** **TOTAL**: 65 Marks  **TIME**: 120 Minutes  **PAGES**:  **EXAMINERS:**  V.N Ranko, T.P Msimanga  **Moderator:** M.T Mampana  I declare that I am familiar with, and will abide to the Examination rules of Tshwane University of Technology **– *Annexure A*** SIGNATURE | ST1  **FACULTY: INFORMATION AND COMMUNICATION**  **TECHNOLOGY**  **DEPARTMENT: SYSTEMS DEVELOPMENT**  **ISY23BT**  **Semester test 1**  **Chapter 11 & 12**  **DFD**  **Normalization**  **LECTURER’s NAME:**    **VENUE :** | | | | | | | | | | |
| **STUDENT NUMBER:** | | | | | | | | | | |
|  |  |  |  |  |  | |  |  | |  |
| SURNAME | | | | | | **INITIALS** | | | **%** | |

EXAMINATION RULES

# INSTRUCTIONS TO CANDIDATES

By writing your name and student number on this script you confirm that you are familiar with the examination rules and regulations of TUT.

Write your full first names and surname and student number, which appears on your student card, clearly and correct in the space provided on the test paper. Your student number must also be written in the right hand corner of every loose sheet of paper.

During practical tests the following must be written on the label of the disk: Student number, Surname, Initial, Program and Lecturer.

When answering Theory tests you must write neatly and clearly and answer in the spaces provided for it. If you answer in a separate book use both sides of the paper. Leave margins entirely free for use of examiner.

You need not commence with every new answer on a new page. After completing a question, draw a line across the page and start the new question. It must be clearly numbered. Group the answers to subsections of a question together.

During practical tests you are not allowed to have any application open other than the application on which the test is based.

While the test is in progress, you may not help or try to help another student, obtain assistance or try to obtain assistance, or communicate or try to communicate with anyone.

You may not have in your possession any book, memorandum, note(s), sketch, map, film or any other document (including unused paper) or any other aid with a bearing on the subject, with the exception of whatever is handed out to you in the test hall.

No cell phone may be in your possession or be used by you during the test.

You may not use any pocket calculator unless it is clearly authorized on test paper.

You will render yourself liable to disqualification if you make personal remarks to the examiner or invigilator. The writing or drawing of any offensive matter on the test material supplied to you will disqualify you.

No explanation of test questions may be asked or will be given

Your answers may be written in English or Afrikaans.

All work done must be submitted. If you wish any mark not to be marked, draw a line through it.

No pages may be removed or inserted to your script.

You must leave the test hall as soon as you submitted your work, but not before at least 30 minutes of the test time has expired. You are not allowed to leave the hall without the permission if the invigilator. After any test, no student is allowed to open the computer to access any other program than the test.

All test scripts; disks and aids handed out to you must be returned before you leave the test hall.

The invigilator may disqualify any candidate for unfair practices or unsatisfactory conduct.

A student who does not comply with these rules shall be subject to disciplinary steps in terms of the Examination rules and Regulations of TUT

**Question 1 [18]**

1.1 After coding, a programmer must test each program to make sure it functions correctly. During a system test, users enter data, including samples of actual, or live, data, perform queries, and produce reports to simulate actual operating conditions. Identify six (6) major objectives of system testing (6)

|  |
| --- |
|  |

1.2 **Documentation** describes an information system and helps the users, managers, and IT staff who must interact with it. Accurate documentation can reduce system downtime, cut costs, and speed up maintenance tasks.

***“Program Documentation”*** is one of the four documentation steps.

List the other three (3) steps included in documentation (3)

1.3 Identify the five (5) steps to follow in systems implementation (5)

1.4 **System changeover** is the process of putting the new information system online and retiring the old system. Changeover can be rapid or slow, depending on the method. It consists of four Methods. Explain the any two (2) methods. (4)

**Question 2 [17]**

2.1 A **baseline** is a formal reference point that measures system characteristics at a specific time. **Systems analysts** use baselines as yardsticks to document features and performance during the systems development process.

List the three (3) types of baseline (3)

2.2 Network performance metrics include response time, bandwidth, throughput, and turnaround time. Explain this terms (8)

|  |
| --- |
| **Response time:** |
| **Bandwidth:** |
| **Throughput:** |
| **Turnaround:** |

2.3 What does perfective maintenance involve? (6)

**Question 3 [19]**

When South African exporters wish to send products overseas, they must utilize the DMR (Department of Mineral and Resources) Export Certification System.

The exporter applies for a Certificate from DMR, providing the product details, including the product life span, product description, product location and destination country. This “Request for Permit” (RFP) is stored.

The Geologist is notified of the lodgment of the RFP and inspects the site (location) and the documentation, providing an authorization or rejection notice. If the RFP is authorized, the notice will be used to issue the certificate with the details provided in the RFP, otherwise the unauthorized RFP is sent for storage. The Certificate is produced, printed then forwarded electronically (as an EDI message) to the exporter as well as the quarantine authority in the destination country. The certificate will be used to inspect the goods at the destination country’s point of entry.

Certificates must be stored once they are issued. If the RFP is rejected, the applicant is advised of the reasons for the rejection. Often this is the result of administrative errors, and the applicant corrects these and reapplies. RFPs expire after 7 days. An RFP list is sent from storage to the system and an updated RFP list is sent back for storage after the necessary deletions have been made in the RFP file.

When the goods arrive on the dock or at the airport at the destination country, they are inspected by the local quarantine authority using the electronic Certificate. Once this inspection is completed, DMR is notified of the status of the goods and if they are rejected, the reasons for the rejection are passed back to DMR. The Certificate for this shipment is then cancelled in the Certificates file.

Draw a DFD: diagram-0 for the Export Certification System. (19)

**Question 4 [11]**

Normalize the data of the Project Report below to 3rd normal form. Show all your steps.

Assumptions:

The following prefixes represent the following:

p prefix represents a specific project

e prefix represents an employee

dept prefix represents a specific department

An employee can work on more than one project and one project can have many employees working on it.

The hourly rate eHourlyRate of an employee is different for every project that he/she works on.

An employee belongs/can work in one department only.

An unnormalised form (UNF) of the project report contains the following data fields:

PROJECTREPORT (pCode, pTitle, pManager, pBudget, eNumber, eName, eHourlyRate, deptNumber, deptName)

Identify the primary key of the entity representing the repeating group. Explain your answer. (2)

|  |
| --- |
|  |

1NF (2)

|  |
| --- |
|  |

2NF (3)

|  |
| --- |
|  |

3NF (4)

|  |
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# 6. Appendices

Attach any document here which is necessary for the student to know about or to have access to.

**ADDENDUM A**

**Case Study:**

Information Systems II-2015



**(ISY23AT & BT)**







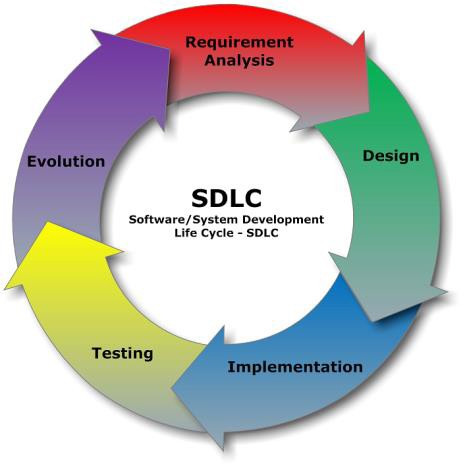
***THE AIRLINE RESERVATION SYSTEM***

The Airline Reservation System Project is a general Airline Ticketing Website which helps the customers to search the availability and prices of various airline tickets, along with the different packages available with the reservations.

This project also covers various features like online registration of the users, modifying the details of the website by the management staff or administrator of the website,

by adding, deleting or modifying the customer details, flights or packages

information. In general, this application would be designed to perform like any other Airline Ticketing Website available online and the application could be designed as a Mobile App.







Information Systems II-2015



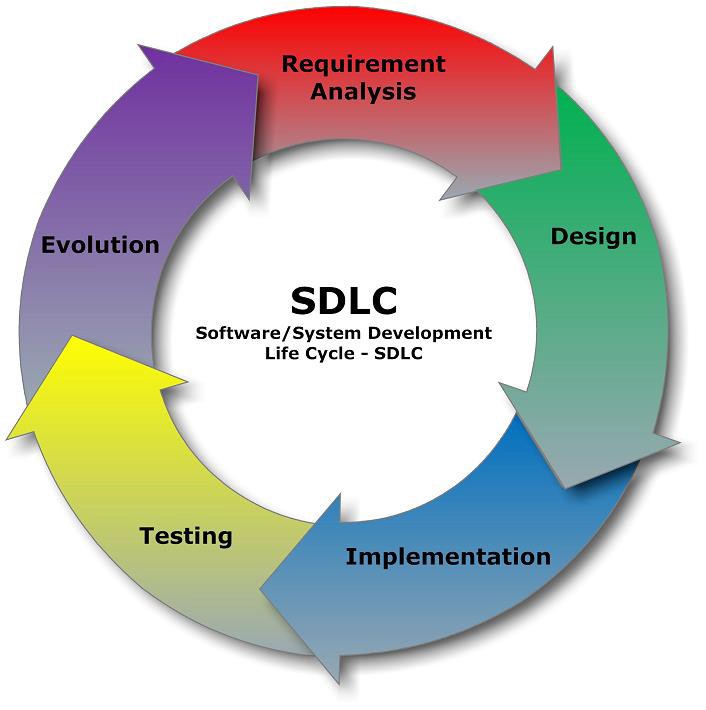
***THE MUNICIPALITY BILLS SYSTEM***

The Municipality Bills System project is a general Municipality System which helps the municipality to bill customers’ accounts, basically of water and electricity.

This project also covers various features like registration of users, modifying the details of the accounts by the management staff or administrator of the system, by

adding, deleting or modifying the customer details and bills. Customers should be able to view their accounts online. In general, this application would be designed

to perform like any other Municipality Billing System and the application could be designed as a Mobile App.



Information Systems II-2015

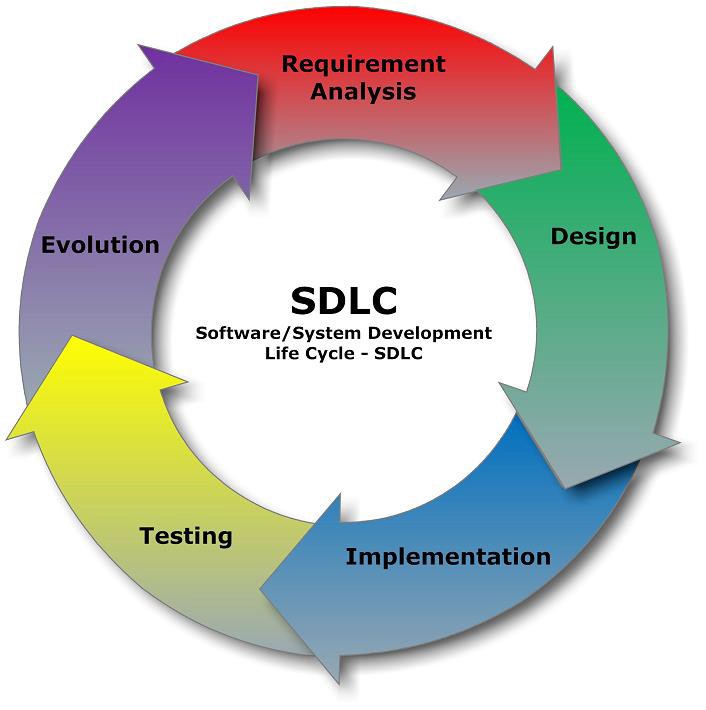






***THE INSURANCE CLAIMS SYSTEM***

The Insurance Companies Claim System project is a general Insurance Claims System which helps the customers to make claims of insured property such as a vehicle, house, etc. The claims should be processed via the internet and clients would also be able to access their details online. This project also covers various features like online registration of users, issuing of insurance quotes and paying claims, modifying personal details, insured property details, etc by the management staff or administrator of the system. In general, this application would be designed to perform like any Insurance Company System in business today and the application could be designed as a Mobile App.



**Non-functional requirements**

Requirements on usability, reliability, performance, supportability, security, recovery, interface, implementation, operation, and legal.

* The system will be a screen-based application.
* Menus should be organized in a hierarchical manner (usability)
* The system will be password-protected. (Security)
* System will be backed up daily. (Back up)

**Group project : TO BE DEMONSTRATED NOT LATER THAN 23rd October 2015**

You have started a project in FIS20AT ISY23AT (See below for an overview). For FIS20BT/ISY23BT you must complete this system, implement it and demonstrate it for a final project mark.

The layout of the slides for the project system for FIS20BT/ISY23BT was as follows:

**Project Slides:**

The ***Enterprise Analysis***Knowledge Area describes the business analysis activities necessary to identify a business need, problem, or opportunity, define the nature of a solution that meets that need, and justify the investment necessary to deliver that solution.

This knowledge area links the following concepts in your ISY23AT module, that is, the business case, cost and benefit analysis and the system analysis phase.

**Glossary of Terms**

|  |  |
| --- | --- |
| **Term** | **Explanation** |
| **Capability** | A function of an *organization* that enables it to achieve a *business goal* or *objective.* |
| **Functional Requirement** | The activities that the system must perform, e.g., For example, if you are developing a online payment system, the system might be required to include functions such as network connection; **calculate total balances; credit record, ect**. Please refer to your textbook. |
| **Non-Functional Requirement** | The characteristics of the system other than activities it must perform or support.  There are many different types of non-functional requirements**: Technical, Usability, Security, Performance and Reliability.** Please refer also to your textbook. |
| **Desired Outcome** | Describes the business benefits that will result from meeting the business need and the end state desired by stakeholders, e.g., **Reduce time to deliver a product or service; Improve revenue, by increasing sales or reducing cost; Increase employee and customer satisfaction;** |

From the CASE Study provided under the APPENDIX, identify and describe the following outcomes and present them in a PowerPoint slide format.

**NB:** please note that the word organization, enterprise and business will be used interchangeably.

**Please note that the content of each slide doesn’t have to fit on one page.**

**Layout of slides**

1. **Slide 1:** Cover page, which will include your Group name and logo, student number, surname, initials(s), name, field of study for each member of the group, the class group and lecturer name.
2. **Slide 2:** The name of the company for whom you are preparing the presentation. Include their mission statement.
3. **Slide 3:** Define the Business Need

**Purpose**

* Identify and define why a change to organizational systems or capabilities is required.

**Description**

* The business need defines the problem that the business analyst is trying to find a solution for.

**Output**

* Describe a **problem** that the organization is facing or **opportunity** that it has not taken, and the **desired outcome.** Please present this in a **systems request form.**

1. **Slide 4:** Preliminary Investigation Report

**Purpose**

* It’s an initial investigation to clearly identify the nature and scope of the business opportunity or problem and the desired outcome thereof.

**Output**

* Refer to page 81 of the prescribed textbook.

1. **Slide 5:** Capability Gap Assessment

**Purpose**

* **T**o identify new capabilities required by the enterprise to meet the business need.

**Description**

* Assess the current capabilities of the enterprise and identify the gaps that prevent it from meeting business needs and achieving desired outcomes.

**Output:**

**Required Capabilities:** it is an understanding of the current capabilities of the organization and the new capabilities that may be required to meet the business need.

**NB:** Draw a context diagram of the current system and state the new capabilities of the proposed solution.

1. **Slide 6:** Outline the functional and non-functional requirements of the proposed solution. Classify them based on the five general categories of systems requirements.
2. **Slide 7:** Drawa context diagram of the proposed system.
3. **Slide 8:** Outline the work breakdown structure and the Gantt and PERT chart of the project.
4. **Slide 9:** What will be the **return on investment (ROI)** and the **payback period**, illustrate this by means of Cost-Benefit layout.

*You can make some changes to Slides 1-9 to better the system – see the schedule*.

You are furthermore discouraged from using the previous semester’s slides (new slides for this semester) because you have different groups this semester.

For ISY23BT you must complete and hand in the following on the due date (see schedule):

**PowerPoint presentation (Slides 1-12)**

Therefore, you must complete the following slides for this semester:

**Slide 10** Data Flow Diagram (DFD) (Diagram 0)

**Slide 11** Entity-Relationship Diagram (ERD)

**Slide 12** Normalization (1st, 2nd and 3rd normalization)

* User/Training manual.
* Implemented system (project) (you will demo it).
* **Case study for FIS20BT/ISY23BT group project**

**Each group member should ensure that he/she knows all the detail, and has a copy of the final project.**

**Project Case Study**

Project can be downloaded from http://MYTUTOR.tut.ac.za

**Each group member should ensure that he/she knows all the detail, and has a copy of the final project.**

## 6.1 Example of mark sheet used during the course assessment.

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|  |
| 140 |

# ISY23BT/FIS20BA – Mark sheet Project TOTAL:

**Semester 1 - 2015**

|  |  |
| --- | --- |
| **Group:** | **Lecturer:** |
| **Group names (A-Z)** | **Student #** |
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## Slide show Duration: 10 Minutes

|  |  |  |  |
| --- | --- | --- | --- |
| **Slide #** | **Description** | **Comments** |  |
| 10 | DFD (Diagram 0)  (processes, entities, data stores) |  | \_\_  11 |
| 11 | ERD |  | \_\_  7 |
| 12 | Normalization (1st, 2nd and 3rd normalization) |  | \_\_  7 |
|  | Correct use of modeling tools |  | \_\_  5 |
|  |  | TOTAL: | **\_\_**  **30** |

N.B Please bring along the following:

* A copy of this document.
* A laptop(s) that your group will use during the presentation.
* A disk containing the complete slides as well as the project.
* We will need to see the slides but you are required to present the slides containing the ERD and the Data Flow Diagram (DFD): Diagram 0 as well as the complete normalization of your table designs.

## User/Training manual & Project Duration: 20 Minutes

|  |  |  |  |
| --- | --- | --- | --- |
| **Criteria** | **Description** | **Comments** | **Mark** |
| **1. Documentation:**  System documented effectively? Documentation useful for analyst? | User manual - Is user manual sufficient?   1. Diagrams (2) 2. What user should do (2) 3. Description of configuration (2) 4. Error codes/ messages (2) |  | \_\_  8 |
| **2. System aspects**  To what extent is the team successful in producing the solution to the problem as a whole? | Is there a good underlying systems design?   1. Use of modules (4)   Does the system function as a whole?   1. Effective communication between modules? (2) 2. Can all modules be activated from the menu? (2) 3. Is the handling of options/functions consistent throughout the system? (2) |  | \_\_  10 |
| **3. Technical polishing**  Is the team successful in presenting a neat system? Did detail also receive attention? Is everything in place and working? | Screen design   * Balance in screen, overloaded, too busy? (4) * Screen neat and polished? (3) * Date/time, logo, individual screens, sound, color, does it mean something? (5) |  | \_\_  12 |
| **4. Functional complexity**  The system is judged in two dimensions - depth and width | * Depth - how complex are the algorithms in the system? (5) * Width – number of functions/options in system? (5)   NB! Extra add on e.g. calendar |  | \_\_  10 |
| **5. Usefulness of System**  Does the system have value? Does the user feel he receives service? Does the user really receive useful information? Does the system really supply a wide variety of functions and services? | * To what extent does the system supply operational information? Is it on a daily basis, is the format understandable, and is it useful? (4) * To what extent does the system supply management information? - Does the manager get information? Are effective display techniques used? (4) * Types of Reports (4) |  | \_\_  12 |
| **6. User aspects**  Is the system user friendly? | What support does the user of the system receive?   1. Menu options for normal user (2) 2. Hot-keys for sophisticated user (2)   Help facilities   1. Use of help facilities (2) |  | \_\_  6 |
| **7. Robustness**  To what extent is the system immune against influences from environment? | Validation of input data for correctness (5)  Security of system   * Identification and authorization?   Passwords (5),  Different levels (2)  Protection of passwords (1),  Changing of passwords? (2) |  | \_\_  15 |
| **8. Presentation**  To what extent is the team successful in presenting the system in a professional manner? | Professionalism of team - clothes, participation, interrupts each other? (5)  Preparation - is there a database of cases? (Test data) (5)  Does each team member know the total system? (5) |  | \_\_  15 |
| **Language** | Other Learned |  | \_\_  2 |
| **Bonus marks**  Only for exceptional aspects!  Maximum 5 marks |  |  | \_\_  10 |
|  |  | **GRAND TOTAL SECTION B:** | **\_\_\_**  **100** |

N.B Please bring along the following:

* A copy of this document.
* A laptop(s) that your group will use during the presentation.
* A disk containing the complete slides as well as the project.
* We will need to see the slides but you are required to present the slides containing the ERD and the Data Flow Diagram (DFD): Diagram 0 as well as the complete normalization of your table designs.

Or

Visit: http://MYTUTOR.tut.ac.za