FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY DEPARTMENT OF COMPUTER SCIENCE



STUDENT COURSE GUIDE

|  |  |  |  |
| --- | --- | --- | --- |
| ***NAME OF COURSE*** | | | |
| **SOFTWARE PROJECT 3D** | | | |
| ***NQF LEVE L*** | ***NQF CREDITS*** | ***QUALIFICATION & SAQA ID*** | ***COURSE CODE*** |
| **6** | **120** | **N.DIP in Information Technology SAQA ID No.:**  **72416** | **SWP316D** |

**COMPILED BY Lepota CK**

**2022**

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***PRETORIA 0001***

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# FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

**Tshwane University of Technology Private Bag X680**

**Pretoria**

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|  |  |  |
| --- | --- | --- |
| **SECTI ON** | **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**

2.1CONTACT DETAILS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **NAME** | **CAMPUS** | **ROOM NO** | **TEL NO E-MAIL** | **CONSUL TATION TIMES** | **ACADEM IC FUNCTI** |
| Lepota CK | Soshanguve South | 20-119 | [lepotack@tut.ac.za](mailto:lepotack@tut.ac.za) |  | Lecturer |
|  | | | | | |
| Ms LS Underhay | eMalahleni |  | UnderhayLS@tut.ac.za |  | Lecturer |
|  |  |  |  |  | Lecturer |
|  |  |  |  |  | Lecturer |
| 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 | | | | |
|  |  |  |  |  |
|  |  |  |  | Examiner |
| Moderator | | | | |
|  |  |  |  | Moderator |

2.2STAFF 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.**

3.1REQUIREMENTS FOR THE COURSE

* + 1. PRESCRIBED RESOURCES

None. Notes will be distributed to students.

* + 1. 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- | Wrox. |  |
|  | Sussman, D.  &  Homer, A. | *ASP.NET 2.0 Visual* | Wiley |  |
| *Web Developer* | Publishing |
| *2005 Express*  *Edition*. | inc. |
|  | Gibbs, M. and  Howard, R. | *Microsoft* | Miscroso  ft Press. |  |
| *ASP.NET coding strategies with the*  *Microsoft ASP.NET* |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 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 familiarize yourself with the TUT rules and regulations as set out in the student diaries received on registration.

4.1ATTENDANCE

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.

4.2CLASSROOM 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 behavior can face disciplinary action according to TUT rules.

4.3RESPONSIBILITIES 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.

|  |  |  |
| --- | --- | --- |
| **SECTI ON** | **B** | **LEARNING COMPONENT** |

**5.OVERVIEW OF THE COURSE**

Software Project 3 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.

5.1PURPOSE OF THE COURSE

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

5.2LINKS 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.

5.3COURSE 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**

6.1ASSESSMENT 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. **TAKE THIS ASSESSMENTS AS YOUR INTERVIEWS NO SECOND CHANCE WILL BE GIVEN. PRINT ALL NEBESSARY DOCUMENTS BEFORE THE DAY OF PRESENTATION NOT ON THE DAY YOU ARE PRESENTING.**

6.2ASSESSMENT RULES

The general rules of TUT regarding assessment apply. You are advised to familiarize

yourself with these rules, as they are applied stringently.

#### SWP316D assessments are like interviews you cannot postpone it. No second chance.

* + - 1. **In two of the five Assessments students will be expected to do on the spot code editing to ensure that students know what they have submitted.**

**7.COURSE CONTENT AND SCHEDULE OF TESTS AND ASSIGNMENTS**

6.3MARKING SYSTEM

Assessments 1 to 5 are group assessments for the chosen project. Each assessment is structured so that everyone 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. **TAKE THIS ASSESSMENTS AS YOUR INTERVIEWS NO SECOND CHANGE WILL BE GIVEN. PRINT ALL NEBESSARY DOCUMENTS BEFORE THE DAY OF PRESENTATION NOT ON THE DAY YOU ARE PRESENTING.**

* 1. SEMESTER MARK The final mark is compiled as follows

#### Semester Work SW [40%]

Assessment 1 – 4 : 20%, 20% ,20%, 40%

#### Final Project PJ [60%]

Assessment 5

#### Sample Calculation of Final Mark:

**SW** =*AS1*\*0.2 +*AS2*\*0.2+*AS3*\*0.2+*AS*4\*0.4

**PJ** = *AS5*\*1.0

**Final Mark**= **SW**\*0.4 +**PJ**\*0.6

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. All students presenting final assessment should be available on that day dress formal code.

The timetable for class attendance is obtainable from the leaner management system (LMS).

**7.1 consultation**

Consultation time slots will be displayed on the schedule. In the case where the time slots are not displayed students must please contact the lecturer one day in advance via email and arrange a consultation session. Please remember to mention your name & surname, student number, module code and topic to be discussed during the consultation session.

**7.2 schedule**

The schedule indicates all-important dates for activities such as, class activities, assignment due dates, class tests, excursions, practicals, project due dates, computer-based tests submission dates etc. Please ensure that you follow the schedule of your assigned group.



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

7.3 COURSE STRUCTURE AND SCHEDULE OF TESTS AND ASSIGNMENTS

|  |  |  |  |
| --- | --- | --- | --- |
| **WEEK N0** | **THEME** | **PROJECT**  **/ASSIGNMENT/** | **WEEK COMMEN** |
|  | Commencement of academic activities |  |  |
| **1** | Classes start  Creating a software proposal,  Software modelling concepts visited like Use cases, Business process,  Work breakdown structures and project tasks planning  Databases | Conceptualize a system in a given domain.  This system must aim to automate so business process in order to increase service offering efficiency. | 06 – 17 February |
| **2** | Introduce what a full stack system is and different aspects of a full stack system:  Client-side / Graphic user interface: HTML5,CSS, Server-side scripting languages and their use.  Databases |  | 20 February – 10 March |
| **3** | Graphic user interface advanced topics:  HTML tables, Lists to display data Form to get user input  Use of Frameworks like ASP.Net OR IDEs like PHPStorm, Atom ect.  Dropdown / Selection Structures  APis for establishing connection to remote database  Reading Form inputs from Graphic user interface to write/read/update database using server-side scripting | Set up remote  connection to Database using chosen environment and/framework.  Build interface for DML operations on database. Build small system for Assessment | 13 March – 25 March |
| **4** | Formatting pages, Other data- aware controls. Calendars, Images, FileUpload, RadioGroups, CheckBoxes, Filtering and searching | Set up system as full stack application. | 27 March - 06 April |
| **5** | Refining business processes implementation |  | 14 April – 28 April |
| **6** | Testing strategies |  | 1-6 May |
| **7** | Integrating all pages/, Communication between pages. Limit access according to user role | Finalization of project | 8-13 May |
| **8** | Implementing security in system and Software  integration |  | 15-20 May |
| 9 | Exam |  | 22 May-09 Jun |
|  | Final Assessment 5: Final Project | Supplementary EXAM | 12-16 Jun |

#### \*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,

7.3 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   * Identify a suitable project * Identify the domain or business where the project is to be used.ie * Identify core business processes that the identified project should automate * List Requirements for the system * Design the system: use UML tools * Prepare a project proposal | Assessment 1 **Proposal document**  Mark allocated for: Requirements  Design: Use case, and Business process diagrams  Project planning |

|  |  |
| --- | --- |
| **LEARNING OUTCOME 2** | |
| The student can prepare a project proposal. | |
| **Assessment criteria** | **Assessment method** |
| The student can:   * **Create a Full Stack web application:**   implementing at least two core business processes  **Full Stack web application consists of: Presentation layer/ Graphic user interface**  Developed in HTML, CSS maybe some JavaScript  **Business Logic layer**  Developed using one of these: **PHP, C#**, Java,  Python etc.  Use functions /APIs to connect to a Database  Read from presentation layer ie <Form> inputs and: use functions / APIs to read, write update  database records.  **Data persistence layer** | Assessment 2:  **Min Full Stack system**: that implements only a few businesses processes.  Marks allocated when mini system is demonstrated on Assessment 2 date |
| **Students are expected to be able to edit the submitted code**  **on the spot** | Zero Mark allocated for AS2 if failed to do code |

|  |  |  |  |
| --- | --- | --- | --- |
| **LEARNING OUTCOME 3** | | | |
| The student builds an application based on the project description/proposal, using  suitable controls and menu structure. Update project from Assessment 2 by implementing all business processes in the chosen system. | | | |
| **Assessment criteria** | **Assessment method** | | |
| The student can   * Build a complete suitable menu structure to facilitate user-friendly access to all pages * Design and build all user interfaces for data entry, updates and reports * Error handling/ Form validation * Prepare test case document. | Assessment |  | 3 |
| Practical |  |  |
| Assessment | 4 | Practical |
| Assessment |  | 5 |
| Practical |  |  |

|  |  |
| --- | --- |
| **LEARNING OUTCOME 4** | |
| The student can design test data for an application. Know almost all the submitted code  and can edit the code when asked to do so. | |
| **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 * **Review / Edit submitted code on the spot.** | Assessment 3 Test-case document  Failure to do on-the-spot code review / editing a **Zero mark** will be allocated for Assessment 4. |

|  |  |
| --- | --- |
| **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 |

|  |  |
| --- | --- |
| **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 |

7.3GENERIC 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.

9.1EXAMPLE OF A CLASS TEST

N/A

9.2EXAMPLE OF A PRACTICAL REPORT

Please refer to MyTUTOR for some examples.

9.3EXAMPLE OF SUMMATIVE TEST AND EXAMINATION WITH MEMORANDUM.

N/A

**10.APPENDICES**

Examples of mark sheets for the assessments are given.

ASSESSMENT 1 – WEIGHT 20% of SW

For this assessment each group must develop a mini full stack system. **Only few (at least two) business processes must be implemented here**. 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.

Database Insert, update, delete must be implemented in line with core business process (es), and user input must come from the presentation layer via: drop-down lists, radio groups, calendars etc. The different reports will be evaluated in Assessment 4, but the menu system must include links to these pages already.

**Code review / on the spot code editing [Allocate 0 for AS2 if students cannot do this]**

ASSESSMENT 1 **- in Proposal** [ weight 20% in SW]

Total

## [100]

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

NAME OF SYSTEM, introduction **[1]**

Prison management system.

OBJECTIVE/VISION **[3]** IDE chosen

**Example** This project is aimed at developing a prison management system that is a collection of registers and reports for the effective management of prisons. 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. It will be developed using ASP.NET and mysql database.

USERS OF THE SYSTEM **[5]**

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

FUNCTIONAL REQUIREMENTS and USE CASE DIAGRAMS **[16]**

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 twelve) are used to document this. An event table is useful to record the information. Ensure that the users 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.

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Event** | **Trigger** | **Source** | **Use case** | **Response** | **Destination** |
| Prisoner enters prison | Prisoner arrives at admission desk | Administ rator | Capture prisoner data |  |  |
| Warden print prisoner tag | Prisoner arrives at Warden after admission | Warden | Prints prisoner tag | Prisoner tag | Warden |
| Warden submits case details | Warden submits case details to admission desk | Administ rator | Capture case data |  |  |
| Prisoner is moved inside prison | Warden records prisoner move | Warden | Record prisoner movement |  |  |
| Administrat or wants prisoner report | Administrator requests prisoner report | Administ rator | Print  prisoner report | Prison er report | Administrator |
| Administrat or wants case report | Administrator requests case report | Administ rator | Print case report | Case report | Administrator |
| Time to produce release diary | Every day |  | Produce release diary | Relea se diary | Administrator |
| Prisoner released on parole | Prisoner presented to parole desk | Administ rator | Record  parole information |  |  |
| Administrat  or wants parole report | Administrator  requests parole report | Administ  rator | Print  parole report | Parol  e repo rt | Administrator |
| Prisoner family request interview | Family submits request for interview via internet | Family member | Record interview request |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Prisoner family request interview | Family submits request for interview via telephone | Data clerk | Record telephonic interview request |  |  |
| Administrat or needs interview request report | Administrator requests interview request report | Administrat or | Print interview request report | Interv iew reque st repor t | Administra tor |
| Prisoner leaves prison | Prisoner leaves prison | Administrat or | Record prisoner leaving |  |  |
| Administrat or responds to interview requests | Administrator responds to interview requests | Administrat or | Administrator responds to interview request |  |  |
| Family member requests response to interview request | Family member requests response to interview request | Family member | Print interview request response | Interv iew reque st respo nse repor | Family member |
| Prisoner returns to prison | Prisoner returns | Administrat or | Record prisoner return |  |  |
| Official request in- out report | Official request | Warden | Print in-out report | In- out rep  ort | Warden |
| Prisoner gets visit | Visitor arrives for  visit | Administrat or | Record visit |  |  |
| Visitor leaves | Visitor departs | Administrat or | Record end of visit |  |  |
| Administrat or needs visit report |  | Administrat or | Print visit report | Visit report | Administra tor |

#### 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.

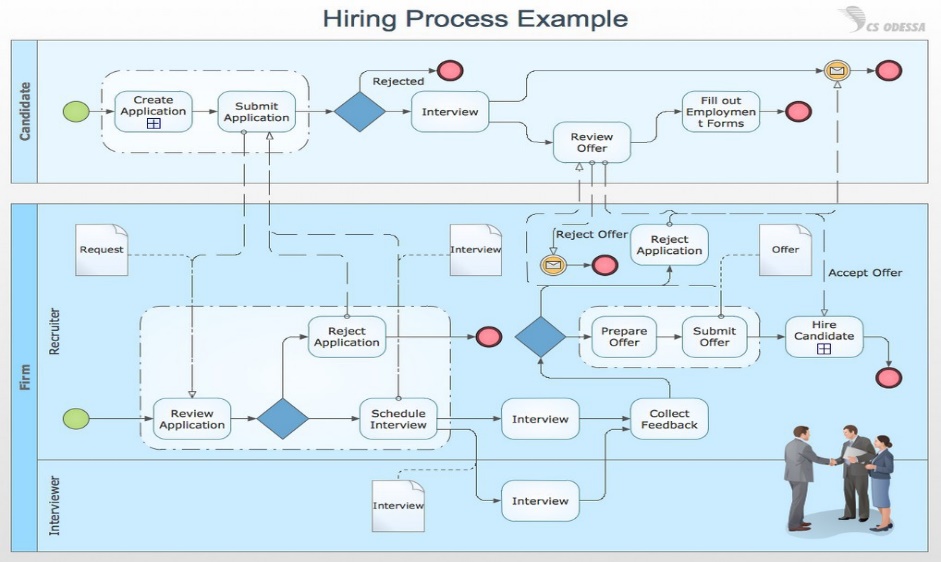
USECASE DIAGRAM

1. Include and extend stereotypes
2. All actors shown
3. Use of UML tools

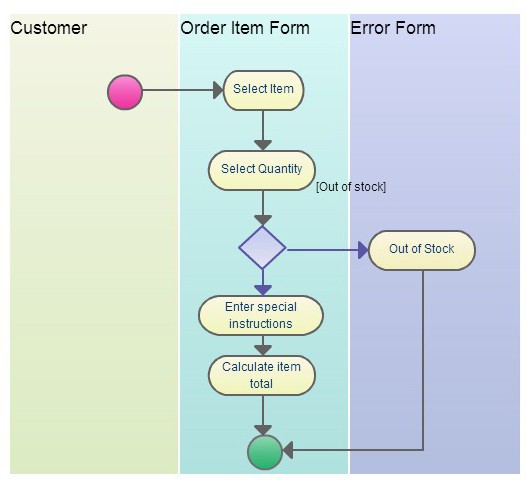
Business Process diagram [55]

Use the following examples as a guide to capture **ALL** business processes found in your system.

***Business process Example 1:*** *Job application process*



***Business process Example 2:*** *Food ordering system*



Block Diagram **[5]**

Overview of the system, major components found in the system.

Planning [ Work Breakdown Structure ] [15]

Plan what tasks need to be done in order to complete the project

**Assign** tasks to group member(s). Capture start and end dates for each task. Produce a Gantt chart depicting the plan, example:

<https://www.projectmanager.com/gantt-chart>

Please use software like write: [www.wrike.com](http://www.wrike.com/)

### ASSESSMENT 2

### Group:

**Members: Total: (20)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| **Aspect to be evaluated** | **Total mark** | **Learner mark** | **Comment** | **Additional** |
| **OpenSource database** | **6** |  |  |  |
| ERD created (printed out). Field and table names conform to naming standards | 2 |  |  |  |
| Database script created (printed out) | 1 |  |  |  |
| 3 Example tables are created and populated (at least 5 records each) as per ERD | 1 |  |  |  |
| Relationships created as specified in ERD | 2 |  |  |  |
| **3-tiered application** | **14** |  |  |  |
| 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. | 2 |  |  |  |
| 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 and update (OR list and insert, or list and delete) database content. Students build different 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** |  | **20** |  |  |

ASSESSMENT 3 – WEIGHT 20% of SW

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 proposed pages to be evaluated. The pages must be approved prior to the assessment.

**Group:**

#### Members: Total: (96)

|  |  |  |  |
| --- | --- | --- | --- |
| **Aspect to be evaluated** | **Detail** | **Learner mark** | **Comment** |
| **Database design** | ERD |  |  |
| **Menu design** |  |  |  |
| **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.** | Menu structure. Business terminology, ease of use. |  |  |
| Pages created which support business functionality. Any missing functionality when compared to project proposal -1/2. |  |  |
| **DML operations and** | **The +12 mark** |  |  |
| **correct business** | **indicates each** |
| **functionality.** | **individual’s mark for**  **his/her page** |
|  | **(multiplied by 2)** |
| 4 main pages to be checked. DML operations. | Page 1 |  |  |
| Page 2 |  |  |
| If incorrect functionality on any of these pages, 0 for this section/group |  |
| Page 3 |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| member. | Page 4 |  |  |
|  | At least **2** pages use **stored**  **procedures**  containing DML statements affecting more than one table |  |  |
| **User interface**  **design** |  |  |  |
|  | The system appears professional. Alignment of controls, business terminology on controls. Any wrong aspect here **- 2.** |  |  |
|  | Standardised look throughout site. |  |  |
|  | Every page has a title. Any page without a title  -1/2. |  |  |
|  | Drop downs where applicable (**all fk fields**). -  1 for each missing dropdown. |  |  |
|  | 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) |  |  |
|  |
|  |
|  |
|  | 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. |  |  |
|  | 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.** |  |  |
|  |
|  | At least one databound image displayed |  |  |
|  | At least two default values are supplied inside a FormView, DetailsView or GridView |  |  |
| **Testing** | **+10** refers to each group member’s individual score doubled. |  |  |
|  |
|  |
|  |
|  | 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. |  |  |
|  |
|  |
|  |
| **Total** |  |  |  |
| **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. |  |  |

ASSESSMENT 4 – WEIGHT 40% of SW

The learners must submit All pages in the system, implementing all business processes

found in there proposed system. The business-oriented report pages also will be evaluated together with the implemented business processes. The pages must be approved prior to the assessment. This assessment also focuses on security aspects, integrity, reliability of the system to execute processes are expected in the domain where the system will be used.

**Code review / on the spot editing [Allocate 0 for AS4 if students cannot do this]**

Group name:

Members:

|  |  |  |  |
| --- | --- | --- | --- |
| **Aspect to**  **be evaluated** | **Detail** | **Learn**  **er mark** | **Comment** |
| **Security**  **and authentication** |  |  |  |
|  | Access is restricted according to logged on user. Test for anonymous users and restricted users and roles. |  |  |
| New users can be created dynamically. |  |  |
| The user interface for creating new users is integrated with the business aspects. No duplicate data-entry (e.g. asking for username) is required |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | New users are assigned to correct role. |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | New user information is correctly recorded in DB. |  | |  |
| Page content is displayed according to logged on user. |  | |  |
| Check for  update/delete pages. |
| Menu is adapted according to logged- on user using suitable method. |  | |  |
| Default page is adapted according to logged-on user |  | |  |
| **Reports** |  |  | |  |
|  | There is at least one summary report page, **useful** for management. |  | |  |
|  | There are at least three  reports (different from the summary report), each of which displays data from more than one table. |  | |  |
| 4 reports to be evaluated, 1 for each group member. | The report is properly filtered according to business requirements. 1 mark for each filter used  (2) (e.g. dates). |  |  |  |
|  |
|  |
|  | The report is also filtered according to the logged- on user where applicable (2). |  |
|  | The report filters use |  | |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | default values to simplify the filter selection, e.g. the filter shows beginning of current month. Each  student evaluated individually |  |  |
|  |
|  |
| The report is correct and complete. |  |  |
|  |
| -1/2 for any missing field  deemed  important for business value. |
|  |
|  |
| 0 if the report content is incorrect in any respect. Every group  member evaluated individually. |
|  | Each report can be exported to another format, e.g. PDF, CSV. |  |  |
| **Page-level handlingfor the four data- update pages.** | The +9 indicates each individual’s marks for his/her error handling (multiplied by 2) |  |  |
| In each case | Page 1 |  |  |
| check error |
| Page 2 |  |  |
| handling for |
| empty fields (1), |
| Page 3 |  |  |
| numeric and/or |
| date data (1)  and field lengths |
| Page 4 |  |  |
| or ranges (1). |  |
| **Total** |  |  |  |

ASSESSMENT 5 [PJ] – WEIGHT 60% of Final Mark

This assessment focuses on the completed f u l l s t a c k w e b application. Although some aspects have been evaluated in previous assessments, this assessment provides an opportunity to fix errors or improve the functionality of the system.

#### Group name:

**Members:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Aspect to**  **be**  **evaluated** | **Detail** | **Tot al**  **mar** | **Learn er**  **mark** | **Comment** |
| **Softwar e**  **Integrat** |  | **10** |  |  |
|  | The student demonstrates the use of external code or components to add  functionality to the | 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, | **10** |  |  |
|  | standardized appearance, ease of navigation and logical navigation are addressed (4). |  |
|  | Enough suitable **BUSINESS** data is displayed (at least  10 records in each table). (4). |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **3-tiered implementa tion** | The system is deployed on a web server and can be accessed from a remote client (6). The database is on a different machine | **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 | **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). | 16 |  |  |
|  | Exception handling of exceptions at server level (4).  Exception handling is done at the lowest possible level (6).  Any unhandled exception  -5. | 10 |  |  |
| **Reports** |  | **16** |  |  |

Use the Harvard style for citations. A copy of the citation guide, which explains how to use the Harvard style, is available from MyTUTOR.

10.2Referencing and citation

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:pp) where pp is the page number you referenced.

#### 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:pp) where pp is the page number you referenced.

#### 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 (1998:6) states that agents are autonomous and rational. They are also software-based and may be mobile or stationary (Bernaschi & Castiglione, 2005:5). Agents are often used to combine information from various sites on the internet, to provide users with an integrated view of content (Franklin & Graesser, 1996). In many cases agents are used to facilitate on-line auctions (Chorafas, 1998:6; Bernaschi & Castiglione, 2005:20).

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.

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