CAPE PENINSULA UNIVERSITY OF TECHNOLOGY

FACULTY 0F INFORMATICS AND DESIGN

PHP WEB DEVELOPMENT

INTERIM GENERAL PROJECT SPECIFICATION

as compiled by W.C. Rothman

2018

APPLICATIONS DEVELOPMENT IN ICT PRACTICE
&
INTERNET PROGRAMMING

COURSE CODE: **ADP372S & IRP300S**

NQF LEVEL: **6/7**

OUTCOMES OF THE INTERNET PROGRAMMING PAT

LEARNING OUTCOMES

Students will be able to display the ability to solve problems, plan and program server side web applications, develop web applications to interact with simple databases and devise test plans to test web programs with database interactivity.

GENERAL DESCRIPTION:

At the moment you do not fully understand the implication of a shopping cart that needs to be included into the project, but it has a specific data structure to keep data in transit so to speak before committing such data as a permanent entry.

Aim: The PHP project should employ a shopping cart option structure. Whether you are selling something or whether you use the shopping cart to store data in transit depends on the application.

EXIT LEVEL OUTCOMES	**SPECIFIC OUTCOMES**	**ASSESSMENT CRITERIA**
The qualifying learner should be able to:	**The qualifying learner should be able to:**	
A.1 Design and develop a web-application for a Student Sick Exam Management System.	1. Create an integrated web-design for a web application environment	• Knowledge of web-design techniques are demonstrated within an integrated environment according to best practices. • A Design technique is documented that satisfies the client needs and specification.
	2. Implement the integrated web-design for a given/selected	The web-design is represented according to the needs and requirements of the client.

	business/scenario.	
A.2 Produce a suitable specification for an integrated web-application.	1. Analyse the selected or given needs and requirements of the client.	Implement a typical SDLC to address the needs of the client regarding the web-application according to best practices.
	2. Apply information gathering techniques to capture user requirements to be used in producing specification documentation.	Information gathered using techniques according to best practices that will satisfy the user requirements best.
A.3 Implement an integrated web-application according to the design specification for a distributed environment.	1. Implement integrated web-application for an N-tier environment using open source software for the client's requirements.	The implemented web-application will be used according to best practices satisfying the user requirements, with the emphasis on: • Client-side programming • Server-side programming • Validation techniques (client and/or server side) • Design Patterns DTO/Facade • Usage of Master Page strategies • Incorporate controllers strategy e.g. MVC in using classes in PHP • Database implementation • Web-server utilization.

Project Name: Create a Web site on any of the following topics. The topic must be registered in advance with the lecturer before end of this term.

EXAMPLES OF PROJECTS WILL BE:

1. Sick Letter application (SAMS), as explained in full with rubric. The student logs into the system and start a shopping cart containing subjects that he/she missed out on. A doctor's certificate will be uploaded for those subjects he/she could not miss. These subjects will also be linked to a specific lecturer. Once done he/she will then commit the selections. So in a nutshell instead of selecting the subjects one by one, all subjects affected will be added into a cart and then submitted all together. Please see the specification and rubric

2. Web based application which teachers can use when they have their athletics day. You are a teacher at the school (Primary or High School). Every year the school hosts an athletic event which can be inhouse or the larger event of schools competing against one another. Results must be captured for the track and field events and uploaded into a database. The teachers at e.g. high jump runs the php application on tablets, but those at the main commentator's desk, runs normal PCs. Responsive web design must be a high priority. The names and identity numbers plus a scanned in identity document must be stored in the database for each participant. Here the teacher at the long jump activity or javelin activity will capture/record the learner and his/her results on a tablet logged into the system. These results will then be recorded as part of a shopping cart principle where the moderator processes all results and then accept the results as permanent and written to the database. Such a "Shopping Cart" will contain the official's ID and Name and School if needed as well as the athlete's ID and Name. The official will open a page where these results are recorded. Once the activity or event is done, that will be committed into the database. These events will be pending for the moderator to open and confirmed as a final result. You will have to liaise with a school to understand that learners need to be uploaded into a database table with their birth certificate copies within an age group. Any recorded value must belong to an official connected or responsible for an event.

3. You are selling something, i.e. an online shop of some sort. The users will select products and upload these products. When shopping is done the items will be written to the database. No computer shops please. Try something new!

4. Visit e.g. Brights website and criticize the shortcomings of the site. Revamp and improve the site to accommodate ShoppingCart facility to the client/consumer. The hardware store runs out of water tanks and cement blocks and the like. These items are usually in high demand and are thus sometimes not available immediately. The store must also make arrangements to deliver these items such as a water tank that is mostly not transportable by the client. Create a web application that will:

    a. Record the clients's name and details

b. Record the client's exact Google address
c. Record the items such as a water tank, downpipes, cement blocks which must be loaded into a shopping cart for processing
d. The client may request or purchase more items and the shopping cart may increase for that client.
e. Once the items are ready for delivery, the shop assistant will look up the client and print a list with contact number etc. Then phone the client to confirm a date and time of delivery. Once this is done the application must send an sms to that client OR email stating the exact time of delivery on the pre arranged day. The items are then changed from PENDING to PROCESSED and the delivery is made.
f. All items are paid for within the shop, and the ordernumber + hash-session value can also be emailed to the client as proof of delivery as this would have been as proof of payment and to track the item.
g. An additional facility would be for the client to log in and track the progress of his/her items on the system, whilst waiting on the products to arrive. Provide an option or text field whereby the salesperson authorised to edit the entries may add on information to inform the client what is happening to his order. This may also take the pressure off the store to keep clients informed all the time. It may also provide a way to ensure that clients ordering more than one item at different days might not get lost in the system.

5. Resource Allocations in our Department
   a. All venues within our department can be booked in advance by anyone. These venues must then be granted to the person who makes a booking by some important person in the front office looking after these venues and bookings.
   b. Record all the venues, plus the type of venue and the number of people that may fit into that venue.
   c. Others may then use the web application and look at these bookings made in advance.
   d. A person who wants to book any venue must register him or herself on the system. Registration requires Name, surname, staff number and department, purpose of the booking and the duration of the booking. Other details such as email address and cell phone number are important.
   e. Making a booking will alert the designated person via email and prompt the designated person to respond and allow the applicant to continue with his/her arrangements. Any booking will then be pending until permission is granted where after the venue will be marked as occupied. Otherwise the venue is vacant and available.
   f. The designated person or those given administrator privileges may draw a list of venues or a list of events which may take place within a certain time frame.

g. Each venue may also need some escalation if it is an important venue used for departmental meetings on a frequent basis.
h. Ensure you employ classes in PHP which will address the necessary functions needed to drive the web application.
i. Once the venue was used and the event is finished the venue must become available again.

Please note that all these projects are based on Chapters 6, 7, 8, 9 and 10 and the academic knowledge around these constructs like classes and functions must be implemented as explained in the textbook. Deviating from this in downloading projects from the internet and tweak those into a working application will not work. Please ensure that you align your web application and the theory as far as possible.

PLEASE NOTE THAT NO SHOPPING CART DOWNLOADED FROM THE INTERNET WILL BE ACCEPTED, BUT ONLY THE ONE AS DISCUSSED IN THE TEXTBOOK OR SOMETHING SIMILAR.

Any project chosen MUST first be discussed or put to the lecturer for approval. Only then you may proceed. There are THREE students per project. Please subdivide the work in such a way that all students in the group contribute equally to the programming aspects of the project. Before commencing ANY programming or coding the lecturer MUST endorse your ERD

PREREQUISITES: Use PHP, Apache and MySQL database, Internet Browser, HTML5 and its validation elements if need be. JavaScript may be integrated into your project. Use of CSS to ensure Responsive Web Design (RWD) is of the essence. Data validation must be implemented. Always use a calendar approach to minimize errors in allowing students to type in days and months etc.

ASSESSMENT METHOD (FORMATIVE AND INTEGRATED):

A rubric will be used to assess your performance against the specific outcomes as stated above. The rubric will be available to you. Marks will be given to design, consistency of web forms to lead the client and not confuse the clients into recording assets. The student must consult sources to motivate his/her usage of a specific design and colours! The bulk of the

emphasis of the assessment will be on the actual functionality of the application (working) as opposed to theoretical arguments. The theoretical arguments must neatly be explained using a PowerPoint presentation as to inform the client on the mechanics of the system, **if time permits**. During the discussion, emphasis must also be on the loading of result data as found on the Internet, import and export facilities if necessary. Please consider the rubric as to which components carry more weight than others.

Business Rules:
The following reports are of utmost importance to the department:

Please discuss and investigate any queries and/or reports necessary for the project with myself or the prospective client.

DUE DATE: The due date is mid-Third Term

PROJECT WEEK
Hand in date is when you demonstrate. Bring the deliverables with.

GENERAL: Students working on the project may be THREE. Each student must have a specific duty and above all contribute and know every aspect of the code. The specific duty will entail a specific component of the total project and not a non-specific overview. A mark will thus be given towards that student's componence insofar functionality, level of difficulty and successful implementation of a business process within the bigger picture or project specification. This is an academic exercise and requires your understanding of all parts of the project. The student must explain each part of the application. The database structures must be filled with fictitious but relevant data when doing and demonstrating the

project. Logos for the chosen project must also be created. Any projects completed stay the property of the Faculty of Informatics and Design at the Cape Peninsula University of Technology but may be used by non-profitable organizations unless negotiated with the company as seen fit by the students and the lecturer of the project. The students participating in this project also abide by the rules and regulations on projects and assignments of this institution's policy.

DELIVERABLES

1. ~~A **powerpoint slide** to introduce the team and inform the panel of judges about the project.~~
2. **Documentation** on the analysis of user requirements i.e Storyboard, ERDs, any diagrams the group see fit as part of their documentation.
3. A cd or dropbox link with the **source code** including the power point slide show and user documentation.
4. A printed/pdf document which will act as a **user manual/quick installation and operation guide** for the "judges" or users.
5. A printed/pdf document with **the design of the database** (refer to 2).
6. **Program specification** document which describes the project etc.(Refer to 2) with mention to Business Rules **Storyboard layout**
7. A working application to be used for demonstration purposes.
8. **Program specifics**
    a. Consult the rubric for more detail
    b. Web application in PHP must be grouped in a header, body and footer section as discussed. Always display the date of last modification in the footer!
    c. Master-detail relationships properly configured.
    d. Forms to illustrate DUI.
    e. Master page implementation with a standard three page layout or whatever layout you decide on based on CSS, e.g. left/right margins may contain links, but always look similar so the user is NOT confused.
    f. Validation features as per Javascript/HTML5 or PHP. You decide but keep it uniform throughout the project.
    g. Database management system (DUI) options built into webforms
    h. Implementing classes and sessions when assembling webpages according to your storyboard.
    i. Specific Login or Registration forms with neat CSS bootsrap features such as explained in Ullman textbook

j. Proper database design with primary and foreign key setup.
k. Upon running your web application ensures that you export your database and data using PHPmyAdmin to ease the setup and use. You can also use text file importation where necessary.
l. Usage of classes and objects are mandatory.
m. Usage of colours should be wisely chosen.
n. Admin page for secretary or lecturer to access features = important

Thanking you.
Wilhelm Rothman

MY PROJECT PLAN SUGGESTIONS

1. Discover your days of engagement to discuss any queries and show your progress.
2. Work from the hand in date backwards and create a Project Plan what must be dealt with when. Discover what pages or activities are most important such as database design and setup etc. You also have that weekend as a spare weekend to round off the project web pages and functionalities.
3. Investigate the problem. The problem is that student sick letters are haphazardly dealt with. Students dispute the fact that they handed in a sick letter. Furthermore when an appeal form is filled in a track record must be kept so that lectures can react on previous appeals which the student had to commit to and just ignores the previous warnings. Now we can track them and have that as proof to support decisions made.
4. Investigate the ERD to provide a solid grounding of the database. Attributes and business rules can be further discovered after interviews with myself or Mrs Allie & Ms Allie. The business rules dictate the ERD design.
5. Draw a storyboard/wireframe on the different webpages needed as well as the flow of the information and processes required.
6. Decide on a general layout of a webpage that best suits your web application. Now apply a CSS which will fulfil these prerequisites.
7. Sub-divide the work among **the three of you** and address the logical flow of each page with regard to session variables and query strings and cookies where necessary.