



FACULTY OF MANAGEMENT JUNE EXAMINATION

DEPARTMENT OF APPLIED INFORMATION SYSTEMS

<u>MODULE</u>	:	INFORMATION TECHNOLOGY MANAGEMENT 3A
<u>CODE</u>	:	ITB3A01
<u>DATE</u>	:	30 May 2016
<u>DURATION</u>	:	3 HOURS
<u>TIME</u>	:	08H30
<u>TOTAL MARKS</u>	:	100

<u>EXAMINER</u>	:	MR W ERASMUS
<u>(EXTERNAL) MODERATOR</u>	:	PROF A GERBER
<u>NUMBER OF PAGES</u>	:	6 PAGES

INSTRUCTIONS TO CANDIDATES:

- Question papers must be handed in.
- This is a closed book assessment.
- Read the questions carefully and answer only what is asked.
- Number your answers clearly.
- Write neatly and legibly
- Structure your answers by using appropriate headings and sub-headings.
- The general University of Johannesburg policies, procedures, and rules pertaining to written assessments apply to this assessment.

Answer all the questions.

Study the following case study carefully and answer the questions.

Occupational health is an essential managerial area which requires management attention and support. Big organisations for example Harmony Gold Mine have a dedicated occupational health (OCH) department who deals with all the occupational health matters of the organisation. The OCH department's mission is to demonstrate due diligence with regards to the health of all employees. The OCH department head reports to the chief operations officer of the organisation. The team consists of medical doctors, opticians, staff to conduct a hearing test, nursing staff to for example draw blood for pathological blood tests. The OCH department are supported by a team of outside specialists and medical facilities (X-ray) to obtain expert opinions and tests. They use specialised OCH software that integrates with the rest of their information systems.

The OCH department formulates an OCH strategy, policies, procedures of job-related health and security issues, and monthly reports for management to submit to the department of labour (DOL). When a new employee applies for a position at the mine, he / she is medically examined and screened for the position that he / she applies for. The medical history, chronic conditions and medication taken are captured. The employees are then assessed against a job health profile to determine their fitness for the position. A job health profile prescribe the minimum set of health requirements for a specific job (eyesight, hearing, lung condition, allergies, weight, height, etc.) for example, drivers must have good eyesight and hearing, and should not suffer from epilepsy. Once the employee is appointed the position, the criteria associated with each element in the job health profile will prescribe how frequently the individual must be rescreened for different elements in the job health profile. To demonstrate, if an employee works in a very noisy and dusty area (mining shaft), the profile criteria prescribes that hearing test must be done every 3 months, lung x-rays and lung function test every 6 months and the rest of the tests annually. The regular re-assessment of the health status of the individual helps the OCH practitioner to manage the health of the employee and determine the effectiveness of controls implemented. All employees must receive a certificate of fitness after a review examination before they can start / resume their tasks. The assessment of the medical status of an employee when employment is terminated is vital to prevent potential legal claims against the mine.

Reports are very important for the OCH department and management. If a report indicates a hearing loss of miners in shaft 1 whereas the workers in shaft 7's hearing were not affected, but their lung function has decreased. It indicates to management that the noise level in shaft 1 is too high and the miners have to wear better safety ear muffs, whereas the airflow in shaft 7 are too little and the ventilation system must be checked and fixed, and that all the miners must wear safety masks at all times. Management and the OCH department can then investigate the findings and propose the best solution to ensure that due diligence was taken with regards to the health of the employees.

Platinum Ridge is a small mine who strives to produce high quality platinum and by products by mining using environmental friendly tools, techniques and products. They employ about 3000 employees (300 administrative and the rest miners). The mining

production plant, and current IT infrastructure supports the mine sufficiently for the moment.

Platinum Ridge (<5000 employees, and about 500 workstations) are experiencing a huge challenge to perform their occupational health duties by ensuring due diligence with regards to miners health, to submit comprehensive and correct reports DOL and to provide management with useful reports that can assist them to ensure the health of all employees. The problem is that the smaller mines for example Platinum Ridge does not have the IT infrastructure or resources (budget, technical and people) to buy the OCH software used by the bigger mines. They use a manual system and capture test results in Excel spread sheets. The mine uses a Human Resources, Operational and a Financial application that is linked with a local area network (LAN). The HR system incorporates a clock card system to record who is working and to determine overtime at the end of the month. The system has access control using a username and password. The IT department has 10 members who support the users at the mine. The database administrator administers the SQL SERVER database. All the administrative employees have internet and e-mail access. The mine uses contractors to administer the network, Web server, Internet access, security and mail server. All administrative staff members have workstations linked to the LAN that links them with the different servers, printers and the Internet. The organisation uses the standard Windows firewalls, run an old version of Kaspersky on the workstations

Platinum Ridge is experiencing a huge problem to perform the occupational health duties by ensuring due diligence with regards to miners health, to submit comprehensive and correct reports DOL and to provide management with useful reports that can assist them to ensure the health of all employees.

They employ an occupational health practitioner (OCH practitioner), Dr Mary Smith, to work at the mine two days a week. She must perform all the duties of the OCH departments in large organisations. The minimum functions are to

- Provide an OCH strategy, policy framework and specific processes to ensure the health and safety of employees in certain positions.
- Ensure compliance with all legal and regulatory requirements.
- Use benchmarking to compile the job health profiles
- Work directly with the health clinic on the mine to deal with the day to day incidents on the mine and to schedule the follow-up assessments for an employee.
- Screen all new appointments, monitor the current employees regularly, and conduct exit evaluation of the employees.
- Gather information regarding incidents in the mine.
- Produce all required reports to support the organisation to react to health and issues and incidents.
- Demonstrate due diligence with regards to the health of all employees.

Dr Smith has contracted a network of supporting doctors, opticians, hearing clinics, radiology departments (x-rays and scans), to examine the employees and then forward the reports to her to evaluate each case. The supporting network of medical experts is paid from the mine medical aid.

Platinum Ridge has experienced various information security incidents. They had serious virus attacks that have influenced their data confidentiality, availability, and integrity. Some attacks came from personal e-mails to staff members, and infected flash drives. It came to the attention of management that some staff is visiting obscure websites, resulting in excessive spyware presence on the network and workstations. The result is very slow systems. Recently, one of the servers had a crashed hard disk and it took a day to get the data up to date. There was a burglary in the mine clinic and the computer was stolen. The problem is that very sensitive data (medical) on the computer was now in the wrong hands. All the medical conditions of all employees are in clear text on the computer. The result is that the burglar now has access to the HIV status of employees, who is suffering from STD diseases and any other private comments is available. The only backup they had was 1 week old. Fortunately the manual files of the last week's patients were not taken and the restored system can be updated.

There is a huge need to develop an application that can assist Dr Smith to perform her job. The main aim of the system is to centralise all health information for all employees. It must minimise manual capturing of information and must for example import the employee test results (hearing tests, x-rays etc.), flag risk cases and produce the required reports to management and the DOL. The system must interface with the legacy systems at the mine.

Mr Richard Ndgane the chief operational officer requested the use of web and / or mobile technologies where possible in the application. He is very busy and you can only communicate with him via e-mail or in a meeting before 7 in the morning. The purpose is to communicate more effectively with all the employees, remind employees of follow-up assessment sessions, alert the manager of employee assessment times, alert employees to collect their certificate of fitness. Dr Smith is concerned about the security of information and information assets. The system should:

- Remind employees of follow-up examination session.
- Alert employees to collect their certificate of fitness from the clinic.
- Download the certificate of fitness by an employee using a web interface.
- Inform managers of scheduled health check-ups of employees.
- Report to managers on the health status of an employee (no detailed records) and when the employee can resume his duties.
- Inform all employees of applicable changes in policies / procedures for their specific position. You must ensure that the employee reply and acknowledge the change.
- Management must be able to set criteria for their own reports.
- The system must be able to import vision, lung function and hearing test results.
- Automatically compare the employees test results with the job health profile and indicate the status.
- Produce a daily report of all test results received and highlight risk cases.

- Proactively alert the Dr Smith of potential health threats – produce graphs of areas / sections of the, mine using data of the employees working in the area / section.
- If no change in the health profile of the employee, print a certificate of fitness, so that the OCH practitioner can sign it off.
- Allow the clinic on the mine to maintain employee details to record all medication and treatments received by an employee.
- The clerk at the clinic, Susan Mahlangu makes appointments for all the tests required for new appointments or follow-up assessments. She must be able to log the appointments and notify the employee of the appointment times. The employee should be able to request a copy of the appointments.
- Allow the supporting medical team to upload the test results
- The system should flag and alert the OCH practitioner of risk cases where the predefined criteria have been exceeded and that need immediate attention.
- Integrate the new system with the HR, operational and financial systems.
- Ensure access control for all relevant stakeholders on the system. Allow only certain users (management, OHC practitioner, support medical team, employees, etc.) to access certain parts of the new application.
- Dr Smith must be able to access the system remotely to allow her to access employee records, review results, extract relevant information for reports etc.

All administrative workstations have Windows 7, MS Office 2010, and access to the relevant system (HR, Operational or Financial) as well as Internet access. The foreman's in the mine has limited access to the operational system, all employees use the clock card system at the main gate to clock in and clock out in the afternoon. The databases are running SQL Server.

You are expecting some challenges facing the project. The employees loose cell phones frequently resulting in invalid cell numbers in the database. You are going to request for a simple interface workstation with a printer where the employee (miners) can easily check for their follow-up consultation(s), print appointment dates and locations and update their personal information for example cell phone number.

You are the business analyst at Platinum Ridge and must elicit the requirements for the new OCH application. Mr Andy Capp will be the project for the OCH project.

QUESTION 1

- a) What is the relationship between business analysis (BA) and software development?
(5)
- b) When describing a business, there are 4 core requirements. Discuss the 4 requirements, provide an example of each and explain the relationship between the requirements or the current OCH system at Platinum Ridge.
(10)

[15]

QUESTION 2

The supporting medical team is not on the premises and can be classified as a virtual team. Dr Smith sometimes sends test reports to Dr Tom Johnson in England for a second expert opinion.

How will you ensure that you will successfully deal with the challenges to elicit requirements from the members of the dispersed team?

[10]

QUESTION 3

Write a memorandum to Richard Ngune to inform him of the steps that will be followed when you design the final product.

[25]

QUESTION 4

Complete a high level System Requirements Specification document for this project.

[25]

QUESTION 5

- a) Identify 2 business requirements and 2 functional requirements for the new OCH system
(4)

- b) Draw high-level ER diagram for the new OCH system
(15)

- c) Draw a high-level Use-Case diagram for the issue certificate of fitness process
(6)

[25]

- - - oOo - -