Bournemouth University

Faculty of Science & Technology

Department of Computing & Informatics

COMPUTING IN BUSINESS (CIB)
SCENARIO AND STUDENT HANDBOOK

BAE SYSTEMS – OCCUPATIONAL HEALTH CASE STUDY

May 2025

37TH COMPUTING IN BUSINESS (CIB) EVENT

WELCOME TO THIS BOURNEMOUTH UNIVERSITY COMPUTING TRADITION

IT IS A GREAT FOCUS FOR DISCUSSION IN JOB INTERVIEWS –

FOR PLACEMENTS AND GRADUATE JOBS.

CIB HAS CHANGED A GREAT DEAL OVER THE YEARS BUT HAS PROVED TO BE AN OUTSTANDING MEANS TO DEMONSTRATE YOUR ABILITIES.

CIB WILL FOCUS ON DESIGNING A SOLUTION AND CREATING SOME OF THE ELEMENTS OF THE SYSTEM THAT WILL HELP BRING THE DESIGN TO LIFE.

THIS WILL BE DRIVEN BY THE AIMS AND OBJECTIVES OF (DEPENDING ON YOUR PATHWAY):

- INTRODUCTION RELIABLE COMPUTING SYSTEMS

- INTRODUCTION TO CYBER SECURITY AND

-INTRODUCTION TO BUSINESS ANALYTICS UNITS AND

-DATA MANAGEMENT

TOGETHER THESE ELEMENTS WILL INTEGRATE YOUR KNOWLEDGE AND SKILLS LEARNT FROM SEMESTER 1 AND 2

INTRODUCTION

1. THE GROUP TASK

At the beginning of term, you were given the Assignment Brief. You will find a copy of this in your Introduction to Unit on Brightspace under Assessment. You can also find a copy in the Computing in Business (CiB) Unit on Brightspace that was made visible to you all on Friday – it will appear with this scenario document in the Assessment section.

To reiterate, your task for CiB is to produce a system design for your clients BAE Systems.

Your work must be completed within the group ON CAMPUS this week, ready for you to showcase at the Final Exhibition in the Sports Hall on Friday. You exhibits will be judged by a group of BU Computing Academics, industrial guests and BAE System at the final Exhibition on Friday 16th May. BU academics judge the work on a combination of academic and professional grounds while industrial guests and BAE Systems will judge the work on professional grounds.

Computing is an integrated subject. To do this work you will need to draw on some of your learning from across all your units, though most knowledge and skills required will come from the units from this semester.

What follows is the System Requirements for your system designs. This sets out the high-level requirements for an 'Occupational Health Referral' system that BAE Systems would like to have. You and your group are going to add some additional requirements for some of the users to this by interviewing your clients on Monday 12th May after the launch lecture.

Whilst this scenario has been created in partnership with BAE Systems, it is based on industry experience and all the details about the company BAE Systems and the scenario itself are theoretical. For background, BAE Systems are a global defence manufacturing company with over 100,000 employees worldwide. They deliver military capacity, protect national security and people and keep critical information and infrastructure secure. Staff from BAE Systems will attend the exhibition and choose their winner. There will be a prize for winning group members. They are an outstanding company and have taken on many placement students and graduates.

2. BAE SYSTEMS – OCCUPATIONAL HEALTH SCENARIO

Background

BAE Systems are a global defence contractor who offer a wide range of solutions within various sectors (Air, Land, Sea, Cyber, and Future Technologies). BAE Systems operate across the world with markets in the UK, Saudi Arabia, Australia, United States, Canada, India, Qatar, and Europe to name but a few. They are the largest manufacturer in Britain and the largest defence contractor in Europe.

In Dorset, BAE Systems have their 'Digital Intelligence' unit in Christchurch, where BAE Systems are a leading supplier of cyber capabilities to government agencies and a growing supplier to commercial customers. The company have interest in Digital and Data Services, Cyber Security Services, Sensor Systems, Network Security & IT Systems, and Navigation & Imaging Systems amongst other things.

The area of focus for the Christchurch site is staff wellbeing, a topic BAE Systems take very seriously. The main objective that BAE are looking to achieve is better staff wellbeing across all BAE sites and while some wellbeing processes are in place within the organisation, there is no overview or system solution in place to centralise this effort.

Existing solutions for wellbeing are reactive and tend to be HR or health and safety driven, with some form of incident needing to happen to trigger the referral process. What BAE Systems are looking for is a solution that will facilitate a more pro-active approach and embed flexibility in their wellbeing processes to help them achieve better staff wellbeing across the company.

The goal of the new occupational health referral system will be to streamline the referral processes and help HR track and manage referrals across each site.

This occupational health referral system will complement the existing Safety Health and Environment (SHE) incident reporting system, so does not need to include incident recording functionality. Incidents may still prompt a referral, but many referrals will be pre-emptive in nature.

The way projects work in BAE Systems is that before any new project or system can be rolled out corporate-wide, one site is selected (Pilot Site) to help design and implement the new system and evaluate how effective the solution is before a decision is taken whether to amend or roll out to other sites. For this project, the intention is that the pilot trial will be hosted by BAE's Digital Intelligence unit at Christchurch, with a view that a successful pilot will then be rolled out globally in stages.

A key objective of managing occupational health referrals is to not only know which user type has made the referral (HR, employee, line manager), but also to know the area they are looking to address (physical health, mental health, keeping active, self-help, upskilling, volunteering, leave of absence etc.)

Scenario & Requirements

BAE Digital Intelligence require you to design an Occupational Health Referral System. Initially, you are to design the system for the Christchurch Site operations only, the global network is out of scope. The plan is, that providing the system design is of a sufficiently high quality, it will be tested and rolled out in the Christchurch site initially with a view that, once the system has proved robust, BAE Systems will look to roll the system out across the rest of their sites.

The requirements below are based on the MoSCoW technique (Must have, Should have, Could have, Would have – in descending priority where Must is top and Would is bottom) and should be treated as such to prioritise the delivery of the functionality

The requirements for the occupational health referral system can be found below:

General functionality:

The Occupational Health Referral System ('the referral system") must provide following functionality:

1. All staff MUST be able to log in to gain access to the Referral System
2. All staff MUST be able to view any referral relating to themselves
3. Enhanced log-in users MUST be able to Create, Record, and Update records within the system
4. Enhanced Plus log-in users MUST be able to Create, Record, Update and Delete records within the system
5. The Referral System MUST include a referral management function that allows tracking of a referral
6. The Referral System MUST include an accurate time and date recording system for when a referral was raised
7. The Referral System MUST include a help function
8. The Referral System SHOULD allow tracking of status and progress for all users for referrals relating to themselves
9. The Referral System COULD include a dashboard overview of Referrals for each user

System User access:

The system will be run and managed by the HR team but must also be accessible for other teams. The following are the users that will require access to the system:

1. BAE Systems Digital Intelligence staff member
2. Line Manager
3. HR Manager

Each group will interview users from each role to gather requirements for what functionality that roles require. These interviews will be scheduled for Monday 12th May after the launch.

Referral Management - Recording

1. The Referral System MUST record all progress related information for a referral. This should, as a minimum, include details of; service provider (department/organisation referral has been assigned to, see Appendix A), status of provider (internal/external), confidentiality of referral (confidential/non-confidential), approval status (awaiting approval, in progress, deferred, on hold, completed), and type and level of service provided (see Appendix A).
2. The Referral System MUST enable users with Enhanced Plus access to approve and/or assign the ticket to another user.
3. The Referral System MUST allow Enhanced users to add notes, updates and instructions to a referral.
4. The Referral System MUST allow notes to be 'open' (for everyone with access to see) or 'Closed' (for Enhanced Plus users only to see)
5. The Referral System SHOULD allow Enhanced users to view and filter referrals according to date, type, level, provider and/or status
6. The Referral System SHOULD feed into the client's ESG Performance Data tracking
7. The Referral System COULD align with appropriate British Standards for Occupational Health.

Database functionality:

1. Create a SQL database for the referral system, that MUST include information about each referral item(s), service provider, provision level, type of service provided, department of

origin, line manager, wellbeing user, confidentiality level, status, etc. (see Appendix B for list of departments and line managers).
2. The database MUST record the provision level and who is assigned to each referral.
3. The database MUST produce documentation in form of an Entity Relationship Diagram. State all assumptions, justifications, and indicate how you deduced relationships.
4. The database MUST output test data that support required functionality.
5. The database MUST include optional and mandatory relationships that reflects the scenario.
6. The database MUST produce queries that support required reports.

Reporting functionality:

Reporting out of the Referral System: -

1. Reports MUST be able to be run and viewed online.
2. Reports from the system MUST be based upon date ranges input by the user:
    a. Report 1: Enhanced Plus user MUST be able to run reports for a particular level, Department, provider and/or provision type and costs
    b. Report 2: Enhanced user MUST be able to run reports for their Department to include; date, referral status, level of provision, number of users in Department with active referrals, and costs associated with referrals (budget (quote) and actual)
    c. Report 3: Enhanced and Enhanced Plus users MUST be able to run a Referral status report: showing staff who have a current referral including the level and status of the referral, any 'open' notes and provider
    d. Report 4: Individual staff referral update report: same as Report 3, but only for 1 user (themselves). As part of this they MUST be able to download/view any 'open' attachments
    e. Report 5: Ad-hoc, user selected reporting / Excel download of data for analysis
3. A set of reports SHOULD be provided that are linked to historic data, such as ESG performance data, to allow opportunities for reflection and learning
4. A report COULD be provided that aligns legal requirements, standards and occupational health KPIs

3. GROUP DELIVERABLES

Deliverable 1:

Tuesday 13th May 2025: You are required to upload your interview questions and list of requirements to Brightspace on Tuesday 13th May by 10 am. The requirements should be based on your initial analysis of the scenario AND the interviews conducted on the Monday 12th May (see timetable below).

Deliverable 2:

Thursday 15th May 2025: On Thursday 15th May 2025, 5pm. Each group must upload ALL the remaining deliverables to the Computing in Business (CiB) unit on Brightspace. Detailed instructions for what must be included and how you must organise and upload your submission can be found in the assessment brief – PLEASE READ CAREFULLY to make sure you include everything.

Deliverable 3:

Friday 16th May 2025: On Friday 16th May, **ALL** students will be present at the CiB exhibition AND participate in demonstrating/showcasing their group system design. This is an opportunity to showcase what you have achieved during CiB. Exactly two (no more no fewer) group members must be on your stand at all times – in rotation; every group member must be on your stand at some time during the exhibition.

Note: Everyone MUST attend and participate in the Exhibition. Absence from the exhibition will result in zero marks for the **entire** assessment for that/those student(s) who did not attend and participate.

Your Friday Exhibition stand shows your proposed system on a PC (or laptop) that you provide, plus supporting poster work. Use your own PC or laptop. If you do not have a suitable PC or laptop, contact IT Services or one of the teaching team.

- It is not anticipated that any group will achieve a full working system. BAE System's requirements are extensive. They have set out their requirements in MoSCoW style.
- Your database must be fully operational and working.
- For the other system elements, the more of your system that works on the PC/Laptop the more confident you will be that your system actually works. *Full marks can still be achieved, by showing non-functioning screens for the user interfaces only*, provided that the systems that the screens would be part of are viable (i.e. your logic *works*).

Portfolio

During CiB you will need things you have learned on the course. You must include all the deliverables listed in the marking criteria as part of your submission, organised in the folders prescribed in the group deliverables section above. However, it is up to you to select and choose which portfolio exhibits to use at the Exhibition. We strongly recommend that you collect relevant documents that you are proud of and include these in your portfolio as evidence for how you have tackled the tasks and used the tools and techniques taught during the Units. Then, at Friday's exhibition these, together with copies of some of the documents already submitted (e.g. cybersecurity risk assessment, requirements documentation, interview scripts and questions, DFDs, ERDs etc.), can help you show what you have learned this year and will be taken into account when determining your final mark.

Appendix A –Occupational Health Service Providers

Service Provider	**Provider type**	**Services Provided** **Provision type**	**Provision Level**
HR	Internal	Pre-employment health screening (virtual/administration) Employee Assistance Programme Corporate Wellbeing Services/training Ill Health Retirement Wellbeing advice Referral to other wellbeing services	2
BAE Occupational Health Nurse	Internal	General health check-up Minor injuries review Flu Jab Amendment of duties due to health assessment Referral to Hospital Occupational Health Nurse	3
Hospital Occupational Health Nurse	External	Check up for specified condition/ ailment Amendment of duties due to health assessment Return to work assessment Enhanced Pre-employment health screening in-person	3
General Wellbeing	Internal	Mentorship Health Surveillance (Health and Safety at work) Referral to Counselling or other wellbeing services	2

Physical Wellbeing	External	Physiotherapy Audiometry (hearing) Driver/Operator Medical Drugs and Alcohol (screening/testing) Safety Critical Medicals	3
Confidential Wellbeing Help	External	Counselling Confidential Mental health helpline Online Chat/meeting for depression, anxiety and stress Wellbeing advice	1

Appendix B – Departments/Line Managers

See attached csv file "List of Staff and Departmental Managers"