**ICA SPECIFICATION**

|  |  |
| --- | --- |
| Module Title: **Relational and No SQL Databases**  [See the source image](https://docs.microsoft.com/en-us/sql/sql-server/educational-sql-resources?view=sql-server-ver15)See the source image | Module Leader: **Mansha Nawaz** |
| Module Code: **CIS2017-N** |
| Assignment Title:  **SQL Server - TSQL Modules and MongoDB Data Analytics Portfolio for Employability.** | Deadline Date: **11-Jan-2024** |
| Deadline Time: **4.00 PM** |
| **Submission Method:**  Online (Blackboard)   Middlesbrough Tower  |

**Central Assignments Office (Middlesbrough Tower M2.08) Notes:**

* All work must be clearly marked with the student name, number and module title.
* An Assignment Front Sheet should be fully completed before the work is submitted.
* When an extension has been granted, a fully completed and signed Extension form must be submitted to the SCEDT Reception.

**Online Submission Notes:**

* All submissions on Blackboard
* Please follow carefully the instructions given on the Assignment Specification
* When an extension has been granted, a fully completed and signed Extension form must be submitted to the SCMA Reception.

|  |
| --- |
| **Library Support for Academic Skills**  Did you know you can book an individual 30 minute tutorial in the [Learning Hub](http://libguides.tees.ac.uk/learning_hub) with an adviser to help you with your academic skills, writing or numeracy? Or that there are loEDT of really useful workshops available to help you with your studies and assessments? Have a look at the [Succeed@Tees](http://tees.libguides.com/workshops) workshops for more details. |
| **FULL DETAILS OF THE ASSIGNMENT ARE ATTACHED INCLUDING MARKING & GRADING CRITERIA** |

**RELATIONAL AND No SQL DATABASES**

**CIS2017-N**

**In-course Assessment**

One of the necessary skills for becoming a Developer is understanding how to properly structure database tables and write queries. Building databases and developing queries, programme views, functions, and stored procedures are just a few of the many database-related tasks that database developers oversee.

Our main assessment focus with SQL Server (RDMS) is on creating TSQL scripts or queries that are optimised to extract relevant data so that it may be used by other applications.

With MongoDB (NoSQL), the emphasis is on finishing the MongoDB University Course - M001 - MongoDB Basics and receiving a certificate of completion. How to load dataset collections, perform CRUD operations, query data, and perform fundamental data analytics on industry datasets using Google Cloud's MongoDB.

For this In-Course Assessment (ICA) you are required to provide a Portfolio of the module deliverables:

|  |  |
| --- | --- |
| A picture containing text, ax  Description automatically generated | **Task 1: SQL Server - TSQL Modules Portfolio** (60 marks) |
| * Produce aSQL Server - TSQL Modules Portfolio for Employability * Demonstrating a range of **TSQL Modules** programming skills * Industry is interested in your ability to develop TSQL scripts to interrogate SQL Server Databases. |

|  |  |
| --- | --- |
| See the source image | **Task 2: MongoDB Data Analytics Portfolio** (30 marks) |
| * Complete the [MongoDB University: M001 - MongoDB Basics Course](https://university.mongodb.com/courses/M001/about) * Obtain the MongoDB University Certificate of Completion * Demonstrate a range of database skills in using MongoDB Compass and MongoDB Atlas for Data Analytics. |

|  |  |
| --- | --- |
| Reflective Report | **Task 3: A reflective report.** (10 marks) |
|  | * Reflect on your experience with SQL Server TSQL Modules and MongoDB development platforms. * Reflect on your Learning Journey of newly acquired Developer Skills. * Rate your skills and experience. |

You will submit your portfolios for both the SQL Server TSQL and MongoDB portfolios in a final written Report\*.

\*Report: The term "report" generally refers to a Word document, although you are free to offer demonstration and solution using PowerPoint or Videos along with hyperlinks to any supporting code, such as SQL Server.sql or MongoDB Json scripts.

By the due date, you need to upload your ICA to the submission links (see online Assessment Folder) on Blackboard.

The report should mostly be made up of screenshots, with the text kept concise or in bullet points. For your convenience, we have given Report Templates (see online Assessment Folder) so that you can customise the content that must be submitted.

**The following are your assessment deliverables:**

### Task 1 of 3: SQL Server - TSQL Modules Portfolio (60 marks)

|  |  |
| --- | --- |
| A picture containing text, ax  Description automatically generated | **Task 1: SQL Server - TSQL Modules Portfolio** (60 marks) |
| * Produce aSQL Server - TSQL Modules Portfolio. * Demonstrating a range of **TSQL Modules** programming skills for Employability. * Industry is interested in your ability to develop **TSQL .sql scripts** to interrogate SQL Server Databases. |

|  |
| --- |
| **SQL Server Sample Databases for TSQL Module [09-18] ICA Demos:** |
| We have released new 2022 SQL Server Database samples which are all populated with ‘real’ data. Download from Blackboard under Learning Material.  Select only **ONE** for your TSQL Demos.   * **Olympics** - 120 years of Olympics, Olympians, events and medals records. * **Movies** - worlds movie library database * **Video\_Games** - worlds video game library database. * **MuiscDB2021** – international music sales * **Superheros** - Superhero database * **Universities** - worlds Times ranked university data.   You may develop your own SQL Server Database but focus on between 6-12 entities and use data generators to populate the tables. You must discuss this option with your tutors. |

|  |  |
| --- | --- |
| SQL Server - TSQL Essentials Portfolio | Total 10 |
| Ideally identify 3 tables (many to many) with suitable test data (min 10 records approx.) and provide a portfolio of TSQL Basics Demos You may consider implementing one of the databases from the [Library of Free Data Models](https://fordnox.github.io/databaseanswers/data_models/index.htm) for this section.   * A: TSQL03-ICA Demo - Querying with Select * B: TSQL04-ICA Demo – Querying with Multiple Tables * C: TSQL05-ICA Demo – Sort and Filtering Data * D: TSQL06 ICA Demo – Working with SQL Server Data * E: TSQL07 ICA Demo – Using DML to Modify Data * F: TSQL08 ICA Demo – Using Built-In Functions | 10 marks |
| SQL Server - TSQL Basics Portfolio | **Total 10** |
| For this section onwards use one of the recommended ICA Server Databases.  TSQL09-Grouping and Aggregating Data   * TSQL09-ICA Demo A-Using Aggregate Functions   + like MAX, MIN, COUNT, SUM and AVERAGE function * TSQL09- ICA Demo B-Using the GROUP BY Clause * TSQL 09-ICA Demo C-Filtering Groups with HAVING | 5 marks |
| TSQL10-Using Subqueries   * TSQL10- ICA Demo A-Writing Self-Contained Subqueries * TSQL10- ICA Demo B-Writing Correlated Subqueries * TSQL10- ICA Demo C-Using the EXISTS Predicate with Subqueries | 5 marks |

|  |  |
| --- | --- |
| SQL Server - TSQL Intermediate Portfolio | Total 20 |
| TSQL11-Using Table Expressions   * TSQL11-ICA Demo A-Using Views * TSQL11- ICA Demo B-Using Inline TVFs * TSQL11-ICA Demo C-Using Derived Tables * TSQL11- CA Demo D-Using CTEs | 5 marks |
| TSQL12-Using Set Operators   * TSQL12- ICA Demo A-Writing Queries with the UNION Operator * TSQL12-ICA Demo B-Using EXCEPT and INTERSECT * TSQL12-ICA Demo C-Using APPLY | 5 marks |
| TSQL13-Using Window Ranking, Offset, and Aggregate Functions   * TSQL13-ICA Demo A-Using Creating Windows with OVER * TSQL13- ICA Demo B-Using Exploring Window Functions | 5 marks |
| TSQL14-Pivoting and Grouping Sets   * TSQL14-ICA Demo A-Writing Queries with PIVOT and UNPIVOT * TSQL14-ICA Demo B-Working with Grouping Sets | 5 marks |

|  |  |
| --- | --- |
| SQL Server - TSQL Advanced Portfolio | Total 20 |
| TSQL15-Executing Stored Procedures   * TSQL15-ICA Demo A-Querying Data with Stored Procedures * TSQL15-ICA Demo B-Passing Parameters to Stored Procedures * TSQL15-ICA Demo C-Creating Simple Stored Procedures * TSQL15-ICA Demo D-Working with Dynamic SQL | 5 marks |
| TSQL16-Programming with T-SQL   * TSQL16-ICA Demo A-T-SQL Programming Elements * TSQL16-ICA Demo B-Controlling Program Flow | 5 marks |
| TSQL 7-Implementing Error Handling   * TSQL17-ICA Demo A-Implementing T-SQL Error Handling * TSQL17-ICA Demo B-Implementing Structured Exception Handling | 5 marks |
| TSQL18-Implementing Transactions in SQL Server   * TSQL18-ICA Demo A-Transactions and the Database Engine * TSQL18-ICA Demo B-Controlling Transactions | 5 marks |

### TASK 1 – TSQL Submission Requirements

You may submit a single zip folder labelled **[student#][surname-initials]-RnD-SQL-ICA** and should containing all the following:

|  |
| --- |
| **Task 1: SQL Server - TSQL Modules ICA Demo Portfolio** |

|  |
| --- |
| **Submit the following evidence for your:** |
| **To submit your TSQL ICA Demo Portfolio, you need to provide the following:**   1. A Report or PowerPoint presentation covering your best TSQL Demoswith SSMS screenshot and results evidence. Only one best example per Demo. 2. One or more .sql files containing the TSQL module demo code. You can provide one .sql file per module or one .zip file containing all the .sql files. We prefer you to indicate the steps for each of your best Demos. These can be zipped and uploaded separately. 3. (Optional) Mini videos to supplement your submission, zipped into a separate file. These should be hyperlinked into main report or presentation. Ideally have them in a folder and zipped and uploaded separately.  * File name example: [surname-initials]-TSQL-ICA Demos 1 to xx .ppt or .docx * *Note sample templates are provided on Blackboard for you to revise and personalise.*   **All uploads via the Blackboard Assessment tag.**  A submission link will be available via Blackboard under the Assessments link.  You must submit your files by the **due date** reported on the front page of this document. |

### Task 2 of 3: MongoDB Data Analytics Portfolio (30 marks)

|  |  |
| --- | --- |
| See the source image | **Task 2: MongoDB Data Analytics Portfolio** (30 marks) |
| * Complete the [MongoDB University: M001 - Introduction to MongoDB](https://learn.mongodb.com/learning-paths/introduction-to-mongodb). |
| The Introduction to MongoDB course guides you through the foundational skills and knowledge you need to get started with MongoDB. This includes connecting to a MongoDB database, how to conduct simple CRUD operations, and key topics such as aggregation, indexing, data modeling, and transactions.  Investigate and demonstrate a range of MongoDB skills within a document-oriented sample database. Demonstrate and provide evidence of your MongoDB skills on how to undertake **CRUD**, [**Query Your Data**](https://www.mongodb.com/docs/compass/current/query/filter/#query-your-data) (Query Bar) and how to [**Analyse your Data Schema**](https://www.mongodb.com/docs/compass/current/schema/) (Schema Tab) for **aggregated data analytics** on one of the [sample MongoDB Collections](https://docs.atlas.mongodb.com/sample-data/available-sample-datasets/#available-sample-datasets).  *Please seek advice and guidance from the module leader if you are interested in developing your own MongoDB Collection and document set from a CSV file. We will help you identify suitable big data collections from* [*Kaggle*](https://www.kaggle.com/search?q=csv+dataset) *– the data science platform.*  You will receive a **Certificate of Completion** whenever you finish each unit. You must provide each certificate as part of your Introduction to MongoDB Portfolio. You should also consider scaling some screenshot or mini video demos evidence using anyone of the sample MongoDB Collections provided by MongoDB University.  *You will be presented with Q&A as part of each unit. Do not redo if you get answers incorrect since you will be presented with correct answers. The marks are awarded for participation and evidence.*  **To be consider for a PASS (40-49) attempts the following:**   1. Start Here - Intro to MongoDB 2. Getting Started with MongoDB Atlas 3. MongoDB and the Document Model 4. Connecting to a MongoDB Database   **To be consider for a 2:2 (50-59) also attempts the following:**   1. MongoDB CRUD Operations: Insert and Find Documents 2. MongoDB CRUD Operations: Replace and Delete Documents   **To be consider for a 2:1 (60-69) also attempts the following:**   1. MongoDB CRUD Operations: Modifying Query Results 2. MongoDB Aggregation   **To be consider for a 1st (70-100) also attempts the following:**   1. MongoDB Indexes 2. MongoDB Atlas Search 3. MongoDB Data Modeling Intro 4. MongoDB Transactions | |

### TASK 2 of 3: MongoDB Submission Requirements

**MongoDB Deliverable 1:** The **MongoDB Data Analytics Portfolio** is to comprise of supporting evidence undertaking the [MongoDB University: M001 - Introduction to MongoDB](https://learn.mongodb.com/learning-paths/introduction-to-mongodb) - Report or PowerPoint comprising of MongoDB Certificates of Completion for each unit with supporting screenshot demonstrations.

### Task 3: SQL & NoSQL Reflective Report (10 marks)

|  |  |
| --- | --- |
| Reflective Report | **Task 3: A reflective report.** (10 marks) |
| Text, letter  Description automatically generated | * Reflect on your experience with SQL Server TSQL Modules and MongoDB development platforms. * Reflect on your Learning Journey of newly acquired Developer Skills. * Rate your skills and experience. |

### TASK 3 – Reflective Report Submission Requirements

**SQL & NoSQL Reflective Report:** Provide a short reflective piece on your ICA work (500 words). Reflection on your learning experience with SQL Server and MongoDB database technology stacks.

[TU Reflective Report Guide](https://libguides.tees.ac.uk/reflective)

|  |  |
| --- | --- |
| **Task 3. Self-Assessment and Individual Reflective Report** | **Marks 10** |
| 1. **Overall Self-Assessment Grade for TSQL and MongoDB (A-D)** 2. **Individual reflective report on TSQL programming in SQL Server:** 3. Learning goals and objectives 4. Challenges and obstacles 5. Strengths and weaknesses 6. Summary of TSQL modules you have a competent understanding. 7. Summary of TSQL modules still need more practice. 8. Summary of TSQL modules self-study study plan for those not undertaken. 9. **Individual reflective report on Introduction to MongoDB:** 10. Learning goals and objectives 11. Challenges and obstacles 12. Strengths and weaknesses 13. Summary of MongoDB units you have a competent understanding. 14. Summary of MongoDB units you still need more practice. 15. Summary of MongoDB units self-study study plan for those not undertaken. 16. **Summary on skills** you have acquired and how you feel SQL support your personal development into employability as a Graduate Developer. | |

### Errors and Technical Issues

Technical issues and errors are the norm in the development world.

If you get any errors, then please 'document' them as this is considered good practice by

industry. Along with an investigation into the development community for plausible solutions and such sources to be referenced.

Do not spend too long trying to solve your errors. It is acceptable in a 'proof of concept' system to 'move on' to other development activities. Time permitting you can always come back to try and resolve the issue.

You will not get penalised if something in your report did not work as expected as we are more interested in the overall tasks you are able to perform.

### Learning Outcomes

**Learning Outcomes**

|  |
| --- |
| Module Learning Outcomes |
| **Personal and Transferable Skills**  PTS1. Reflect on experiences, feedback and action plans to inform personal development.  PTS2. Investigate key characteristics of relational and NoSQL databases.  **Research, Knowledge and Cognitive Skills**  RKC1. Develop a deep understanding of database theories and concepts.  RKC2. Investigate the information security requirements of, and the tools to facilitate these within a SQL and NoSQL database.  **Professional Skills**  PS1. Design and build a relational and NoSQL database solution to meet identified business requirements.  PS2. Test a database solution to ensure it meets agreed business requirements. |

### Marking Criteria: Task 1 of 3: SQL Server - TSQL Modules Portfolio

### SQL Server Rubric:

|  |  |
| --- | --- |
| GRADE | Characteristics of Response |
| **Grade: A**  **Class: 1st**  **Marks: 42-60**  **%: 70-100** | **[expert | professional | outstanding]**   * **Generally, a proficient and professional attempt up to and including TSQL Essentials, Basics, Intermediate and a minimum one Advanced section. These should be covered at a comparable level like the example TSQL Lab exercises and solutions provided.** * The Industry and Tutor assessors view your work as Industry Competent. Your SQL Server portfolio is fit for Industry and presentable at [ExpoTalent](https://www.tees.ac.uk/schools/scedt/expotees/expotalent.cfm) * Your SQL Server portfolio demonstrates you have acquired the necessary SQL Server skills. The evidence suggests you will have no problems learning the additional SQL Material as self-study. * Students complete the SQL learning outcomes, and solutions to real world problems that forms a core part of the summative assessment process. * Congratulations – you have the core SQL skills to be considered for SQL Graduate Developer roles. We still recommend completing any of the TSQL Modules uncompleted, but you have clearly demonstrated all the learning outcomes. * Most if not all examples are deemed at an Industry level SQL developer. * An excellent demonstration covering a broad range of SQL programming skills supporting key case study features. SQL DB services most of the Case Study requirements * Appropriate use of views, queries and code examples at a highly professional level of SQL programming skills. |

|  |  |
| --- | --- |
| **Grade: B**  **Class: 2:1**  **Marks: 36-41**  **%: 60-69** | **[proficient | exemplary]**   * **Generally, a proficient and reasonable attempt up to and including TSQL Essentials, Basics and Intermediate. These should be covered at a comparable level like the example TSQL Lab exercises and solutions provided.** * The Industry and Tutor assessors view your work at a good graduate level and clearly on the path to become Industry competent. You SQL Portfolio requires some more supporting evidence. Your SQL Server portfolio is still fit for Industry and presentable at [ExpoTalent](https://www.tees.ac.uk/schools/scedt/expotees/expotalent.cfm) with some self-study – tidy up and add a few more TSQL working examples. * Your SQL Server portfolio demonstrates you have acquired many of the necessary SQL skills. The evidence suggests you will have no problems learning the additional SQL Material. * However, we do have some of the TSQL sections incomplete or need better evidence. * Students complete most of the SQL learning outcomes, and solutions to real world problems that forms a core part of the summative assessment process. |

|  |  |
| --- | --- |
| **Grade: C**  **Class: 2:2**  **Marks: 30-35**  **%: 50-59** | **[Intermediate | above satisfactory]**   * **Generally, a minimum reasonable attempt up to and including TSQL Module 11. Or you have completed Essentials, Basics and less than half of Intermediate. These should be covered at a comparable level like the example TSQL Lab exercises and solutions provided.** * The Industry and Tutor assessors feel you have some of the skills in place but not enough now to become Industry competent. * You SQL Portfolio requires some more supporting skills and evidence. * Self-study – tidy up and add a more working TSQL examples. * Generally, TSQL solution at a reasonable satisfactory level. You have done well on what has been provided but some of the tasks are weak or not attempted. * However, the assessment team would advise you to pick the rest up with self-study. |

|  |  |
| --- | --- |
| **Grade: D**  **Class: 3rd**  **Marks: 24-29**  **%: 40-49** | **[Beginner | satisfactory | adequate]**   * **Generally, a minimum reasonable attempt up to and including TSQL Module 11. These should be covered at a comparable level like the example TSQL Lab exercises and solutions provided.** * We have a basic attempt at some of the tasks and the evidence suggest more time and practice needed to become more proficient. * However clearly enough skills to suggest you may improve with devoting some self-study to improve your skill set. * Correct examples of SQL Code – some parts – generally a basic level throughout * Solutions are similar in nature to those provided in the online samples but amended to meet your case study requirements |
| **Grade: R**  **Class: R**  **Marks: 12-23**  **%: 20-39** | **[inadequate]**   * **Generally, a minimum reasonable attempt up to and including TSQL Module 9. These should be covered at a comparable level like the example TSQL Lab exercises and solutions provided.** * There has not been an adequate attempt made to provide the solutions at a desired level. * You only needed to make a valid and successful attempt say 5 of the TSQL modules with one not fully completed. You need to priorities and devote more time to the subject matter. * Alternatively, you may have simply focussed on completing the Demos and Lab Sessions to build up your marks. * Needed to make a reasonable attempt at a minimum 3 x TSQL Modules * The work submitted does not meet the criteria above |
| **Grade: F**  **Class: R**  **Marks: 0-23**  **%: 0-39** | **[weak | poor]**   * There has not been an adequate attempt made to provide the solutions at a desired level. * You only needed to make a valid and successful attempt say 5 of the TSQL modules with one not fully completed. You need to priorities and devote more time to the subject matter. * Alternatively, you may have simply focussed on completing the Demos and Lab Sessions to build up your marks. * Needed to make a reasonable attempt at a minimum 3 x TSQL Modules * The work submitted does not meet the criteria above |

### Marking Criteria: TASK 2 of 3: MongoDB Submission Requirements

### MongoDB Rubric

|  |  |
| --- | --- |
| GRADE | Characteristics of Response |

|  |  |
| --- | --- |
| **marks 21-30**  **Grade A**  **(1st Class)**  **%: 70-100** | The MongoDB Learning Portfolio provides an excellent industry level set of entries meeting ALL the learning outcomes of both the TU module and MongoDB University.  Excellent evidence provided for CRUD, Query Filter and  Excellent evidence in terms of:  MongoDB Collection and Documents  Importing, Exporting, and Querying Data  Creating and Manipulating Documents CRUD Operations  Analysing schema for Data Analytics. |
| **Marks 18-20 Grade: B**  **(2:1 Class)**  **%: 60-69** | The MongoDB Learning Portfolio provides a **university level** set of entries meeting **most** of the learning outcomes at a competent industry level for both the TU module and MongoDB University.  The MongoDB Learning Portfolio provided is in a format that other learners and practitioners may follow and replicate some of the activities.  Some excellent evidence in terms of:  MongoDB Collection and Documents  Importing, Exporting, and Querying Data  Creating and Manipulating Documents CRUD Operations  Analysing schema for Data Analytics. |
| **Marks 15-17 Grade C**  **(2:2 Class)**  **%: 50-59** | The MongoDB Learning Portfolio provides a **reasonable set** of entries meeting **some** of the learning outcomes at a competent industry level for both the TU module and MongoDB University.  The MongoDB Learning Portfolio provides a reasonable but basic level of entries.  Reasonable evidence in terms of:  MongoDB Collection and Documents  Importing, Exporting, and Querying Data  Creating and Manipulating Documents CRUD Operations |
| **Marks 12-14 Grade D**  **(3rd Class)**  **%: 40-49** | You have limited evidence but have started the MongoDB course for your MongoDB University Certificate  Correct examples of Code – some parts – generally a basic level throughout.  A basic attempt on some sections and generally needs more depth and details throughout. |
| **0-11 marks**  **Grade F**  **%: 0-39** | The work submitted does not meet the criteria above |

### Marking Criteria: TASK 3 – Reflective Report

Reflective Report Rubric

|  |  |
| --- | --- |
| GRADE | Characteristics of Response |

|  |  |
| --- | --- |
| **7+ marks A**  **(1st Class)**  **%: 70-100** | An excellent reflection clearly demonstrating how feedback has informed your personal development planning and implementation with reference to developing a SQL database compared to a NoSQL database.  Student has a clear understanding of competences and skills developed and those which needing further development.  Has clear understanding of self-appraisal and self-development. |
| **6 marks B**  **(2:1 Class)**  **%: 60-69** | A good reflection demonstrating how feedback has informed your personal development planning and implementation with reference to developing a SQL database compared to a NoSQL database  Student understands some of the competences and skills developed and those which needing further development.  Has identified some reflection, self-appraisal, and self-development. |
| **5 marks C**  **(2:2 Class)**  **%: 50-59** | A satisfactory reflection showing some analysis of feedback received.  Limited reflection on and self-appraisal and self-development. |
| **4 marks D (3rd Class)**  **%: 40-49** | An adequate reflection but needed more detail and insight.  Poor reflection on and self-appraisal and self-development. |

### ICA Degree Apprenticeship KSBs:

Only for those working in Industry and studying as Degree Apprenticeship students.

*For Degree Apprenticeships from Industry the ICA will assess Knowledge, Skills and Behaviours (KSBs) in using SQL Server and MongoDB Database technology toolset for Developers. You are free to adopt or utlise work based data or alternatively supporting Datasets form the Data Science community supporting your company. Consult the* [*Library of Free Data Models*](https://fordnox.github.io/databaseanswers/data_models/index.htm)

|  |  |  |
| --- | --- | --- |
|  | **Knowledge, Skills and Behaviours (KSBs)** |  |
|  | **Core Skills** |  |
| **C3** | **Data** |  |
|  | Identifies organisational information requirements and can model data solutions using conceptual data modelling techniques. Can implement a database solution using an industry standard database management system (DBMS). Can perform database administration tasks and is cognisant of the key concepts of data quality and data security. Can manage data effectively and undertake data analysis. | X |
|  | **Core Technical Knowledge** |  |
| **C10** | Contemporary techniques for design, developing, testing, correcting, deploying, and documenting software systems from specifications, using agreed standards and tools. | X |
| **C12** | The role of data management systems in managing organisational data and information. | X |
| **C14** | The various roles, functions and activities related to technology solutions within an organisation. | X |
| **C16** | How to deliver a technology solutions project accurately consistent with business needs. | X |
|  | **Core Behavioural Skills** |  |
| **C18** | Fluent in written communications and able to articulate complex issues. | X |
| **C29** | Ability to perform under pressure | X |
| **C30** | A thorough approach to work | X |
|  | **Specialism Outcomes - Software Engineer** |  |
|  | **Skills** |  |
| **SE2** | Undertake analysis and design to create artefacts, such as use cases to produce robust software designs. | X |
| **SE6** | Deliver software solutions using industry standard build processes, and tools for configuration management, version control and software build, release and deployment into enterprise environments. | X |
|  | **Technical Knowledge (knows and understands)** |  |
| **SE7** | How to operate at all stages of the software development lifecycle. | X |
| **SE9** | How to apply software analysis and design approaches. | X |
| **SE10** | How to interpret and implement a design, compliant with functional, non-functional and security requirements. | X |
| **SE12** | How to use and apply the range of software tools used in software engineering. | X |

### Use of ChatGTP and other AI Tools

As your lecturer for Relational and NoSQL Module here is the clarification for the use of ChatGPT or other AI Tools into your learning experience. I acknowledge and grant permission for the student to utilize ChatGPT as an additional resource to augment their understanding of complex database concepts, refine query formulation skills, and explore practical applications of database technologies.

By engaging with ChatGPT, you the student aims to deepen their comprehension of SQL and NoSQL databases, enhance problem-solving abilities, and gain exposure to real-world scenarios. I trust that the student will utilize ChatGPT responsibly, adhering to academic integrity guidelines, and integrate it as a supplement to their own efforts in studying and completing assignments for this module. I believe that integrating ChatGPT into the student's learning process will positively contribute to their academic growth and overall achievement in the Relational and NoSQL Database module.

You are free to utilise any tools of your choice but do note we recommend you provide a simple AI – Conversations for those that provided valuable in your appendix.