

MODULE HANDBOOK

Digital Intelligence and Future Development

MODULE CODE: BMBM5023

LEVEL 5

SCHOOL OF BUSINESS

INSTITUTE OF MANAGEMENT AND HEALTH

SEMESTER 1 – October 2024

AIM(S)

- To provide students with a comprehensive understanding of how data systems work, how their benefits can be optimised.
- To be able to analyse and evaluate the information in the systems to obtain maximum benefit.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to demonstrate the ability to:

- Identify and evaluate the current trends in data warehousing, business intelligence and data mining.
- Demonstrate knowledge and critical understanding of the well-established principles of predicative analytic software and its application.

INDICATIVE CONTENT

- Basic concepts of Business Intelligence and Decision Support
- Data warehousing and ETL and OLAP
- Data security and quality management
- The Data Mining Cycle
- Association, Clustering and Prediction
- Data visualisation
- Data mining open source tools
- Excel Pivot Tables
- Reporting

LEARNING AND TEACHING STRATEGY

Study will introduce the students to the concepts, principles, and practices. Tutorials and seminars will demonstrate practical examples which will be used to support the application, discussion, and critical evaluation of techniques learned. This module will equip students with the ability to selectively analyse different sets of marketing data for insight, and to undertake effective decision making in relation to the utilisation of marketing resources. Case studies will therefore be used to develop this understanding and application of the techniques.

The allocation of teaching to deliver the module is:

Activity Type	Hours	Percentage
Scheduled Learning	48	24%
Independent Learning	152	76%
Placement Learning	2	0
TOTAL	200	100%

ASSESSMENT

(Tick one)

☐ Written exam ☐ Coursework ☒ Practical

Mode of assessment	Volume	Weighting
Practical assessment with supporting paper	4000 words or equivalent	100%

Assessment Summary

Activity type	Percentage
Written exam	0
Coursework	0
Practical	100%
TOTAL	100%

INDICATIVE READING LIST

Module Code	BMBM5023 / BMBM5023D*	
Module Title	Digital Intelligence and Future Development	
Classification	Reading List entry	Electronic*
Essential	Stensile, S, Haugom, L, Vaage, B, H, (2021), <i>Intelligence Analysis in the Digital Age</i> , Routledge, Oxford	☒
Further	Tillary, N, (2022), <i>Excel 2022</i> , Independent, UK.	☒
Further	Mayers, D, (2022), <i>Google Analytics</i> , 3 rd Edition, Elite Books, UK.	☒
Further	Journal of Interactive Marketing	☒
Further	Digital Analytics Association	☒
Further	International Journal of Data Science and Analytics	☒

Students will also be directed to use academic databases such as Business Source Complete and Marketline.

ASSESSMENT SPECIFICATION

Student name:		Student ID number:	
Programme:	Business Management Portfolio		
Module:	Digital Intelligence and Future Development		
Module code:	BMBM5023	Contribution to Overall Module Assessment (%):	100%
Lecturer:	Robyn Griffiths	Internal Verifier:	
Assignment Title:	Comprehensive Business Intelligence System Design and Analysis	Word count (or equivalent):	4000 words (or equivalent)
Submission deadline:	10/01/2025	Return date of provisional marks & written feedback:	21/02/2025
Submission method:	All written assessments, where practical and possible, must be submitted via Turnitin unless otherwise instructed by the Lecturer. (Please DO NOT put this assessment specification into Turnitin or it will match many similarities with other students' submissions.) Alternative submission method (if applicable): Late submission of the assessment will result in a late penalty mark. Penalties for late submission: Up to one week late, maximum mark of 40%. Over one week late, 0%. Only the Extenuating Circumstances Panel may approve a change to submission dates.		
Academic honesty / referencing:	Academic honesty is required. In the main body of your submission you must give credit to authors on whose research and ideas your work is based. Append to your submission a reference list that indicates the books, articles, etc. that you have used, cited or quoted in order to complete this assessment.		
Module Learning Outcomes (from module syllabus)			
Upon the successful completion of this assessment, the student should be able to demonstrate the ability to: Identify and evaluate the current trends in data warehousing, business intelligence and data mining.			

TASK DESCRIPTION

Assignment Title: Comprehensive Business Intelligence System Design and Analysis

Overview:

You have been tasked to design and critically evaluate a Business Intelligence (BI) system for a hypothetical company (or company of your choosing) , including a practical demonstration of the system's data handling and reporting capabilities using Excel.

Assignment Structure:

The assignment will be divided into three main sections:

1. System Design (1250 words)

- Propose a detailed design of a BI system tailored to a specific industry scenario (e.g., retail, healthcare, manufacturing). Include:
 - Data warehousing architecture, focusing on data sourcing, ETL processes, and OLAP operations.
 - Selection of BI and data mining tools, with justifications based on the business needs.
 - Strategies for ensuring data security and quality management within the system.

2. Excel Implementation and Data Analysis (Equivalent of 1000 words)

- Develop an Excel spreadsheet that demonstrates the data collection, analysis, and reporting processes of the proposed BI system.
 - Utilise Excel functions to simulate data warehousing tasks such as data integration and transformation.
 - Apply data analysis techniques using Excel, such as creating Pivot Tables to perform association, clustering, and prediction analyses.
 - Design data visualisations using Excel charts to represent business insights clearly and effectively.
- The Excel document should include:
 - Detailed annotations or a separate documentation section explaining the function of each part of the spreadsheet and how it integrates with the BI system design.
 - Screenshots and explanations of key features and outputs within the main report to contextualise the spreadsheet's contributions.

3. Critical Evaluation (1250 words)

- Analyse the effectiveness of the proposed BI system in providing strategic business insights, identifying potential challenges and limitations.
- Evaluate the system's scalability and adaptability to future technological or business developments.
- Critically reflect on the ethical implications of data usage, focusing on concerns like data privacy within the proposed system.

Deliverables:

- A comprehensive report covering the three sections outlined above.
- An Excel spreadsheet with detailed annotations or accompanying documentation.
- In text supporting diagrams and visual mock-ups of data insights and dashboard outputs.

Things to mindful of for grading:

The assignment will be graded based on the following criteria:

- **Depth and Integration of Analysis:** Quality and detail in the design and practical application of BI components in Excel.
- **Practical Application:** Demonstrable skill in using Excel to simulate BI processes and analyse data.
- **Innovation and Professionalism:** Creativity in system design and professional presentation of the report and Excel outputs.
- **Critical Evaluation:** Depth of insight in evaluating the system's strategic value, scalability, and ethical implications.

GUIDANCE FOR STUDENTS IN THE COMPLETION OF TASKS

NOTE: The guidance offered below is linked to the five generic assessment criteria overleaf.

1. Engagement with Literature Skills

Your work must be informed and supported by scholarly material that is *relevant* to and *focused* on the task(s) set. You should provide evidence that you have accessed an appropriate *range* of sources, which may be academic, governmental, and industrial; these sources may include academic journal articles, textbooks, current news articles, organisational documents, and websites. You should consider the *credibility* of your sources; academic journals are normally highly credible sources while websites require careful consideration/selection and should be used sparingly. Any sources you use should be current and up-to-date, mostly published within the last five years or so, though seminal/important works in the field may be older. You must provide *evidence* of your research/own reading throughout your work, using a suitable referencing system, including in-text citations in the main body of your work and a reference list at the end of your work.

Guidance specific to this assessment: *You should show a wide level of reading from a variety of up-to-date sources including textbooks, academic journals, academic and corporate websites, and academic databases. Evidence of 21 credible sources should be used and all sources should be acknowledged using the Harvard Referencing Method including your Reference page.*

2. Knowledge and Understanding Skills

At level 5, you should be able to demonstrate: sound knowledge and critical understanding of the well-established concepts and principles of the subject area and the way in which those principles have developed; knowledge of the main methods of enquiry in the discipline. Knowledge relates to the facts, information, and skills you have acquired through your learning. You demonstrate your understanding by interpreting the meaning of the facts and information (knowledge). This means that you need to select and include in your work the concepts, techniques, models, theories, etc. appropriate to the task(s) set. You should be able to explain the theories, concepts, etc. meaningfully to show your understanding. Your mark/grade will also depend upon the extent to which you demonstrate your knowledge and understanding.

Guidance specific to this assessment: *Throughout your blogs you should demonstrate a sound level of knowledge and critical understanding of how the required data systems work, and highlight the current trends in business intelligence, which should be informed by the latest research.*

3. Cognitive and Intellectual Skills

You should be able to critically analyse information, and propose solutions to problems arising from that analysis, including the critical evaluation of the appropriateness of different approaches to solving problems. Your work must contain evidence of logical, analytical thinking, evaluation and synthesis. For example, to examine and break information down into parts, make inferences, compile, compare and contrast information. This means not just describing what! But also justifying: Why? How? When? Who? Where? At what cost? At all times, you must provide justification/evidence for your arguments and judgements. Evidence that you have reflected upon the ideas of others within the subject area is crucial to you providing a reasoned and informed debate within your work. Furthermore, you should provide evidence that you are able to make sound judgements and convincing arguments using data and concepts, with an understanding of the limits of knowledge, and how this influences analyses and interpretations. Sound, valid conclusions are necessary and must be derived from the content of your work. Where relevant, alternative solutions and recommendations may be proposed.

Guidance specific to this assessment: *Within your blogs you should be able to initially provide descriptions of the required data systems, but also extend your discussion to also highlight the benefits and the limitations of the various data systems.*

4. Practical Skills

At level 5, you should be able to use/deploy a range of established techniques within the discipline, and apply underlying concepts and principles outside the context in which they were first studied, including, where appropriate, the application of those principles in an employment context. You should be able to demonstrate how the subject-related concepts and ideas relate to real world situations and/or a particular context. How do they work in practice? You will deploy models, methods, techniques, and/or theories, in that context, to assess current situations, perhaps to formulate plans or solutions to solve problems, or to create artefacts, some of which may be creative. This is likely to involve, for instance, the use of real world artefacts, examples and cases, the application of a model within an organisation and/or benchmarking one theory or organisation against others based on stated criteria. You should show awareness of the limitations of concepts and theories when applied in particular contexts.

Guidance specific to this assessment: *All identified data systems, trends, underlying concepts and principles should be made applicable to business intelligence.*

5. Transferable Skills for Life and Professional Practice

Your work must provide evidence of the qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision-making. This includes demonstrating: professional development to advance existing skills and acquire new competences that will enable you to assume significant responsibility within organisations; that you can initiate and complete tasks and procedures, whether individually and/or collaboratively; that you can use appropriate media to effectively communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences; fluency of expression; clarity and effectiveness in presentation and organisation. Work should be coherent and well-structured in presentation and organisation.

Guidance specific to this assessment: *You are required to produce a Blog that contains three entries using the online platform [Blogger.com](https://www.blogger.com). Once completed, in a Word document, you will need to design an appropriate Front Cover, provide a Content Page, include your URL for your Blog, incorporate your Reference list, and submit your work as a completed portfolio to Turnitin by the given submission deadline.*

STUDENT FEEDBACK FORM

This section details the *extent* to which the assessment criteria are demonstrated by you, which in turn determines your mark. The marks available for each category of skill are shown. Lecturers will use the space provided to comment on the achievement of the task(s), including those areas in which you have performed well and areas that would benefit from development/improvement.

Generic Assessment Criteria	Marks available	Marks awarded
1. Engagement with Literature Skills	20	
2. Knowledge and Understanding Skills	25	
3. Cognitive and Intellectual Skills	15	
4. Practical Application Skills	15	
5. Transferable Skills for Life and Professional Practice	25	
Assessment Mark (Assessment marks are subject to ratification at the Exam Board. These comments and marks are to give feedback on module work and are for guidance only until they are confirmed.)	Late Submission Penalties (tick if appropriate)	
	Up to 1 week late (40% Max)	
	Over 1 week late (0%)	
%		

GENERIC ASSESSMENT CRITERIA

Level 5

In accordance with the Framework for Higher Education Qualifications, at the end of Level 5 students will be expected to have developed sound knowledge and critical understanding of the well-established concepts and principles in their field of study, and of the way in which those principles have developed. They will have learned to apply those concepts and principles more widely outside the context in which they were first studied, including, where appropriate, the application of those principles in an employment context. They will have knowledge of the main methods of enquiry in the subject area, and ability to evaluate critically different approaches to problem solving. They will possess an understanding of the limits of their knowledge, and how this influences their analyses and interpretations. They will be able to use a range of established techniques to initiate and undertake critical analysis of information, and to propose solutions to problems arising from that analysis. They will be able to effectively communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences, and deploy key techniques of the discipline effectively. They will be able to undertake further training, develop existing skills and acquire new competences that will enable them to assume significant responsibility within organisations. They will have the qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision-making.

Level 5	FAIL	MARGINAL FAIL	SATISFACTORY (3 rd / Pass)	GOOD (2.2 / Pass)	VERY GOOD (2.1 / Merit)	EXCELLENT (1 st / Distinction)	EXCEPTIONAL (1 st / Distinction)
Category	0-29%	30-39%	40-49%	50-59%	60-69%	70-84%	85-100%
Engagement with literature (including reading, referencing, academic conventions and academic honesty)	Little or no evidence of reading and/or reliance on inappropriate sources. Views and findings mostly unsupported and non-authoritative. Referencing conventions used incoherently or largely absent.	Poor engagement with essential reading. No evidence of wider reading. Reliance on inappropriate sources, and/or indiscriminate use of sources. Heavily reliant on information gained through class contact. Inconsistent and weak use of referencing.	Engagement with a limited range of mostly relevant and credible sources. Some omissions and minor errors. Referencing conventions evident though not always applied accurately or consistently.	Engagement with an appropriate range of literature, including sources retrieved independently. Some over-reliance on texts. Referencing may show minor inaccuracies or inconsistencies.	Engagement with a wide range of literature, including sources retrieved independently. Selection of relevant and credible sources. Very good use of referencing, with no/very few inaccuracies or inconsistencies.	Engagement with an extensive range of relevant and credible literature. Consistently accurate application of referencing.	Exceptional engagement with an extensive range of relevant and credible literature. High-level referencing skills consistently applied.

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Category	0-29%	30-39%	40-49%	50-59%	60-69%	70-84%	85-100%
Knowledge and understanding (Sound knowledge and critical understanding of the well-established concepts and principles in their field of study; knowledge of the main methods of enquiry in the discipline.)	Major gaps in knowledge with unsatisfactory, uncritical understanding of the subject matter. Much irrelevant material. Substantial inaccuracies. Significantly flawed understanding of the main methods of enquiry in the discipline.	Fragmentary knowledge, with only superficial critical understanding. Some significant inaccuracies and/or irrelevant material. Incomplete or partially flawed understanding of the main methods of enquiry in the discipline.	Limited but adequate knowledge and critical understanding of the well-established concepts and principles within the subject area, with a few gaps in the selection of material. A narrow critical understanding of the main methods of enquiry.	Knowledge is reasonably detailed and accurate. A good critical understanding of the well-established concepts and principles and the main methods of enquiry, with minor gaps in the selection of material.	Knowledge is reasonably extensive. Exhibits very competent critical understanding of the well-established concepts and principles of the subject and the main methods of enquiry. Breadth and depth of knowledge.	Excellent, detailed knowledge and highly critical understanding of the well-established concepts and principles of the subject and the main methods of enquiry.	Exceptionally detailed knowledge and outstanding critical understanding of the well-established concepts and principles of the subject and the main methods of enquiry. May go beyond established theories.
Cognitive and intellectual skills (Critical evaluation and analysis of concepts and principles; argument and judgement; the limits of their knowledge, and how this influences their analyses and interpretations.)	Wholly or almost wholly descriptive work. Little or no critical evaluation and analysis of concepts and principles. Failure to develop arguments, leading to illogical or invalid judgements. Unsubstantiated generalisations	Largely descriptive work, with superficial use of critical evaluation and analysis of concepts and principles. Weak development of arguments and judgements. Information accepted uncritically, uses generalised statements made with scant	Limited attempt at critical evaluation and analysis of concepts and principles, tending towards description. Some evidence to support arguments and judgements but these may be underdeveloped, with a little inconsistency / mis-	Some critical evaluation and analysis of concepts and principles, though descriptive in parts. An emerging awareness the limits of their knowledge and ability to use evidence to support the argument though with some	Sound critical evaluation and analysis of concepts. Is selective in the range of evidence used and synthesises rather than describes. Ability to devise arguments that show awareness of different stances, and use evidence convincingly, to	Excellent critical evaluation and analysis of concepts and principles leading to logical, evidence-based, reasoned arguments and judgements. Explicit recognition of other stances and a strong awareness of	Outstanding critical evaluation and analysis of concepts and principles. Uses evidence exceptionally well to connect ideas, and support highly logical and persuasive, arguments and judgements. Evidence of independent

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Category	0-29%	30-39%	40-49%	50-59%	60-69%	70-84%	85-100%
	or opinion, made without use of any credible evidence.	evidence and unsubstantiated opinions. Ideas sometimes illogical and contradictory.	interpretation or failure to fully recognise limits of knowledge.	tendency to assert/state opinion rather than argue on the basis of reason and evidence. Mostly valid arguments and logical judgements.	support appropriate and valid judgements.	the limits of their knowledge. A capacity for independent thought and ability to 'see beyond the question', suggesting some grasp of the broader field and wider concepts.	thought and ability to 'see beyond the question', suggesting a clear grasp of the broader field and wider concepts. Perceptive recognition of the limits of their knowledge, and how this influences their analyses and interpretations.
Practical skills (Apply underlying concepts and principles more widely outside the context in which they were first studied; use a range of established techniques; propose solutions to problems arising from analysis.)	Limited or no use of established methods, materials, tools and/or techniques. Little or no appreciation of the context of the application. Limited understanding of the application of theory to practice or making appropriate links between the two.	Rudimentary application of established methods, materials, tools and/or techniques but without consideration and competence. Flawed appreciation of the context of the application. Weak understanding of the application of theory to	An adequate awareness and mostly appropriate application of established methods, materials, tools and/or techniques. Basic appreciation of the context of the application. Theoretical knowledge and understanding applied in practice, but not	A good and appropriate application of established methods, materials, tools and/or techniques. Clear appreciation of the context of the application. Mainly consistent, accurate and logical application of theory to practice, making	A very good application of a range of established methods, materials, tools and/or techniques. Very good consideration of the context of the application, with perceptive insights. Consistent, accurate and logical application of theory to	An advanced application of a range of established methods, materials, tools and/or techniques. The context of the application is well considered, and insightful. Consistent, accurate and logical application of theory to practice, making well-developed	Exceptional levels of application and deployment skills using established methods, materials, tools and/or techniques. Consistent, accurate and logical application of theory to practice, making highly developed links between the two. Can

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Category	0-29%	30-39%	40-49%	50-59%	60-69%	70-84%	85-100%
	Very weak problem-solving skills outside the context in which they were first studied.	practice, with only occasional evidence of making appropriate links between the two. Weak problem-solving skills outside the context in which they were first studied.	always making logical links between the two. Can identify problems and propose basic solutions outside the context in which they were first studied.	appropriate links between the two. Can identify problems and propose mostly appropriate solutions outside the context in which they were first studied.	practice, making appropriate links between the two. Can identify problems and propose appropriate solutions outside the context in which they were first studied. Evidence of some creativity.	links between the two. Can identify problems and propose excellent, creative solutions outside the context in which they were first studied.	identify routine and non-routine problems and propose quite sophisticated, creative solutions outside the context in which they were first studied.
Transferable skills for life and professional practice (Effectively communicate in a variety of forms to specialist and non-specialist audiences; the qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision-making.)	Communication medium is inappropriate or misapplied. Work is poorly structured, disorganised and/or confusingly expressed. Very weak use of language and/or very inappropriate style. Failure to work effectively as part of a group. Little or no evidence of the skills for employment requiring the	Communication medium is poorly designed and/or not suitable for the audience. Work is poorly presented in a disjointed manner. It is loosely, and at times incoherently, structured, with information and ideas often poorly expressed. Weak use of language and/or inappropriate style. Flawed approach to	Can communicate in a suitable medium for the audience but with some room for improvement. Mostly ordered presentation and structure in which relevant ideas / concepts are reasonably expressed. Work may lack coherence in places. Can work as part of a group, meeting most obligations to others but perhaps with	Can communicate effectively in a suitable medium for the audience, but may have minor errors. Mostly coherent, organised work, in a suitable structure and is for the most part clearly expressed. Can work effectively independently and/or as part of a team, with clear contribution to group activities.	Can communicate well, confidently and consistently in a suitable medium for the audience. Work is coherent, fluent, well-structured and organised. Can work very well autonomously and/or as part of a team, with very good contribution to group activities. Demonstrates very good skills for employment	Can communicate professionally confidently and consistently in a suitable medium for the audience. Work is coherent, very fluent and is presented proficiently. Can work autonomously with initiative. Where relevant can work professionally within a team, showing leadership skills as appropriate,	Can communicate with an exceptionally high level of professionalism, highly suitable for the audience. Work is exceptionally coherent, very fluent and is presented professionally. Can work exceptionally well within a team, showing leadership skills. Demonstrates exceptional skills for employment

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Category	0-29%	30-39%	40-49%	50-59%	60-69%	70-84%	85-100%
	exercise of personal responsibility and decision-making.	group work, meeting only partial obligations to others. Limited evidence of the skills for employment requiring the exercise of personal responsibility and decision-making.	limited involvement in group activities. Demonstrates the basic skills for employment requiring the exercise of personal responsibility and decision-making, with some areas of minor weakness.	Demonstrates the skills for employment requiring the exercise of personal responsibility and decision-making, with some areas of strength and some of minor weakness.	requiring the exercise of personal responsibility and decision-making, with just occasional minor weakness.	and meeting obligations. Demonstrates excellent skills for employment requiring the exercise of personal responsibility and decision-making and an appetite for further development.	requiring the exercise of personal responsibility and decision-making and an appetite for further development.