

**FACULTY OF SCIENCE AND ENGINEERING**

**DEPARTMENT OF NATURAL SCIENCES**

**SUMMATIVE IN-COURSE ASSESSMENT BRIEFING**

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| **Unit code** | 6F7Z1035 |
| **Unit title** | Air Quality |
| **Title of assignment (and weighting %)** | Case study report (100%) |
| **Name of staff setting assignment** | Dr Ling Lim |
| **Date assignment set** | 5 October 2022 |
| **Submission deadline** | Submission of the report is Friday **13th January 2023, 9 pm**. |
| **Submission instructions** | **Location or method of submission:**  Your completed report must be submitted online via the submission link on the Moodle unit area under the section ‘Assessments’.  You may upload one file with a maximum size of 40MB.  **The time deadline for upload is 9 pm on the assessment submission deadline.** |
| **Learning outcomes tested in this assignment** | There are three learning outcomes (LO) for this unit, and all of these are tested in this assignment:   * Identify, critically explain and evaluate policies relating to air   quality management.   * Describe, explain and apply analytical methods for quantifying air pollution in an urban context. * Undertake a critical evaluation of air quality in a specific urban context and formulate appropriate recommendations for improving air quality.   On successful completion of the unit, you will also achieve the MMU Graduate Outcomes (GO) that have a wider focus relating to your personal and professional development, specifically relating to this assignment:  GO3. Express ideas effectively and communicate information appropriately and accurately using a range of media including ICT. |
| **Assignment task instructions** | **Brief description:**  For this assignment you are required to produce a case study report of an urban air quality NO2 assessment and management within the current legal context. This will be in the form of an air quality assessment report for an urban area in Greater Manchester. Your report should include:   * Summary of key issues associated to urban air quality, with specific reference to the selected study area. This will include emission sources; impacts on human health and the urban environment; description of policies and regulations pertaining to NO2 and their legislative context. * Evaluation of NO2 concentrations using monitoring and modelling approaches for the traffic conditions in the study area. * Propose NO2 management strategies and recommendations for pollution control in the study area, including possible contributions from sources due to Manchester Airport.   Further information of the case study is provided in Appendix A of this assignment brief. |
| **Assessment criteria** | **These are the criteria against which your assignment will be assessed:**   * fulfilment of the requirements of the assignment tasks (including adherence to the format and word limit specified) * evidence of extensive reading around the subject with correct and complete citation and referencing of sources * evidence of understanding of analytical methods of subject area and their application * evidence of critical analysis and appraisal, and of innovative and creative thinking * appropriate presentation of data (qualitative and quantitative) * a well-structured report with correct standard and style of writing, grammar, spelling and punctuation   All parts of the report, learning outcomes and assessment criteria **are equally weighted**. |

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| **Format and structure of the submission** | **Details of any word, page, size, or time limit(s):**  Your report should be word processed and should include digitally produced maps (e.g., GIS maps). The report should not be more than **3000 words** in length. The word count excludes references, text within figures and tables and figure and table captions. The Harvard Referencing System should be used.  **Penalties for over long submissions:**  Report that exceeds the stated word limit will be penalised according to the following scheme:   * If your work exceeds the stated limit by more than 10% your mark will be reduced by 10% (i.e., one degree class). * If your work exceeds the stated limit by more than 30% your mark will be capped at 50%. |
| **Marking process** | Your work will be marked against the assessment criteria indicated above, which match the relevant unit learning outcomes. The assessment criteria are reflected in the Standards Descriptors given below. While preparing your assignment it is good practice to regularly review and check that you have addressed each of the assessment criteria. Check the Standards Descriptors to see what changes you need to make to improve your marks, and to get a better idea of what it is that we are looking for when we assess your report. |
| **Feedback plan** | **What type of feedback you can expect:**  You will receive written feedback on your work using the feedback and comments sheet attached. This will include indicative highlighter on the standards descriptors grid showing your strengths and weaknesses in relation to the assessment criteria.  **Date when feedback will be available:**  Marks and feedback will be available within four weeks from the date of the deadline.  **How and where to obtain your feedback and marks:**  Marks will be available on Moodle. General feedback will be posted on the Moodle unit area and individual feedback will be available from the Unit Leader upon request.  **How to use your feedback:**  You should retain and study your feedback and check your strengths and weaknesses against other assignments in this course to try to improve the quality of your work. |
| **Assignment support and resources** | **General support:**  You can get support with study skills from the Programme Support Tutors and from [studyskills@mmu.ac.uk](mailto:studyskills@mmu.ac.uk).  **Assignment specific support:**  There will be dedicated class time to introduce the assignment and what is expected from the report. In addition, there will be at least 1 support session per week throughout the 11 teaching weeks to provide further support for you to complete the assignment. It is important that all students attend the assignment support sessions.  The Unit Leader (Dr Ling Lim – [l.lim@mmu.ac.uk](mailto:l.lim@mmu.ac.uk)) is available to meet individuals or small groups, on an appointment basis. Students with **PLP or Exceptional Factors** should speak to Dr Ling Lim for appropriate guidance.  **Assignment-specific learning resources:**  The assignment builds on the material covered in the lectures and this will be a useful starting point. Refer to the lecture notes, unit reading list and supporting resources identified during scheduled classes or made available via Moodle to assist you in the assignment. |

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| **This assignment was verified on (date): 20/09/22** | | | |
| **Name of Unit Coordinator:** | Ling Lim | **Signature** |  |
| **Name of Verifier:** | Paul Chipman | **Signature** |  |

**ASSIGNMENT STANDARDS DESCRIPTORS**

The standards descriptors framework below sets out what is required to achieve each grade against the Learning and Graduate Outcomes for this assignment. The text contained within the framework links to the assessment criteria specified in the assignment briefing. This grid will be included in your feedback with relevant text highlighted to show your strengths and weaknesses.

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| **LOs and GO** | LO1 | LO2 | LO3 | GO3 |
| Identify, critically explain and evaluate policies relating to air quality management | Describe, explain and apply analytical methods for quantifying air pollution in an urban context | Undertake a critical evaluation of air quality in a specific urban context and formulate appropriate recommendations for improving air quality | Express ideas effectively and communicate information appropriately and accurately using a range of media including ICT |
| **Grade range** |
| 86%-100% | **Insightful explanation:**  NO2 sources  NO2 impacts  NO2 policies & regulations | **Insightful application:**  NO2 monitoring  NO2 modelling  NO2 analysis | **Insightful evaluation:**  NO2 management strategies  NO2 source control  NO2 due to airport | **Authoritative:**  Method & analysis  Structure & language  Referencing & citing  Reporting & presentation |
| 70%-85% | **Critical explanation:**  NO2 sources  NO2 impacts  NO2 policies & regulations | **Critical application:**  NO2 monitoring  NO2 modelling  NO2 analysis | **Critical evaluation:**  NO2 management strategies  NO2 source control  NO2 due to airport | **Meticulous:**  Method & analysis  Structure & language  Referencing & citing  Reporting & presentation |
| 60%-69% | **Thorough explanation:**  NO2 sources  NO2 impacts  NO2 policies & regulations | **Thorough application:**  NO2 monitoring  NO2 modelling  NO2 analysis | **Thorough evaluation:**  NO2 management strategies  NO2 source control  NO2 due to airport | **Fluent:**  Method & analysis  Structure & language  Referencing & citing  Reporting & presentation |
| 50%-59% | **Adequate explanation:**  NO2 sources  NO2 impacts  NO2 policies & regulations | **Adequate application:**  NO2 monitoring  NO2 modelling  NO2 analysis | **Adequate evaluation:**  NO2 management strategies  NO2 source control  NO2 due to airport | **Adequate:**  Method & analysis  Structure & language  Referencing & citing  Reporting & presentation |
| 45%-49% | **Limited explanation:**  NO2 sources  NO2 impacts  NO2 policies & regulations | **Limited application:**  NO2 monitoring  NO2 modelling  NO2 analysis | **Limited evaluation:**  NO2 management strategies  NO2 source control  NO2 due to airport | **Limited:**  Method & analysis  Structure & language  Referencing & citing  Reporting & presentation |
| 20%-44% | **Erroneous explanation:**  NO2 sources  NO2 impacts  NO2 policies & regulations | **Erroneous application:**  NO2 monitoring  NO2 modelling  NO2 analysis | **Erroneous evaluation:**  NO2 management strategies  NO2 source control  NO2 due to airport | **Extremely limited:**  Method & analysis  Structure & language  Referencing & citing  Reporting & presentation |
| 0%-19% | **Missing explanation:**  NO2 sources  NO2 impacts  NO2 policies & regulations | **Missing application:**  NO2 monitoring  NO2 modelling  NO2 analysis | **Missing evaluation:**  NO2 management strategies  NO2 source control  NO2 due to airport | **Formless:**  Method & analysis  Structure & language  Referencing & citing  Reporting & presentation |

**FEEDBACK AND MARKS SHEET**

**STUDENT NAME:**

**COMMENTS:**

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| --- | --- | --- |
| **Element** | **Marks (%)** | **Comments** |
| **LO1**  **(25%)** |  |  |
| **LO2**  **(25%)** |  |  |
| **LO3**  **(25%)** |  |  |
| **GO3**  **(25%)** |  |  |
| **OVERALL** |  |  |

**MARK:** %

**NAME OF ASSESSOR:** **DATE:**

**APPENDIX A: Further information of the case study**

Air quality assessment report for an urban area in Greater Manchester

The air quality assessment report must be for an urban area in ONE of the Metropolitan Borough in Greater Manchester. They are Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford, Wigan. A GIS map showing your chosen study area must be included in the report introduction.

The report should be structured as a scientific report with introduction and conclusions. The main content may be divided into 3 sections: key issues, monitoring and modelling, management strategies and recommendations.

Key issues

You should summarise the key air quality issues pertaining to NO2 in your study area. The issues must include:

* Sources of emission
* Impacts on human health and the urban environment
* Applicable policies and regulations

Monitoring and modelling

You will evaluate NO2 concentrations in your study area, through the analysis of automatic monitoring AND modelling data. A description and/or map of the monitoring site(s) and the roads modelled should also be included. The requirements for each section are as follows:

* Monitoring: Concentration data should be analysed for at least one urban traffic site, for a minimum period of 12 months and sufficient discussion, assessment of temporal trends as well as exceedances. The datasets should be analysed based on plots that you have generated using Excel or another visualisation package. Some websites may include visualisation of air quality data (including Air Quality Index), and this is not sufficient for the purpose of this case study.
* Modelling: Concentration data should be produced for at least one road using the DMRB model. Any assumptions, input and output from the modelling exercise should be summarised accordingly in the text and/or as tables. ‘Screenshots’ from the DMRB model will not be accepted.

Management strategies and recommendations

You will discuss existing air quality management strategies in your study area. Propose additional management strategies or mechanism of pollution control to further reduce NO2 concentrations. You should support your argument with further evidence from literature and/or data analysis. You should also include the relevance of emissions due to Manchester Airport to the air quality in your study area.