|  |  |  |
| --- | --- | --- |
|  |  | |
| Pearson  Higher Nationals in | | |
| Computing | | |
| SCHEME OF WORK | | |
| Unit 13: | | Computing Research Project | |
| For use with the Higher National Certificate and  Higher National Diploma in Computing | | |
| First teaching from September 2017 | | |
| **Issue** | **1** | |



Please note that Schemes of Work are for guidance and support only.

They can be customised and amended according to localised needs and requirements.

All schemes of work can be adapted to suit specific establishment time frames in line with GLH delivery.

**Edexcel, BTEC and LCCI qualifications**

Edexcel, BTEC and LCCI qualifications are awarded by Pearson, the UK’s largest awarding body offering academic and vocational qualifications that are globally recognised and benchmarked. For further information, please visit our qualification websites at www.edexcel.com, www.btec.co.uk or www.lcci.org.uk. Alternatively, you can get in touch with us using the details on our contact us page at qualifications. pearson.com/contactus

**About Pearson**

Pearson is the world’s leading learning company, with 40,000 employees in more than 70 countries working to help people of all ages to make measurable progress in their lives through learning. We put the learner at the centre of everything we do, because wherever learning flourishes, so do people. Find out more about how we can help you and your learners at qualifications.pearson.com

References to third-party material made in this specification are made in good faith. We do not endorse, approve or accept responsibility for the content of materials, which may be subject to change, or any opinions expressed therein. (Material may include textbooks, journals, magazines and other publications and websites.) All information in this document is correct at time of publication. All the material in this publication is copyright © Pearson Education Limited 2016

Please note that Schemes of Work are for guidance and support only.

They can be customised and amended according to localised needs and requirements.

All schemes of work can be adapted to suit specific establishment time frames in line with GLH delivery.

scheme of work

|  |  |  |  |
| --- | --- | --- | --- |
| Programme Title: | Higher Nationals in Computing | Level: | 5 |
|  |  |  |  |
| Unit Title: | Computing Research Project | Tutor: | BinhDQ |
|  |  |  |  |
| Unit Number: | 13 | Academic Year: | 2019 |

|  |  |  |
| --- | --- | --- |
| Learning Outcomes (LO) | Assessment 1 | Assessment 2 |
| Examine appropriate research methodologies and approaches as part of the research process |  |  |
| Conduct and analyse research relevant to a computing research project. |  |  |
| Communicate the outcomes of a research project to identified stakeholders. |  |  |
| Reflect on the application of research methodologies and concepts |  |  |

Please note that Schemes of Work are for guidance and support only.

They can be customised and amended according to localised needs and requirements.

All schemes of work can be adapted to suit specific establishment time frames in line with GLH delivery.

| Sessions | Learning Outcome(s) | Session Activities |
| --- | --- | --- |
| Session 1 | LO1  Topic: Introduction to the unit | * Introduction to the course * Review what is a research project and not a research project.   + The research problem   + Suggest formulation of your research problem   Sample activities:   * Claiming to be research problems and decide whether they are researchable, and are a feasible proposition for an individual student |
| Session 2 | LO1  Topic: Research approaches and research philosophy | * Nature and use of argument in Research   + Three uses of language   + Statements: existent and relational   + Argument   + Deductive and inductive arguments   + Logic in argument   + Identify fallacies   Sample activities   * Identify components in an argument * Determine which arguments are deductive and which are inductive * Identify fallacies |
| Session 3 | LO1  Topic: Research approaches and research philosophy  Topic: Quantitative research  Topic: Quantitative research | * Research quality   + Objectives of research(in general)   + Research process   + Primary and Secondary data   + Qualitative and quantitative data   Sample activities:   * Discuss which research’s objectives are most valuable for a student research project * Discuss how research process can influence the result of the project * Brainstorm activity – how to collect qualitative/quantitative data and research * Small group activity – present methods and highlight benefits and limitations for each method |
| Session 4 | LO1  Topic: Choosing a topic and objectives | * Introduce about course’s assignment * Introduce the components of a research proposal? * Introduce some feasible research titles to student   Sample activities:   * Writing a research question and evaluate the valid of a research question * Complete student’s proposal |
| Session 5 | LO2  Topic: Writing the research proposal | * How to write a good research proposal. * The key components of the research proposal.   Sample activities:   * Brainstorm activity – the key components of the research proposal and discuss the validity of having structure. * Student activity to consider the validity and justification of their proposed research. |
| Session 6 | LO2  Topic: Writing the research proposal | Individual appointments to check the progress of writing research proposal |
| Session 7 | LO1  Topic: Research design and strategies | * Research approaches   + Action research   + Case study, Survey   + The experimental style   + Ethnography and the ethnographic   Sample activities:   * Discussion activity – the mixed method approach and when it applies * Online multiple choice quiz on research methods |
| Session 8 | LO1  Topic: Research approaches and research philosophy | * Scientific method   + Why scientific method?   + How to carry out scientific method?   + Three important principles of the scientific method   Sample activities   * Discussion activity – the method approach and when it applies |
| Session 9 | LO2  Topic: Writing the research proposal  Topic: Writing project plan | * Individual appointments to check the progress of writing research proposal and project plan |
| Session 10 | LO1  Topic: The literature review | * How to review the literature for a research project. * What is a literature review? * Literature review process.   Sample activities:   * Discussion activity – the definition of literature review. * Working in group: practise writing literature review |
| Session 11 | LO1 - 2  Topic: Assignment workshop | * Recap content and review student progress   Sample activities:   * Brief tutor-led overview of assessment requirements. * Open question and answer activity to address general questions and concerns. |
| Session 12 | LO1 - 2  Topic: Assignment workshop | * Introduction to the project theme(currently Artificial Intelligent)   + History of AI   + Types of AI   + Can computers see/learn/adapt/recognizing human speech   + AI applications: consuming marketing, identification technologies, machine translation… |
| Session 13 | LO2 | Individual appointments to discuss and review research proposals and project plan |
| Session 14 | LO2 | Individual appointments to discuss and review research proposals and project plan |
| Session 15 | LO2  Topic: Literature review – secondary research (part 1) | * How to read effectively. * How to taking notes effectively.   Sample activities:   * Discussion activity – what is critical reading and how to do it * Do note-taking exercise |
| Session 16 | LO2  Topic: Literature review – secondary research (part 2) | * Research activity for sources of information that will inform the student’s individual literature review. * Independent research for the literature review. |
| Session 17 | LO2  Topic: Literature review – secondary research (part 3) | * Research activity for sources of information that will inform the student’s individual literature review. * Independent research for the literature review. |
| Session 18 | LO2 | Individual appointments to discuss draft literature review |
| Session 19 | LO2 | Individual appointments to discuss draft literature review |
| Session 20 | LO2  Topic: Conducting research | Research methods   * Data collection and analysis * Collecting secondary data * Collecting primary data * Questionnaires and diaries * Interviews: structured, semi-structured and open   Sample actives   * Lecture * Do exercise about data collection methods |
| Session 21 | LO2  Topic: Samples selection considerations | * Sample selection and types of samples   Sample activities:   * Brainstorm different research methods and appropriate sample sizes and selection for their own research |
| Session 22 | LO2  Topic: Conducting research | * Produce data collection plan in primary research   Sample activities   * Students to create data collection plan relevant for their research and check them off with the tutor |
| Session 23 | LO2  Topic: Conducting research | Sample activities:  Students to create questionnaires/devise interview questions relevant for their research and check them off with the tutor. |
| Session 24 | Topic: Creating questionnaires/interview questions – practical workshop | * Demonstrate how to create a questionnaire using Word.   Sample activities:   * Students to create questionnaires/devise interview questions relevant for their research and check them off with the tutor. |
| Session 25 | LO2  Topic: How to analyse data | * Content analysis. * Variables and statistical tests. * Trend analysis.   Sample activities:   * Brainstorm activity and discussion – how to interpret data. * Students given transcribed interview responses and apply examples of open coding. * Pair work – produce Excel charts/pie charts for displaying data from questionnaires. |
| Session 26 | L02  Topic: Assignment Workshop | Introducing components in a research report. |
| Session 27 | L02  Topic: Assignment Workshop | Individual appointments to discuss and review research findings. |
| Session 28 | L02  Topic: Assignment Workshop | Individual appointments to discuss and review research findings. |
| Session 29 | L02  Topic: Assignment Workshop | Individual appointments to discuss and review research findings. |
| Session 30 | L02  Topic: Assignment Workshop | Individual appointments to discuss and review research findings. |
| Session 31 | Topic: Assignment Workshop | * Recap content and review student progress     Sample activities:   * Brief tutor-led overview of assessment requirements. * Open question and answer activity to address general questions and concerns. * Review of academic requirements and submission format. * Individual student queries and questions. * Students highlight which topics/practices/theory need recapping. |
| Session 32 | LO3 | Individual appointments to discuss and review research findings. |
| Session 33 | LO3 | Individual appointments to discuss and review research findings. |
| Session 34 | LO3 | Review assignment and give feedback to students |
| Session 35 | LO1 - 3 | Review assignment and give feedback to students |
| Session 36 | LO1 - 3 | Review assignment and give feedback to students |
| Session 37 | LO1 - 3 | Submit assignment 1 |
| Session 38 | LO4 | Introduce to assignment 2 |
| Session 39 | LO4 | Review assignment and give feedback to students |
| Session 40 | LO4 | Submit assignment 2 |