Unit 28: Research Project

Unit code: K/601/0941

QCF level: 5

Credit value: 20

Aim

To develop learners' skills of independent enquiry and critical analysis by undertaking a sustained research investigation of direct relevance to their Higher Education programme and professional development.

Unit abstract

This unit is designed to enable learners to become confident using research techniques and methods. It addresses the elements that make up formal research including the proposal, a variety of research methodologies, action planning, carrying out the research itself and presenting the findings. To complete the unit satisfactorily, learners must also understand the theory that underpins formal research.

The actual research depends on the learner, the context of their area of learning, their focus of interest and the anticipated outcomes. The unit draws together a range of other areas from within the programme to form a holistic piece of work that will makes a positive contribution to the learner's area of interest. Learners should seek approval from their tutors before starting their research project

Learning outcomes

On successful completion of this unit a learner will:

1 Understand how to formulate a research specification

2 Be able to implement the research project within agreed procedures and to specification

3 Be able to evaluate the research outcomes

4 Be able to present the research outcomes.

Unit content

1 **Understand how to formulate a research specification**

Research formulation: aims and objectives; rationale for selection; methodology for data collection and analysis; literature review; critique of references from primary sources, eg questionnaires, interviews; secondary sources, eg books, journals, internet; scope and limitations; implications, eg resources

Hypothesis: definition; suitability; skills and knowledge to be gained; aims and objectives; terms of reference; duration; ethical issues

Action plan: rationale for research question or hypothesis; milestones; task dates; review dates; monitoring/reviewing process; strategy

Research design: type of research, eg qualitative, quantitative, systematic, original; methodology; resources; statistical analyses; validity; reliability; control of variables

2 **Be able to implement the research project within agreed procedures and to specification**

Implement: according to research design and method; test research hypotheses; considering test validity; reliability

Data collection: selection of appropriate tools for data collection; types, eg qualitative, quantitative; systematic recording; methodological problems, eg bias, variables and control of variables, validity and reliability

Data analysis and interpretation: qualitative and quantitative data analysis – interpreting transcripts; coding techniques; specialist software; statistical tables; comparison of variable; trends; forecasting

3 **Be able to evaluate the research outcomes**

Evaluation of outcomes: an overview of the success or failure of the research project planning, aims and objectives, evidence and findings, validity, reliability, benefits, difficulties, conclusion(s)

Future consideration: significance of research investigation; application of research results; implications; limitations of the investigation; improvements; recommendations for the future, areas for future research

4 **Be able to present the research outcomes**

Format: professional delivery format appropriate to the audience; use of appropriate media

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Learning outcomes and assessment criteria

Learning outcomes On successful completion of this unit a learner will:	Assessment criteria for pass The learner can:
LO1 Understand how to formulate a research specification	1.1 formulate and record possible research project outline specifications 1.2 identify the factors that contribute to the process of research project selection 1.3 undertake a critical review of key references 1.4 produce a research project specification 1.5 provide an appropriate plan and procedures for the agreed research specification
LO2 Be able to implement the research project within agreed procedures and to specification	2.1 match resources efficiently to the research question or hypothesis 2.2 undertake the proposed research investigation in accordance with the agreed specification and procedures 2.3 record and collate relevant data where appropriate
LO3 Be able to evaluate the research outcomes	3.1 use appropriate research evaluation techniques 3.2 interpret and analyse the results in terms of the original research specification 3.3 make recommendations and justify areas for further consideration
LO4 Be able to present the research outcomes	4.1 use an agreed format and appropriate media to present the outcomes of the research to an audience.

Guidance

Links

This unit may be linked to single or several units in the programme, depending on the research topic and the context of their area of learning.

The unit can also be linked to the SEMTA Level 4 National Occupational Standards in Engineering Management, particularly:

- Unit 4.5: Identify and Define Areas of Engineering Research
- Unit 4.6: Develop a Research Methodology for Engineering
- Unit 4.8: Undertake Engineering Research
- Unit 4.9: Evaluate the Results of Engineering Research.

Essential requirements

Tutor will need to establish the availability of resources to support the independent study before allowing the learner to proceed with the proposal.

Employer engagement and vocational contexts

Centres should try to establish relationships with appropriate organisations in order to bring realism and relevance to the research project.