

CS3D1-60 Work based project (DA)

22/23

Department

Computer Science

Level

Undergraduate Level 3

Module leader

Andrew Hague

Credit value

60

Module duration

6 weeks

Assessment

100% coursework

Study location

University of Warwick main campus, Coventry

Description

Introductory description

This module will enable students to demonstrate a range of work-based professional and transferable skills needed for successful development, completion, and presentation of an extended capstone-style project, such as researching, analysing, and synthesising existing work in order to identify a suitable topic and develop an appropriate project proposal, time management and organisation skills, good written and oral communication skills. Further, students will show students how to apply their skills to recognise and use suitable management techniques to support successful task decomposition and realistic scheduling/timetabling in project planning, identify a variety of techniques and/or technologies appropriate to their degree to successfully conduct an extended practical investigation/development/analysis project, and conduct further research and learning needed for successful project completion.

Module aims

This module aims to equip students with the necessary skills required to successfully undertake an extended independent project, develop an advanced awareness of research and development issues in the workplace, and develop their reflective practice on the role of the worker-researcher and the professional issues involved. Further, it aims to allow students to negotiate and deliver a workplace-based "capstone" project involving both research and practical application of a range of techniques appropriate to their degree.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

This module will contain the following topics:

- Introduction to research methods
- Identification and use of secondary sources
- Critical appraisal, analysis, and synthesis of secondary sources
- Time management and communication
- Academic writing
- Oral presentation skills
- Professional issues (ethics, data protection, security, legal concerns) in the context of work-based research
- Designing, conducting, and justifying workplace research
- independent and workplace learning relevant to the negotiated learning topic of the project supported by the academic supervisor

Learning outcomes

By the end of the module, students should be able to:

- Analyse a problem to develop an effective solution.
- Apply an appropriate range of skills, techniques, and technologies to conduct a novel investigation and/or development to meet an identified need.
- Demonstrate good understanding and application of subject skills appropriate to the degree.
- Demonstrate good independent learning skills, e.g. time management, communication, and extended subject knowledge.
- Write an extended report to document all stages of project activity.
- Demonstrate a high level of professional practice in all aspects relevant to the project, e.g. ethics, security, legal considerations. In particular, show how the specific issues related to being an insider researcher have been addressed.
- Reflect on the wider context of work-based practice and learning.

Indicative reading list

Dawson, CW, "Projects in Computing and Information Systems: A Student's Guide", Addison-Wesley (2005)

Costley, C., Elliott, GC, & Gibbs, P., "Doing work based research: Approaches to enquiry for insider-researchers", Sage (2010)

Workman, B., "Casing the joint: Explorations by the insider-researcher preparing for work-based projects", Journal of Workplace Learning, 19(3), 146-160 (2007)

Campbell, J., "Speak for yourself: A Practical Guide to Giving Successful Presentations, Speeches and Talks", BBC Books (1990)

Alley, M., "The Craft of Scientific Writing (3/e)", Springer (1998)

Cooper, BM, "Writing Technical Reports", Penguin Books (1990)

Research element

Students will research and deliver a workplace "capstone" project involving both research and practical application of a range of techniques appropriate to their degree

Subject specific skills

- Critically analyse a business domain in order to identify the role of information systems
- Highlight issues and identify opportunities for improvement through evaluating information systems in relation to their intended purpose and effectiveness
- Analyse business and technical requirements to select and specify analyses business and technical requirements to select and specify appropriate technology solutions
- Design, implement, test and debug software to meet requirements using contemporary methods including agile development
- Manage the development and assurance of software artefacts applying secure development practises to ensure system resilience
- Configure and deploy solutions to end users
- Develop well- reasoned investment proposals and provide business insights
- Implement a database solution using an industry standard database management system (DBMS)
- Perform database administration tasks and is cognisant of the key concepts of data quality and data security
- Apply industry standard processes, methods, techniques and tools to execute projects
- Able to manage a project including identifying and resolving deviations and the management of problems and escalation processes
- Contemporary techniques for design, developing, testing, correcting, deploying and documenting software systems from specifications, using agreed standards and tools
- The role of data management systems in managing organisational data and information
- Present data visualisation using charts, graphs, tables, and more sophisticated visualisation tools
- Perform routine statistical analyses and ad-hoc queries
- Use a range of analytical techniques such as data mining, time series forecasting and modelling techniques to identify and predict trends and patterns in data
- Report on conclusions gained from analysing data using a range of statistical software tools
- Summarise and present results to a range of stakeholders making recommendations
- The quality issues that can arise with data and how to avoid and/or resolve these
- The processes involved in carrying out data analysis projects
- The fundamentals of data structures, database system design, implementation and maintenance
- The organisation's data architecture

Transferable skills

- Fluent in written communications and able to articulate complex issues
- Makes concise, engaging and well-structured verbal presentations, arguments and explanations.

- Able to deal with different, competing interests within and outside the organisation with excellent negotiation skills.
 - Have demonstrated that they have mastered basic business disciplines, ethics and courtesies, demonstrating timeliness and focus when faced with distractions and the ability to complete tasks to a deadline with high quality.
 - Able to conduct effective research, using literature and other media, into IT and business related topics
 - Flexible attitude
 - Ability to perform under pressure
 - A thorough approach to work
 - Logical thinking and creative approach to problem solving
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Study

Study time

Type	Required
Lectures	20 sessions of 1 hour (3%)
Seminars	50 sessions of 1 hour (8%)
Project supervision	18 sessions of 1 hour (3%)
Work-based learning	256 sessions of 2 hours (85%)
Total	600 hours

Private study description

No private study requirements defined for this module.

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group A

	Weighting	Study time
Project specification	10%	
Progress report	10%	
Oral presentation	20%	

	Weighting	Study time
Project report	60%	

Feedback on assessment

Written and verbal

Availability

Courses

This module is Core for:

- Year 4 of DCSA-I112 Undergraduate Computer Science and Technology Solutions (Data Analyst) (Degree Apprenticeship)