completed Health and Safety Risk Assessment must be submitted with the application. A range of completed Risk Assessments are available on Moodle; please check with your supervisor that it is appropriate; if not again see Dr Costen.

2.2   Course Learning Outcomes

As part of your Feasibility Study, you must specify a number of course specific learning outcomes to which it relates. These are drawn from the specification of the various different degree pathways which you are all registered on. It is your task to identify which of the learning outcomes of your degree are relevant to the particular project topic you are tackling (these will not be the same for all students doing a particular degree), agree the selection with your supervisor, and include them in the FS that you submit.

BSc (Hons) Computing

Students successfully completing this award will:

- Apply theoretical knowledge and practical skills in the analysis, specification, design, construction and evaluation of information systems using a variety of methodologies.

- Demonstrate a range of programming skills and articulate those skills through the implementation of systems.

- Demonstrate an advanced understanding of database management systems, and to develop advanced skills in their exploitation.

- Demonstrate skills and attributes that will enhance employment opportunities in general computing and IT.

- Demonstrate a general awareness of information and database system standards, including their impact on the environment.

- Apply a variety of techniques for extracting knowledge from data, including data grouping, summarisation, preparation, exploration, visualisation and mining.

- Understand the business context in which computer systems operate in the on-line world.

- Demonstrate effective communication, decision making and creative problem solving skills, and identify appropriate practices within a professional, legal and ethical framework.

BSc (Hons) Software Engineering

Students successfully completing this award will:

- Demonstrate an understanding of the principles of object orientation in the context of analysis and design.

- Apply project management techniques in order to plan, monitor and control a project.

- Explain and utilise fundamental object orientation concepts such as classes, encapsulation, inheritance and polymorphism and relate them to their practical situations including library and graphical user interface (GUI) development.

- Utilise in-depth, practical experience of the types of software tools that can support an object-oriented software lifecycle and develop this through practical experience.

- Utilise and understand methods and appropriate software tools for software development, including Software Testing Tools, Version Control and Project Management.

- Demonstrate an understanding of the fundamental, basic issues of software testing.

- Evaluate and apply design patterns for the development of high-quality, object-oriented software systems.

- Build robust, secure distributed systems using techniques such as messaging, persistent storage, remote methods and components.

- Have a range of programming skills to apply in the software engineering environment.

- Demonstrate that they can participate in and complete a substantial project, involving research, planning, specifying, designing, building and testing software, integrating knowledge gained from the core units on the award.

BSc (Hons) Computer Science

Students successfully completing this award will:

- Use knowledge, abilities and skills for further study and for a range of employment in areas related to scientific and technical computing.

- Interpret legislation appropriate to computer professionals and also be aware of relevant ethical issues and the role of professional bodies.

- Analyse, design, and implement algorithms using a range of appropriate languages and/or methodologies.

- Design, implement and interrogate database systems.

- Apply the principles and operation of languages, compilers and interpreters.

- Demonstrate effective communication, decision making and creative problem solving skills, and identify appropriate practices within a professional, legal and ethical framework.

- Critically appraise and apply suitable artificial intelligence techniques for a variety of software systems.

MComp (Hons) Computer Science: Further Learning Outcomes

In addition to achieving the learning outcomes for BSc (Hons) Computer Science, students successfully completing this award will:

- Demonstrate an in-depth understanding of key principles that arise in the design, analysis, and implementation of advanced networks, operating systems and distributed systems.

- Analyse new technologies and synthesise approaches to the management of big data.

- Undertake research, synthesis and innovative development related to current advances in computer science; implement and critically evaluate such activity in a professional level project.

BSc (Hons) Computer Forensics and Security

Students successfully completing this award will:

- Demonstrate an understanding of the scope and theoretical underpinnings of computer forensics and security.

- Conduct forensic analysis of computer, network and other device data using a variety of techniques and platforms.

- Use a range of programming and database skills to assist in forensic and information security investigations.

- Demonstrate an understanding of the characteristics and operation of various networking technologies and operating systems.

- Conduct an investigation in response to an incident by making use computer, network, internet and mobile security and/or forensics in legally acceptable manner.

- Document a security incident and/or forensic investigation to a professional level.

- Critically appraise computer and network aspects of security.

- Interpret legislation appropriate to computer professionals and also be aware of relevant ethical issues and the role of professional bodies.

- Identify and make use of current scholarly research in the field.

BSc (Hons) Computer Animation and Visual Effects

Students successfully completing this award will:

- Identify and demonstrate a range of approaches and techniques for the design and creation of digital assets.

- Evaluate and integrate dynamic animation systems for use in composition with live action footage.

- Produce, design and analyse three-dimensional models for rendering and animation within an industry standard production workflow.

- Identify roles and associated skills within the animation and visual effects industry, and monitor emerging technological developments.

- Demonstrate effective communication, decision making and creative problem solving skills.

BSc (Hons) Computer Games Technology

Students successfully completing this award will:

- Be skilled and fluent in the use of structured computer programming techniques and demonstrate these skills though implementation of programmes.

- Develop skills in the use of graphics application interfaces (APIs) such as OpenGL and middleware tools and be able to use these to program/develop real-time, interactive 3D graphics for environments games.

- Apply design principles, use design methodologies and produce documentation for game specifications using industry standard approaches.

- Acquire a knowledge and understanding of behavioural systems most commonly employed in games design and be able to apply these appropriately.

- Understand the key technical problems and issues in three dimensional modelling, rendering and animation and be able to monitor new developments in these areas.

- Implement systems and frameworks that demonstrate that they are a competent user of the mathematical tools and techniques used in three dimensional computer graphics and in game physics.

- Appreciate the characteristics and features of a variety of game genres and be able to relate games design to broader media, art and culture.

- Be able to work as a team member and to understand the life-cycle management of a game development.

- Demonstrate effective communication, decision making and creative problem solving skills, and identify appropriate practices within a professional, legal and ethical framework.

2.3   The Role of Research Ethics

The place of research ethics within a university is best thought of in terms of the avoidance of reputational damage. There are broadly four types of danger:

- Danger of the University (this, of course, includes you as a student) being found to being undertaking research of a nature which might attract negative publicity (for example, we are obliged to maintain records of research involving genetically modified organisms or which is security sensitive, and this is managed through the ethics system),

- Danger of physical injury to experimenters or participants (like any other activity, this is a matter for the Health and Safety system; all applications must have a Risk Assessment attached to them);

- Danger of psychological injury or exploitation of participants (we have, for example a responsibility not to make use of inappropriate power relationships or unnecessary deception of participants),

- Danger of inappropriate use or release of data (we are bound by both the Data Protection and Human Tissue Acts and must ensure that our procedures follow best practice in these areas).