The group’s expertise is diverse and spans various fields including the following research areas:

- Health and safety systems and procedures
- Defects identification and minimisation
- Project management and planning
- Modern methods of construction
- Building Information Modelling (BIM)
- Asset management systems
- Information technology in construction

The Construction Management and Economics Research Group is led by Professor Sommerville, a Chartered Surveyor and Chartered Builder, who has published widely on defects management and quality attainment within the industry. He has held and successfully delivered a number of research grants and Knowledge Transfer Partnerships (KTPs). His research interests include micro-enterprises, IT application, defects in buildings and energy management.

Research in the Built and Natural Environment places GCU in the top twenty universities in the UK and, in research on sustainable urban environments and building design as well as the field of waste management and recycling, as the leading university in Scotland.

Professor Sommerville is joined by experts in design and construction with research into the application of artificial intelligence/knowledge-based systems to structural design, electronic document management systems for use within the construction environment, health and safety practices and construction supply chains.

From 2016, Building Information Modelling (BIM) will be mandatory on all public sector...
contracts. There are various prerequisites that need to be in place, mostly in relation to process protocols and standards, before the UK Government’s ambitions for achieving the productivity and other improvements through BIM can be achieved.

At GCU experts are, in partnership with our industry clients and standard setting organisations, developing knowledge on the implementation of BIM practices. BIM is a managed approach to the collection and exploitation of information across a project. At its heart is a computer-generated model containing all graphical and tabular information about the design, construction and operation of the asset. One of the key factors in achieving successful supply-chain integration in the construction sector is the accuracy, effective flow and intelligent use of information which BIM will encourage.

Members of the research group have also been involved in several Knowledge Transfer Partnerships (KTPs), the UK’s leading knowledge transfer programme which helps businesses to access knowledge and skills that to improve their competitiveness and productivity. The group is currently working on a KTP with JMP. Founded in 1983, JMP has evolved from a traditional chartered quantity surveyor’s practice with a background in public sector housing into an organisation offering a range of services including quantity surveying, stock condition surveys, energy performance certification and asset management.

JMP’s work in the social housing sector includes new build housing, comprehensive refurbishment, major repairs or ongoing maintenance and renewal contracts. Recent projects have seen JMP expand its portfolio into the health care sector with a number of new residential and nursing homes being built for large private health care providers. The company developed a Stock Information Database (SID), a web-based property database allowing JMP and a small number of clients to view and amend property details and to define and produce reports on aspects of Scottish Housing Quality Standard Surveys. JMP is now aiming to take its database systems up to the next level of development and expand the functionality of the system.

The group’s experience in project management, risk management and asset management has led to the supply of bespoke education programmes to support clients including Glasgow Housing Association (GHA) and CBES.

The group also engages with universities throughout Europe in knowledge exchange and research relating to defects in new buildings. Recent funding brought a team of researchers interested in innovative solutions in the construction field from the Department of Construction Engineering at the Technical University of Catalonia (UPC) to GCU.

The group’s work is supported with unique indoor climate and health testing and analysis facilities. GCU’s environmental chambers help place the university at the forefront of UK research into the performance of building materials and diagnostic methods of testing material failure. Thermal conductivity equipment allows the rapid and precise determination of the thermal conductivity of materials ranging from insulation to dense concrete. The equipment is used both in research and development of advanced materials. X-ray absorption apparatus at GCU enables high resolution moisture content measurements under transient conditions, e.g. the wetting and drying behaviour of sandstone. GCU also precisely measures water vapour transmission rates of building products such as vapour permeable membranes.