autodesk®

UCE bases innovative project on Autodesk Map®

The workshop of the world

Birmingham during the Industrial Revolution was the 'workshop of the world', building on the ideas of Boulton, Watt, Priestley and Wedgwood. The manufacturing city of planes, trains and automobiles continues to progress in this post-industrial era. Britain's second city is now taking full advantage of its central location to accelerate its economic development. The National Exhibition Centre, the National Indoor Arena, the International Convention Centre and Symphony Hall are all examples of developments that have transformed the City and surrounding region. The University of Central England in Birmingham (UCE), one of a new wave of Universities set up in the mid-1990s to complement existing Universities, is playing its part in this renaissance. What follows illustrates how UCE takes a practical, applied approach to the professional needs of the public and private sectors, taking full advantage of Autodesk's support for educational establishments.

"The total value of our investment in Autodesk software is over £185K at commercial rates."

"In filling the professional skills gap, we needed to ensure that students were experienced with the software they would use in practice. In almost all situations, that meant Autodesk software."

"…only Autodesk Map had the multi-discipline coverage that enabled planners and landscapers to work together."

Norman Stothers, Project Manager, Commercial Development Unit, UCE

Ready for change

The Faculty of the Built Environment is one of the nine faculties in the University and is a major regional centre for built environment education and training. It comprises the Schools of Planning & Housing, Property & Construction, and Architecture & Landscape. The Faculty provides undergraduate, postgraduate and research and consultancy programmes and works closely with the main professional bodies including the Royal Institute of British Architects (RIBA), the Royal Institute of Chartered Surveyors (RICS), the Royal Town Planning Institute (RTPI) and the Landscape Institute (LI). The Commercial Development Unit, within the Faculty, links with the public and private sectors in the West Midlands and nationally to ensure that the University meets the needs of the organisations where graduates will work or are already working. The University recognises that rapid changes are taking place in the planning and construction sectors and takes a leading role in developing best practice for students. Norman Stothers, Chair of the Faculty IT Committee, is Project Manager in the Commercial Development Unit. An economics graduate with a Masters degree in Regional and Urban Planning, he has vast experience of planning, gained both in the UK and overseas. Stothers has been instrumental in the creation of a number of computer laboratories to support courses and projects in the Faculty. He says, "We set up our laboratories as part of the faculty IT strategy. We are a regional university, a Centre of Excellence for local professions to visit to get advice and awareness of the latest tools and techniques. Through us, local practices that do not have the latest technology can now get access to the appropriate skills and can evaluate the solutions."

Fully functional software

There are now four laboratories each with eleven computers. Stothers confirms, "No other Faculty has access to the range of software that we have. The total value of our investment in Autodesk software is over £185,000 at commercial rates." The current software configuration includes 20 seats of Autodesk Map, 20 seats of Autodesk Architectural Desktop, 20 seats of Autodesk VIZ, and 50 seats of Autodesk MapGuide. In addition, Key Systems software applications that use Autodesk software as their core include 15 seats of Key 3D and 20 seats of KeySCAPE. Why did UCE choose Autodesk software? According to Stothers, "In filling the professional skills gap, we needed to ensure that students were experienced with the software they would use in practice. In almost all situations, that meant Autodesk software. Course content had to extend beyond product training into the use of the software in real-world projects. That is why it was important that educational versions of the selected software were as functional as the commercial versions students would meet outside the university. This is certainly the case with Autodesk software. The educational versions are the same as commercial versions; there are no functional or performance limitations."

Real people, real places, real policies

The Site Appraisal and Redevelopment Project (SARP) is no mere academic exercise. It is a meaningful project using a realistic scenario and an excellent example of the work of UCE. It has been subject to a searching peer review and has been featured as a case study by EDINA (Edinburgh Data and Information Access) as part of its e-MapScholar programme. Based at the Edinburgh University Data Library, EDINA, an ancient name for Edinburgh, is a national data centre that offers the UK tertiary education and research community networked access to a library of data, information and research resources. The SARP project has real-world relevance and can accommodate a wide range of approaches. The project has been designed

UCE Birmingham

specifically to explore everyday planning issues such as locations as magnets for anti-social behaviour and the role of development as a crime-reducing agent. In the scenario, the Wellington Road allotments were falling into disuse and neglect, becoming an issue for local residents. Residents were relinquishing their tenancies, leaving the vacant allotments as meeting points for rival gangs. Council and residents were seeking urgent redevelopment of the site. Planning and Landscape Architecture students were asked to prepare strategies for the redevelopment of the allotments site. The proposed scheme had to meet the requirements of the chosen development brief, national planning policy, the unitary development plan, and supplementary planning guidance. In seeking outline planning consent, the proposed scheme would need to include site layout details, means of access and indicative landscaping areas. Matters such as design, external appearance of buildings and the detailed landscaping scheme would be 'reserved' for later approval.

Tailor-made for Autodesk Map

This was a complex scenario and a challenging brief, but one almost tailor-made for Autodesk Map. Norman Stothers comments, "It is true there were solutions for GIS and solutions for planning, but only Autodesk Map had the multi-discipline coverage that enabled planners and landscapers to work together." He continues, "We knew we could handle the design task with Autodesk Map. We knew we could use it to link databases to maps for GIS. We knew we could link other images and use it for presentation purposes, too. We knew we'd have to take the output into AutoCAD, no matter what GIS we used. That is why we chose Autodesk Map." Two laboratories were set up, in parallel with the development of the project, so that the supporting systems would be fully functional when the project began. Initially, students took part in a workshop covering Digimap, the EDINA service that delivers Ordnance Survey map data to UK Higher Education, followed by a workshop on the principles and practice of GIS. Students were shown how to use hyperlinks to add photographs and database information such as socio-economic data. Ordnance Survey Land-Line map tiles were downloaded from Digimap so that the base maps of the site and the surrounding area could be created. Using the built-in translator, the NTF files were converted into Autodesk Map files. A site visit determined the exact boundaries of the area of the brief. Characteristics of the area such as housing conditions, access obstructions, areas of open space and public transport links were then added to the base map. Students then produced a physical and functional appraisal of the site and its surrounding area and identified the issues within the local area that might influence the type of development on the site. They had to note any constraints on development and any redevelopment opportunities that the evaluation may have revealed. The resulting brief was then passed to town planning students to work up an outline planning application. The applications had to address the requirements of the development brief as well as those of the Unitary Development Plan and Planning Guidance issued by the City Council. Plans had to be drawn to scale, parking spaces marked, roads and pavements accurately located and building footprints added.

Autodesk Map measures up to the task

Asked how Autodesk Map measured up to the task, Stothers replied, "There wasn't a huge learning curve. It was straightforward to use and it was fairly simple to add information to maps. We could easily bring in things designed by others and attach photos, contextual planning rule extracts and so on." He continues, "Autodesk Map's boundary trimming function was a particularly useful time saver when preparing the initial base maps and drawings. We could query in several Land-Line tiles, use boundary trim to define the area of study and erase the rest. The time spent creating the area map was cut by a factor of five."

Valuable exercise and innovative project

The Site Appraisal and Redevelopment Project evolved from a previous project that had used more traditional design methods. However, basing it on Autodesk Map made it much more realistic. Student feedback was excellent, with one student indicating that the course had been influential in determining future career direction. Sue Manns was the project lecturer for this project and its forerunner. According to Norman Stothers, "Sue was initially hesitant to use Autodesk Map but subsequently recognised how valuable the whole exercise had been." An external project assessor, Rupert Dugdale, Landscape Practice Manager, Dudley Metropolitan Borough Council, highly praised the work done by the students, "The quality of proposals was better than that of many professional planning application schemes received by local authorities." Key Systems, the Autodesk reseller that supplied the software, played a significant part in the success of the project. Key trained the students, staff and technical support team. According to Norman Stothers, "Key brought real-world experience and made sure it all worked. They contributed system and product skills as well as knowledge of the disciplines involved."

The cutting edge of teaching

Christine Booth, External Examiner from Sheffield Hallam University, reported, "This IT based unit is at the cutting edge of teaching and learning in planning, development and design and has managed to engage a very broad cross section of students, who traditionally may have struggled with these issues. The content of the unit, the innovative method of delivery and student-centred approach to learning, clearly challenged students to extend their knowledge and skills in all aspects of site development and layout. Student motivation was high, which resulted in maximum student effort, together with significant levels of independent learning comparable to other units. Innovative teaching and learning strategies on the implementation project serve to provide a template of best practice for teaching in this field and wherever possible key lessons should be transferred to other related knowledge areas."

Doing it right

Looking back over the project, is there anything that Stothers would have done differently? He answers, "Nothing, although in future we might extend the project to include student presentations to the community." Other enhancements and extensions might include the use of Ordnance Survey Master Map intelligent digital mapping, taking the landscape design aspect further by using Autodesk VIZ and Key 3D, and using Autodesk MapGuide to disseminate project information to the community over the Internet. Stothers concludes, "The construction profession needs, wants and expects its employees to have the skills we develop here. The students want the opportunity to learn and use these skills because employers ask for CAD and GIS experience. It is great to see the students demanding projects like this. That proves we are doing it right."

www.autodesk.co.uk/education
www.uce.ac.uk
www.key-systems.com

autodesk®

Autodesk Ltd
1 Meadow Gate Avenue
Farnborough Business Park
Farnborough
GU14 6FG

Tel: +44 (0)1252 456600
Email: gb-info@autodesk.com