

## De Montfort University's Creative Technology Studios



*Audio and radio control rooms.*

ATG Danmon is one of the world's most successful providers of high-end reliable and easy-to-operate integrated systems for broadcasters and programme makers.

Active in Europe, Asia, Africa and the Middle East, ATG Danmon is part of the Dan Technologies Group which operates from offices in the United Kingdom, Germany, Denmark, Norway, Sweden, Vietnam and Dubai.

British universities have a long tradition of supporting advanced technology, both in product development and in student training. ATG Danmon has completed one of the most up-to-date recording and broadcast studio facilities in the country, located within the Faculty of Computing Sciences & Engineering at De Montfort University (DMU), Leicester. The objective was to create a facility which accurately reflects a modern production house, including HD and SD editing, networked online and archiving servers, file-based workflow and media asset management. Designated the Creative Technology Studios (CTS), the entire installation is integrated with a large media store enabling collaborative projects to be undertaken with project data accessible from any machine within the facility.

The contract was put out to competitive tender and awarded to ATG Danmon by the European office of Shen Milsom Wilke, an international technology consulting practice offering comprehensive services in the areas of multimedia/audiovisual, information technology, telecommunications, building security, and acoustics. The project encompassed the installation, configuring and commissioning of a large multidefinition video production facility, technical control room, dedicated video and audio analysis laboratories, two sound studios, four self-op radio studios, a radio control room, plus a highly advanced virtual-reality and fused-media laboratory. Three media production classrooms were also equipped, one housing 21 workstations to give students experience

in using the latest HD video and audio production software. Each of the other two media-production classrooms accommodates eight workstations, one dedicated to Mac-based audio and video production, and the other providing experience of comparable PC-based software. Installation began in early July 2007 and was completed prior to the commencement of the academic year in September.

DMU's Creative Technology Studios are located on a mezzanine floor of the Queen's Building. The building itself is unusual in being designed for natural-air-flow ventilation rather than the active air-conditioning. Co-ordinated along the two sides of a single corridor are practically all the facilities one would ever expect to meet in a modern television or radio broadcast station or post-production company.

### Audio Studios

A music studio and audio dubbing studio have been installed. Each of these has two independent control rooms allocated to sound recording and offline post production respectively. Equipment is varied between locations, maximising student exposure to multiple brands of hardware and software.

Approached from the right hand end, the first doors off to the left provide access to a group of audio and radio studios. An unusual feature is the use of a Linux-based Rivendell shareware radio playlist scheduler.



ISO 9001 No. FS 544441

The Studio A control room 1 centres on an SSL AWS-9000 24-channel analog mixing desk and digital audio workstation controller. This is used in conjunction with a Tascam DV-RA 1000 master audio recorder. Supporting equipment includes a JVC 23 inch LCD multiformat picture monitor, Dynaudio and PMC loudspeakers, Digital Audio Denmark multiformat ADC/DACs, Lexicon effects processors, and an audio level compressors from Empirical Labs, Tube Tech and Universal Audio. The desk and storage furniture here and in the four adjacent radio studios were all bespoke-designed by Custom Consoles. Trilogy talkback is used for communication throughout the CTS.

Studio A control room 2 is very similarly equipped but builds around a Yamaha DM2000 V2 24 bit 96 kHz digital production console. Other distinctive features include Genelec surround sound monitor loudspeakers and Lexicon effects processors.

Studio B control rooms 3 and 4  
Servicing Studio B, control room 3 and 4 are equipped largely as above but with Digidesign D-Command and Control 24 control surfaces respectively.

#### **Radio control rooms**

Four identical radio control rooms each incorporate a Sonifex MX-1 self-operated audio mixer, Bel profanity delay, Omniphonics amplifier, Beyer M99 presenter's microphone and Rivendell shareware playout software

running under Linux on a PC. A separate table in each of the radio control rooms is available for recording interviews.

#### **Video production**

Proceeding further along the corridor, additional doors to the left lead into a high definition suite and a series of video production suites. Video Production 3 is particularly impressive with no less than 21 seats configured for PC-based editing on Adobe Production Studio Premium Student, and also five seats running Eyon Fusion 5. Video Production 1 has eight seats also running Adobe Production Studio along with Avid Media Composer. Video Production 2 houses a further eight seats running Apple Final Studio Educational. Camera techniques are taught in a ground-floor studio with chroma key facilities. Acquisition formats are a mix of DV and HDV.

#### **Video analysis laboratory**

Technical measurement and QA tuition will be given in a laboratory specialising in video analysis plus a separate facility for audio analysis. The video analysis lab is equipped with a Tektronix HD-SDI signal generator, Tektronix waveform monitor and Tektronix 300 MHz digital oscilloscope plus a Hamlet Vidscope HD software and in-vision waveform monitor. These are supplemented by an Amino IP TV receiver, Harris multiformat video synchroniser, Tandberg satellite decoder, DekTek ASI generator. JVC 17 inch rack-mounting CRT picturer monitors are supplemented by JVC LCDs, Acer 1680 x 1050 LCDs and a 19 inch Philips LCD. Ancillary equipment includes Snell & Wilcox interfaces and a BES patch panel.

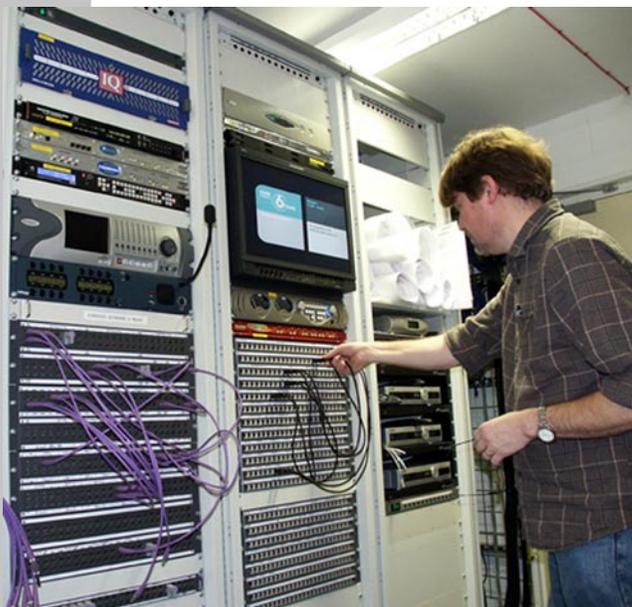
#### **Audio analysis laboratory**

The audio analysis laboratory is equipped with six PMCV surround-sound loudspeakers, a Genelec SUB-1 sub-woofer, Sonifex and Snell & Wilcox audio distribution amplifiers, a Meridian surround-sound decoder/processor, Prism dScope digital audio analyser, Tektronix OSC-1 40 MHz dual channel digital oscilloscope, Sonifex D-A/A-D multi-format audio converter, Kramer 8 x 8 stereo router, Denon DAB tuner and Denon/LG DVD players.

#### **Technical control room**

Adjacent to the Video Analysis Laboratory, the Technical Control Room is the central point

*Technical control room.*





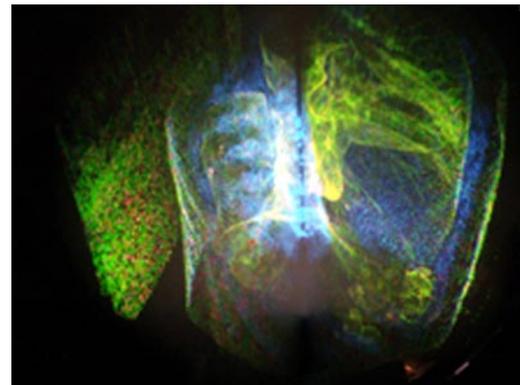
*Actuality  
Systems  
Perspecta  
Spatial 3D  
volumetric  
display*



of the system with termination of video and audio tielines from all the control rooms and studios. Extensive patching is available to allow interconnections between areas. The TCR also houses common equipment such as a sync pulse/test generator which provides video synchronisation for the complete system, and audio wordclock generation to provide the same for the digital audio synchronisation. A central talkback unit allows intercommunication within all technical areas within the system. Multistandard cross convertors can be used to output or input all versions of high definition and standard definition digital video signals. In addition, all sources can be quality-monitored using a high definition LCD display and a precise audio monitoring unit. A digital disk server is incorporated for content storage.

### **Motion capture and stereoscopic studies**

ATG Danmon also equipped the Creative Technology Studios to provide research facilities and courses in 3D motion capture, gaze-tracking, pressure-sensing virtual-reality and stereoscopic imaging. Major components here are Autodesk 3D animation/motion-builder software, an Animazoo Gypsy 5 full-body motion capture suit, Measurand wireless virtual reality glove and Vicon optical single-person motion capture system. This facility is exceptionally well equipped for 3D studies. An Actuality Systems Perspecta Spatial 3D volumetric display, the first of its kind in Europe, forms an unusual and exceptionally useful component of this area. It is based on a Texas DLP projection focused on a rotating circular screen which generates subjectively solid full-motion colour images which can be viewed from any angle.



### **Summary**

The £3.7 million Creative Technology Studios were officially opened on November 15 by Aziz Rashid, Head of Regional and Local Programmes, BBC East Midlands, who commented:

“Technology plays an increasingly important role in the broadcast sector and is one of the driving forces behind the extremely high quality of programming output many of us perhaps take for granted. This new facility aims to combine perfectly the very latest in technology with the very best practice in reflecting what happens in the real world - that is a compelling combination and one which will best prepare students for a role in today’s creative industries.”

Ultimately, a training establishment is defined as much by the experience, enthusiasm and communication skills of its tutors as by the tools which they use.

A concluding quote from Professor Adrian Hopgood, Dean of the Faculty of Computing Sciences & Engineering: “The level and quality of the technology available in these studios is second to none and will ensure graduates from this university are truly equipped for careers in the broadcast and broader creative technologies sectors.

“Significantly, the studios offer more than the very latest, leading edge technology. They provide students with a very real world experience of how things are done in the work place. This is incredibly valuable as it is not just technology alone which drives the end result. The studios will also support research activities to ensure that our staff and our courses remain at the leading edge of technological developments in the creative industries.”

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