Occupation: Assistant Technical Director (Visual Effects)

Level: 4

Profile

Visual effects (VFX) is the term used to describe any imagery created, altered, or enhanced for moving media. They involve the integration of live-action footage and computer generated imagery to create images which look realistic but would be dangerous, costly, or simply impossible to capture during live-action shooting.

Assistant technical directors (ATDs) may perform a diverse series of technical support functions in order to ensure the smooth running of a visual effects project. They are responsible for:

- supporting and troubleshooting the pipeline and workflow tools
- providing technical assistance to people in creative departments
- managing data and resources.

ATDs utilise a variety of industry standard graphical applications, scripting languages and operating systems. They may support projects by gathering artist requirements, designing solutions and coding small-scale tools using established employer workflow requirements. They are expected to work well within a team and to be good communicators and problem solvers.

Upon successful completion of their apprenticeship the individual could have a diverse career progression. Some may progress to become Pipeline Technical Directors, Software Developers, Riggers, Technical Directors or FX Artists. Some will eventually become Supervisors in their field. ATDs will typically be employed by a range of small to large post-production companies servicing the British and International Film, Television and Commercial industries. They will usually be based in an office environment working on television commercials, television series and feature films.

Requirements: Knowledge, Skills & Behaviours

Knowledge (the assistant technical director understands ...)	Skill (the assistant technical director will be able to ...)
The pipeline: from acquisition to delivery • The importance and methods of retaining the quality of the source material. • The general VFX shot pipeline, including general knowledge of all artists' roles within the shot's lifetime and their needs and deliverables. • The film and/or TV shot pipeline, from pre-production, through shoot, editorial, VFX to grading. • The VFX production pipeline, including shot bidding, turn-over, briefing, reviews, client reviews, deliveries and final delivery • Approach to loading data from internal and external sources • Delivery and output formats • Visual effects terminology • And has a familiarity with industry-standard software packages e.g. Maya, Houdini, 3D Studio Max etc.	• Select and use appropriate software tools and techniques • Use appropriate techniques to reduce degradation of the source material (for example colour correction concatenation and single step filtering on transformations) • Use appropriate VFX terminology • Show technical competence in at least one industry standard VFX software • Use FTP clients (tools to transfer computer files) and external hard drives • Create Quicktimes • Package assets for client delivery
Data management • The importance of and techniques for managing large scale on-line and near-line data storage. • Digital images and manipulation techniques.	• Use disk management and general processes for the movement of data around the internal system • Convert, resize and rename various file types • Monitor, track and report data usage • Identify data for archival and removal • Undertake final archiving and subsequent data restoration from archives
Render management • Grid computing and its use within VFX render queues - at a basic level • How to balance resource needs within the company's physical capacity • Render optimisation techniques	• Monitor, manipulate and report on render queues • Monitor, track and report render resource usage • Identify render errors and fix/escalate them as appropriate
Databases • The differences between structured and unstructured data • The quality issues that can arise with data and how to avoid and/or resolve these • The fundamentals of data structures, database system design, implementation and maintenance • The organisation's data architecture	• Identify, collect and migrate data to/from a range of systems • Manipulate and link different data sets as required • Interpret and apply the organisation's data and information security standards, policies and procedures to data management activities • Perform database queries across multiple tables to extract data for analysis
Project organisation • The importance of naming conventions and version control • How to ensure shots/assets can move from artist to artist (readability)	• Demonstrate how to build efficient tools and identify how to improve efficiency in existing tools • Build tools with flexibility in mind, to be able to quickly respond to changes to the brief • Accurately bid/estimate how long tasks will take

	• Complete tasks within the time allocated
Maths • Trigonometry • Matrices • Vectors • Applied mechanics • Basic algebra	• Use maths to manipulate computer generated geometry • Use maths to recreate physical systems • Use maths to describe problems and solutions
Software design • The software design process and the importance of design before development • How workflow diagrams, prototyping and presenting to intended users can aid in designing better solutions	• Accurately gather requirements from intended users • Design elegant solutions that satisfy the brief with extensibility in mind • Present proposed solution and respond to feedback • Investigate existing solutions or frameworks • Plan and document development roadmap
Scripting • Python scripting language • Shell scripting • Application specific scripting languages e.g. Mel, Vex, Hscript etc. as appropriate • The principles of software development • How pipeline management tools are used within the industry and how to create efficiencies to the benefit of the business	• Write good quality code (logic) with sound syntax in at least one language • Troubleshoot individual artist/TD input, output or archival problems • Support or troubleshoot pipeline and workflow tools • Document tools/developments • Develop small-scale tools, using existing pipeline frameworks and libraries
Computing • The components of a computer – the CPU, GPU, graphics card and their properties and the local drive and its relationship to the server or network	• Identify and fix/escalate computer hardware problems as appropriate • Create, move and store data appropriately within employer defined network and server requirements • Identify the limitations or requirements of computer hardware for particular activities
VFX Craft • The processes and art of a particular department, such as animation, lighting, FX or rigging • The particular standards of a department and the challenges they face	• Be proficient in the techniques of a particular department, such as animation, lighting, FX or rigging • Use the industry standard software package required by the particular department

Behaviours

Assistant Technical Directors will be expected to demonstrate:

- Initiative and a keen ability to problem-solve
- Ability to communicate with colleagues and work as part of a team
- Ability to take direction and willingness to address feedback, and to be self-critical of the quality of work produced
- Ability to manage priorities and bring multiple tasks to completion within deadline
- Adaptability
- Attention to detail and a high level of accuracy
- Enthusiasm to learn and develop professionally
- Respect for the procedures or requirements of a particular studio, production or pipeline
- Proactive attitude to research and access available resources
- A high level of professionalism, good time keeping with a focus on the work

Entry requirements

Individual employers will set the selection criteria, but this is likely to include A levels (or equivalent level 3 qualification) in an ICT or moving picture related subject. Most candidates will also have English and Maths at level 2 on entry. Some employers may also ask for an online portfolio, coding examples or the completion of a timed assessment.

Qualifications

Apprentices without level 2 English and Maths will need to achieve this level prior to the completion of their apprenticeship.

Duration

It is unlikely that individuals entering this apprenticeship without previous experience will complete the apprenticeship in less than 18 months, and a typical completion time is likely to be 24 months.

Review date

This standard will be reviewed in 3 years.