

Course outline: Visual Effects (VFX)

The MA in VFX is a specialisation within the broader **MA in Film and Television**.

The course will focus on six core areas of VFX for Film, Television and Games:

- Designing, planning and finishing VFX
- Previsualization
- Working with Miniatures
- CG and Compositing
- Realtime and In Camera VFX
- Professional practice and collaboration

During their time at the National Film and Television School, students will work on a range of industry-standard fiction, animation and games projects.

Year One

The first year contains four assessed modules, along with other exercises and workshops:

- Module 1 – VFX 101
- Module 2 – Take One Painting
- Module 3 – Previsualisation and Film Language
- Module 4 – Miniatures and CG Integration

Module 1: VFX 101

This first module is designed to provide a foundation in CG asset creation and compositing. Students will work independently on the production of a still image and develop skills in camera line-up, basic poly modelling, texturing, look development, layering, masking, match grading and edge integration.

Module 2: Take One Painting

This module is a collaborative exercise across Production Design, Cinematography and Visual Effects. Production Design students research the historical background of a chosen painting, paying attention to perspective and obvious light sources, and analysing the space of the painting. They also collaborate on the drawings and details of the selected space, before working on the build, paint finishes and dressing of the set. Cinematography students then light the set and the shoot over a one-week period. Visual Effects students will work with the Production Design students in postproduction to create a digital asset which is seamlessly integrated into the finished image, rendered through a match-moved camera, with paint and clean-up work and finished, incorporating lens artefacts, grading and grain-matching. This module enables VFX students to begin to understand other departments' contribution to the process and give an overview of standard professional practice on-set. A key outcome is an understanding of how the main roles interrelate and, as VFX supervisor (in training), at what points in the schedule to expect to complete visual effects work. It is also designed to develop the specific skills required of a VFX specialist. It includes introduction, the interface and first principles of 3D/CG using the Maya application, and the interface and first principles of

2D/compositing using the Nuke application.

Module 3: Previsualisation and Film Language

This module provides a foundation for the Miniatures and CG Integration module which follows it. Students will work together to produce a one-minute previsualisation film which explores and tries out key techniques and methodologies. All students will receive the same training in basic modelling, animation and rigging in order to experiment with producing low resolution quick renders with proxy geometry, showing the building blocks in planning the shoot of the final sequence. Virtual camera movement, position and focal length will be tried out in order to maximise dramatic effect and storytelling. Students will use previsualization that clearly allows for thorough experimentation with cinematic and sequence-based storytelling, before sign-off by the director. At this stage, students' previz cameras will drive the shoot of the Model Making students' miniature that will form the background in each shot of the sequence produced in Module 4.

Module 4: Miniatures and CG Integration

This module requires students to make a short film as a team, based on a storyboard created by the NFTS Head of Model Making. The film's brief is to make a 60 second ident, creating previsualisation, production planning, capturing onset data, making CG assets, creating the look development, lighting and finished compositing based on the motion control cinematography of a miniature replica film set. It will have integrated graphics that resolve at the end of the film to say 'An NFTS collaboration between the Model Making Diploma and the Visual Effects MA'.

VFX students will work as a team in roles such as in on set data capture, asset artist, lighting artist and compositing artist.

Students will produce a high-resolution model and selection of assets, fully texturing and look-developing them, according to gathered onset data from the miniature shoot and references shared with the Model Making students. Taking the digital camera from the shoot, students will lay out the sequence, following this with editing and collaborating with Compositing and Sound Design students to prepare the final ident film. There are weekly reviews as the work develops, culminating in a final cinema review.

Various preparatory workshops will scaffold this module to build students' learning and lay the foundations for both this project and Graduation projects in Year 2.

Workshops

Alongside the Modules work, there are specialist workshops and seminars taught by working industry professionals:

Springboard Cross Specialisation Introductory Week-Long Workshop

A cross-school and interdisciplinary introduction to film and television, looking at cinematic language and televisual language through the prism of storytelling. It investigates how the main crafts of cinema and television, screenwriting, cinematography, visualisation, editing, sound and music relate to the way filmmaking puts across narrative ideas.

Foundation in On-Set Data Capture Workshop

Students work in small groups and learn the process of capturing HDRI's, set surveying, texture photography, and on-set information gathering as part of the Take One Painting shoot. Tuition is also given in processing the data to enable the asset build, look development and the appropriate CG lighting work to happen back in the studio. There are great learning opportunities when working with the first AD and other crew on set – having the same ownership of capture and studio use of this data is unusual in production as the on-set data crew and production artists are usually different people in different teams.

Matchmoving/Camera Tracking for VFX Workshop

Match move is the cornerstone of all VFX work and important to understand as the underpinning knowledge comes up in virtual production applications as well as traditional VFX ones; without a 'render camera' accurately matched to the real physical camera CG will not integrate into the plate at all! Students learn about the importance of Film Back, lens focal length and format aspect ratio, camera mapping, object tracking, point clouds, geometry, parallax, placement and specification of tracking markers, classification of camera movement, fixed and prime lenses, the lens distortion pipeline, track error rate and user defined tracks. At the end of the workshop, students need to feel confident in solving their own camera and reference geometry that can be exported into both Maya and Nuke.

VFX Conform and Editorial Workshop

The miniatures and CG Integration module makes a short ident film of between three and five shots, and as part of this shot artist/compositing specialists receive training in VFX conform, working with and editing an aaf file, formats, deliverables, review workflow, setting up compositing templates and colour management. Operation training is given in both RV and Nuke Studio software.

Advanced On-Set Data Capture Workshop

This workshop is embedded in the prep for, and then working on set to capture important data for the principal photography of the miniatures and CG integration film. The workshop takes place over 3-4 days and is taught by a professional on-set VFX supervisor. Shooting and processing Image Based Lighting (IBL) from on-set localised light sources and ACES colour managed HDRI are covered, as well as application training in Lightroom, Photoshop, PTgui and Nuke.

Photogrammetry and Lidar Scanning Workshop

In this popular week-long workshop, students compare the techniques and the pros and cons of both technologies of Photogrammetry and Lidar Scanning with some discussion of Gaussian Splatting. Practical training is given in photo capture technique and use of Reality Capture Software to create a basic textured mesh of a range of objects. Students consolidate this range of skills in the miniatures and CG Integration module, and then use on a range of animation, fiction and science and natural history projects in a cross-school collaboration on the graduation projects during the last part of the course.

Background Fundamentals

After Easter in year one, short Background Fundamental talks on Monday mornings introduce key principles of photography, lens, camera realism and foundation knowledge of the VFX pipeline, design process, basic colour grading theory, aspect ratio, common post production formats and colour management by giving practical hands on demonstrations with cameras, lights and with examples from professional VFX dailies – in the VFX Base room, but away from the usual computer workstation tools.

Year Two

During the second year of the course, VFX students continue to develop their craft skills and demonstrate their creativity through practice, working collaboratively, in teams, and with increasing independence. In the second year, students will commit to a specialist pathway, either CG asset artist, or shot artist (compositor).

Module 4 – Miniatures and CG Integration is completed in the second year, which also contains the following two assessed modules:

- Module 5 – World Building;
- Module 6 – VFX Showcase

Other workshops and seminars are also included during the year, providing valuable further opportunities to develop skills.

Module 5 – World Building

In this module, students will learn how to create environments in real time using a games engine. Students will work independently and respond to a creative brief in order to develop and realise ideas for a scene. The module equips students with the necessary skills to move into the in-camera visual effects work which will be the major focus of the VFX Showcase module.

Module 6 – VFX Showcase

This module requires students to develop a short film (approx. 5 minutes) which puts VFX at the centre of the story and works as a piece of cinema in its own right. Students will work closely with a screenwriter, director, cinematographer, editor, composer, sound designer, production designer and colourist, and will leverage VFX methodologies from an early script and the visual development stage in developing the approach to telling the story.

There are three blocks of teaching on the module. The first is the previsualization stage – the crucial 'blueprint' for production, used to communicate to the other departments involved in production of the film. This is followed by two blocks focusing on Unreal Engine: the first of which is for CG/asset specialists and enables students to design, build and light the environment from library/megascan assets in the Unreal Engine and crew an LED volume shoot; the second is for comp/shot specialists and enables students to design and build the environment for a green screen shoot (either traditional or with a green camera frustum area on the LED volume), to crew the shoot and to finish the shots in compositing using either near real time rendering or offline rendering techniques.

Learning real time and in-camera VFX techniques is an important feature of the main workshops contained in this module. Equally important is learning how to work with limitations of technology, the weekly 'dailies' review, responding to and discussing creative direction notes and simple but effective production tracking (using either a white board or shot flow software). Keeping a firm focus on the nature of the story and what it needs and confidently employing the right kind of communication with all creative, technical and craft crew, onset and beyond is the pinnacle of masters' level study in VFX at the NFTS.

VFX Dissertation

During the second year, students also complete their Dissertation module (the outline of which is delivered in Year 1).

As part of the work necessary to qualify for an MA, each student is required to produce an

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independent written dissertation or video essay. This runs from the start of the 1st year to September of the 2nd year. Following discussions with the VFX Department Dissertation Tutor, and Screen Arts tutors in the first half of the 1st year, students deliver 500-word outline proposal by June of the 1st year; 2000-word detailed proposal and structure by November of 1st Year (students may not progress into the 2nd year if they fail to deliver this). Full draft of the dissertation of 7,000-10,000 words (including sources and bibliography) must be delivered by July of the 2nd year, and the final version of dissertation by September of the 2nd Year.

An alternative option of a twenty-minute video essay is also available to MA students.

The aim is to undertake original research of an investigative nature, which extends the boundaries of specialist knowledge within particular areas of VFX.

The dissertation may encompass any aspect of VFX, but should focus primarily on the aesthetic and creative aspects of films and filmmaking, rather than the pipeline or practical sides of production. Students are advised to use the dissertation to help explore and develop their own practice, interests and identities as creative VFX producers.

Students might examine, for example, the impact of specific VFX technologies, or the evolution of an aspect of VFX practice.

Workshops and other activities

Digi Fiction - Studio Weeks

This 3- 4 week project on the cross school Digi Fiction films, could be thought of as a dry run for the design and planning of suitable methodologies and for the rehearsal of collaboration for the graduation projects later on in the year. As a department, we usually pick 2 or 3 films to work on from a slate of 10. The projects are chosen as a quicker turnaround of 2d and 2.5d work. The studio weeks happen around Easter in Year 2 and enable VFX students to work with Fiction and Cinematography students to develop ways of integrating digital matte painting, green screen and other compositing techniques into films.

The focus is on using digital tools to enhance storytelling. Early involvement in the development process will be key to successful collaboration. VFX students will work to further develop their skills and to provide them with the beginnings of showreel material to seek employment with at the end of the course.

FMX Show

Students will visit one of the world's leading VFX events/expos – the FMX show takes place over four days in Stuttgart, Germany. This is an opportunity for students to take part in an international community of VFX specialists and see how storytelling is developing. Making professional contacts is encouraged, and students may identify contacts in advance they would like to interview for their dissertations. A full debrief will take place after the event.

VFX Specific Industry Talks

Additional contributions from Industry guests, come in the form of show and tells, careers talks, debates on current practice and reviews of student work. Recent examples of these are:

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Paul Mumford (Lab Meta) – VFX Art Direction and working in the context of the edit
Paul Campion - Digital Matte Painting to create period
David Early (Framestore) - Concept Art and Environments
Trusna Patel (Moving Picture Company) - Pre Viz editing and VFX editorial
Lee Greatorex (Ghost VFX) - Working as a Layout artist
Matt Tinsley (TPO) - Post Viz and In-house Compositing
Kate Vaisey (Milk VFX) Career paths into VFX production
Michael Harrison (Technicolor) Feature Film compositing
Roni Rodriguez (Outpost VFX) Onset VFX Supervision
Rafal Kaniewski – Current ACES colour management protocol for VFX
Debra Coleman – Leadership, surviving studio life and professional practice and in VFX

Graduation Films / Games

In the latter part of the course, during the summer and running up to the Christmas break in year 2, VFX students will work with students from Directing Documentary, Directing & Producing Science & Natural History, Directing & Producing Television Entertainment, Directing Fiction, Directing Animation and Games Design. VFX students will synthesise the various skills they have learned over the course and act as on-set supervisor and CG, or Compositing Supervisor/Lead Artist, for their final film, TV production or game.

VFX Showreel

In the final term, students will be supported to compile a professionally produced showreel to ensure they are optimally presented for their transition into industry. Input will be provided on selecting the most appropriate samples of work, sequencing, and graphics, and advice from industry professionals will be available. Additional opportunities will be created for students to produce more content when necessary.
