One-Year VFX Mastery Program

Advanced VFX Filmmaking Process – VFX + AI + Mocap + Virtual Production

Duration: 12 months
Delivery Mode: on campus + hands-on vfx labs + live project shoots + internship
Outcome: Certificate of Completion + Experience Letter (studio project) + Show-reel ready for employment

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Programme Overview

Over 12 months the student will progress from foundational film production & VFX concepts through advanced compositing, departmental VFX technical skills, virtual production and AI-enhanced workflows. The path culminates in live VFX shoots, virtual production sessions, internship placement and a professional show-reel.

Module Breakdown

Module 1: Foundation of Filmmaking & VFX

- Introduction to the film production pipeline: development → pre-production → production → post-production
- Understanding roles & departments on a film/VFX shoot
- Basics of visual effects: terminology, disciplines, how VFX integrates with film & TV
- Film workflows: live-action sets, cameras, lighting, green/blue screen, tracking data capture
- Post-production overview: editorial, VFX, finishing, delivery.
- File formats, colour spaces, bit-depths, image formats (SDR/HDR)
- Career pathways in VFX, studio ecosystem overview

Module 2: Full VFX Pipeline Training

- End-to-end VFX workflow: prep → shoot capture → post-production VFX
- On-set VFX supervision basics: role of VFX supervisor, data wrangling, metadata, timecode sync, HDRIs, tracking markers
- Post-production VFX workflow: ingest, conform, offline → online, rendering/compositing/finishing
- Shot breakdowns: shot-by-shot analysis of VFX work (live action to final)
- Introduction to virtual production pipeline, LED volume, green screen (pre-introduction for later modules)

Module 3: Compositing in Nuke (Basic to Advanced)

Module 3.1: Foundation Level

- Introduction to Compositing & Nuke UI
- Node-based compositing vs layer-based
- Image formats: EXR, TIFF, DPX
- Basic node operations: Merge, Transform, Grade
- Color management (OCIO, ACES basics)
- Rotoscoping basics – bezier shapes, motion blur, layering
- Basics of Keying – Primatte, Keylight

Module 3.2: Intermediate Level

- Advanced Rotoscoping (articulation, fine hair, edge blur, matte combining)
- Green Screen Keying techniques – IBK, despill, edge refine
- Multi-pass CG compositing: AOVs, cryptomatte, light selects
- 2D Tracking (Transform, CornerPin2D, Planar tracking)
- Camera projection & projection mapping
- Paint & Clean-up pass: plate repair, blemish removal, wire/rig removal
- Color correction techniques: grading, balancing shots, shot matching

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Module 3.3: Advanced Level

- 3D compositing environment: cards, projections, relighting using normals
- Integration of FX (Fire, smoke, particles, explosions)
- Deep compositing workflows
- Multi-pass rendering and EXR pipeline integration
- Advanced tracking & matchmove use cases in compositing
- Lens distortion, reformatting, plate matching techniques
- Shot finalization & delivery requirements: render settings, QC protocols
- Lighting theory for compositing; integrating CG with live-action footage
- Industry standard review and submission workflows (ShotGrid, RV)

Module 4: Department-Wise Technical Training

For each of the key VFX sub-departments — you get technical depth so you can collaborate or specialise.

Module 4.1: Rotoscopy (Roto)

Topics Covered:

- Introduction to Roto: Shapes, curves, splines, and masks
- Creating articulated roto for characters, animals, and complex objects
- Edge refinement techniques: soft edges vs hard shapes, hair, motion blur
- Shape organization, grouping and versioning
- Team-based roto: distributing frames and merging work
- Project deliverables: matte standards, alpha exports, consistency control

AI Integration:

- AI-based matte extraction (e.g., *Runway Green Screen AI*, *KeenTools FaceBuilder*, *EbSynth for animated masks*)
- Automatic roto tools and QC enhancement with ML-based solutions

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Module 4.2: Prep / Paint

Topics Covered:

- Seamless paint and cleanup: wire removal, markers, rigs, crew removal
- Temporal and spatial paint techniques: patching frames, motion-aware paint
- Multi-frame paint using Nuke, Silhouette, Mocha Pro
- Edge blending, patch matching & natural texture recreation
- Clean plate generation for CG integration

AI Tools to Learn:

- Clean Plate AI tools (e.g., *Adobe Content-Aware Fill*, *Topaz AI*, *AfterShoot AI Cleanup*)
- Machine-learning powered rig removal tools
- Neural-based smart patching with *DaVinci Resolve Neural Engine*

Module 4.3: Matchmove / Camera Tracking

Topics Covered:

- 2D and 3D tracking workflows: single-point, multi-point, and planar
- Camera solve using PFTrack, Syntheyes, Mocha, and Nuke's CameraTracker
- Lens distortion workflows and undistort/redistort pipelines
- Solving camera movement for set extension and CG integration
- Tracking for object replacement, rotomation, and FX integration
- Exporting solve data for compositors, animators, and FX teams

AI-based Matchmove:

- Using AI-assisted tools like *Kognat*, *Move.ai*, and *Voodoo*
- Auto-track generation for background removal or 3D scene creation

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Module 4.4: CG Integration Basics

Topics Covered:

- Understanding render passes: beauty, AOVs, cryptomatte, normals, Z-depth
- Lighting theory for matching CG to live plates
- Layer-based compositing vs node-based workflows
- Multi-pass compositing and integration using Nuke
- Look development & lighting adjustments inside comp

AI Tools:

- AI-based relighting tools (*MetaHuman, Kaiber AI*)
- ML-based depth estimation to improve Z-integration

Module 4.5: FX for Compositors

Topics Covered:

- Introduction to FX work in VFX pipeline: fire, smoke, water, explosions
- Using stock FX elements vs custom CG FX
- Integrating Houdini FX passes into Nuke: AOV-based workflow
- Lighting and color correction for FX integration
- Particle and fluid simulation concepts

AI-powered FX Tools:

- AI fire, smoke, explosion generators (e.g., *Runway Gen-2 VFX, Wonder Dynamics FX AI*)
- Real-time effects simulation tools leveraging AI (e.g. *Cascadeur*)
- Smart matte generation for FX layers

Module 4.6: Production Pipeline & AI Workflow Integration

Topics Covered:

- Shot organization and handover across departments
- Naming conventions, version control, render submission guidelines
- ShotGrid/FTrack for studio production management
- QC for roto, prep/paint, matchmove, FX comps

AI Integration for Production:

- AI for task estimation (shot complexity prediction)
- Automated QC bots and review tools
- AI for metadata tagging and frame annotation
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Module 5: VFX for Cinematography

- Camera basics: lens types, focal length, depth of field, sensor sizes
- Cinematography for VFX: how DOP works with VFX, on-set lighting for VFX, HDRI capture, reference plates
- On-set camera data & lighting integration: capturing HDRIs, reference spheres/balls, checkerboards, slate metadata
- Shot planning for VFX: plate photography, tracking markers, set extensions

Module 6: Current Industry Technology & Studio Workflow

- Up-to-date global studio workflows and tools
- Shot-based breakdowns of recent film/OTT VFX pipelines
- Pipeline tools: shot-tracking (e.g., ShotGrid / Ftrack, 2dview), production data management, render farm basics
- Emerging tools: GPU-rendering, cloud collaboration, remote review, realtime pre-viz

Module 7: AI for VFX

- AI-based cleanups, roto automation, prep automation
- AI for previs and shot-planning: blocking, layout, virtual cameras
- AI-assisted compositing: machine-learning based mattes, segmentation, smart keying, deep-learning tools
- Workflow integration: when to use AI, how to QC outputs, pitfalls & ethics

Module 8: Intermediate Motion Capture

- MoCap fundamentals: optical/inertial systems, markers vs markerless, capture studios
- Retargeting mocap data: pipelines, cleanup, skeletons, retargeting to custom rigs
- Applying mocap for VFX/Virtual Production: performance capture to animation, CG characters, camera animation from mocap
- Integration: mocap into pipeline, live motion capture for VP/ICVFX

Module 9: Virtual Production (VP)

- Virtual Production basics: real-time rendering, LED volumes, camera tracking, virtual sets
- Introduction to Unreal Engine: setup for VP, real-time pipeline, custom shaders, live compositing
- LED volume workflow: panel pixel pitch, refresh rate, camera rollout, latency, sync, calibration
- Greenscreen & In-Camera VFX (ICVFX): benefits/challenges, on-set data capture, in-camera keying, real-time backgrounds
- On-set VP sessions: student live-shoots, tracking hardware, LED background, realtime camera move, footage capture
- Integration with post-production: bridging real-time capture with offline compositing/rendering

Module 10: Live VFX Shoot Training

- Practical on-set workflows: HDRI capture, tracking markers, data flow from set to compositor
- Working with DOPs & Directors: set etiquette, data hand-over, collaboration between departments
- Supervising VFX on live projects: understanding shot list, VFX shot breakdown, supervising tracking/plate capture
- Student live project: Shoot, capture, composite and deliver a final shot

Module 11: Pre-Production Training

- Script breakdown for VFX: identifying VFX shots, estimating effort, budget basics, schedule integration
- Shot planning: previs & techvis workflow, virtual cameras, blocking, lens planning, set extension planning
- Budgeting for VFX: how costs are estimated, staffing, software/licensing, hardware, render farm, QA
- Techvis: preparing shot plans, VFX call sheets, format deliverables, department hand-offs

Module 12: Internship & Certification

- Studio internship: placement in partner studio/project to apply learned skills in a real production environment
- Internship deliverables: work-in-production reels, shot contributions, documentation
- Show-reel & portfolio preparation: assembling best work, industry-ready show-reel, resume & LinkedIn optimization
- Certification: Course completion certificate + Experience letter (will mention real project work)
- Career guidance: job roles (Roto/Paint, Matchmove Artist, Compositor, VP Technician), mock interviews, employer panel

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Who should join?

- Beginners seeking a full VFX & film production pipeline education
- Film students wanting to specialise in VFX, virtual production & AI workflows
- Working professionals in media wanting to upskill into advanced VFX/compositing or VP
- Anyone aiming to work as a VFX Compositor, Matchmove Artist, VP Technician, or VFX Supervisor assistant

What will you be able to do on completion?

- Understand and work across the full filmmaking + VFX + VP pipeline
- Perform advanced compositing workflows in Nuke: roto, clean-up, keying, tracking, CG integration, final delivery
- Integrate AI tools meaningfully into a VFX workflow
- Operate on a virtual production set, understand LED volume, real-time backgrounds, camera tracking
- Plan and breakdown VFX shots from script to delivery
- Enter the industry with a show-reel and internship experience, ready for roles in studios

Why Choose CinemaFactory?

- **Certified Industry Mentors**
  We have authorized, certified mentors who have worked on **Hollywood and Indian film projects** with decades of experience.
- **Strong Industry Connections**
  Deep-rooted relationships with top professionals and creators across the **film and VFX industry**.
- **Global VFX Studio Network**
  Strong international connections with leading **VFX studios across the world** – offering exclusive exposure and collaborations.
- **International Education Tour**
  Participate in fully guided **overseas education tours** including live **studio visits and training sessions** in global VFX hubs.
- **Live International Workshops**
  Collaborate with international studios for **live workshops, remote training, and hands-on sessions** with industry experts.

What You Will Be Ready For After This Program

Upon completing this one-year intensive program, you will be fully ready to take on various high-impact roles across VFX and film production departments, both on-set and in studio environments

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On-Set & Production Roles

- **Assistant VFX Supervisor (On-Set)**
  Manage on-set VFX supervision duties such as data wrangling, HDRI capture, tracking marker placement, and VFX shot continuity.
- **Film Production Assistant**
  Support directors, DOPs, and production designers during shoots, focusing on scenes involving VFX and post-production deliverables.

Studio Roles (VFX Department)

- **VFX Compositing Artist (Nuke)**
  Expert in multi-pass comp, CG integration, keying, tracking, and realistic shot finishing.
- **Roto/Prep/Paint Artist**
  Skilled in plate cleaning, wire removal, roto matte creation for studio pipelines.
- **Matchmove Artist**
  Capable of 2D/3D tracking, lens distortion workflows, and exporting camera solves for CG and comp teams.
- **Rotomation Artist**
  Perform animation of CG characters/elements mapped to live-action footage.
- **FX for Compositors**
  Able to integrate FX passes such as fire, smoke, water, and particles into live and CG shots.

Technical Real-Time Roles

- **Motion Capture Technician**
  Work with mocap setups, data retargeting, clean-up, and integration with animation pipelines**.**
- **Virtual Production Technician**
  Assist in virtual production shoots, LED volume setups, Unreal Engine playback, and in-camera VFX.

VFX Production Roles

- **VFX Production Coordinator**
  Handle shot tracking, production notes, and scheduling using studio platforms like ShotGrid/FTrack.
- **VFX Department Assistant**
  Support VFX supervisors and producers in managing daily workflows, shot annotations, QC, and artist coordination.

Course Timeline (12 months)

Module 1 – Foundation of Filmmaking & VFX

Module 2 – Full VFX Pipeline Training

Module 5 – VFX for Cinematography

Module 3 – Compositing in Nuke (Basic to Intermediate)

Module 4 – Department-Wise Technical Training

Module 6 & 7 – Current Industry Tech + AI for VFX

Module 8 – Intermediate Motion Capture

Module 9 & 10 – Virtual Production + Live VFX Shoot Training

Module 11 & 12 – Pre-Production Training + Internship & Certification