Course Code | DN1013
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Course Title | Concepts for Digital Imaging
Pre-requisites | NIL
No of AUs | 3
Contact Hours | 39

### Course Aims
This course will familiarise you with methods of using digital imaging tools for creative concepts. You will learn to employ the dedicated software to realize your artistic vision. The goal is to achieve an elementary understanding of these tools as an expansion of the artistic palette. The course will focus on developing concepts for single, sequential images and time-based media, which will be produced by using current digital imaging and post-production hard- and software. You will have the opportunity to integrate learned techniques with your own creative concept development.

### Intended Learning Outcomes (ILO)
By the end of this course, you (as a student) would be able to:

1. Apply fundamental elements of still and moving image acquisition and creation techniques.
2. Improve audio-visual footage in post-production.
3. Apply creatively and reflexively principles learnt in class (and through external reading and practice) to realise your own ideas with the most suitable medium.
4. Work with capturing, digital drawing and painting and editing techniques with efficiency and confidence, as well as organising and archiving your files correctly.
5. Create cohesive imagery by combining pictorial elements through compositing with careful considerations of the options and challenges involved.
6. Communicate a story intelligibly in audio-visual media through implementation of editing concepts.
7. Evaluate export and presentation options and optimise your files accordingly.

### Course Content

- **What is an Image? – Foundation of Digital Imaging**
  Understanding the key concepts of digital images, such as vector, bitmap, resolution, bit-depth, aspect ratio, colour basics, alpha-channels and working with layers (blend modes).

- **Basics of image capturing techniques**
  Introduction on how basic settings influence the image: perspective, selection of lenses and focal length, shutter speed, aperture, ISO and lighting.
- **Basics of image creation techniques**
  Introduction on how to use digital imaging software as a tool for creating images for illustration, animation and comics: Basics of digital drawing and painting, applying layers and alpha channels for image manipulation, concepts for colouring. Working from photo reference.

- **Optimising the Image (Adobe Photoshop)**
  Developing an understanding for the potential and weaknesses of still and moving images and learn to apply non-destructive editing-tools for adjustments.

- **Editing Time-Based Media (Adobe Premiere)**
  Creating time-based media with editing image sequences and audio along a timeline.
  Understanding different settings for time-based media such as image sequences, frames per second, aspect ratio, bit-depth, audio etc.

- **Animating Image and Text (Adobe After Effects)**
  Learn how to add and influence movements based on layered images and text files.
  Understanding keyframe-based animation and applying filters and effects.

- **File Management (Adobe Photoshop Lightroom or equivalent)**
  Organise your files – labelling and metadata.

- **Colour Management**
  Introduction in colour profiles throughout the workflow: from capturing and editing to export and presentation. Understanding different additive and subtractive colour models.

- **Presenting Audio-Visual Media**
  Optimising files in high quality for print and screening or compression for the internet.

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**Assessment (includes both continuous and summative assessment)**

<table>
<thead>
<tr>
<th>Component</th>
<th>Course LO Tested</th>
<th>Related Programme LO or Graduate Attributes</th>
<th>Weighting</th>
<th>Team/Individual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous Assessment 1a and b (CA1): Assignments: Still Image-captured or created</td>
<td>1, 4, 5</td>
<td>Competence, Creativity, Communication and Character</td>
<td>30%</td>
<td>Individual</td>
</tr>
<tr>
<td>Continuous Assessment 2 (CA2):</td>
<td>1, 2, 3, 4, 5</td>
<td>Communication and Character</td>
<td>10%</td>
<td>Individual</td>
</tr>
</tbody>
</table>
Image creation through layering techniques (basics of compositing)

| Continuous Assessment 3 (CA3): Time-Based Project | 1, 2, 3, 6, 7 | Competence, Creativity, Communication and Character | 30% | Individual / Team |
| Continuous Assessment 4 (CA4): Animated Image Sequence | 2, 3, 4 | Competence, Creativity, Communication and Character | 30% | Individual |

Total 100%

**Recommended Reading and References**

11. *The manual of your camera*

**Course Policies and Student Responsibilities**

(1) General
You are expected to complete all assigned readings, activities, assignments, attend all classes punctually and complete all scheduled assignments by due dates. You are expected to take responsibility to follow up with assignments and course related announcements. You are expected to participate in all project critiques, class discussions and activities.

(2) Punctuality
You are expected to be punctual for all classes. If you are more than 30 minutes late, you will be deemed as absent and will not be able to sign on the attendance register.
**Absenteeism**
In-class activities make up a significant portion of your course grade. Absence from class without a valid reason will affect your participation grade. Valid reasons include falling sick supported by a medical certificate and participation in NTU’s approved activities supported by an excuse letter from the relevant bodies. There will be no make-up opportunities for in-class activities.

**Academic Integrity**
Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honor Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU’s shared values.

As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the academic integrity website for more information. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

**Planned Weekly Schedule***
*Subject to adjustment by instructor according to students’ progress, public holidays and unforeseeable circumstances.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Course LO</th>
<th>Readings/ Activities</th>
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</thead>
<tbody>
<tr>
<td>1 - 3</td>
<td>Overview of key concepts and theories of digital images, such as vector, bitmap, resolution, bit-depth, colour basics, additive and subtractive colour models.</td>
<td>1, 2, 4, 5</td>
<td>Introductory Lectures on all subjects: digital imaging, capturing editing, exporting / printing colour, file management.</td>
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<tr>
<td></td>
<td>Basics of image capturing techniques</td>
<td></td>
<td>Assigned Project 1a.) Capture images with different camera settings OR1b.) Create an image from photographic reference or imagination that employs digital drawing and painting techniques in a multi-layered approach.</td>
</tr>
<tr>
<td></td>
<td>Basics of image creation techniques</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Introduction on how to use digital imaging software as a tool for creating images for illustration, animation and comics: Basics of digital drawing and painting, applying layer for image</td>
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<td></td>
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</tbody>
</table>
### Optimising the Image
Developing an understanding for the potential and weaknesses of still and moving images and learning to apply tools for adjustments through non-destructive editing. Optimising files in quality and size for import and export formats.

### File Management
Organise your files – labelling and metadata.

### Colour Management
Introduction to colour profiles throughout the workflow: from capturing and editing to export and presentation.

<table>
<thead>
<tr>
<th>4-5</th>
<th>Basic concepts of layering and compositing</th>
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<tbody>
<tr>
<td></td>
<td>Understand basic concepts of compositing through integrating diverse pictorial elements to create an artistically cohesive whole; applying layers, alpha-channels and blend modes.</td>
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<table>
<thead>
<tr>
<th>1, 2, 3, 4, 5</th>
<th>Lecture on the importance of layering and compositing for photo and illustration, film and animation</th>
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<tbody>
<tr>
<td></td>
<td>In-class exercises to understand basic concepts of layering and compositing.</td>
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**Assigned project:**
2.) Image creation through layering techniques (basics of compositing)
Through this assignment, students will learn to create a cohesive artistic whole from diverse image elements.
| 6 - 8 | **Editing Moving Images**  
Introducing the concept of timeline-based editing with a short term project | 2, 3, 4, 5, 6 | **Project critique and review**  
Lecture on the foundation of audio-visual media  
Lecture on time-based media and basic concepts of editing  
**In-class exercises** to add a temporal component to a previously edited image through movement and audio.  
**Assigned Project 3.) Editing Moving Images**  
The students will work with the captured (or created images) to create a short filmic sequence.  
This assignment will require the students to understand and apply the major concepts of editing to tell a comprehensible linear story.  
**In-class exercise**  
**Project Critique**  
**Student Presentations** |
| --- | --- | --- | --- |
| 9-12 | ** Animating Image and Text**  
Learn how to add and influence movements based on layered image and text files. | 2, 3, 4, 5, 6 | **Lecture:** Animation basics and applications across fields: Title sequences, motion graphics and VFX.  
**Assigned Project 4.) Animated Image Sequence**  
The students will create an animated image sequence that |
will demonstrate your understanding of editing, the aesthetics of movement and image integration to tell an intelligible story or to obtain a conclusive graphic concept.

Project Critique
Student Presentations

<table>
<thead>
<tr>
<th>13</th>
<th>Presentation</th>
<th>3, 5</th>
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<tbody>
<tr>
<td></td>
<td>Final presentation of all projects</td>
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