# FACULTY OF ENGINEERING & TECHNOLOGY

## BCS -504 Computer Graphics & Multimedia
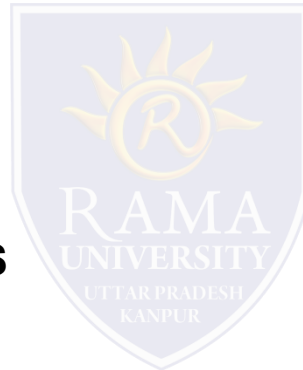
## Lecture-38

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Computer Science & Engineering

# OUTLINE

- ➢ **THE PROCESS OF ANIMATION**
- ➢ **1. STORY**
- ➢ **2. SCRIPT**
- ➢ **3. CONCEPT ART**
- ➢ **4. STORYBOARD**
- ➢ **5. ANIMATIC**
- ➢ **6. CREATING ASSETS**
- ➢ **7. PREVIS**
- ➢ **8. ANIMATION**
- ➢ **9. TEXTURING | LIGHTING | RENDERING**
- ➢ **10: EDITING | COLOR CORRECTION**
- ➢ **11. MUSIC | SOUND DESIGN**

# The Process of Animation

Now that we understand the basic concepts of what animation is, lets go over the **workflow of creating animation.**

First, I'll go cover the basic steps of the **animation filmmaking pipeline** (all the moving parts it takes to create an animated movie), and then I'll breakdown the process of actually **animating a shot** from start to finish.

**So what are the steps of making an animated film?**
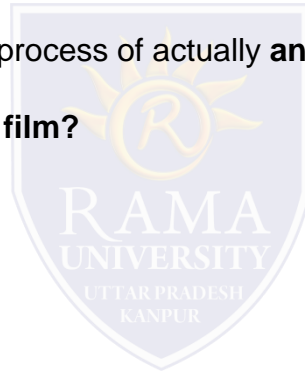
# 1. Story

The first (and probably the most important) part of making any film is a **good story**.

If you don't get your story right from the start, then **no matter how great your film looks, people will not enjoy watching it.** Story comes first. make sure it's good and that it works before you move on.

In animation, the story often evolves and changes during production, since you're not restricted to whatever shots you got on set, so the more work you put into **developing your story**, the more you **reduce wasted time** during production.

# 2. Script

Once the idea for the story is ready to **put into words**, the next step is writing the script.

It's important to transfer the idea into words as soon as you can, so that we can spot any **issues with the story** before getting into production.
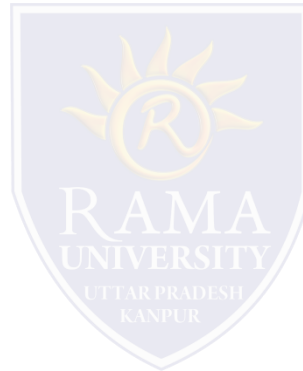
# 3. Concept Art

Once the script is ready, concept art is often created to establish the **visual style** of the film.

That's a really fun step, and is the first chance we get to see parts of the film come to life on paper. It's all

about **exploring** and trying things out.
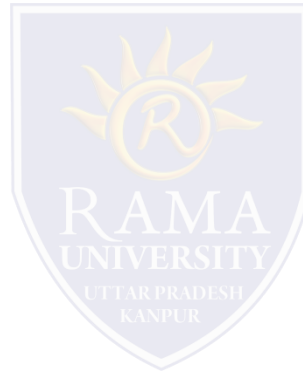
# 4. Storyboard

Next is creating a storyboard, which is probably **one of the most important steps** in figuring out the film.

Storyboarding allows you to look at your film as a whole and spot story and pacing issues. Making one also provides you with something you can **show other people** for feedback. Most people react better to a storyboard than a script.

Once we're happy with the boards, we move on to creating an animatic.
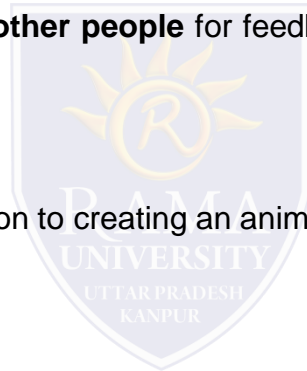
# 5. Animatic

An animatic is the **movie version** of your storyboard.

*If storyboard is like a comic book, then an animatic is like a movie.*

We bring all the boards into an editing program and edit them with the correct timing, add some temporary music and sound effects (just enough to convey the different story beats), and when we're done we have the first version of our film ready to watch.

As great as a storyboard is, an animatic really gives us **a first glimpse** into what our film is going to be like.
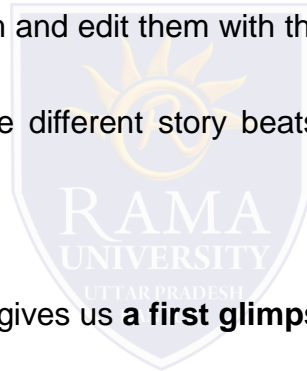
# 6. Creating Assets

At this point, depending on your animation medium of choice, we'll be creating the different assets for our film.

For 3D animation we'll create the models for the characters, environments, sets, and the props. We'll use the concept art and model sheets as our reference. These models will then have to be rigged with a 3D skeleton with controls, so that we can animate them in our scene.

For 2D animation we'll draw the background, finalize the character design sheets, and if necessary - rig the characters in our 2D animation software.

For stop-motion animation we'll build our sets, our puppets, the props and different pieces of clothing needed for the film.

# 7. Previs

Before we get into animating our scenes, there's another important step in making sure the story works, and that is creating a previs (or pre-visualization).

**A previs is the next incarnation of the animatic, this time using 3D models.**

We set up our shots in the 3D program, with the final camera angles and motion, and create very basic animation for the characters, just enough to convey the action they're suppose to be doing.

We then bring all of these shots to the editing program, just like we did with the animatic, and we now have a previz version of our film, with the correct 3D models and camera motion.

because animation takes a very long time, this is the last chance we can have to make any serious story changes in our film. It will be a huge waste if we had to make story changes after the animation phase.
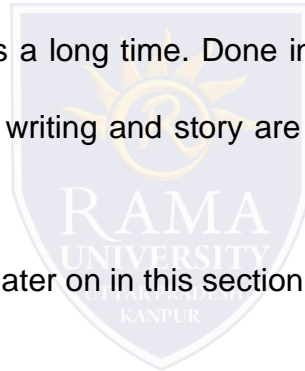
# 8. Animation

We're finally ready for animation!

This is where we finally bring life into the film. The characters start to move, and we can see the soul of the film come to life in front of us.

It's an amazing thing to see, but it also takes a long time. Done incorrectly, it can ruin our movie.

Bad animation is like bad acting: Even if the writing and story are solid, people won't notice if the delivery is all wrong.

We'll go deeper into the 6 steps of animation later on in this section.

# 9. Texturing | Lighting | Rendering

This step applies mostly to 3D animation, though 2D animation goes through similar post-production steps similar to this, and stop-motion animation spends a long time doing compositing and miscellaneous effects on top of their shots as well.

In 3D, models need to be textured, which means creating different materials assigned to the different parts of the models. Some simulate metal, some plastic and even a few for skin and hair.

We then light the shots with virtual lights, replicating as closely as we can how light works in real life.

Then when our shots are textured and lit, we start the rendering process, which is the computer calculating all of the data in our scenes, and creating still images from it.

We then take these images to a compositing program, like Nuke or After Effects, extract the necessary data from the images, and combine them to create our final images.

Once our images are composited and ready, we bring them back into our editing program and replace our

previs shots with our new composited shots, just like we replaced the animatic shots with the previz.

We are now able to see our finished film on the editing timeline for the first time, but, it's not really finished yet.

We need to do some color correction and grading.

Color correction is the process of manipulating the colors of each individual shot so that it matches the one the

comes before / after it. We also make sure each shot doesn't have parts that are too white or too black,

basically working so that we get a consistent and correct color all throughout the film.

Then we grade our film, which is the more fun and creative part, in which we try to create a visual style for the

whole film, and give it a distinct look.

## 11. Music | Sound design

Ideally we've been working with a musician from day one of production, making sure the music fits what

we were trying to do with the film, and making sure the film works with the music.

Music is not usually something we simply slap on at the end, and so I prefer to have it with me throughout

the production so it becomes an integral part of the story.

The sound designer then finalizes all the film's sound effects like folly, ambiance and voices, as well as

mastering and mixing in the final audio of the film.
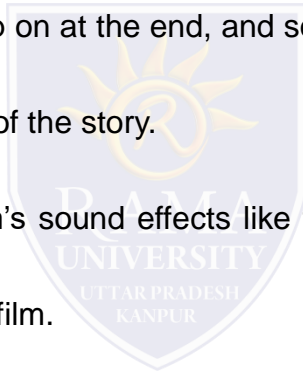
**MUTIPLE CHOICE QUESTIONS**:

| Sr no | Question | Option A | Option B | OptionC | OptionD |
|---|---|---|---|---|---|
| 1 | 2D viewing transformations from world to device coordinates involve ………….. | translation | rotation | scaling operations | All of these |
| 2 | A section of a ………..-dimensional picture that is selected for display is called a clipping window | 2 | 3 | 1 | none of these |
| 3 | Graphics packages allow us also to control the placement within the display window using another "window" called the ……… | clipping | viewing | viewport | graphics |
| 4 | The ……………... window selects what we want to see; the viewport indicates where it is to be viewed on the output device and how | viewing | clipping | viewport | graphics |
| 5 | The mapping of a two-dimensional, world-coordinate scene description to device coordinates is called a….. viewing transformation | 2D | 3D | 1D | none of these |

- http://www.engppt.com/search/label/Computer%20Graphics