SYLLABUS

6th SEMESTER

CINEMATOGRAPHY

SP. PAPER-3

DIGITAL CINEMATOGRAPHY

Credits: 3

L	T	P
3	0	10

1. Introduction

1.1 Digital Cinematography: The process of recording video using digital image sensors rather than film stock

1.2 Digital video: Sequence of pictures or frames; Frame rate, Pixels, Display Screen

1.3 Comparison of different movie format (35 mm, 70mm, Imax: 2K or 4K digital format)

2. Imaging Electronics

2.1 **Camera Sensor:** The heart of the video camera, Solid state electronic device containing millions of pixels

2.2 **Sensor construction:** Charge-Coupled Device (CCD) and Complementary Metal Oxide Semiconductor (CMOS) imagers, Alternative image sensors SWIR, POLARSEN, Comparison of CCD and CMOS sensors

2.3 **Sensor features:** Sensor size, Pixels, Relation between imaging lens and sensor size

3. Frame rate and Shutter speed

3.1 **Electronic shutter:** A function of the Image sensor, Speed of the shutter, Importance of electronic shutter, its disadvantages; Rolling Shutter and Global Shutter

3.2 **Frame Rate:** Also known as Acquisition speed or Frequency, Frame rate and FPS, Why 24 FPS? High and Low frame rates, Slow motion, Fast motion and Time lapse

3.3 **Frame Rate and Shutter Speed:** Difference between frame rate and shutter speed, Faster and slower Shutter speed; Frame rate and Shutter speed combination

4. Color Reproduction

4.1 Components of Color: Hue, Saturation and Brightness

4.2 How do digital cameras sense light? Spectral response of Digital Cameras,

4.3 Bit depth, Color space, Importance of Color in a film, Color theory

5. Resolution ,Contrast and Exposure

5.1 Resolution quality of sensor; Difference between 1080p, Full HD and 4K; Best resolution available, Resolution of TV screen, Monitor and Digital Cinema projector,

5.2 Resolution of Film vs. Digital image, Resolution and Contrast, Dynamic range Sharpness and Resolution; How to Choose resolution? Bit rate and Video quality,

5.3 How to set the Exposure? Correct exposure, Exposure tools: Light meter, Wave form monitor, false color, Control of exposure

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Reference Books:

1. Basic Cinematography: A creative Guide to visual storytelling-By Kurt Lancaster
2. Cinematography Theory and Practice: Blain Brown
3. Digital Cinematography: David Stump ASC
4. Practical Cinematography: 2nd edition; Paul Wheeler
5. Digital Cinematography: Paul Wheeler