

Topic: DIP, IV ECE-B 2014-15 (I Sem)

LESSON PLAN

| Period | Date (Tentative) | Topic | Unit No. | Teaching Methodology | Remarks | Corrective Action Upon Review |
|--------|------------------|---|----------|----------------------|---------|-------------------------------|
| | | Introduction | I | BB | | |
| 1 | 16/6 | → Origins of digital image processing | | " | | |
| | | → uses of DIP | | " | | |
| 2 | 17/6 | → Fundamental steps in DIP | | " | | |
| 3 | 18/6 | → Components of an IPS | | " | | |
| | | → Digital image fundamentals | | | | |
| 4 | 19/6 | → Elements of visual perception | | " | | |
| 5 | 24/6 | → Light and electromagnetic spectrum | | " | | |
| 6 | 25/6 | → Imaging sensing and acquisition | | " | | |
| | | → Image sampling & quantization | | " | | |
| 7 | 26/6 | → Some basic relationships between pixels | | " | | |
| 8 | 27/6 | → An introduction to the mathematical tools used in DIP | | " | | |
| | | Image Transforms | II | " | | |
| 9 | 30/6 | → Need for image transforms | | " | | |
| 10 | 1/7 | → Spatial frequencies in image processing | | " | | |
| 11 | 2/7 | → Introduction to Fourier transform | | " | | |
| | | → Discrete Fourier transform | | " | | |

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| 12 | 3/7 | Fast Fourier Transform and its algorithm | | BB | | |
| | | Properties of F.T | | " | | |
| | | Sampling Theorem | | " | | |
| 13 | 4/7 | Parseval's Theorem | | " | | |
| | | Discrete Cosine Transform | | " | | |
| 14 | 7/7 | Discrete Sine Transform | | " | | |
| | | Walsh Transform | | " | | |
| 15 | 8/7 | Hadamard Transform | | " | | |
| | | Haar Transform | | " | | |
| 16 | 9/7 | Slant Transform | | " | | |
| | | SVD & KL Transform | | " | | |
| | | 8-Point DCT Transform | | " | | |
| | | Intensity Transformations & Spatial Filtering II | | " | | |
| 17 | 10/7 | Background, Some Basic Intensity Transformation Functions | | " | | |
| 18 | 11/7 | Image processing | | " | | |
| 19 | 14/7 | Fundamentals of Spatial Filtering | | " | | |
| 20 | 15/7 | Smoothing Spatial Filter | | " | | |
| | | Sharpening Spatial Filter | | " | | |
| 21 | 17/7 | Combining Spatial Enhancement Methods | | " | | |

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| | | Using - fuzzy Techniques | | BB | | |
| | | - In Intensity Transforms | | " | | |
| | | - Spatial | | " | | |
| | | - Filtering | | " | | |
| | | - Filtering in the | III | " | | |
| | | - Frequency Domain | | " | | |
| 22 | 21/7 | → Preliminary Concepts | | " | | |
| 23 | 22/7 | → Sampling & the Fourier Transform of Standard | | " | | |
| | | Functions | | " | | |
| 24 | 23/7 | → The discrete Fourier Transform (DFT) | | " | | |
| | | of one Variable | | " | | |
| | | Extension of functions of two variables | | " | | |
| 25 | 24/7 | → Some properties of the | | " | | |
| | | 2-D discrete Fourier Transform | | " | | |
| 26 | 25/7 | → The basic of Filtering in the F.D | | " | | |
| | | → Image Smoothing using frequency domain - filter | | " | | |
| 27 | 28/7 | → Selective Filtering | | " | | |
| | | → Implementation | | " | | |
| | | Image Restoration & Reconstruction | IV | " | | |
| 28 | 30/7 | → A model of Image Degradation/Restoration Process. | | " | | |
| | | → Noise Models | | " | | |
| 29 | 31/7 | → Restoration in the Presence of Noise Only | | " | | |
| | | → Spatial - filtering | | " | | |

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| 30 | 1/8 | → Periodic Noise Reduction by FDP | | BB | | |
| | | Linear, Position-Invariant Degradation | | " | | |
| | | → Estimation the D.F | | " | | |
| 31 | 4/8 | → Inverse Filtering | | " | | |
| | | → Minimum mean Square Error (Wiener) | | " | | |
| | | → Filtering | | " | | |
| | | → Constrained least squares filtering | | " | | |
| 32 | 5/8 | → Geometric Mean filter | | " | | |
| | | → Image Reconstruction | | " | | |
| | | from Projections | | " | | |
| | | Color Image Processing II | | " | | |
| 33 | 6/8 | → Color fundamental | | " | | |
| 34 | 7/8 | → Color Models | | " | | |
| 35 | 8/8 | → Pseudocolor Image Processing | | " | | |
| | | → Basic of full-Color Image processing | | " | | |
| 36 | 18/8 | → Color Transformations | | " | | |
| | | → Smoothing & Sharpening | | " | | |
| 37 | 20/8 | → Image Segmentation Based on Color | | " | | |
| 38 | 21/8 | → Noise in Color Images | | " | | |
| 39 | 22/8 | → Color Image Compression | | " | | |
| 40 | 25/8 | | | | | |

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| | | Wavelet & Multiresolution processing | VI | BB | | |
| 41 | 26/8 | Image Pyramids | | " | | |
| | | Subband coding & Haar Transform | | " | | |
| 42 | 27/8 | Multiresolution Expansions | | " | | |
| | | Wavelet Transforms in one dimension | | " | | |
| 43 | 29/8 | The fast wavelet Transform | | " | | |
| 44 | 1/9 | Wavelet Transforms | | " | | |
| | | In two dimensions | | " | | |
| | | Wavelet packets | | " | | |
| 45 | 2/9 | Image Compression fundamentals | | " | | |
| 46 | 3/9 | Various Compression Methods | | " | | |
| 47 | 5/9 | Coding Techniques | | " | | |
| 48 | 8/9 | Digital Image Watermarking | | " | | |
| | | Morphological Image processing | VII | " | | |
| 49 | 9/9 | Preliminaries | | " | | |
| 50 | 10/9 | Erosion & Dilation | | " | | |
| 51 | 12/9 | Opening & closing | | " | | |
| 52 | 15/9 | The Hit-or-Miss Transformations | | " | | |
| 53 | 17/9 | Some basic morphological Algorithms | | " | | |
| 54 | 18/9 | Grey-scale Morphology | | " | | |

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| | | Image Segmentation | VIII | EB | | |
| 55 | 17/9 | -fundamentals | " | " | | |
| | | Point, Line & Edge detection | " | " | | |
| 56 | 23/9 | → Thresholding | " | " | | |
| 57 | 23/9 | → Region - Based segmentation | " | " | | |
| 58 | 25/9 | → Segmentation using morphological watershed | " | " | | |
| 59 | 6/10 | → The use of Motion | " | " | | |
| 60 | 7/10 | In Segmentation | " | " | | |
| 61 | 8/10 | Unit I, II Revision | | " | | |
| 62 | 9/10 | Unit III, IV Revision | | " | | |
| 63 | 10/10 | Unit V, VI Revision | | " | | |
| 64 | 13/10 | Unit VII, VIII Revision | | " | | |
| 65 | 14/10 | Old Q-P. discussion | | " | | |
| 66 | 15/10 | Old Q-P. discussion | | " | | |
| 67 | 16/10 | Class Text - I | | " | | |
| 68 | 17/10 | Class Text - II | | " | | |