**DEPARTMENT \_\_\_\_Software Engineering\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Course Code: \_\_\_SE-488\_\_\_\_\_\_ Course Title: \_\_COMPUTER VISION FUNDAMENTALS\_ Teacher Name: \_\_\_\_\_\_Zainab Fatima\_\_\_\_\_\_\_\_\_\_

Semester: Spring/Fall Academic Session: 20\_22\_\_\_ Class: 1st/2nd/3rd/4th (Final)/5th (Final) Year

No. of sections: \_\_2\_\_\_\_\_\_ No of contact hours per week per section: \_\_\_3\_\_\_\_\_\_

**TEACHING TOOLS**

|  |  |  |
| --- | --- | --- |
| 🞏 Problem-based learning | ◼ Mini-project | 🞏 Case studies |
| 🞏 Innovative solution |  Group activity | 🞏 Entrepreneurial activities |
| 🞏 Industrial visit | 🞏 Student presentation | 🞏 Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **WEEK No.** | **TOPICS** | **NO. OF PERIODS** |
|  | Overview of  Computer vision and Image Processing Systems. | 3 |
|  | Image Formation and Perception, Continuous and Digital Image Representation. | 3 |
|  | Image Quantization: Uniform and Non- Uniform, Visual Quantization (Dithering). | 3 |
|  | image Acquisition, Types, and File I/O | 3 |
|  | Image Arithmetic | 3 |
|  | Affine and Logical Operations, Distortions,  and Noise in Images | 3 |
|  | Image Contrast Enhancement: Linear and non-liner Stretching, Histogram Equalization. | 3 |
|  | **MIDTERM** |  |
|  | Image smoothing and image sharpening by spatial domain linear filtering, Edge detection-I | 3 |
|  | Edge detection – II. | 3 |
|  | Colour representation and display; true and pseudo colour image processing-I. | 3 |
|  | Colour Image Processing – II. | 3 |
|  | Image sampling and sampling rate conversion (resize). | 3 |
|  | Lossless Image Compression. | 3 |
|  | Loss Image Compression. | 3 |
|  | Object Recognition. | 3 |
|  | Image Classification and Segmentation | 3 |
|  | **Total per Semester:** | 48 |

**SESSIONAL CRITERIA**

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| --- | --- | --- |
| **Assessment Type** | **Marks** | **Schedule (Week No.)** |
| Mid-term | 20 | 8th |
| Assignment | 10 | 12th |
| project | 10 | 15th |
|  |  |  |
| **Total Sessional Marks** |  | 40 |

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| Prepared by: |  |  | Reviewed & Approved by: |  |
| Date |  |  | Date |  |