## Session 2025-2026

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**Program Educational Objectives of the program (PEO):** (broad statements that describe the professional and career accomplishments)

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| PEO1 | **Preparation** | **P: Preparation** | **Pep-CL abbreviation pronounce as Pep-si-lL easy to recall** |
| PEO2 | **Core Competence** | **E: Environment (Learning Environment)** |
| PEO3 | **Breadth** | **P: Professionalism** |
| PEO4 | **Professionalism** | **C: Core Competence** |
| PEO5 | **Learning Environment** | **L: Breadth (Learning in diverse areas)** |

**Program Outcomes (PO):** (statements that describe what a student should be able to do and know by the end of a program)

## Keywords of POs:

Engineering knowledge, Problem analysis, Design/development of solutions, Conduct Investigations of Complex Problems, Engineering Tool Usage, The Engineer and The World, Ethics, Individual and Collaborative Team work, Communication, Project Management and Finance, Life-Long Learning

**PSO Keywords:** Cutting edge technologies, Research

“I am an engineer, and I know how to apply engineering knowledge to investigate, analyse and design solutions to complex problems using tools for entire world following all ethics in a collaborative way with proper management skills throughout my life.” *to contribute to the development of cutting-edge technologies and Research*.

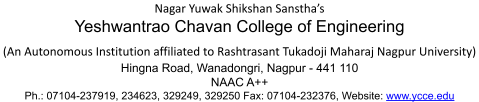
**Integrity:** I will adhere to the Laboratory Code of Conduct and ethics in its entirety.

## Name and Signature of Student and Date

(Signature and Date in Handwritten)

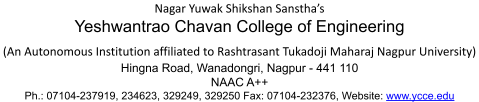
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| **Session** | **2024-25 (ODD)** | **Course Name** | **Computer vision Lab** |
| **Semester** | **5** | **Course Code** | **CT** |
| **Roll No** | **10** | **Name of Student** | **Khushi Raghorte** |

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| Practical Number | **05** |
| Course Outcome |  |
| Aim | **Implement object detection algorithm YOLO** |
| Problem Definition |  |
| Theory  (100 words) | YOLO (You Only Look Once) is a real-time object detection algorithm that processes an image in a single pass using a convolutional neural network. It divides the image into grids, each predicting bounding boxes and class probabilities. YOLO is fast and efficient, ideal for applications like surveillance and autonomous driving. |
| Procedure and Execution (100 Words) | Algorithm:  1. **Input Image** → Resize to fixed size (e.g., 416×416 or 640×640).  2. **Divide Image** → Split into an S×S grid.  3. **Prediction per Grid Cell**:   * For each anchor box: predict (tx, ty, tw, th) (box), objectness score, and class probabilities.   4. **Decode Predictions**:   * Convert (tx, ty, tw, th) into actual bounding box (x, y, w, h) using anchors and grid offsets. * Compute score = objectness × class probability.   5. **Filter Boxes** → Keep boxes with score > threshold.  6. **Non-Maximum Suppression (NMS)** → Remove overlapping boxes (IoU > threshold).  7. **Final Output** → Return remaining boxes with class labels and confidence scores. |
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|  | Code: |
|  |  |
|  | Output: |



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| Output Analysis | **YOLOv8 detects objects with bounding boxes, class labels, and confidence scores, offering fast, accurate results for real-time applications.** |
| Link of student Github profile where lab assignment has been uploaded |  |



# Department of Computer Technology

### Vision of the Department

To be a well-known centre for pursuing computer education through innovative pedagogy, value-based education and industry collaboration.

### Mission of the Department

To establish learning ambience for ushering in computer engineering professionals in core and multidisciplinary area by developing Problem- solving skills through emerging technologies**.**

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| Conclusion | **YOLOv8 offers a powerful balance between speed and accuracy for real-time object detection. Its single-pass architecture enables efficient processing, making it ideal for applications like surveillance, robotics, and autonomous systems. With minimal setup and strong community support, YOLOv8 remains a top choice for practical deep learning deployment.** |
| Plag Report (Similarity index < 12%) | **yes** |
| Date | 24/09/25 |