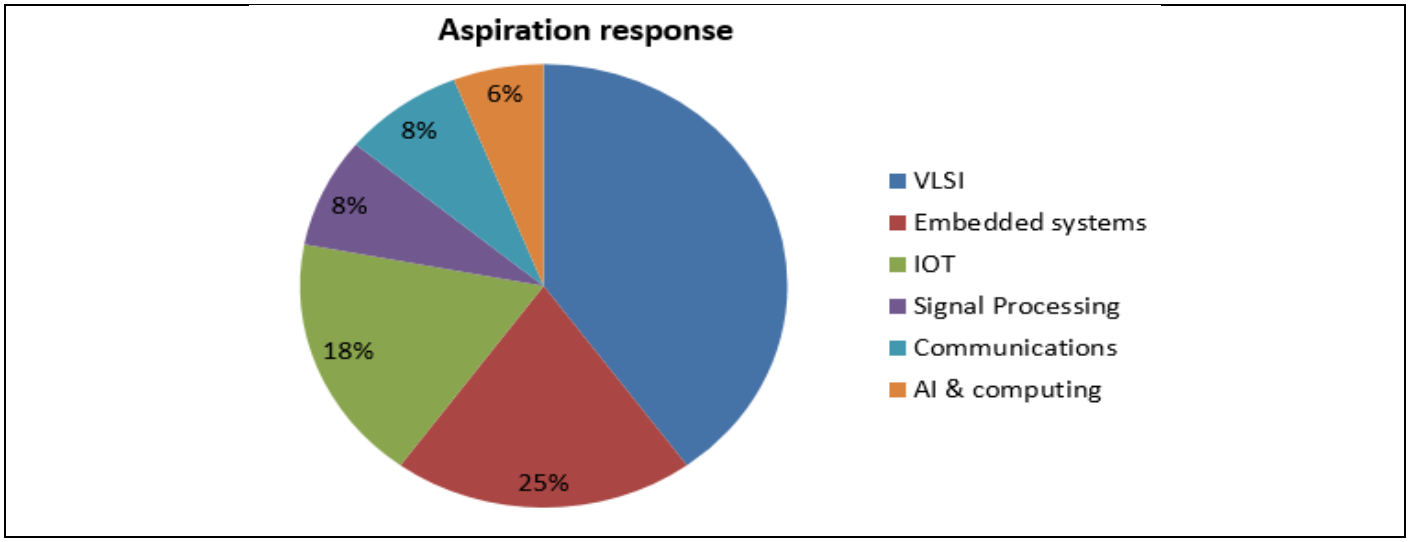
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SKILL ENHANCEMENT PROGRAMME (SEP)

Skill Enhancement Course Name:	**Arduino Programming**		
Name of the Faculty:	**Mrs. Kalpavi C Y and Mr. Bharath K N**		
Sem & Sec:	**3rd Semester, A & B Section**	**Total No. of Students in class:**	**43 + 43**
No. of Modules:	**5 Modules**	**No of Students attended:**	**43 + 43**
Aspiration Form taken	**Yes**		

No. of Classes Planed	8 Weeks Session (each session of 3 hours)
No. of Classes handled	8 Week Session (each of 3 hours) + Project Exhibition
PO's/PSO's mapped	YES
PEO's Mapped	YES
Aspiration form Summary for Skill Enhancement course: Arduino Programming	


Aspiration response
6%
8%
8%
18%
25%
VLSI
Embedded systems
IOT
Signal Processing
Communications
AI & computing

Modules Covered:

1. **Introduction:**

   Introduction to embedded system,

   Overview of basic electronics and digital electronics,

   Microcontroller vs. Microprocessor,

   Common features of Microcontroller.

2. **Getting Started with Arduino:**

   Introduction to Arduino,

   Pin configuration and architecture,

   Device and platform features,

   Concept of digital and analog ports,

   Familiarizing with Arduino Interfacing Board,

   Introduction to Embedded C and Arduino platform.

3. **Basic Concepts:**

   Arduino data types, Variables and constants,

   Operators, Control Statements, Arrays,

   Arduino I/O Functions.

4. **Arduino Sensors:**

   PIR Sensor, Temperature Sensor

   Water Detector / Sensor

   Ultrasonic Sensor, LDR, TILT Sensor,

   Stepper and Servo Motor

   Connecting Switch (Magnetic relay switches)

   Arduino Communications

5. **Arduino Projects:**

   This will involve designing, developing, coding and implement Arduino project.

Student Learning outcomes for Skill Enhancement Course:

At the end of the program, students will be able:

CO1: To Understand the Arduino environment and its applications.

CO2: To Apply the concepts for Arduino programming with C++ for design.

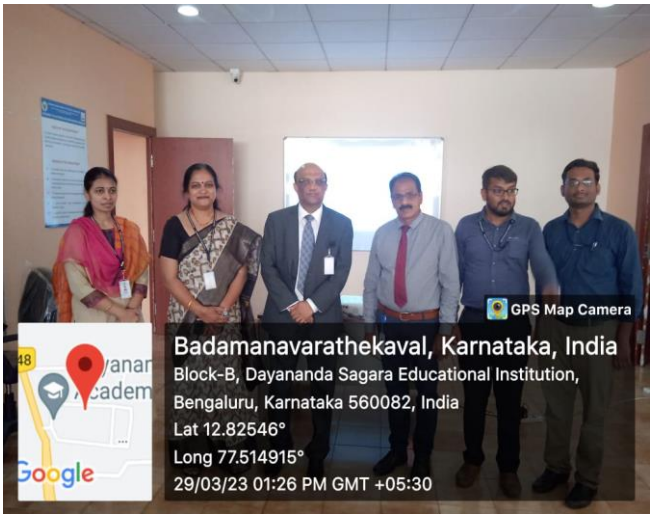
CO3: To Analyze the program for real time applications.

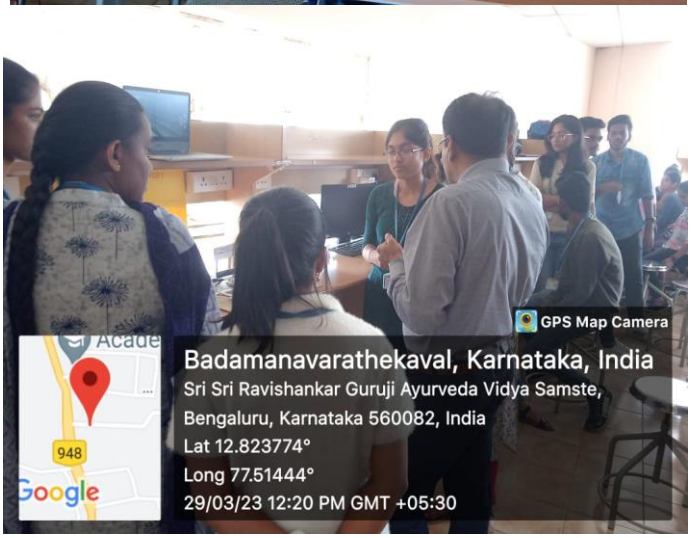
CO4: To Design Smart systems applications using Arduino.

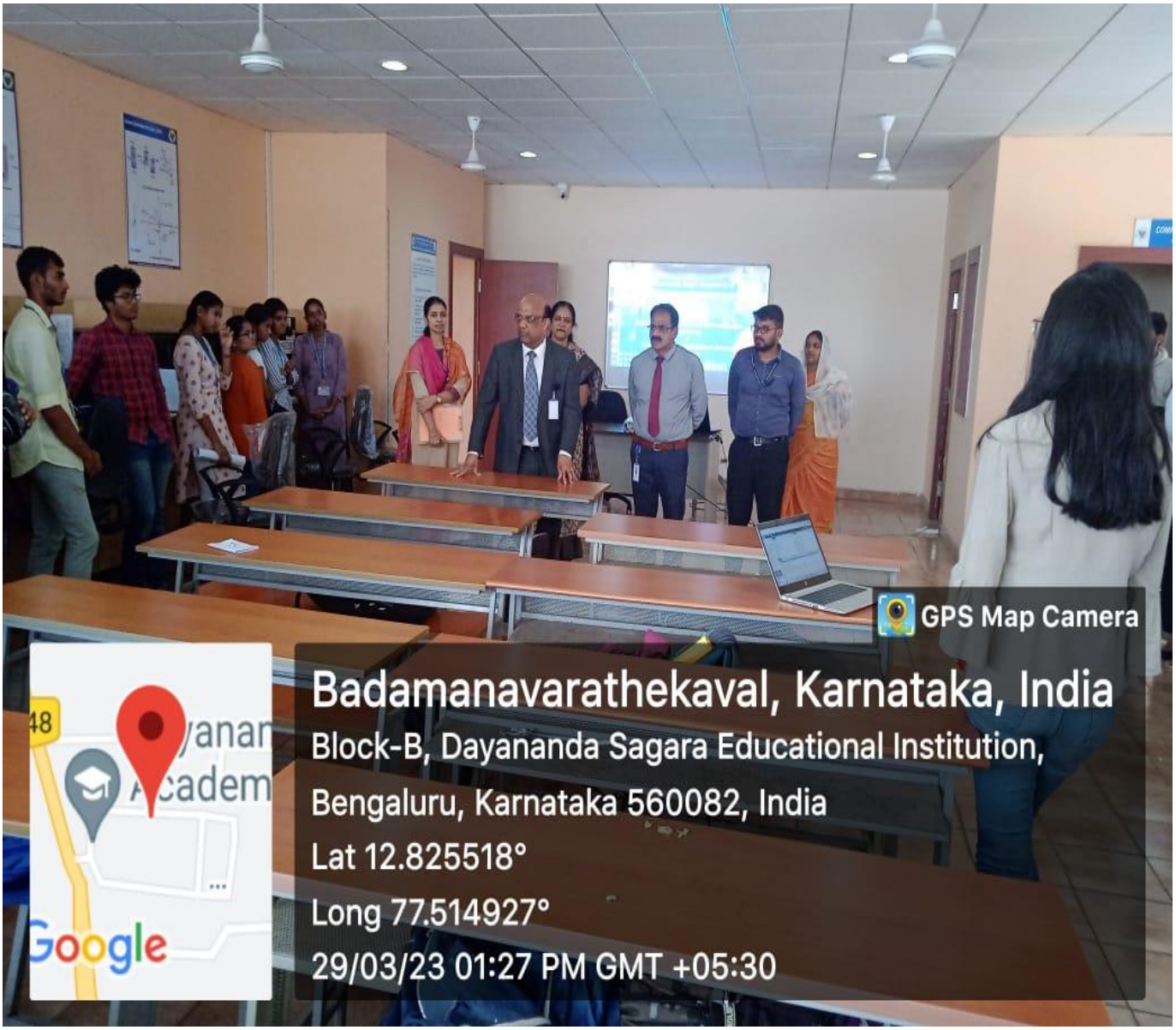
Rubrics for assessing the Students on Higher Order Thinking Skills:

Parameters	Low	Medium	High	CO	Max Marks
Identification of Domain, Problem definition, and Objectives	Less clarity in the domain choosing and problem identification (1-3)	Having chosen the domain and needs more effort to define the problem. (4-7)	Well defined problem with clarity of objectives (8-10)	1	10
Literature Survey	Inadequate survey of literature which can substantiate the objectives defined (1-3)	Survey of literature done with less relevant articles and needs to justify the existing work. (4-7)	Extensive survey of literature survey and existing systems/methods (7-10)	1, 2	10
Methodology proposed and time management	Not feasible method and lac of time management (1-3)	Moderate Proposed methodology and time schedule (4-7)	Well defined methodology and time schedule (8-10)	3,4	10
Use of Modern Tools	Has not used relevant modern tools for the design & experimentation (0-1)	Has used relevant modern tools with inadequate knowledge and has not obtained optimized results. (2 –3)	Has applied tools effectively to design/ analyze/debug/to get optimized solution for the problem. (4–5)	4	5
Technical awareness of the project and working.	Has less understanding about the working of the project (1-7)	Has the knowledge of the working of project and technology used (8-15)	Excellent knowledge of Project working and the technology used. (16-25)	3	5
Teamwork, Lifelong learning and Communication	Minimal contribution to the team, No understanding of lifelong learning and unable to communicate the work carried out. (1-3)	Contributed considerably to the team, Can present examples of the impact of lifelong learning, Could communicate the information to a limited extent (4-6)	Has effectively contributed in achieving optimized results, Skill updation in modern engineering profession, Has effectively communicated the work carried out (7-10)	2,3,4	10
TOTAL MARKS of Project Evaluation					**50 Marks**

Geotagged Photos of Project Exhibition: Organized on 29th March 2023.






GPS Map Camera
Badamanavarathekaval, Karnataka, India
Block-B, Dayananda Sagara Educational Institution,
Bengaluru, Karnataka 560082, India
Lat 12.825518°
Long 77.514927°
29/03/23 01:27 PM GMT +05:30
Google