Impact Assessment

Vidya Pratishthan
Centre of Excellence for Youth Development
Focusing Women Empowerment

Supported by
Bharat Forge Ltd.

Dr. Arati Mule
Associate Professor

Dept. of Manufacturing Engineering & Industrial Management
COEP, Technological University, Pune

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Certificate of Impact Assessment

This is to certify that the **Centre of Excellence (CoE) for Youth Development Focusing on Women Empowerment Supported by Bharat Forge Ltd., established at Vidya Pratishthan, Baramati,** has been evaluated for its impact assessment on **1 Feb 2025.**

The assessment, conducted by **Dr. Arati Mule, Associate Professor, Dept. of Manufacturing Engineering & Industrial Management, CoEP Technological University, Pune,** included a comprehensive review of the CoE's contributions to Skill Development and Trainings, Project based Learning, Innovation and Patents, Research and Development and Industry-Academia Partnerships, Sustainability and Future Scope.

Centre of Excellence for Youth Development Focusing on Women Empowerment Supported by Bharat Forge Ltd., is hereby acknowledged for its significant strides in fostering innovation, skill development, and research, demonstrating a clear commitment to advancing technology and student engagement.

Issued on: 20 Feb 2025

Assessment Conducted by:

Dr. Arati Mulay
Associate Professor

Dept. of Manufacturing Engineering & Industrial Management
COEP, Technological University

About Centre of Excellence for Youth Development:

The Centre of Excellence (CoE) at Vidya Pratishthan, Baramati, has been established through a joint effort between Bharat Forge Limited, Pune, and Vidya Pratishthan as part of Bharat Forge's CSR initiative. This centre aims to provide cutting-edge technological education and skill development opportunities to students in the Baramati region. The CoE comprises four advanced labs and an incubation centre equipped with high-end workstations and equipment, enabling students to transform their innovative ideas into prototypes and market-ready products.

The CoE promotes interdisciplinary project-based learning and offers mentorship from experts at Bharat Forge, reputed academic institutions, research centres, incubation hubs, in-house mentors, and alumni. It fosters an entrepreneurial ecosystem, helping students develop skills in emerging technologies such as Machine Learning (ML), Artificial Intelligence (AI), Data Analytics (DA), IoT (Internet of Things), Computer Vision (CV), 3D printing, Augmented and Virtual Reality (AR & VR), Robotics and Automation. This initiative not only enhances students' employability but also encourages entrepreneurship, especially in a rural setting like Baramati.

Since its establishment on 11th March 2023, the CoE has played a crucial role in nurturing young talent, including encouraging the participation of female students in core industrial sectors like manufacturing. By bridging the gap between academia and industry, the CoE is shaping the next generation of innovators, problem-solvers, and entrepreneurs while contributing to job creation and rural development.

Vision:

To be a leading centre of excellence that empowers students with cutting-edge technological skills, fosters innovation and entrepreneurship, and bridges academia with industry to drive inclusive and sustainable development.

Mission:

1. To equip students with practical knowledge and hands-on experience in emerging technologies.
2. To create an ecosystem that encourages students to transform innovative ideas into viable prototypes and market-ready products.
3. To bridge the gap between academic learning and industrial applications by offering mentorship from industry experts, reputed institutions, and research centres.
4. To develop job-ready skills and promote interdisciplinary project-based learning to increase students' career prospects.
5. To encourage the participation of female students and individuals from rural areas in high-tech domains, fostering diversity and contributing to rural development.

Focus Areas of CoE:

The Centre of Excellence (CoE) at Vidya Pratishthan, Baramati, focuses on cutting-edge technologies to enhance skill development, innovation, and entrepreneurship. The key focus areas of the CoE include:

1. **Internet of Things (IoT)** – Enabling smart connectivity through sensor-based networks and real-time data monitoring for industrial and consumer applications.
2. **AI and ML** – Developing AI-driven solutions through data analysis, predictive modelling, and automation.

3. **Computer Vision (CV)** – Implementing image and video processing techniques for applications in automation, surveillance, and quality control.
4. **Robotics and Automation** – Designing and programming intelligent robotic systems for industrial, healthcare, and service applications.
5. **Data Analytics (DA)** – Leveraging big data techniques for informed decision-making and optimization in various industries.
6. **Augmented Reality (AR) and Virtual Reality (VR)** – Enhancing immersive experiences for training, simulation, and product design in multiple domains.
7. **3D Printing** – Exploring additive manufacturing techniques for prototyping, product development, and industrial applications.

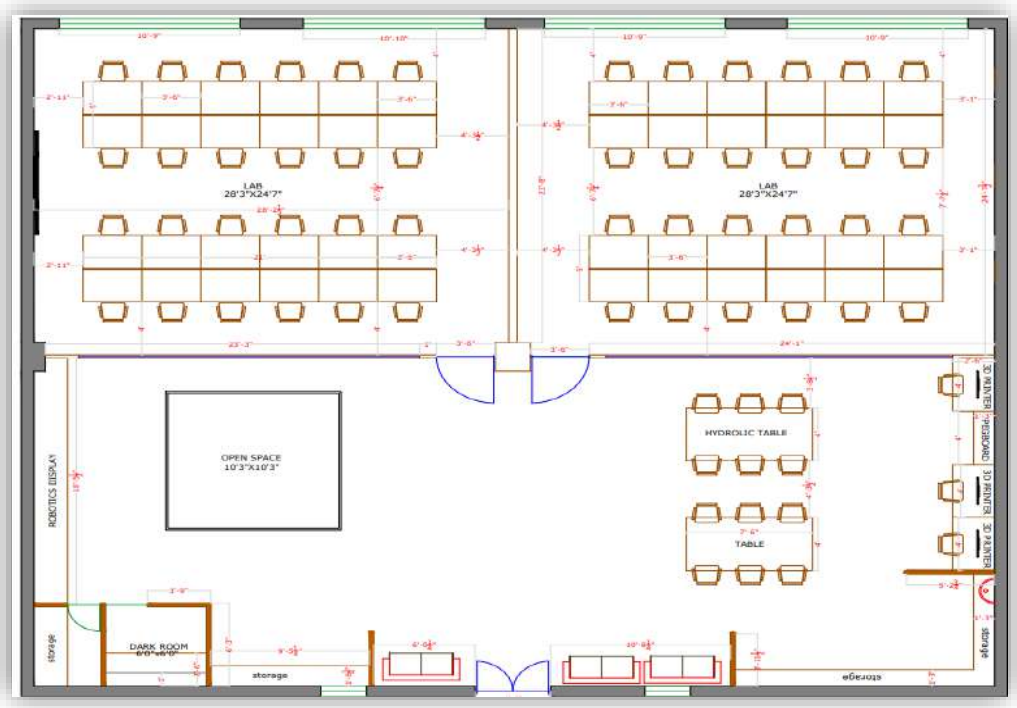
Objectives

1. To integrate resources, learning, and talent in cutting-edge technologies in one place
2. To nurture cutting-edge technology-based innovations, IPRs, and start-ups
3. To develop skilled human resources to serve the needs of industry and society with more focus on women empowerment
4. To provide need-based technology training to researchers, entrepreneurs, and the industry
5. To ensure the self-sustainability of CoE by identifying new revenue generation opportunities through Training, IPR, and consultancy work

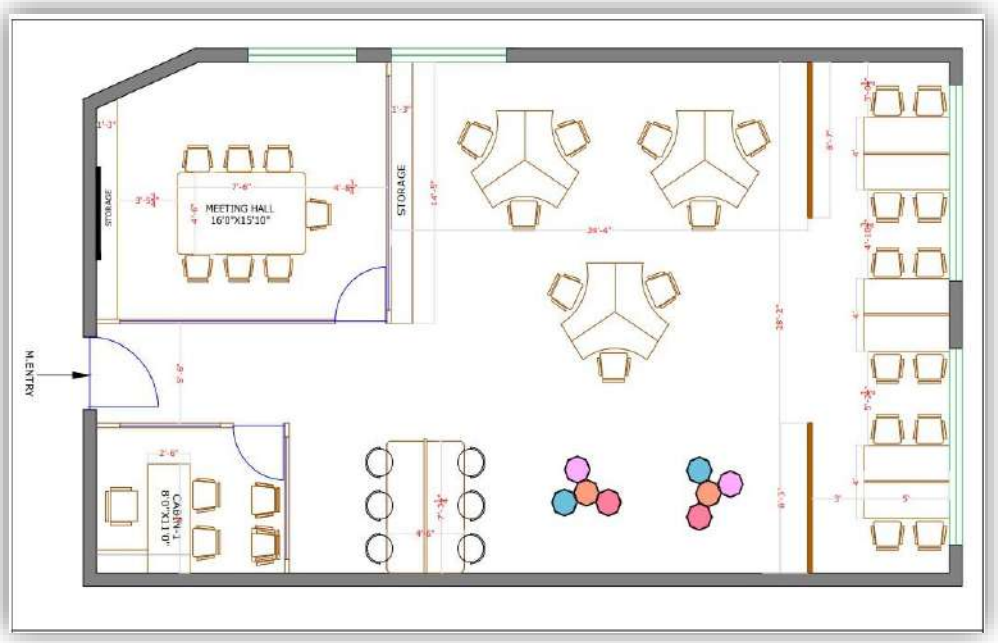
Expected Outcomes

1. Development of employable technical skill-force
2. Empowerment of girl students to be technically competent to face real world challenges
3. Development of innovation and entrepreneurial attitude among the youth
4. Development of IPRs and its commercialization
5. Publication of quality research papers in peer reviewed reputed journals

Lab Layout:



Lab Interior Layout (Area: 263 m^2)



Incubation Centre Layout (Area: 129 m^2)

Artificial Intelligence Lab

Data Analytics Lab

IoT Lab and 3D Printing Facility

Robotics Lab

Incubation Centre

Meeting Room at Incubation

Lab Infrastructure:

1. Computing facilities at AI and Data Analytics Lab

Details	Make	Date of Purchase	Qty.
Dell Precision 3660 Tower CTO BASE[i9] Processor Intel Core i9-12900K processor (30MB Cache, 16 Core (8P+8E), 3.2GHz to 5.2GHz (125W)) TDP, 64GB, 2x32GB, DDR5 up to 4400MHz Nvidia RTXA4000, 3660T	Dell Technologies	19/09/2022	05
Processor Intel Core i7 12700K processor (25MB Cache, 12 Core (8P+4E), 3.6GHz to 5.0GHz (125W)) TDP 1 ENERGY STAR Qualified, 1000W Platinum PSU, 16GB, 2x8GB, DDR5 up to 4400MHz UDIMM non-ECC memory, No Hard Drive, 512GB PCIe NVMe Class 40 M.2 SSD, Nvidia T1000, 4GB	Intel Corporation	19/09/2022	45

2. IoT Lab

Details	Make	Date of Purchase	Qty.
Microcontroller Boards, Arduino (Uno, Mega, Nano), Raspberry Pi -4B	MACFOS Ltd.	27/02/2023	20
Sensors & Actuators, Camera modules Temperature & Touch Sensors, communication modules, Camera modules	MACFOS Ltd.	23/03/2023	50
Test and Measurement Instruments, Digital Storage Oscilloscopes (DSO)	MACFOS Ltd	24/02/2023	01
Multimeters	MACFOS Ltd.	27/02/2023	05

3. Robotics Lab

Details	Make	Date of Purchase	Qty.
DOBOT Magician Educational Kit	M/S MACFOS Ltd.	09/03/2023	**02**
DOBOT Conveyor Belt Kit	M/S MACFOS Ltd.	25/04//2023	**01**
DOBOT Magician-Arduino Artificial Intelligence Kit	M/S MACFOS Ltd.	25/04//2023	**01**

4. 3D Printing

Details	Make	Date of Purchase	Qty.
Flash Forge FDM 3D printer	Flashforge	10/02/2023	**01**
Phrozen SLA Printer	Phrozen	10/02/2023	**01**
3D Pens	Wol 3D	10/02/2023	**02**
3D Scanner	Wol 3D	10/02/2023	**01**

Focus Activities of CoE

The centre focuses on developing skills of students in cutting edge technologies based on Project Based Learning (PBL), Training/Self-learning, Research, Innovation, Industry collaborations, IPRs, and Entrepreneurship activities in the focus areas mentioned earlier.

Project Based Learning (PBL) Methodology:

1. **Project Proposal Call for FE to BE Students**:

a. **Announcement**: A call for project proposals will be made by the CoE to **First Year (FE) to Bachelor of Engineering (BE) students**. The call will include detailed guidelines on the types of projects sought, eligibility criteria, and submission procedures.

b. **Submission**: Students are encouraged to submit their **project proposals** that align with the CoE's focus areas (such as IoT, Robotics, AI, 3D Printing, etc.). Proposals should outline the project objectives, methodologies, expected outcomes, and required resources.

2. **Project Proposal Presentation at CoE**:

a. **Selection Process**: After the submission deadline, students will be invited to present their proposals at the CoE. The **CoE Selection Committee** consisting of faculty members and domain experts will evaluate the proposals based on innovation, feasibility, and relevance to the technological advancements at the CoE.

b. **Presentation Format**: Students will be required to deliver a structured presentation, followed by a Q&A session. The committee will assess the clarity of objectives, project timeline, and the students' understanding of the topic.

3. **Allotment of Facilities**:

a. **Resource Allocation**: Once a project is selected, the CoE will allocate the necessary **facilities and equipment** (e.g., 3D printers, IoT kits, robotics workstations, etc.) to the students based on the requirements of their proposed projects.

b. **Infrastructure Support**: The CoE will ensure that the selected students have access to **state-of-the-art infrastructure** such as laboratories, hardware, and software tools for project execution.

4. **Allotment of Mentors from Institute/Department**:

a. **Mentor Assignment**: Each project will be assigned a **faculty mentor** from the relevant department (e.g., Electrical, Mechanical, Computer Science). The mentors will guide the students in refining their project ideas, overseeing project execution, and providing expert advice on technical and theoretical aspects.

b. **Collaboration with Industry Experts**: In some cases, **external industry mentors** from Bharat Forge or affiliated companies may also be assigned to the projects, especially for specialized areas such as Electric Vehicles or Advanced Robotics.

5. **Progress Reviews at Regular Intervals**:

a. **Scheduled Reviews**: Progress will be monitored through regular review meetings at **specified intervals** (e.g., bi-weekly or monthly). Students will present the **status of their project**, including work completed, challenges faced, and solutions implemented.

b. **Feedback and Evaluation**: During these reviews, mentors and the CoE team will provide **constructive feedback** to guide students in overcoming obstacles and improving their projects. The progress will be assessed based on milestones outlined in the project proposal.

c. **Adjustments**: Based on the feedback, adjustments will be made to project timelines, scope, or methodologies as required to ensure the successful completion of the project.

6. **Financial Support from CoE:**

a. **Budget Allocation**: The CoE will provide **financial support** to the selected projects to cover material costs, software licensing, or any other expenses required for project execution. The amount allocated will depend on the project's scope and resource needs.

b. **Reimbursement Process**: Students will submit their financial requirements along with justifications. After approval from the CoE authorities, the necessary funds will be released, and receipts will be reimbursed accordingly.

c. **Utilization Monitoring**: Proper tracking of the allocated budget will be carried out by the CoE to ensure the funds are used efficiently for the intended purpose. Regular checks will be made to prevent misuse or mismanagement of resources.

Student Project Proposal Presentation at CoE

The CoE has established a structured and supportive framework for student and faculty engagement through its project proposal invitation and evaluation process. By providing access to advanced lab facilities, the CoE fosters innovation and hands-on learning among students from FE to BE. The consistent number of projects undertaken—32 in 2022-23, 27 in 2023-24, and 25 in 2024-25 demonstrates sustained interest and participation. More no. of faculty should involve in COE activity.

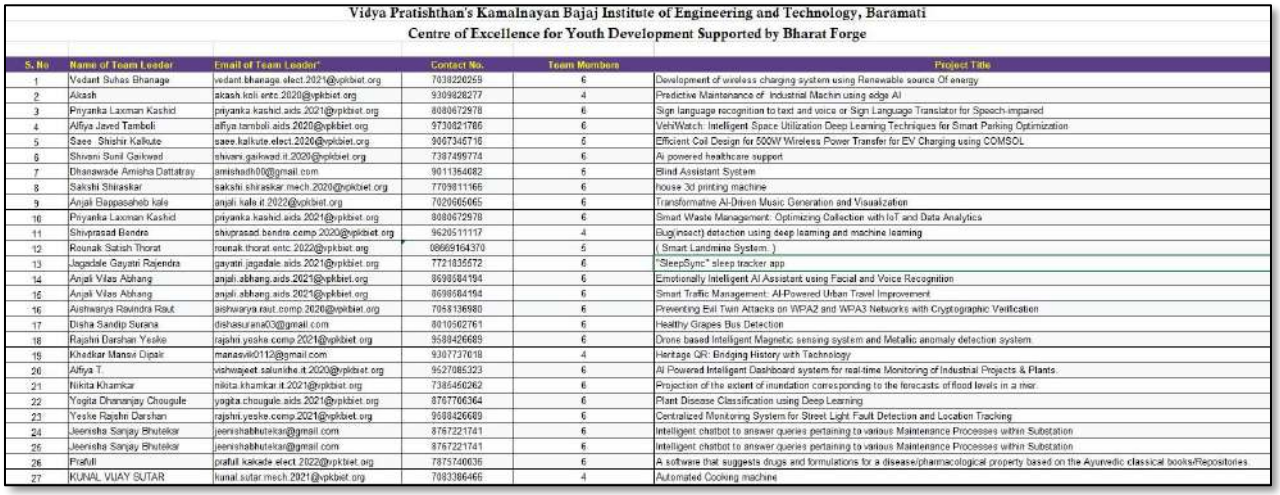
Students list admitted for project in AY-2022-23

Gr. No.	Title of Project	Team Leader	Branch
1.	Fog Collision Detection System	Riya Dhandhuke	IT
2.	SMART Seatbelt for CAR	Sonali Patil	TE ENTC
3.	Online platform to connect milk producers with dairy owners	Gawali Sujata	TE COMP
4.	Driver drowsiness detection system to prevent accidents	Vipashyana Jawale	TE AIDS
5.	Driver Drowsiness detection	Dipti Choudhari	TE ENTC
6.	Non - Invasive Human Vein Detector	Prajakta Yele	BE ENTC
7.	Bionic arm for handicapped people	Vaishnavi Kedar	BE ENTC
8.	Humanoid Robot	Shreya KIrdak	TE ENTC
9.	Hand Gesture Control Wheelchair	Mandar More	BE MECH
10.	Smart Delivery Robot	Lalwani Yash	BE MECH

11.	Detection of Over chemicals in consumable raw Food items	Sneha Bhaskar	TE AIDS
12.	Mechanism to help rural People to self-select for receiving benefit offered under govt. schemes	Aditi Bhalkar	TE Comp
13.	Vein Biometric recognition on smartphone	Sanika Gongari	TE AIDS
14.	Multimodal Emotion Recognition	Shivanjali Nimbalkar	TE AIDS
15.	Resolute : The Futuristic Bike	Swarali Babar	TE ENTC
16.	Solar Based Wireless charging systems of electrical vehicle	Sneha Bairagi	BE ENTC
17.	Application of machine learning in smart grid	Sanika Shedge	TE Electrical
18.	Design & development of solar power hybrid electrical vehicle charging station	Jagtap Sneha	TE Electrical
19.	Drone	Nisrga Pund	TE ENTC
20.	Development of industrial operations optimization	Divya Gaikwad	TE ENTC
21.	AI Based Personal Assistance	Abhishek Bhor	TE COMP
22.	Designing the website for Agro products	Vipashyana Jawale	TE AIDS
23.	App based solution to identify and solve disease in plants/Crops	Gauravi Deshmukh	TE IT
24.	Ecommerce for Artisan	Jagtap Vishakha	TE AIDS
25.	Ecommerce for Artisan	Radhika Vanarase	TE AIDS
26.	Identification of medicinal plants using image processing and drone	Vidya Ghogare	BE ENTC
27.	Machine learning based hardware application for charge scheduling of electric vehicle	Shende Puja	BE Elect.
28.	Mechanism to help rural people to self-select for receiving benefit offered under Govt. Schemes	Jaykumar Patil	TE IT
29.	Women Empowerment Web Application	Srushti Surpur	TE COMP
30.	Detection of crop disease with related information and suggestions regarding the organic and chemical	Jagtap Vishakha	TE AIDS

31.	Breast Cancer Classification	Gauri Maid	TE COMP
32.	Web based application for Food waste Management	Komal Panchal	TE COMP

Students list admitted for project in AY-2023-24



Vidya Pratishthan's Kamalnayan Bajaj Institute of Engineering and Technology, Baramati

Centre of Excellence for Youth Development Supported by Bharat Forge

S. No	Name of Team Leader	Email of Team Leader*	Contact No.	Team Members	Project Title
1	Vedant Suhas Bhanage	vedant.bhanage.elect.2021@vpkbiet.org	7038220259	6	Development of wireless charging system using Renewable source Of energy
2	Akash	akash.koli.entc.2020@vpkbiet.org	9309826277	4	Predictive Maintenance of Industrial Machin using edge AI
3	Priyanka Laxman Kashid	priyanka.kashid.aids.2021@vpkbiet.org	8080672978	6	Sign language recognition to text and voice or Sign Language Translator for Speech-impaired
4	Alfiya Javed Tamboli	alfiya.tamboli.aids.2020@vpkbiet.org	9730821786	6	VehiWatch: Intelligent Space Utilization Deep Learning Techniques for Smart Parking Optimization
5	Saee Shishir Kalkute	saee.kalkute.elect.2026@vpkbiet.org	9067346716	6	Efficient Coil Design for 500W Wireless Power Transfer for EV Charging using COMSOL
6	Shivani Sunil Gaikwad	shivani.gaikwad.it.2020@vpkbiet.org	7387499774	6	AI powered healthcare support
7	Dhanawade Amisha Dattatray	amishadh00@gmail.com	9011364082	6	Blind Assistant System
8	Sakshi Shiraskar	sakshi.shiraskar.mech.2020@vpkbiet.org	7709811165	6	house 3d printing machine
9	Anjali Bappasaheb kale	anjali.kale.it.2022@vpkbiet.org	7020665065	6	Transformative AI-Driven Music Generation and Visualization
10	Priyanka Laxman Kashid	priyanka.kashid.aids.2021@vpkbiet.org	8080672978	6	Smart Waste Management: Optimizing Collection with IoT and Data Analytics
11	Shivprasad Bendre	shivprasad.bendre.comp.2020@vpkbiet.org	9620511117	4	Bug(insect) detection using deep learning and machine learning
12	Rounak Satish Thorat	rounak.thorat.entc.2022@vpkbiet.org	08669164370	5	(Smart Landmine System.)
13	Jagadale Gayatri Rajendra	gayatri.jagadale.aids.2021@vpkbiet.org	7721835572	6	"SleepSync" sleep tracker app
14	Anjali Vilas Abhang	anjali.abhang.aids.2021@vpkbiet.org	9698584194	6	Emotionally Intelligent AI Assistant using Facial and Voice Recognition
15	Anjali Vilas Abhang	anjali.abhang.aids.2021@vpkbiet.org	9698584194	6	Smart Traffic Management: AI-Powered Urban Travel Improvement
16	Aishwarya Ravindra Raut	aishwarya.raut.comp.2026@vpkbiet.org	7058136980	6	Preventing Evil Twin Attacks on WPA2 and WPA3 Networks with Cryptographic Verification
17	Disha Sandip Surana	dishasurana03@gmail.com	8010562761	6	Healthy Grapes Bus Detection
18	Rajshri Darshan Yeske	rajshri.yeske.comp.2021@vpkbiet.org	9588426689	6	Drone based Intelligent Magnetic sensing system and Metallic anomaly detection system.
19	Khadkar Manse Dipali	manasvik0112@gmail.com	9307737618	4	Heritage QR: Bridging History with Technology
20	Alfiya T.	vishwajeet.salunkhe.it.2020@vpkbiet.org	9527085323	6	AI Powered Intelligent Dashboard system for real-time Monitoring of Industrial Projects & Plants.
21	Nikita Khamkar	nikita.khamkar.it.2021@vpkbiet.org	7385460262	6	Projection of the extent of inundation corresponding to the forecasts of flood levels in a river.
22	Yogita Dhananjay Chougule	yogita.chougule.aids.2021@vpkbiet.org	8767766364	6	Plant Disease Classification using Deep Learning
23	Yeske Rajshri Darshan	rajshri.yeske.comp.2021@vpkbiet.org	9588426689	6	Centralized Monitoring System for Street Light Fault Detection and Location Tracking
24	Jeenisha Sanjay Bhutekar	jeenishabhutekar@gmail.com	8767221741	6	Intelligent chatbot to answer queries pertaining to various Maintenance Processes within Substation
25	Jeenisha Sanjay Bhutekar	jeenishabhutekar@gmail.com	8767221741	6	Intelligent chatbot to answer queries pertaining to various Maintenance Processes within Substation
26	Prafull	prafull.kakade.elect.2022@vpkbiet.org	7875740036	6	A software that suggests drugs and formulations for a disease/pharmacological property based on the Ayurvedic classical books/Repositories.
27	KUNAL VIJAY SUTAR	kunal.sutar.mech.2021@vpkbiet.org	7083866466	4	Automated Cooking machine

Students list admitted for project in AY-2024-25

Gr. No.	Name of Student	Class	Branch	Project Title
1.	Unnati Avinashrao phulmante	BE	ENTC	Smart Water Distribution Monitoring System
	Vaibhavi Sandip Sawant	BE	ENTC	
	Utkarsha Abhimanu Sathe	BE	ENTC	
2.	Sarthak Arjun Dhumal	BE	ENTC	Performance Evaluation of IoT Air Pollution Monitoring System
	Mahesh Ramesh Mule	BE	ENTC	
	Sanket Suresh Pawar	BE	ENTC	
3.	Pushkaraj Ravindra Jadhav	BE	MECH	Design & Development of Automatic Fire Supression System For Evs
	Om Hari Shinde	BE	MECH	
	Rushikesh Devidas Musale	BE	MECH	
	Avinash Tanaji Chavan	BE	MECH	
4.	Patwadkar Shreya kulbhushan	TE	ENTC	Safety measures for elderly people
	Patil Gayatri Ashok	TE	ENTC	
	Shelke Nirmala Mukinda	TE	ENTC	
	Shete Harshada Arun	TE	ENTC	
	Chavan Ranjit Dattu	TE	ENTC	
5.	Pratik Balaso Shelke	BE	IT	Shielding Social Media: Detection of Offensive memes for Automated Moderation
	Sagar Kiran Ravandale	BE	IT	
	Siddhesh Vilas Patil	BE	IT	

6.	Ganesh Hanumant Deshmukh	BE	IT	Quantumshield : Post Quantum Protected Document Generation & Mailing System
	Abhishek Balkrishna Shelar	BE	IT	
	Pratik Dhananjay Choudhary	BE	IT	
7.	Kalkote Shravani Gangadhar	TE	ENTC	Smart anti air bag jacket for elders
	Kharade Abhijeet Anil	TE	ENTC	
	Lavate Pranjali Ashok	TE	ENTC	
	Suryawanshi Sandhyarani Sanjiv	TE	ENTC	
	Bhosale Adinath Somnath	TE	ENTC	
8.	Om Vijay Sawant	SY	AIDS	Smart Accident Detection and Emergency Response System
	Aryan Goraksha Navale	SY	AIDS	
	Aniket Sanjay Mule	SY	AIDS	
	Rohit Rajendrasing Meher	SY	AIDS	
	Sonali Dattatraya Pandit	SY	IT	
	Siddhi Ravindra Pawar	SY	IT	
9.	Farida Jamil Sayyad	TE	ENTC	Enhancing Body Detection in CSSR Operation using Advance Technology
	Shreya Rameshwar Mali	TE	ENTC	
	Sakshi Sandip Khaire	TE	ENTC	
	Pranita Sanjay Shinde	TE	ENTC	
	Prathamesh Shankar Shinde	TE	ENTC	
	Sourabh Sambhaji Savekar	TE	ENTC	
10.	Pratik Uttam Mhasawade	SY	ENTC	Ai Driven Smart Irrigation/Agriculture System
	Kulkarni Gauri Pramod	SY	AIDS	
	Kulthe Vedika Atul	SY	AIDS	
	Dhamal Niraj Anil	SY	ENTC	
	Kageru Sairaj Maroti	SY	AIDS	
	Saste Aniket Appaso	SY	ENTC	
11.	Shreya Sanjay Bhoite	SY	AIDS	Drone-Based intelligent ET sensing system and water irrigation system
	Vaishnavi Ganesh Kirve	SY	AIDS	
	Siddhi Anil Jadhav	SY	AIDS	
	Abhinav Ram Dhakpade	SY	AIDS	Stress and heartbeat monitoring system
	Sankalp Laxman Khatake	SY	AIDS	
12.	Raj Kodag	SY	COMP	Women Safety Analytics
	Kuldeep Lakhera	SY	COMP	
	Samruddhi Ranmode	SY	COMP	
	Snehal Shitole	SY	AIDS	
	Siddhi Salunke	SY	AIDS	
	Priyanka Pawar	SY	COMP	
13.	Vedika Bhandare	SY	COMP	Operator Training Manual/Videos
	Kalyani Bhosale	SY	COMP	
	Suyash Karche	SY	COMP	
	Shriyash Dhole	SY	COMP	

14.	Amit Anil Jadhav	SY	ENTC	Women's safety wristband
	Shrushti Jeevan Shewale	SY	ENTC	
	Vedika Nitin Gogawale	SY	ENTC	
	Riddhi Nitin Jagtap	SY	ENTC	
	Raviraj Bhosale	SY	ENTC	
	Abhishek Prakash Tiwari	SY	ENTC	
15.	Sakshi Yadav	SY	ENTC	Fertility detection of chicken eggs using AI
	shivanjali shinde	SY	ENTC	
	Shreya Bhosale	SY	ENTC	
16.	Shivendra Jagadale	SY	ENTC	Smart irrigation system using moisture sensors
	Supriya Pawar	SY	ENTC	
	Poorinima Vidya	SY	ENTC	
	Divyani Gawande	SY	ENTC	
17.	Pranav Vitthal Shedage	BE	MECH	Design & Fabrication Of Automatic Floor Cleaning Machine
	Vishal Thombare	BE	MECH	
	Yogesh Kale	BE	MECH	
	Yuvraj Waghmode	BE	MECH	
	Pratiksha Thombare	BE	MECH	
18.	Akanksha Kalantre	BE	E&TC	Multipurpose Agricultureal Robot
	Dnyaneshwari Jadhav	BE	E&TC	
	Sanskruti Bamane	BE	E&TC	
19.	Suraj shendge	TE	E&TC	Software based Printing
	Nageshwar hattimare	TE	E&TC	
	Shingavi Darshana	TE	E&TC	
	Kshirsagar Sakshi	TE	E&TC	
	Wani Gargi	TE	E&TC	
20.	Siddhi Nanaso More	BE	E&TC	Autonomous Drone Delivery
	Disha Sandip Surana	BE	E&TC	
	Akshata S.Shendge	BE	E&TC	
21.	Shravani Mangesh Kadam	BE	ENTC	Automated Shopping Trolley
	Rutuja Savata nanavare	BE	ENTC	
22.	Teli Sonali Tatyaba	BE	ELECT	Smart vehicle with portable charging infrastructure
	Bhosale Saurabh Avinash	BE	ELECT	
	Sathe Akash Ajit	BE	ELECT	
	Ghadge Pruthviraj Pratapsingh	BE	ELECT	
	Gawade Rohan Santosh	BE	ELECT	
	Taware Akshay Krushna	BE	ELECT	
23.	Kaveri Sharma	SY	COMP	Smart and effective real time management of hospitality
	Satvik Rokade	SY	COMP	
	Piyush Wath	SY	COMP	
	Rajat Bawane	SY	COMP	

	Kalyani Agarwal	SY	COMP	
	Saee Patil	SY	COMP	
24.	Jagtap Ankita Santosh	SY	AI & DS	High-Fly Warehouse Drone System.
	Girnar Himanshu Rajesh	SY	AI & DS	
	Kageru Sairaj Maroti	SY	AI & DS	
	Kalaskar Tanishq Arjun	SY	AI & DS	
	Kulkarni Gauri Pramod	SY	AI & DS	
	Kulthe Vedika Atul	SY	AI & DS	
25.	Ingale Shravani Ashok	SY	COMP	Business Improvement Platform
	Kapse Samiksha Sachin	SY	COMP	
	Gaikwad Shrushti Ranjit	SY	COMP	
	Dhage Ankita Subhash	SY	COMP	

Projects Outcomes

Copyright

1. A **copyright** was published based on the ongoing project "Smart Helmet Detection System: An IoT- Based Solution for Enhanced Safety." The project makes use of Arduino Uno, pressure sensor/IR sensor, Magnetic sensor, sender and receiver Wi-Fi module for the project. The project is beneficial to identify the availability of helmet for the workers and thus to reduce the accidents on the working area.

   The Team members for this project are Mr. Abhishek R. Raut, Ms. Kalyani K. Paliwal, Ms. Vaishnavi D. Damare, Mr. Rishi N. Nashikkar and Ms. Sakshi S. Shiraskar.

Extracts from the Register of Copyrights

कॉपीराइट कार्यालय, भारत सरकार | Copyright Office, Government Of India

Dated:16/06/2023

1	पंजीकरण संख्या/Registration Number	L-126452/2023
2.	आवेदक का नाम, पता तथा राष्ट्रीयता Name, address and nationality of the applicant	ABHISHEK RAJENDRA RAUT , AASHAPURA VILLAS SURYANAGARI BARATAMI PUNE-413133 INDIAN KALYANI K PALIWAL , VIDYA PRATISHTHAN'S KAMALNAYAN BAJAJ INSTITUTE OF ENGINEERING AND TECHNOLOGY-413133 INDIAN VAISHNAVI D. DAMARE , VIDYA PRATISHTHAN'S KAMALNAYAN BAJAJ INSTITUTE OF ENGINEERING AND TECHNOLOGY-413133 INDIAN RISHI N. NASHIKKAR , VIDYA PRATISHTHAN'S KAMALNAYAN BAJAJ INSTITUTE OF ENGINEERING AND TECHNOLOGY-413133 INDIAN SAKSHI S. SHIRASKAR , VIDYA PRATISHTHAN'S KAMALNAYAN BAJAJ INSTITUTE OF ENGINEERING AND TECHNOLOGY-413133 INDIAN
3.	कार्य के कॉपीराइट में आवेदक की रुचि की प्रकृति Nature of the applicant's interest in the copyright of the work	AUTHOR
4.	कार्य का वर्ग और विवरण Class and description of the work	LITERARY: DRAMATIC WORK SMART HELMET DETECTION SYSTEM AN IOT BASED SOLUTION FOR ENHANCED SAFETY
5.	कार्य का शीर्षक Title of the work	SMART HELMET DETECTION SYSTEM AN IOT BASED SOLUTION FOR ENHANCED SAFETY
6.	कार्य की भाषा Language of the work	ENGLISH
7.	लेखक का नाम, पता और राष्ट्रीयता तथा यदि लेखक की मृत्यु हो गई है, तो मृत्यु की तिथि Name, address and nationality of the author and if the author is deceased, date of his decease	ABHISHEK RAJENDRA RAUT , AASHAPURA VILLAS SURYANAGARI BARATAMI PUNE-413133 INDIAN KALYANI K PALIWAL , VIDYA PRATISHTHAN'S KAMALNAYAN BAJAJ INSTITUTE OF ENGINEERING AND TECHNOLOGY-413133 INDIAN VAISHNAVI D. DAMARE , VIDYA PRATISHTHAN'S KAMALNAYAN BAJAJ INSTITUTE OF ENGINEERING AND TECHNOLOGY-413133 INDIAN RISHI N. NASHIKKAR , VIDYA PRATISHTHAN'S KAMALNAYAN BAJAJ INSTITUTE OF ENGINEERING AND TECHNOLOGY-413133 INDIAN SAKSHI S. SHIRASKAR , VIDYA PRATISHTHAN'S KAMALNAYAN BAJAJ INSTITUTE OF ENGINEERING AND TECHNOLOGY-413133 INDIAN
8	कार्य प्रकाशित है या अप्रकाशित Whether the work is published or unpublished	UNPUBLISHED
9	प्रथम प्रकाशन का वर्ष और देश तथा प्रकाशक का नाम, पता और राष्ट्रीयता Year and country of first publication and name, address and nationality of the publisher	N.A.
10	बाद के प्रकाशनों के वर्ष और देश, यदि कोई हो, और प्रकाशकों के नाम, पते और राष्ट्रीयताएँ Years and countries of subsequent publications, if any, and names, addresses and nationalities of the publishers	N.A.
11	कार्य में कॉपीराइट रखने विभिन्न अधिकारों के स्वामियों के नाम, पते और राष्ट्रीयताएं और अनुज्ञप्तियों और असाइनमेंट के विवरण के साथ प्रत्येक के अधिकार की सीमा, यदि कोई हो Names, addresses and nationalities of the owners of various rights comprising the copyright in the work and the extent of rights held by each, together with particulars of assignments and licences, if any	ABHISHEK RAJENDRA RAUT , AASHAPURA VILLAS SURYANAGARI BARATAMI PUNE-413133 INDIAN KALYANI K PALIWAL , VIDYA PRATISHTHAN'S KAMALNAYAN BAJAJ INSTITUTE OF ENGINEERING AND TECHNOLOGY-413133 INDIAN VAISHNAVI D. DAMARE , VIDYA PRATISHTHAN'S KAMALNAYAN BAJAJ INSTITUTE OF ENGINEERING AND TECHNOLOGY-413133 INDIAN RISHI N. NASHIKKAR , VIDYA PRATISHTHAN'S KAMALNAYAN BAJAJ INSTITUTE OF ENGINEERING AND TECHNOLOGY-413133 INDIAN SAKSHI S. SHIRASKAR , VIDYA PRATISHTHAN'S KAMALNAYAN BAJAJ INSTITUTE OF ENGINEERING AND TECHNOLOGY-413133 INDIAN

Registrar of Copyrights

Participation of students in Competitions

1. Project sugarcane cutting machine received First prize at zonal level of Avishkar 2023 Competition. Name of Student: Mr. Abhishek Raut
2. Second prize at Idea Spark innovation Competition 2023 organized by Nashik Engineering Cluster

First prize at zonal level of Avishkar 2023

Second prize at NEC Idea Spark Competition 2023

3. Participation in eYantram 2023 Competition: Mr. Abhishek Raut and Ms. Kalyani Paliwal participated in the eYantram 2023 project competition on November 6, 2023.

Patents

Patent Details

- Title of Invention: Multipurpose Egg Hatcher Machine
- Patent Granted By: Indian Patent Office
- Grant Date: November 11, 2024

Inventors:

1. Mr. Paigambar Shaikh

2. Dr. Jyoti Rangole

Significantly reduces dependency on expensive imported hatching systems.

Impact on Rural Economy:

This innovation is a game-changer for rural areas:

1. Economic Benefits:
    a. Enhances productivity and reduces wastage for small-scale poultry farmers.
    b. Offers homemakers and rural entrepreneurs a chance to generate additional income.

2. Rural Development:
    a. Drives growth in the rural economy by empowering local communities with affordable technology.

पेटेंट कार्यालय,भारत सरकार
पेटेंट प्रमाण पत्र |
The Patent Office, Government Of India
Patent Certificate

पेटेंट सं. / Patent No. 383868
आवेदन सं. / Application No. 201921038268
फाइल करने की तारीख / Date of Filing 23/09/2019
पेटेंटी / Patentee 1.PAIGAMBAR R. SHAIKH 2.JYOTI S. RANGOLE
आविष्कारकों का नाम /Name of Inventor(s) 1.PAIGAMBAR R. SHAIKH 2.JYOTI S. RANGOLE

एतद्वारा सिद्ध किया जाता है कि पेटेंटी को उपरोक्त आवेदन में पेशकशदीत "MULTIPURPOSE EGG HATCHER MACHINE" नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख दिनांक 2019 से तीसरे वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled "MULTIPURPOSE EGG HATCHER MACHINE" as disclosed in the above mentioned application for the term of 20 years from the 23rd day of September 2019 in accordance with the provisions of the Patents Act,1970.

Date of Grant : 04/11/2024

Controller of Patents

Research Paper Publications

Title of Paper: : "V2V Conductive Charging"

Author: Mr. Ghadage Prithviraj

Class: B.E. in Electrical Engineering

Conference Details:

Event: IEEE Conference on Sustainable Solutions for Distributed Energy and Electrification (SSDEE-2025)

Dates: February 28th to March 2nd, 2025

This research by Mr. Ghadage Prithviraj focuses on the V2V (Vehicle-to-Vehicle) conductive charging technology, which presents innovative solutions for sustainable energy in electric vehicle (EV) charging systems. The paper will be presented at the IEEE SSDEE-2025, which brings together experts in the field of distributed energy and electrification to share insights and advance sustainable energy solutions.

Summary:

S. No	Outcomes	Nos.
Total no. of students participated in Project Based Learning (PBL)		
	AY 2022-23	32 * 6 = 192
	AY 2022-23	27 * 6 = 162
	AY 2023-24	25 * 6 = 150
1.	Patents	01 (Granted) 02 (Under Examination)
2.	Copyrights	01 (Published)
3.	Publications (Journals and Conferences)	01 (IEEE Conference)
4.	Participations (Project Competitions, hackathons etc)	03
5.	Awards/Prizes	02
6.	MoUs	01

Beneficiaries of the CoE and their Campus Placement Details

Sr.No.	Name of Student	Name of Company	Branch	Pass out Year
1	Alfiya Tamboli	Capgemini Technology Services India Limited	Artificial Intelligence and Data Science	2024
2	Atharva Gosavi			
3	Abhishek Raut			
4	Shreyas Kulkarni			
5	Rushikesh Shinde	Capgemini Technology Services India Limited, Tata Consultancy Services		
6	Selvin Salve	Tata Consultancy Services		
7	Yash Padhaye	InOrg Global India Pvt. Ltd.		
8	Adiraj Patil	Capgemini Technology Services India Limited	Electronics and Telecommunication Engineering	2024
9	Om Mohite	TMEIC		2024
10	Disha Surana	Infosys		2025

Activities at CoE

The CoE actively organizes workshops, expert talks, guest lectures, and webinars, internships for Vidya Pratishthan Engineering students as well as school students. These sessions focus on cutting-edge technologies, providing valuable exposure to the latest advancements.

Summary of Activities:

S. No	Activity Title	Activity Type	Date of Activity	No. of Participants
1.	3D Printing Technology	Short Term Training Programs (STTP)	28th Mar-2023	51
2.	Patent Drafting Session	Expert Lecture	11th Sept-2023	58
3.	Role of Soft Aspects in Technological Development	Expert Lecture	15th Sept-2023	60
4.	Smart India Internal Hackathon - SIH-2023	Competition	26th Sept-2023	300
5.	How to Write and Publish Research Paper in Reputed Journals	Expert Lecture	13th Oct-2023	100
6.	Start-up Ecosystem India and Globe	Expert Lecture	18th Oct-2023	60
7.	Arduino Programming and Simulations	Workshop	21st -22nd Oct-2023	36
8.	Robotics and Automation	Workshop	20th Dec-2023	55
9.	3D Printing	Workshop	22nd Dec-2023	50
10.	3D Printing	Workshop	26nd Dec-2023	50
11.	IPR and IP Management for Start Ups	Workshop	25th July-2024	150
12.	Artificial Intelligence	Short Term Training Programs (STTP)	12-14th Jan-2024	60
13.	Robotics and Automation	Short Term Training Programs (STTP)	10th Jan-2024	60
14.	3D Printing	Short Term Training Programs (STTP)	15th Jan-2024	20
14.	Internet of things	Short Term Training Programs (STTP)	11th Jan-2024	60
15.	Call for an Incubation Centre	-	08th Jan-2024	-

Internship at CoE

The Bharat Forge Supported Centre of Excellence at Vidya Pratishthan has announced a call for an internship program aimed at Third Year Engineering students. The internship will have a duration of 4 weeks, and students can participate in the program after their regular academic sessions. The internship is structured to offer learning through shadowing and/or project-based work. Additionally, training will be provided to students based on their individual needs and the requirements of the projects they are involved in.

The internship covers the following domains:

- Internet of Things (IoT)
- Machine Learning and Artificial Intelligence (AI)
- Robotics and Automation
- 3D Printing

This program offers students an excellent opportunity to gain hands-on experience in cutting-edge technologies and contribute to projects while enhancing their skills in these rapidly evolving fields.

Number of students Completed Internship program: 2023-2024- 66

Number of students Enrolled for Internship program 2024-2025- 27

Glimpses of Activities at CoE

Outreach Programs

The Centre of Excellence (CoE) regularly participated in a CSR meeting where its initiatives and activities were presented to Hon. Shri. Babasaheb Kalyani, Chairman of Bharat Forge. The meeting focused on showcasing the CoE's impact, detailing its contributions to youth development, skill enhancement, and entrepreneurship.

The Centre of Excellence (CoE) represented by the team participated in the "**Yuwashakti Career Shibhir**" organized by the Department of Skills, Employment, Entrepreneurship, and Innovation, Government of Maharashtra. The event aimed to empower and guide students and young professionals by providing insights into career opportunities, skill development, and entrepreneurship.

During the session, CoE shared its resources and programs related to technical skill development, entrepreneurship, and industry-academia collaboration. Emphasizing on hands-on training, project-based learning, and internships, CoE also highlighted the various opportunities available for students to enhance their technical skills in emerging technologies such as IoT, AI, Robotics, 3D Printing, and more.

The participation helped the CoE to connect with a broader audience, showcase its state-of-the-art infrastructure, and attract interest from students and young entrepreneurs who wish to develop their skills and ideas in collaboration with the CoE**.**

Represented CoE at "Yuwashakti Career Shibhir" organised by Department of Skills, Employment, Entrepreneurship and Innovation, government of Maharashtra

Interaction of Industry/Society and CoE

Project-01: The Centre of Excellence (CoE) has received a request from Fine Dies and Moulds Pvt. Ltd., located in Pune, to produce 15 units of a 3D printed tool holder. This report outlines the process from the receipt of the request to the final production, including design considerations, material selection, and quality assurance procedures. The project was coordinated by **Dr. Vipin B. Gawande.**

Objectives

The primary objectives of this project are:

1. To design a robust and functional tool holder that meets the specific needs of Fine Dies and Moulds Pvt. Ltd.
2. To utilize 3D printing technology to efficiently produce 15 high-quality tool holders.
3. To ensure timely delivery and adherence to the specifications provided by the client.

Request Details

1. Client: Fine Dies and Moulds Pvt. Ltd.
2. Location: Pune
3. Quantity: 15 tool holders
4. Purpose: Organize and store various tools used in the client's manufacturing processes.
5. Specifications: The client provided specific dimensions and requirements for the tool holder, including compartments for different tool sizes and a durable structure to withstand industrial use.

Material Selection

For the tool holders, a high-strength thermoplastic polymer, such as ABS (Acrylonitrile Butadiene Styrene) and PLA (Poly Lactic Acid), was selected due to its durability, resistance to wear and tear, and suitability for industrial applications.

The CoE demonstrated its capability to deliver high-quality, customized solutions using advanced 3D printing technology. This project not only met the client's specific needs but also reinforced the CoE's position as a leader in innovative manufacturing solutions.

3D printing for Tool Holder for Consultancy project

Final 3D printed Parts for Dispatch

CoE Future Extension:

Laboratory Development

The Center of Excellence (CoE) is taking a significant step forward by expanding its capabilities in Drone, Augmented Reality (AR), and Virtual Reality (VR) technologies. A purchase order has already been initiated to procure the necessary equipment and software to facilitate these advancements. **CoE is looking forward to procure AI-Enabled hardware and drones with AI capabilities**

These emerging technologies will play a crucial role in enhancing students' learning experiences by offering hands-on training, industry-relevant skill development, and opportunities for innovative projects. The CoE aims to leverage Drone technology for applications such as aerial mapping, surveillance, and automation, while AR and VR will be integrated into design visualization, simulation-based learning, and virtual prototyping.

This expansion will provide students with immense benefits through:

1. Workshops and training programs to develop practical skills.
2. Industry collaborations to align with the latest technological advancements.
3. Capstone and research projects utilizing Drone, AR, and VR applications.
4. Enhanced learning experiences through interactive and immersive simulations.

This initiative will prepare students for future career opportunities in advanced manufacturing, automation, smart design, and digital engineering domains.

Skill Development

Looking forward, the BFL CoE Lab can build on its current momentum by further advancing its capabilities, expanding its influence, and fostering innovation. Below is a future roadmap to ensure the lab stays ahead of the curve in AI, IoT, robotics, and other cutting-edge technologies.

1. Project-Based Learning
    a. Increasing the number of projects
    b. Enhancing Project Outcomes (Quality & Impact): Increase the number of patents to 10 and copyrights to 20, publications to 20
2. Industry Collaborations & Sponsored Research
    a. Conduct hackathons and innovation challenges in collaboration with companies.
    b. Proposal submission for attracting research grants in collaboration with academia and industry.
    c. Strengthening collaboration with agriculture institutes, healthcare sector to work on real life problems
3. Certifications
    a. Collaboration with Skill India & NSDC
4. Extended Lab Utilization & Community Engagement
    a. Introduce weekend AI/ML boot camps for students and faculty.
    b. Provide lab access to external researchers and start-ups.
    c. Conduct AI/ML workshops and FDPs for faculty members across institutions.
5. Expanding access to the BFL CoE Lab for students beyond VPKBIET to foster interdisciplinary collaboration, innovation, and knowledge exchange.

Students' Testimonials

<table>
<tr><td> </td><td>Name: Mandar More
Branch: Mechanical Engineering
B.E. (Mechanical Engineering) 2023 Passout
Pursuing M.Tech. (Robotics and Automation)</td></tr>
<tr><td colspan="2">At the Bharat Forge Centre of Excellence at Vidya Pratishthan's Baramati, I worked on a Hand Gesture Controlled Wheelchair to enhance mobility for individuals with disabilities as my undergraduate project. This project allowed me to explore sensor integration, real-time motor control, and assistive technology applications. Through this, I gained hands-on experience in embedded systems, IoT, and automation, further strengthening my expertise in robotics and human-machine interaction. The project is supported and sponsored by the Bharat Forge Centre of Excellence at Vidya Pratishthan's Baramati. The development of the project was done at the CoE.</td></tr>
<tr><td> </td><td>Name: Abhishek Raut
Branch: Artificial intelligence and data science
Batch: 2024 Passout
Placement: Capgemini</td></tr>
<tr><td colspan="2">During my time at the Bharat Forge Centre of Excellence at Vidya Pratishthan's Baramati, I had the opportunity to work in a state-of-the-art lab equipped with high-configuration computers and IoT-based sensors. The environment provided a perfect setting for implementing advanced machine learning models and real-time data processing. My project focused on detecting Air Quality Index (AQI) using machine learning, where I utilized sensor data to predict and analyse pollution levels. Working in this lab enhanced my hands-on experience in IoT-integrated AI applications and real-time environmental monitoring. The exposure to cutting-edge technology and industry collaborations significantly strengthened my skills in data-driven decision-making.</td></tr>
</table>

<table>
<tr><td> </td><td>Name : Kalyani Paliwal
Branch: Artificial intelligence and data science
Batch: 2024 Passout
Placement: Capgemini</td></tr>
<tr><td colspan="2">At the Bharat Forge Centre of Excellence at Vidya Pratishthan’s Baramati, I also worked on a Smart Helmet Detection System using computer vision. The project aimed to enhance road safety by automatically detecting whether a rider was wearing a helmet. Using high-configuration computers and IoT-based sensors, I developed a deep learning model that analysed real-time video feeds to identify helmet usage. The system leveraged YOLO for object detection and OpenCV for image processing, ensuring accurate and efficient detection. This project gave me hands-on experience in real-time AI applications, computer vision, and IoT integration, further refining my expertise in AI-driven safety solutions. We filed a copyright on the project, Smart Helmet that developed during our time at BFL CoE.</td></tr>
<tr><td> </td><td>Name : Radhika Vanarse
Branch: Artificial intelligence and data science
Batch: 2024 Passout
Placement: Capgemini</td></tr>
<tr><td colspan="2">At the Bharat Forge Centre of Excellence at Vidya Pratishthan's Baramati, I worked on a Retina Disease Detection system using computer vision. The project aimed to assist in early diagnosis by analysing retinal images for signs of diseases like diabetic retinopathy and glaucoma. I utilized deep learning models, particularly CNN-based architectures, for image classification and segmentation. The system processed high-resolution medical images to detect abnormalities with high accuracy. This experience deepened my understanding of medical image processing, AI in healthcare, and real-time diagnostic applications, reinforcing my expertise in computer vision for medical advancements. We filed for copyrights on the projects we developed during our time at BFL CoE.</td></tr>
</table>

Name: Rushikesh Shinde

Branch: Artificial intelligence and data science

Batch: 2024 Passout

Placement: TCS, Capgemini

At the Bharat Forge Centre of Excellence at Vidya Pratishthan's Baramati, I worked on a Plant Disease Detection system using computer vision. The project aimed to identify and classify plant diseases by analysing leaf images. I implemented deep learning models, specifically CNN architectures, to detect symptoms like blight, rust, and mildew with high accuracy. Using OpenCV for image pre-processing and TensorFlow/PyTorch for model training, the system provided real-time disease identification. This project enhanced my skills in AI-driven agricultural solutions, image classification, and deep learning for precision farming, contributing to smarter and more efficient crop monitoring.

Name - Adiraj Patil

Branch -Electronic and Telecommunication

Pass out year – 2024 Passout

Placement: Capgemini

During my college days, I had developed two projects utilizing the infrastructure provided by the Bharat Forge Centre of Excellence under the guidance of Dr. Rangole madam. The centre gave me access to the latest high-end PCs, which were essential for our projects, along with development boards alike Raspberry Pi, Arduino and other electronics component support that required for successful completion of our work. This facility allowed me to work with cutting-edge technology, enhancing my technical proficiency. Additionally, I received valuable guidance from industry experts, which helped me understand real-world applications better. The hands-on experience with advanced tools and expert mentorship significantly contributed to my learning. This exposure and experience also played a crucial role in helping me secure my placement

Faculty Testimonials

<table>
<tr><td> </td><td>Name: Dr. Jyoti Rangole

Designation: Associate Professor-Dept. E&TC Engineering

Head, Centre of Excellence for Youth Development Supported by Bharat Forge</td></tr>
<tr><td colspan="2">The CoE is a golden platform for the students from rural background to nurture their skills in cutting edge technologies. Woking as a Head of CoE is an honour and a responsibility that I deeply value. Skill development through project-based learning and training programs have empowered students to work on real-world solutions. The lab’s advanced computing resources and mentorship-driven approach have helped students excel in cutting edge technologies like AI, IoT, Robotics, 3D Printing and multidisciplinary research. With extended resources like drones, AR, and VR, students will be equipped to explore immersive technologies and next-generation automation.

I have completed a Postgraduate Program in AI and ML in 2024 from Texas University, Austin in association with Great Learning. During this journey, I had the opportunity to leverage the CoE computing facilities, which proved invaluable for my projects.

I am sincerely grateful to Bharat Forge Ltd. and Vidya Pratishthan, Baramati, for providing such exceptional computing facilities at the Vidya Pratishthan Campus. I am also grateful to Bharat Forge for their financial support towards my patent.

I am honored to lead this journey of excellence and impact.</td></tr>
<tr><td> </td><td>Name: Dr. Vipin Bhaskarrao Gawande

Designation: Assistant professor, Department of Mechanical Engineering

Head, Centre of Excellence for Youth Development Supported by Bharat Forge</td></tr>
<tr><td colspan="2">Working as a Head of CoE is privilege for me. I have worked extensively with the 3D printing resources available at Bharat Forge, utilizing advanced manufacturing techniques to enhance learning. I have also conducted various workshops and short-term training programs for school</td></tr>
</table>

students and undergraduate students, equipping them with practical skills in 3D printing and design.

Along with students associated with Bharat Forge Supported CoE in Project Based Learning, we have designed and developed numerous 3D-printed parts essential for their projects. I have also provided an industry-based solution using 3D printing technologies available at CoE.

Additionally, I have leveraged the computing facilities from the Center of Excellence (CoE) for my Augmented Reality (AR) projects. With strong industry collaboration, Bharat Forge is now supporting us in expanding Virtual Reality (VR) technology at the CoE by providing Head-Mounted Displays (HMDs) for AR, VR, and Extended Reality (XR) applications.

Name: Mr. Digambar Padulkar

Designation: Assistant Professor-Dept. AIDS

I am Digambar Padulkar, a faculty member in the Department of Artificial Intelligence & Data Science, currently pursuing a PhD in Quantum Cryptography.

I installed and used IBM Qiskit, a framework for quantum computing applications, on BFL server-class machines. This allowed me to compute the results of our secure access structure implementation using Quantum Fourier Transforms on 512×512 DICOM images. This unique computing facility, equipped with GPUs, significantly accelerated my work.

Thanks to BFL CoE and VPKBIET, Baramati.

Name: Mr. Rajkumar V. Panchal

Designation: Assistant Professor-

Dept. Information Technology Engineering

I am recently working in a deep learning model for project implementation, I had the opportunity to leverage the CoE computing facilities, which proved invaluable for my projects.Thanks to these resources, I used a computing facility to implement and iterate through Deep learning models for the project, Each trial of the project provided me with deeper knowledge about factors affecting the implementation of deep learning projects.

Vidya Pratishthan's Center of Excellence for Youth Development Focusing on Women Empowerment
Supported by Bharat Forge Pvt. Ltd.

Overall Assessment for CoE

Criteria	Excellent (5)	Very Good (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)	Remarks
Vision & Objectives		**4**				The vision and mission of the institution are clearly articulated, providing a strong foundation for growth and development. More efforts are expected towards more participation by girl students.
Infrastructure & Resources	**5**					The Center of Excellence (CoE) currently encompasses four advanced labs—AI, Data Analytics, IoT, and Robotics & 3D Printing—along with a dedicated incubation center. The CoE has already initiated efforts to establish additional facilities, including a Drones Lab and a VR Lab.
Industry Relevance Activities			**3**			Currently there are a limited number of industry-relevant activities. More activities in terms of MoU's with the industry from different domains, Consultancy Projects, Customized Trainings for industry persons are expected.
Research & Innovation outcomes			**3**			Limited no. of patents and publications by students and faculty.
Skill Development & Training		**4**				Around 14 events in the form of expert lectures, workshops, competitions, and short-term training programs have been arranged by COE. The detailed information is included in the report. [refer page no.: 23] The organization of high-impact events like the Smart India Internal Hackathon and incubation- related initiatives further strengthens innovation and entrepreneurial mindsets.
Student & Faculty Engagement		**4**				The CoE has established a structured and supportive framework for student and faculty engagement through its project proposal invitation and evaluation process. By providing access to advanced lab facilities, the CoE fosters innovation and hands-on learning among students from FE to BE. The consistent number of projects undertaken—32 in 2022-23, 27 in 2023-24, and 25 in 2024-25 demonstrates sustained interest and participation. More no. of faculty should involve in COE activity.

Mentorship & Guidance		**4**				The provision is there to utilized mentors from Industry. The CoE has effectively utilized external mentorship for the AI project this year. More no. of faculty from the institute or from outside institute can be engaged to guide the students.
Community & Outreach Activities			**3**			The CoE has initiated activities in community and outreach activities. Few workshops on 3D printing has been conducted for school going students. More no. of such workshops, Hackathons, guest lecturers can be arranged by the COE.
Financial Sustainability					**1**	A steady revenue stream to enhance the CoE's ability to invest in advanced technologies and resources, to benefit the students and the industry is expected.
Overall Impact		**4**				The CoE has made significant strides in fostering innovation, skill development, and research, demonstrating a clear commitment to advancing technology and student engagement. Its robust framework for mentorship, industry collaboration, and project-based learning has resulted in notable achievements, including intellectual property creation, publications, and successful participation in competitions. The diverse range of training programs, workshops, and expert lectures has contributed to the growth of both students and faculty, enhancing their practical knowledge and industry readiness.

Name and Sign of External Auditor

Dr. Arati Mulay
Associate Professor
Dept. of Manufacturing Engineering & Industrial Management
COEP, Technological University, Pune

CoE In-Charge

Dr. Jyoti Rangole
Associate Professor
Dept. of E&TC Engineering
VPKBIET, Baramati

CoE In-Charge

Dr. Vipin Gawande
Assistant Professor
Dept. of Mechanical Engineering
VPKBIET, Baramati

Vidya Pratishthan's Center of Excellence for Youth Development Focusing on Women Empowerment
Supported by Bharat Forge Pvt. Ltd.

Rubrics for Project Based Learning at CoE

Criteria	Excellent (5)	Very Good (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)	Remarks
Significance of Problem Statement	**5**					The CoE has effectively addressed relevant problem statements with moderate industry and academic significance, often sourcing them from the prestigious Smart India Hackathon, where many problem statements are provided by renowned and government- funded industries and ministries.
Technical Skill Enhancement		**4**				The CoE has made efforts in providing skill-based knowledge and training to FE to BE students, going beyond the traditional curriculum through workshops and project-based learning. The major focus areas of these projects are Agriculture, Healthcare, and Industrial Automation etc. which needs technical skill sets of Artificial Intelligence, Machine Learning, App. Development, and Internet of Things.
Soft Skills & Professional Development			**3**			During the assessment process of the projects, the student has to present their work. These presentations provide students with an opportunity to refine their communication, presentation, and interpersonal skills, which are essential for their future careers. In addition to the presentation, students can submit the reports.
Industry & Practical Exposure			**3**			Current focus of CoE is on problem statements with moderate industry and academic significance. To improve, industry – Practical exposure, it is necessary to focus on industry-based problem by arranging guest lecturers from experts, organizing more industry visits.
Assessment & Certification				**2**		No structured pattern is available in a current mode to evaluate student's project work. Periodical review presentations followed by major presentation assed by industry expert is expected.

Feedback & Continuous Improvement					**1**	Feedback from industry expert about the projects after the final evaluation is expected.

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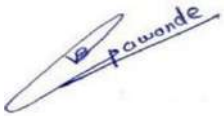

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Vidya Pratishthan's Center of Excellence for Youth Development Focusing on Women Empowerment
Supported by Bharat Forge Pvt. Ltd.

Rubrics for Workshops, Training and Webinars

Criteria	Excellent (5)	Very Good (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)	Remarks
Relevance & Significance	**5**					The workshops, training sessions, and webinars conducted by the CoE are highly relevant to both industry and academia. For the detailed list, refer page no. 23. Strengthening industry collaborations and incorporating more hands-on case studies can further enrich these programs.
Learning Objectives, Content Quality & Depth		**4**				The workshops, training sessions, and webinars cover emerging technologies such as AI, ML, 3D Printing, Robotics, and Automation, ensuring a comprehensive learning experience from basic to advanced levels. This structured approach helps students build strong foundational knowledge, gaining industry- relevant skills to promote Innovation & Research.
Trainer Expertise, Delivery & Engagement		**4**				The trainers conducting workshops and training sessions at the CoE come from industry and reputed organizations, ensuring high-quality, real-world insights.
Participant Engagement		**4**				The CoE ensures diverse participation, engaging students from FE to BE within the institution and school going students. Expanding outreach through collaborations with more institutions, interactive competitions, and customized training modules can further enhance engagement and learning outcomes for outside students.

Practical Application & Hands-on Learning using technology and resources		**4**				Students actively work on projects involving emerging technologies such as AI, ML, 3D Printing, AR & VR, Robotics & Automation, and IoT. To support this, the CoE provides state-of- the-art computing facilities and necessary hardware components, enabling hands-on learning and project development.
Feedback , Assessment & Impact on Participants		**4**				The CoE consistently conducts training sessions, workshops, and guest lecturers for students. Feedback is gathered after each activity, and student suggestions are thoughtfully integrated into future programs, ensuring continuous improvement and a more enriching learning experience.

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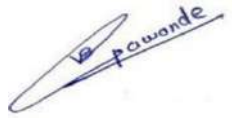

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Additional Remarks/Recommendations:

1. **A full time Lab manager can be appointed to enhance the activities of COE. He / She can help in communicating Industries, guiding students in their project work, conducting workshops and overall maintenance of the COE.**
2. **More no. of faculty from the institute is expected to join the activities of COE.**
3. **To achieve the financial sustainability, it is necessary to focus on industry based projects, consultancy and offering internship to the outside students on the chargeable basis.**