



Criteria 7 – INSTITUTIONAL VALUES AND BEST PRACTICES

INSTITUTIONAL BEST PRACTICE-II

Skills Enhancement: A Roadmap to Success

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1. Title of the Best Practice

“Skills Enhancement: A Roadmap to Success”

2. Objectives of the Practice

- To enhance the employability of students by making them industry ready.
- To impart necessary skills for employability.
- Skill enhancement is majorly on soft skills and Technical skills. Focusing on both the skills depending on requirement of student viz-a-viz Industry

3. The context

- The technologies and competencies required for Industry 4.0 and Research advances are dynamic and need to be updated by both students and faculty.
- Formal education may not meet all the required industry competencies. The gap analysis between Industry and Graduate competencies must be identified and addressed sometimes.
- Departments may not focus on contemporary and multidisciplinary training programs. A section is needed to collect requirements and plan training for focused outcomes.

4. Practice

- 2015- Establishment of School of skill Development (SSD)
- 2017-MoU with Central University of Punjab, Bathinda for research related collaborative activities.

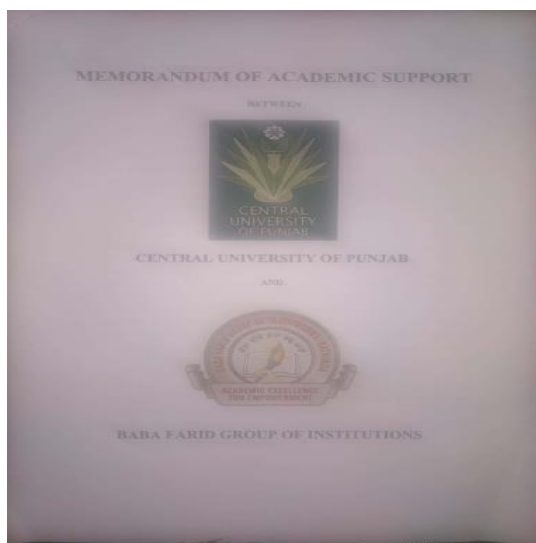


Figure 1: MOU with Central University of Punjab

- 2021-Established Centre of Excellence IAR Lab in collaboration with FESTO.



Figure 2: Centre of Excellence Poster

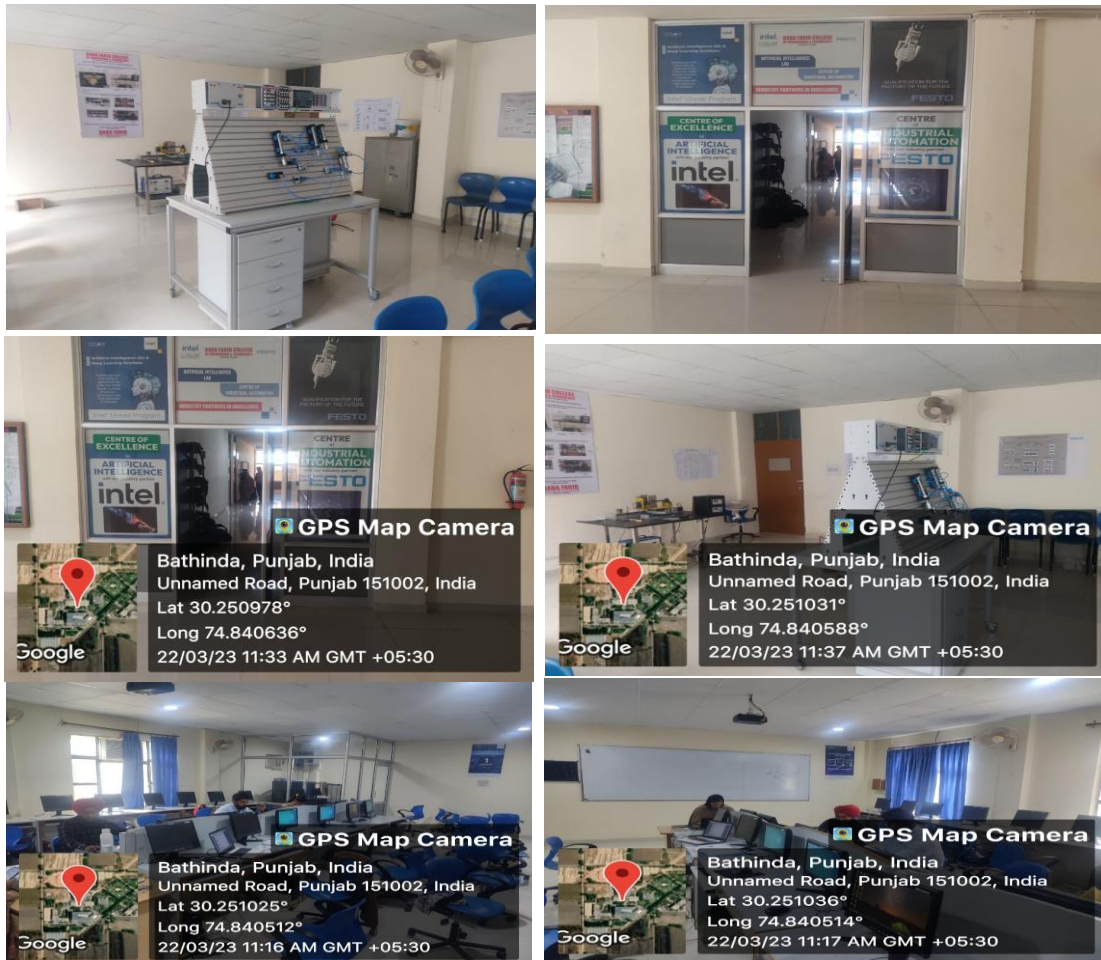


Figure 3: Glimpse on Center of Excellence

- 2021-MoU with AIIMS, Bathinda for interdisciplinary Projects.



Figure 4: AIIMS MOU Poster

- 2022- Established Centre of Excellence AI Lab in collaboration with INTEL INDIA.

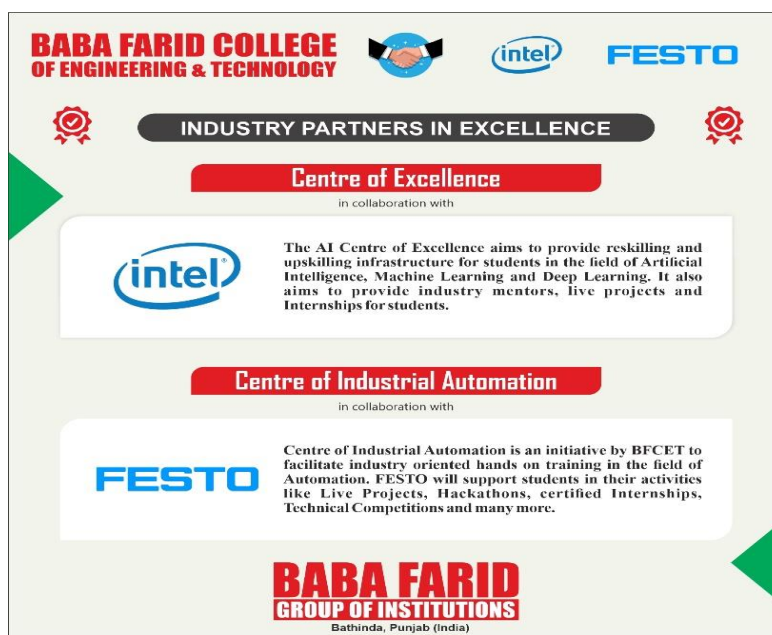


Figure 5: Centre of Excellence Poster

- 2022-MoU with Rubicon India for Personality Development Programmes for the students.

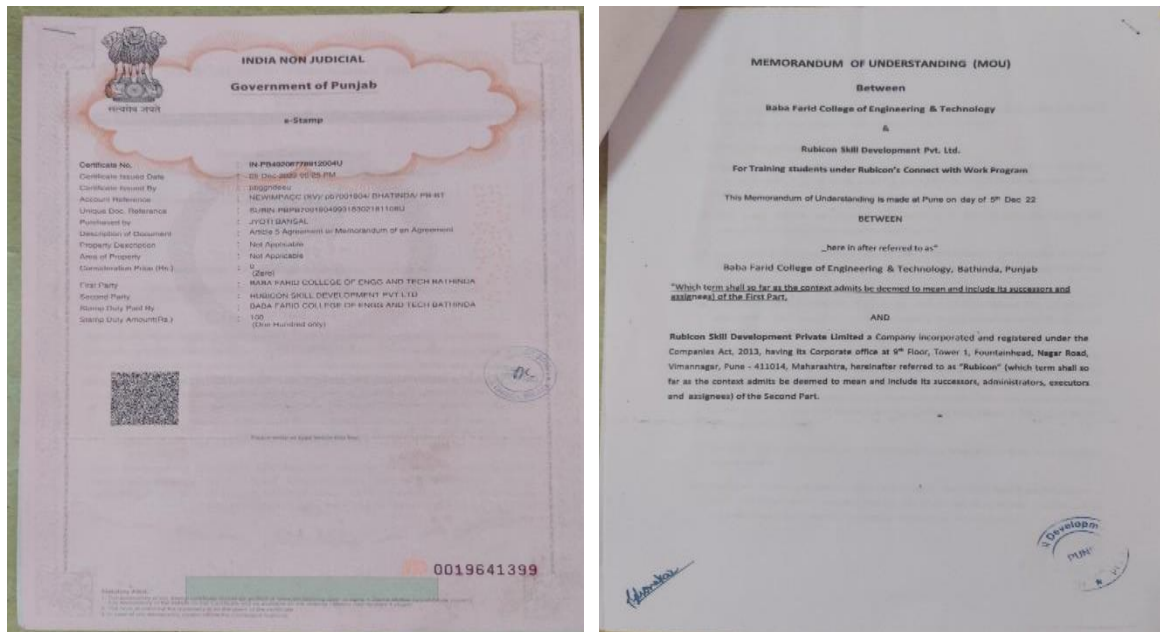


Figure 6: MOU with Rubicon India

- 2022-Collaboration with Ambuja Cement for organizing Joint Certificate courses for CE students.



Figure 7: Ambuja Trainings for BFCET Students

- 2022-Collaboration with PP Industry & Nirol Wires for organizing Joint Certificate courses for EE students.
- 2023- Established Centre of Excellence IoT Lab in collaboration with EdGate Technologies.
- 2023- MoU with Infosys for upskilling of Faculty and Students.
- Funding up to Rs 1 Lac for Live Projects prepared by students under Student Project Policy.

5. Evidence of Success:

- Outcomes are measured through placements, internships, highest packages, and Research etc. The number of students also increased in skill enhancement activities and the scenario of employability also improved in terms of % age of numbers of placements.

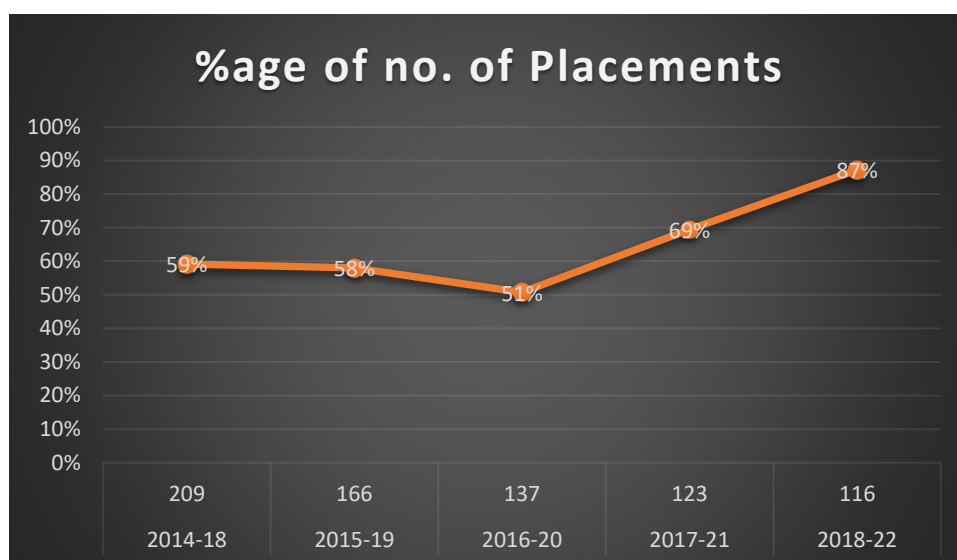


Figure 8: Graphical Representation of Placement data

- Approx. 25% students offered internships through SSD.
- 89 certificate courses were conducted to train 3073 students in the last 5 years and improved the threshold competencies.

Year 2021-22						
Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
Android App Development	CC_AAD	2022	1	32	30	30
Website Design and Development	CC_WDD	2022	1	43	51	51
Web Programming using PHP & MySQL	CC_WTP	2022	1	32	29	28
Advance Python Programming	CC_APP	2022	1	32	25	25
REVIT Software for Planning & Drawing	CC_RPD	2022	1	32	26	21
Introduction Practices in Civil	CC_IPC	2022	1	42	40	38
Drick Work Masonry	CC-DWM	2022	1	32	30	28
Fundamentals of AUTO CAD	CC-CAD02	2022	2	32	28	23
Industrial Automation	IA_012	2022	1	42	16	16
Fundamentals of Python	CCFP-02	2022	1	32	21	19
Analysis of Circuits using Multisim	CCACM-03	2022	1	32	47	43
Advanced Learning in Arduino and Raspberry Fundamentals	CCMAH-01	2022	1	42	45	42
Full Stack Web Development	CC_FSWD	2021	1	36	37	37
Advance Data Structure & Algorithm	CC_ADSA	2021	1	36	40	40
Basics of Network Security	CC_BSNS	2021	1	36	18	18
Introduction and implementation of neural networks	CC_NN	2021	1	42	45	42
Basic Matlab and Simulation of electrical system	CC_MEL&S	2021	1	32	21	19
Robotics: Emulation and Learning	CC_REE	2021	1	32	45	43
Building Material Testing	CC_BMT	2021	1	32	31	29
Detail Land Surveying and Mapping	CC_DLS&M	2021	1	42	45	42
AutoCad	CC-CAD02	2021	2	32	8	8
Engineering Design using Solid works	CC-SW01	2021	1	30	21	21

Year 2020-21						
Year 2020-21	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course (Hrs)	Number of students enrolled in the year	Number of Students completing the course in the year
Maintenance and Repair of Concrete Structures	CC-MRCS	2021	1	32	43	41
Surveying using Electronic Distance Measurement Instrument	CC-SEDAC	2021	1	32	31	29
Architext and Water Sample	CC-PWS	2021	1	32	29	28
Introduction and implementation of neural networks through MATLAB	CC_NNL	2021	1	32	32	29
Design and optimization of solar pv models	CC_PVS	2021	1	32	37	34
Design and Implementation of chemical System through Matlab	CC_MIS	2021	1	32	21	21
Web Designing using HTML/CSS	CC_WBDC	2021	1	32	40	40
Data science using Python	CC_DSP	2021	1	32	39	38
Advanced Cloud Computing	CC_CC	2021	1	32	10	10
Engineering Weave	ME-EW	2021	2	36	21	21
Basics of Astrood	ME-AC	2021	1	32	31	31
Project planning and Control	CC-PPC	2020	1	32	43	41
Integrated waste management in smart cities	CC_WM	2020	1	32	31	29
Remote sensing and GIS	CC-RS	2020	1	32	31	29
Wear in Engineering	ME-EW	2020	2	32	27	27
Ultimate Microsoft Office: Excel, Word, Powerpoint & Access	CC_UMO	2020	1	36	35	35
Online Core Python	CC_CCP	2020	1	16	60	60
Advanced data structures and programming	CC_ADSP	2020	1	36	55	55
Design of photovoltaic system	CC_DPS	2020	1	32	37	34
Online Course on Industrial Automation with PLC & SCADA	CC_IPLCAS	2020	1	32	12	10
PLC & SCADA	CC_IPLCAS	2021	2	32	8	8
Engineering Design using Solid works	CC-SW01	2021	1	36	21	21

Year 2019-20						
Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
Advanced Surveying with Total Station	CC-ASTS	2020	1	34	34	32
Brick Laying	CC-BL	2020	1	32	31	29
Net (Advance Level)	CC-NE	2020	1	32	30	30
Website Development (Advance Level)	CC-WD	2020	1	32	32	32
Mobile App Development	CC-MAD	2020	1	32	34	34
Automotive System and Controls using MATLAB/Simulink	EE-ASML	2020	1	32	20	18
Introduction to ETAP software	(EE_ETE)	2020	2	32	35	34
Introduction to MATLAB in Engineering Subjects	EE-IMES	2020	1	32	32	29
Wear in Engineering	ME-EW	2020	1	36	27	27
KK Methodology	ME-KK	2020	1	32	35	35
Basic concept of Surveying by Total Station	CC-RCTS	2019	1	34	43	41
Practical Applications of Civil Engineering & Construction Practices	CC-ECP	2019	1	32	34	32
Website Development using HTML/CSS	CC-WDH	2019	1	32	35	35
Artificial Intelligence-Machine Learning (Advance Level)	CC-AMA	2019	1	32	39	39
Search Engine Optimization & Search Engine Marketing	CC-MO	2019	1	32	32	32
Ladder logic of PLC in Automation	(EE_LPLCA)	2019	1	32	10	9
Basics of ETAP for Power system Analysis	(EE_EPSA)	2019	1	32	35	33
Basics of Astrood	ME-AC	2019	1	32	31	31

Year 2018-19						
Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of Course	Number of students enrolled in the year	Number of Students completing the course in the year
Mobile App Development using Kotlin	CC-MADK	2019	1	32	35	34
Backend Development with PHP and MySQL	CC_BDFM	2019	1	32	45	46
Brick Laying Techniques and Methods	CC-BLM	2019	1	32	10	38
Digital Mapping and Surveying	CC-DMS	2019	1	32	34	32
Engineering Design using Solid Works	CC_EDSW	2019	1	32	30	30
Autocad Drafting in 2D	CC_A2D	2019	1	32	35	36
Fundamentals of Arduino Programming	CC_FAP	2019	1	32	32	31
Latest Trends of PLC in Industrial Automation	CC_IPLCA	2019	1	32	34	31
Hardware Implementation and Arduino Programming (ece)	CC_IHAP	2019	1	32	10	8
Advanced Programming Techniques and Data Structures	CC_APLDS	2018	1	32	40	38
Frontend Web Development	CC_FWD	2018	1	32	10	39
Waste Water Treatment	CC-WWT	2018	1	32	40	38
Project Planning and management through REVIT	CC-PPMR	2018	1	32	34	32
Basics of Engineering Weave	ME-BEW	2018	1	36	26	26
AutoCAD 3D	ME-AC3D	2018	1	32	30	30
Electrical System Design using MATLAB	CC_ESDM	2018	1	32	32	30
Power Simulation in Distributed System	ECE-PSDS	2018	1	35	10	9

Year 2017-18						
Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of Course	Number of students enrolled in the year	Number of Students completing the course in the year
Web Designing Fundamentals	CC_WDF	2018	1	32	40	38
Data Analytics with Python	CC_DAP	2018	1	32	39	37
Introduction to Digital Marketing	CC_IDM	2018	1	32	36	36
Fundamentals of Astrood	CC_FAC	2018	1	32	30	30
Concrete Repair and Maintenance	CC-CRM	2018	1	32	32	30
Best Practices in Civil Engineering	CC_BPCE	2018	1	32	40	38
Introduction to Neural Networks using MATLAB	CC_INN	2018	1	32	31	30
Solve Photovoltaic Modeling and Simulation (ece)	CC_SPLMS	2018	1	32	20	18
Cloud Computing Foundations	CC_CCF	2017	1	32	40	37
Network Security Essentials	CC_NSE	2017	1	32	34	30
Construction Material Testing	CC_CMT	2017	1	32	10	38
Sustainable Waste Management	CC-SWM	2017	1	32	40	38
Computer Aided Design- Solid Works	CC-CADSW	2017	1	32	35	36
Kohatsu Kiem Methodology	ME-KKM	2017	1	32	30	30
Basics of Photovoltaic System	CC_BPS	2017	1	32	31	32
Ladder Logic Programming	EE_LLP	2017	1	32	36	35
Introduction to PLC Programming (ECE)	ECE_ILP	2017	1	32	20	19

Figure 9: Lists of Certificate courses offered during last five years

- More than 50% faculty has been trained through various initiatives like INTEL, FESTO, and RUBICON India etc.



Figure 10: Faculty Training in Festo COE

- During last 3 Years, almost 40 live projects have been completed by the students resulting to more than 30 patents published.



Figure 11: Photographs of Few Live Projects



Figure 12: Poster showing few Granted Patents

Table 1: List of Patents Granted

Granted Patents

Sr. No.	Patent Application No.	Patent Application Title	Date of filing	Inventor	Applicant	Status
1.	201811028252	A Sugarcane Harvesting Machine With De-Threshing Guiding Unit	27 July 2018	Gupreet Singh, Tejinderpal Singh Saraon and Kovid Sharma	Baba Farid College of Engineering and Technology	Granted June 2021
2	202011024874	A Road Shoulder Laying & Reclaimer Machine	13 June 2020	Er. Pankaj Mittal, Mr. Rahul Rajput, Ms. Sunaina Rami and Mr. Harwinder Singh	Baba Farid College of Engineering and Technology	Granted
3.	2021103120	Monitoring and movement detection using image subtraction	07 July 2021	Charandeep Singh Bedi, Jayoti Arora Bansal and Harsimran Singh	Baba Farid College of Engineering and Technology	Granted
4.	2021103119	A model for an enhancement in Road Scenes Captured by Intelligent Transportation Systems	07 July 2021	Harleen Kaur, Sunil Nagpal and Abhishek Bansal	Baba Farid College of Engineering and Technology	Granted
5	2021103121	A System Of ROI & K-Means Clustering Based Hybrid Technique For Detection Of Yellow Spot Disease in Crops	19 June 2021	Sunil Nagpal, Nimisha Singh, Divisha Garg, Lalit Kumar and Arshdeep Singh	Baba Farid College of Engineering and Technology	Granted
6	2021105734	A model to identify Bus Route information using Automated Chat-bot	18 th August, 2021	Er. Charandeep Singh Bedi, Dr. Jayoti Arora Bansal, Dr. Geeta	Baba Farid College of Engineering and Technology	Granted



6. Problems encountered and Resources required

- Providing training in advanced technologies to faculty.
- Motivating faculty and students to work on Multidisciplinary areas.
- Keeping pace with continuous updation in Industry.
- Allocation and Establishment of Infrastructure for CoEs.
- Motivating students and faculty to work in odd hours.