BABA FARID COLLEGE OF ENGG. & TECHNOLOGY

Criteria 7 – INSTITUTIONAL VALUES AND BEST PRACTICES

INSTITUTIONAL BEST PRACTICE-I

"Innovation eco system in institute"

Index

1. **Title of the Practice:**

   "Innovation eco system in institute"

2. **Objectives of the Practice**

- The objective is to create an environment that fosters innovation, creativity, and entrepreneurship.
- Promoting a culture of experimentation, risk-taking, and learning from failure.
- Creating opportunities for students and researchers to apply their knowledge and skills to real-world problems.
- Supporting the commercialization of research and development efforts.

3. **The context**

Innovation is the buzz word not only for educational institutions but also for industry. The First Industrial Revolution began in the 18th century since then world is changing very fast. Technological developments and innovations which previously took 100 years now in fourth industrial revolution it had shortened to 25-30 years.

To make the students ready for the fast changing world institute provides a platform for addressing these challenges through interdisciplinary research, entrepreneurship, and community engagement.

4. **Practice**

- 2017 - The Institute established Baba Farid School of Entrepreneurship (BFSoE), which offers guidance and mentoring to budding entrepreneurs through various training programs and industrial collaborations.
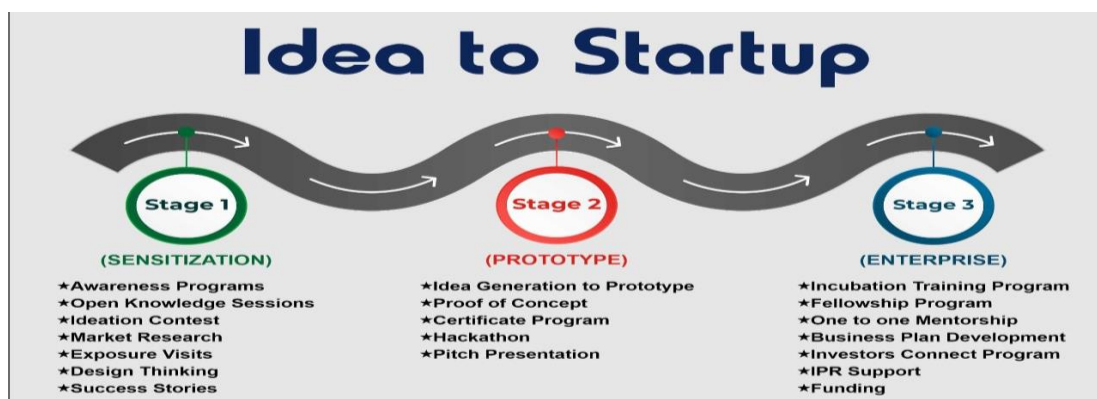

Figure 1: Roadmap from Idea to Start-up

Table 1: List of External Mentors assisting us in building the eco system in campus

S.No.	Name	Designation	About
1	Mr. Rajen Parikh	Founder & CEO at Orion Software Services	Prior to turning Entrepreneur, significant professional global associations; has been with AT&T GIS, NCR Corporation; Tawoos/GTL, & Data Management Services, Digital Innovations Pvt Ltd.
2	Mr. Ashutosh Burwal	Founder & CEO Buddy4Study	He qualified IIT-JEE in 2001 and has worked in BP as Marine Engineer Officer. In year 2010 got his MBA degree from IMT-Ghaziabad. In 10 years, Buddy4Study becomes one of India's largest & most popular scholarship networks.
3	Mr. Ashish Sharma	Managing Partner at IP Nation, New Delhi	Ashish Sharma graduated from Delhi Institute of Pharmaceutical Sciences & Research. An IP professional, he practices in Patiala House and Delhi High Court and is amongst Top 100 Patent Professionals.
4	Mr. Vijay Nadiminti	CEO Ag Hub Agri-Innovation Hub of PJTSAU, Hyderabad	Previously Vijay was COO at a-idea an Incubation Centre established at NAARM, Hyderabad. He played a pivotal role in developing the Agri based Start-ups in Hyderabad. His efforts in a-idea could win the grants from NABARD, DBT and DST
5	Mr. Karamveer Singh	Founder, VARAHAS Technologies, Bathinda	A Technology Consultant with 15 years of Experience in Education, Finance, Marketing, Construction, Web Software and IT Services
6	Mr. Prithvi Raj Bhandari	Managing Director, Engineering Company Pvt. Ltd	Mr. Bhandari is the first-generation entrepreneur from Bathinda. He has been enthusiastic about mentoring new ideas and is an excellent motivator.
7	Dr. Manish Bansal	Professor and Dean, MIMIT, Punjab, India	He holds PhD from Punjabi University along with MBA Marketing from Shivaji University. He has a rich 24 years of experience in Industry, Academics, Research and Administration. He is published in various national and international journals in the areas of Marketing, Retail, Hospital management and Entrepreneurship.
8	Mr. Chander Mohan	Former Chair Professor at JNU & Retired Scientist G, DST, GoI	Mr. Chander Mohan, a son-of-the-soil is a dynamic personality and has vast experience of administration and entrepreneurship development. He has retired as a Chair Professor at JNU; Scientist G & Head- SEED, KIRAN, NCSTC, CSRI, MS- DST & Director, Vigyan Prasar, Government of India. Presently he is Chairperson, BORBHAG Foundations;
9	Mr. HS Cheema	Founder Cheema Boilers Limited	Mr. Cheema is popular first generation entrepreneur of the region. He is always keen to help early stage Startup
10	Mr. Sahil Bhardwaj	In-charge, Social Media Manager at BFGI	Mr. Sahil is Expert in Digital Marketing. He is mentor of several Start-ups. Graduated from BFGI and later he got trained from C-DAC Bangalore

- 2018 – Institute established an IPR Cell and subsequently launched IPR Policy.

  Links: http://www.bfcet.com/naacfiles/IPR Policy BFCET.pdf

- 2020 - The Institutions Innovation Council (IIC) under the Ministry of Education was established, showcasing student entrepreneurial activities at a national level.

Figure 2: Institutions Innovation Council establishment, appreciation and rating certifications

- 2021 – Registered Baba Farid School of Entrepreneurship (BFSoE) as a separate entity as a Registered Society

Institute offers Certificate Course on Startups and IPR. Institute also offered an open elective course on "Intellectual Property Rights & Patenting System in India" to its students.

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	32	51	51
Web Programming using PHP & MySQL	CC_WPP	2022	1	32	30	28
Advance Python Programming	CC_APP	2022	1	32	35	35
REVIT Software for Planning & Drawing	CC_RPD	2022	1	32	36	31
Engineering Practices in Civil	CC-EPC	2022	1	32	40	38
Brick Work Masonry	CC-BWM	2022	1	32	30	28
Fundamentals of AUTO CAD	CC-CAD002	2022	2	32	28	23
Industrial Automation	IA-402	2022	1	32	46	46
Fundamental of Python	CCFP-02	2022	1	32	21	19
Analysis of Circuits using MultiSim	CCACM-03	2022	1	32	47	43
Programming in Arduino and Hardware Fundamentals	CCPAHF-01	2022	1	32	35	32
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_INN	2021	1	32	35	32
Basic Matlab and Simulation of electrical system	CC_ML&S	2021	1	32	21	19
Robotics: Estimation and Learning	CC_REL	2021	1	32	45	43
Building Material Testing	CC_BMT	2021	1	32	51	49
Digital Land Surveying and Mapping	CC_DLS&M	2021	1	32	45	42
AutoCad	CC-CAD002	2021	2	32	8	8
Engineering Design using Solid works	CC-SW001	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-SEDM	2021	1	32	31	29
Pollutants and Water Supply	CC-PWS	2021	1	32	29	28
Introduction and implementation of neural networks through MATLAB	CC-NML	2021	1	32	32	29
Design and optimization of solar pv models	CC_PVS	2021	1	32	37	34
Design and implementation of electrical System through Multisim	CC_MS	2021	1	32	21	21
Web Designing using HTML/CSS	CC_WDHC	2021	1	32	40	40
Data science using Python	CC_DSP	2021	1	32	39	39
Advanced Cloud Computing	CC_CC	2021	1	32	40	40
Engineering Wears	ME-EW	2021	2	36	27	27
Basics of Autocad	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-IWM	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	56	56
Online Core Python	CC_OCP	2020	1	10	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_PLC&S	2020	1	32	32	30
AutoCad	CC-CAD002	2021	2	32	8	8
Engineering Design using Solid works	CC-SW001	2021	1	30	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 Systems and Controls using MATLAB/Simulink	EE-ASML	2020	1	32	20	18
Introduction to ETAP software	EE_IES	2020	2	32	36	34
Introduction to MATLAB for Engineering Students	EE_IMES	2020	1	32	32	29
Wear in Engineering	ME-EW	2020	1	36	27	27
KK Methodology	ME-KK	2020	1	32	36	36
Basic concept of Surveying by Total Station	CC-BCTS	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
Latest trends of PLC in Automation	EE_LTPLCA	2019	1	32	10	9
Basics of ETAP for Power system Analysis	EE_EPSA	2019	1	32	36	33
Basics of Autocad	ME-AC	2019	1	32	31	31

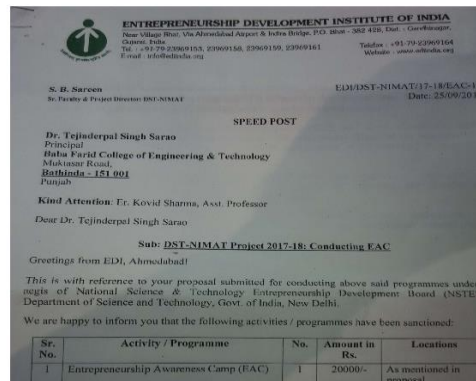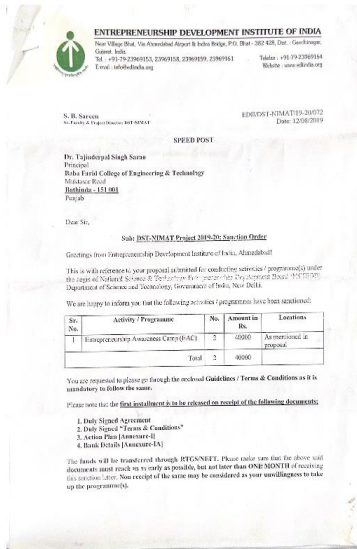| Year 2018-19						
Name of Add on /Certificate programs offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of Course	Number of students enrolled in the year	Number of Students completing the course in the year
Mobile App Development using Kotlin	CC-MADK	2019	1	32	35	34
Backend Development with PHP and MySQL	CC-BDPM	2019	1	32	46	46
Brick Laying Techniques and Methods	CC-BLTM	2019	1	32	40	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_AD2D	2019	1	32	36	36
Fundamentals of Arduino Programming	CC_FAP	2019	1	32	32	31
Latest Trends of PLC in Industrial Automation	CC_LTPIA	2019	1	33	34	31
Hardware Implementation and Arduino Programming (ece)	CC_HIAP	2019	1	32	10	8
Advanced Programming Techniques and Data Structures	CC_APTDS	2018	1	32	40	38
Frontend Web Development	CC_FWD	2018	1	32	40	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 Wears	ME-BEW	2018	1	36	36	36
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	36	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 Autocad	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_INM	2018	1	32	31	30
Solar Photovoltaic Modeling and Simulation (ece)	CC_SPMS	2018	1	32	20	18
Cloud Computing Foundations	CC_CCF	2017	1	32	40	37
Network Security Essentials	CC_NSE	2017	1	32	32	30
Construction Materials Testing	CC_CMT	2017	1	32	40	38
Sustainable Waste Management	CC-SWM	2017	1	32	40	38
Computer Aided Design- Solid Works	CC-CADSW	2017	1	32	35	36
Kobetsu Kizen 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_IPP	2017	1	32	20	19

Figure 3: Lists of Certificate courses offered during last five years

The Institute regularly organizes Entrepreneurship Awareness Camps sponsored by DST, In addition to this, various competitions like Business Plan Competitions, Ideation Contests, and Hackathons etc. are annual events.
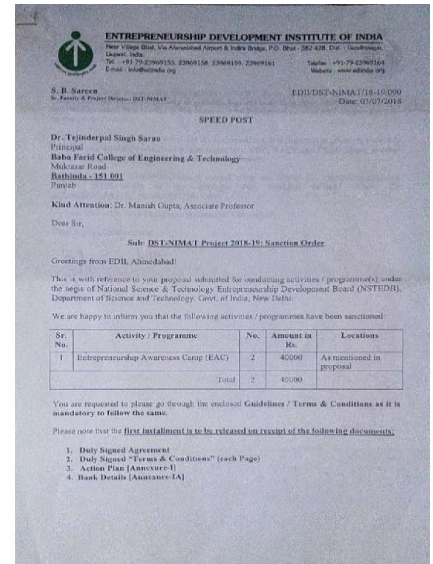

Figure 4: Sanction Letters issued by DST-NIMAT

Figure 5: Poster for Internal Hackathon for SIH 2022

For the Startups BFSoE provides various support services which includes expert talks, one-on-one mentoring, and online conferencing. Institute also organizes incubation training programs and workshops to enhance students' entrepreneurial skills.

Student members of the IIC have actively participated in around 30 entrepreneurial programs.

Figure 6: Glimpses from the various events

Figure 7: Glimpses from the various events

5. **Evidence of Success**

- BFSoE is currently incubating five startups and providing all the support services

- Two Startups were selected to exhibit their products at the G20 Summit held at Amritsar.

Figure 8: Poster showing G20 exhibition participation

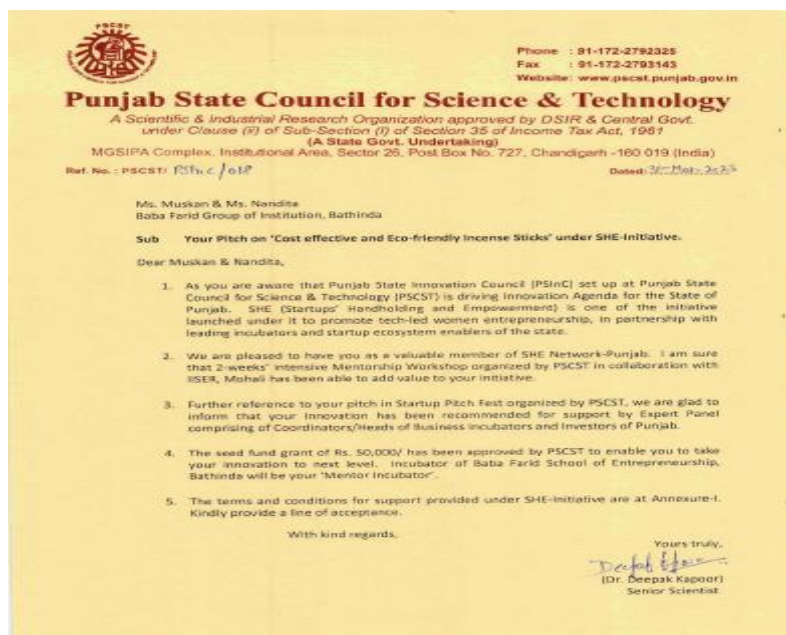- In 2023 One Startup has also raised the money under SHE grant.

Figure 9: Sanction Letter

- Till date 42 patents published and out of these six are granted.

Figure 10: Poster showing few Granted Patents

Table 2: 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-Thrashing Guiding Unit	27 July 2018	Gurpreet 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 Rani 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 Diseasein 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-boat	18th August, 2021	Er. Charandeep Singh Bedi, Dr. Jayoti Arora Bansal, Dr. Geeta	Baba Farid College of Engineering and Technology	Granted

- Institute has collaborated with many government and non-government agencies, to enhance its services and support to startups.

Table 3: Collaborations with Other Incubation Units, HEIs and Industry Associations

Sr. No.	Collaborated Agency Name	Collaborated Agency Type	Period of Collaboration (No. of Years)	Current Status of Collaboration	Date of MOU / Agreement Signed on
1	Kartik Enterprises	Non Govt. Agency	0003	Active	04-10-2021
2	Merla Wellhead Solutions	Non Govt. Agency	0003	Active	04-03-2022
3	N.K Polyplast	Non Govt. Agency	0003	Active	04-10-2021
4	New Swan India	Non Govt. Agency	0003	Active	20-04-2022
5	Automation Systems	Non Govt. Agency	0003	Active	20-04-2022
6	Garg Packers	Non Govt. Agency	0003	Active	04-10-2021
7	Festo India Pvt. ltd.	Non Govt. Agency	0002	Active	12-11-2021
8	AIIMS	Govt. Agency (Central)	0005	Active	13-04-2022
9	DUCAT India (P) Ltd.	Knowledge/Mentoring Agency	0003	Active	04-10-2021
10	CETPA Infotech Pvt. Ltd.	Knowledge/Mentoring Agency	0003	Active	21-09-2021
11	Cojag Smart Technology Pvt. Ltd.	Knowledge/Mentoring Agency	0003	Active	04-10-2021
12	Magma Research and Consultancy Services	Non Govt. Agency	0003	Active	13-10-2021
13	Narsons Engineers and Designers	Non Govt. Agency	0003	Active	04-10-2021
14	Red Bricks	Non Govt. Agency	0003	Active	11-10-2021
15	Infowiz Software Solution	Knowledge/Mentoring Agency	0003	Active	17-03-2022
16	Varhas Technologies	Non Govt. Agency	0003	Active	17-03-2022
17	Step2gen Technologies Pvt. Ltd.	Non Govt. Agency	0003	Active	08-04-2022
18	Infotechmon Pvt. Ltd.	Non Govt. Agency	0003	Active	24-12-2021
19	Indosons Electrical Industries	Non Govt. Agency	0003	Active	20-04-2022
20	Skill Labs	Non Govt. Agency	0003	Active	07-04-2022
21	Netsmartz Infotech Pvt. Ltd	Non Govt. Agency	0003	Active	07-04-2022
22	Intesec Communications Systems Pvt Ltd.	Non Govt. Agency	0003	Active	08-04-2022
23	Ecomoceana Technologies Pvt. Ltd.	Non Govt. Agency	0003	Active	07-04-2022
24	Auscon Academy of Information Technology Pvt. Ltd.	Knowledge/Mentoring Agency	0003	Active	07-04-2022
25	Anviam Solutions Pvt. Ltd.	Non Govt. Agency	0003	Active	08-04-2022
26	Central University of Punjab, Bathinda	Educational Institute	0002	Active	15-02-2021
27	Infosys	Non Govt. Agency	0002	Active	22-02-2023

- Institute has been funded by DST-NIMAT, Startup Punjab for organizing the events.

6.   **Problems Encountered and Resources Required**

Institute is located in the remote area so the major problem is to change the mid set of the students and faculty toward entrepreneurship and innovation.

The Institute has self-financed incubation center so funding/ grant to run the same is also the concern

Due to location challenge Mentors don't engage with the institute.