



“Innovation is the ability to see change as an opportunity-not a threat”

-Steve Jobs(1955-2011)

“Entrepreneurial profit is the expression of the value of what the entrepreneur contributes to production”

-Joseph Alois Schumpeter(1883 -1950)

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## **PREAMBLE**

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Institutions of higher engineering education across India are now viewed not only as enablers of higher learning but also as facilitators of innovations and entrepreneurship. The change in the viewpoint is because of the increased emphasis needed for our Nation in developing products and solutions indigenously to strengthen the national economy. It is also viewed as an opportunity to create employment in a massive scale when we consider the contributions in a cumulative manner. Hence, we can say that the institutions shall become social enablers of a relatively bigger scale through these pursuits. The Government of India have promulgated many policies in the recent past to strengthen the academic system in the quality as well as outcomes.

In November 2016, All India Council of Technical Education (AICTE) released a start-up Policy document for AICTE approved institutions, to address the need of inculcation of innovation and entrepreneurial culture in Higher Education Institutions (HEIs). This Policy was launched by the then Hon'ble President of India Shri Pranab Mukherjee on 16th November 2016, and is designed in accordance with "Start-up India" Action plan, Govt. of India to guide and promote student driven innovations & start-ups in more than 10,000 AICTE approved institutions across the country. Subsequent to release of the start-up policy by AICTE and further interaction & feedback received from education institutions, a need was felt for a more elaborate and comprehensive policy guiding document, which could be applicable for all the HEIs in India. A committee with fifteen members was constituted by Ministry of Human Resource Development (MHRD), under the chairmanship of Prof Ashok Jhunjhunwala, to formulate the detailed guidelines for various aspects related to Innovation, Start-up and Entrepreneurship management. This committee deliberated on various facets for nurturing the innovation and start-up culture in HEIs, which covered Intellectual Property (IP) ownership, revenue sharing mechanisms, norms for technology transfer and commercialization, equity sharing, etc. After multiple rounds of meetings, National Innovation and Start-up Policy 2019 (NISP-2019) for students and faculties of HEIs were prepared ([https://mic.gov.in/assets/doc/start-up\\_policy\\_2019.pdf](https://mic.gov.in/assets/doc/start-up_policy_2019.pdf)). The new National Education policy of 2020 is also emphasising innovations in the academic institutions ([https://www.education.gov.in/sites/upload\\_files/mhrd/files/NEP\\_Final\\_English\\_0.pdf](https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf)).

NISP-2019 permits HEIs to develop own comprehensive guidelines and policy on innovation and start-ups. A committee was constituted at MBCET to formulate institute level policy. The committee is responsible for appropriately framing the policy in the institute level considering the available resources and facilities. Formulation of institute level policy is strictly based on the guidelines given by NISP-2019. Innovation and start-up policy of MBCET (ISPM) shall integrate the existing facilities available in the institute, to support the internal and external aspirants. MBCET shall strive to establish a full-fledged platform to convert innovative ideas into successful businesses. As in NISP-2019, ISPM shall give equal priority for both the student and faculty communities. ISPM shall act as a catalyst to transform the current educational ecosystem of the institute into a better form supporting the vision of India to become 5 trillion-dollar economy by 2024. ISPM covers various aspects such as management of Intellectual Property Rights (IPR) ownership, technology licensing and equity sharing in start-ups or enterprises established by faculty, staff, and students.

## **LIST OF ABBREVIATIONS**

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AICTE	All India Council for Technical Education
ARIIA	Atal Ranking of Institutions on Innovation Achievements
CRIS	Committee for Research, Innovation and Start-ups
DST	Department of Science & Technology
DIN	Director Identification Number
EDP	Entrepreneurship Development Programme
FDP	Faculty Development Programme
HEI	Higher Education Institution
ICTAK	ICT Academy of Kerala
ICT	Information and Communication Technologies
IEDC	Innovation & Entrepreneurship Development Centres
I & E	Innovation and Entrepreneurship
ISPM	Innovation and Start-up policy of MBCET
IIERCC	Institute Innovation, Entrepreneurship, Research and Consultancy Committee
IRCIE	Institute Review Committee for I & E
IISP	Institute/College Innovation and Start-up Policy (IISP)
IIC	Institution's Innovation Council
IPR	Intellectual Property Rights
KSUM	Kerala Start-up Mission
KSCSTE	Kerala State Council for Science, Technology and Environment
KPI	Key Performance Indicator
MBCET	Mar Baselios College of Engineering and Technology
MOOC	Massive Open Online Courses
MSME	Micro, Small & Medium Enterprises
MoE	Ministry of Education (Previously, Ministry of Human Resource Development (MHRD))
MHRD	Ministry of Human Resource Development
NISP	National Innovation and Start-up Policy
R&D	Research and Development
TBI	Technology Business Incubator

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## **1. NISP FORMULATION TEAM OF MBCET**

Mar Baselios College of Engineering and Technology (MBCET) was started in 2002 with the solemn objective of creating a niche in engineering education and research in the capital city of Kerala. In view of the long term perspectives given in the National Education Policy, National Science Technology Policy and the National Innovation and Start-up Policy for Educational Institutions released by the Union Government, the initiatives of the Government of Kerala, the college has set its aim to work towards attaining a leading position in higher education in engineering, and to build an Innovation and Start-up ecosystem to facilitate the transformation the ideas into viable products/businesses. For the formulation of Innovation and Start-up Policy for students and faculty at Mar Baselios College of Engineering & Technology (MBCET), Thiruvananthapuram, a committee had been formulated in September 2021. The details of the committee members are given below.

1. Chairman                    Dr. Abraham T. Mathew, Principal, MBCET
2. Vice Chairman            Prof. S. Viswanatha Rao, Vice Principal, MBCET
3. Member-Institute's  
Internal  
Members                    a) Dr. M.J. Jayashree, IIC President, MBCET  
                                  b) Mr. Arun J.S, IIC Vice President, MBCET  
                                  c) Mr. Jijo Jose, IIC Convenor, MBCET  
                                  d) Ms. Lakshmy S., ARIIA and NIRF Coordinator, MBCET  
                                  e) Mr. Sherry Varghese George, Social Media Coordinator,  
                                  MBCET  
                                  f) Ms. Manju Ann Mathews, IPR Coordinator, MBCET  
                                  g) Mr. Bobin Saji George, Start-up Coordinator, MBCET
4. Special Invitees           a) Rev Fr John Vilayil, Bursar, MBCET  
                                  b) Dr. T. M. George, Director, Corporate Relations, MBCET  
                                  c) Dr V Madhusudanan Pillai, Professor MED and Dean(R&C),  
                                  NIT Calicut
5. Member-Student            Mr. Vishnu P. Kumar MBT18EC085, S8 EC, MBCET
6. Member-Alumni/Industry   a) Mr. Anoop Babu, Start-up Founder, Vydyuthi Energy  
                                  Services (EE Alumnus),  
                                  b) Mr. Savio Victor, CEO & Start-up Founder, Neuroplex Pvt.  
                                  Ltd., (CS Alumnus),  
                                  c) Mr. Advait R. S. Director, SI Property, (CE Alumnus),  
                                  d) Mr. Gokul V. Nath, Start-up Founder, DeMustango  
                                  Technologies Pvt. Ltd (ME Alumnus),  
                                  e) Mr. Sanju Mathew, Start-up Founder, Codeof duty, (EC  
                                  Alumnus)  
                                  f) Mr. Jongee Chandy, Assistant Vice President (Strategic  
                                  Growth and Development), Bloombloom, (EE Alumnus)
7. Member-Industry            a) Mr. Deepu S. Nath, Managing Director,  
                                  Faya Innovations Pvt. Ltd.  
                                  b) Mr. Ashok Kurian Panjikanan, Head - Business Linkages &  
                                  Incubation, Kerala Start-up Mission  
                                  c) Dr. Anoop C. Nair, Staff Product Application Engineer,  
                                  Synopsys Inc.

8	Member Convenor	Ms. Lani Rachel Mathew, Asst Professor ECE, NISP Coordinator, MBCET
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This committee has been responsible for suitably framing the innovation and start-up policy of Mar Baselios College of Engineering and Technology, Thiruvananthapuram, (ISPM) according to the guidelines given in the NISP-2019 draft published by Ministry of Education (MoE), Government of India. According to NISP-2019, the entrepreneurial agenda should be the responsibility of the NISP coordinator that must bring in required commitment and must be well understood by the higher authorities. The membership in the committee shall be for a period of one year, extendible by one more year, on a mutually agreeable basis. Through these pursuits, the College would be able to create a socially relevant and academically advanced eco system for promoting innovation and entrepreneurship from the grassroots level to the modern advanced knowledge driven start-ups. Henceforth, it would be worthwhile to identify the stakeholders, beneficiaries and the benefactors of the ecosystem. The following have been identified as the stakeholders of this policy:

- a. Students, members of faculty and staff and alumni of MBCET
- b. MBCET Management
- c. Kerala Start-up Mission
- d. Incubation centres: APJ AKTU TBI, Technopark TBI
- e. Nodal agency for start-ups: Kerala Start-up Mission
- f. Funding agencies, Banks, and investors
- g. Industry and R&D organizations
- h. Grassroot level innovators
- i. Science, Technology Engineering innovators/start-ups
- j. APJ Abdul Kalam Technological University, Department of Higher Education (Government of Kerala)
- k. Kerala State Council for Science, Technology and Environment (KSCSTE)
- l. Department of Science and Technology (Government of India)

## **2. ENTREPRENEURIAL VISION AND MISSION OF MBCET**

Vision:

To be an Institution of Excellence that seamlessly promotes Innovation and Entrepreneurship for the benefit of the Society

Mission:

1. Promote Innovation among the Students, Faculty and Alumni and enable them to translate the ideas into products and services
2. Encourage the Students, Faculty, Staff and Alumni to contribute to socio-economic development through the building of start-ups and entrepreneurial ventures
3. Build a value based eco-system to promote start-ups and find means for accelerating the growth of the start-ups and entrepreneurial ventures
4. Foster entrepreneurship and enable success in small business management in a larger social perspective.
5. Endeavour to scale up the quality and standards of the deliverables of the eco-system



### **3. GOALS AND OBJECTIVES**

#### **3.1.GOALS**

Guidelines of NISP-2019 suggest framing well-defined short-term and long-term goals for the institute (Section 1, Paragraph f of NISP-2019). The short and long-term goals of MBCET's innovation and start-up policy are given below. Short-term goals are targeted to achieve within 3 years whereas long term goals are to be achieved within 5 years. Short term goals of MBCET aims to create a proper awareness on the relevance and requirements of innovation and entrepreneurship in the institute level educational ecosystem. Ultimately, through achieving the long-term goals, MBCET aims to build a fully established hub for innovation and entrepreneurship.

##### **3.1.1. Short-Term goals**

1. To improve innovation, creativity, and design thinking among the student/faculty community, encourage them to participate in competition and offer incubation support to commercially viable ideas
2. To assist student groups in prototyping their ideas by providing mentoring support, seed funding, and adequate resources
3. To evangelize entrepreneurship by conducting regular programmes, and credit-based courses, thereby inculcating the concept of business processes, economics and the need for market validation of idea to know the viability of the propositions
4. To promote internships with start-ups to develop a larger pool of students who are capable of leveraging technical and managerial aspects of a start-up/small business
5. To encourage students to take up multi-disciplinary courses/projects and assign mentors from industry to promising students
6. To set up an Innovation fund for protecting IPR of students and employees
7. To build Tinkering Labs and Maker Space using a hub and spoke model to fruitfully utilize the laboratories of the College

##### **3.1.2. Long-Term goals**

1. To create an eco-system where both faculty and students are an integral part of innovation and consultancy work.
2. To build a strong relationship with industry and R&D organizations, both national and international, for promoting in-house innovations.
3. To enable seamless conversion of idea to product/service for a variety of streams in science, technology, IT, education, finance and management.
4. To create institutional system for providing incubation space and mentoring for physical and virtual incubation
5. To develop the institution to become a hub for expert talents and innovations, where start-ups (products and service sectors) are supported through knowledge and accelerated funding provided by funding agencies and by providing seamless access to college infrastructure including library and lab facilities.
6. To develop bilateral and multilateral relations with incubators, research parks, leading academic institutions and international innovation clusters for advancing value-based innovation and entrepreneurship, thereby leading to the establishment of a Research Park of global reputation on the campus.

### **3.2.OBJECTIVES**

Guidelines of NISP-2019 suggest framing specific objectives to facilitate the development of an entrepreneurial ecosystem in the organization (Section 1, Paragraph a, NISP-2019). The objectives of ISPM are given below.

#### **3.2.1. Short-Term Objectives**

1. Conduct events such as workshops, seminars, conferences, conclaves, etc. under the auspices of existing facilities (IIC, IEDC, TBI, etc.) to create awareness on innovation and entrepreneurship for students, staff, and faculty of MBCET
2. Introduce awards and incentives for students, staff, and faculty to stimulate the interest towards innovation and entrepreneurship
3. Design new courses in curriculum/facilitate certification courses from reputed external institutions to help students, staff, and faculty for enhancing their skills in innovation and entrepreneurship
4. Collaborate with national/international level institutes/agencies/organizations to establish partnerships in innovations and entrepreneurships
5. Develop an ICT mediated knowledge sharing platform for supporting innovation and entrepreneurial activities

#### **3.2.2. Long-Term Objectives**

1. Attract funds from external R&D centres, external incubators, government agencies, etc. to support innovation and entrepreneurial activities/ initiatives of MBCET
2. Establish permanent linkage with regional, national, and international agencies like industries, academic institutions and R&D organizations for enabling a start-up and innovation eco-system.
3. Establish additional facilities for supporting innovation and entrepreneurial activities to achieve top notch quality in institute level innovation and entrepreneurship
4. Generate revenues through innovation and student start-up activities/initiatives to spend for further improving the institute level facilities

## **4. KEY PERFORMANCE INDICATORS FOR INNOVATIVE AND ENTREPRENEURIAL IMPACT ASSESSMENT**

According to NISP-2019 guidelines, objectives should be associated with appropriate performance indicators to regularly monitor the development of the entrepreneurial ecosystem in the organization (Section 1, Paragraph a, NISP-2019). Impact assessment of institute's entrepreneurial initiatives such as pre-incubation, incubation, entrepreneurship education, etc. should be performed regularly using these evaluation parameters. Adhering to these points mentioned in NISP-2019, the following KPIs are proposed for the impact assessment of MBCET's entrepreneurial initiatives.

### **4.1.INITIAL/BASELINE KPIs**

Following are the Baseline KPIs which would indicate the vibrancy of activities that promote innovations among students and faculty on an annual basis:

1. Ranking of Institute Innovation Council (<https://www.mic.gov.in/>)
2. National ARIIA ranking(<https://www.ariia.gov.in/>)
  - a) Number of co-curricular events related to Innovation and Entrepreneurship (I & E) conducted by the HEI

- b) Number of co-curricular events related to I&E organized by external organizations
  - c) Activities of dedicated infrastructure and facilities at HEI to support Innovation, Entrepreneurship and IPR
  - d) Initiatives taken by the College in promoting the culture of innovations, entrepreneurship and IPR, in terms of the number of awareness programmes, capacity building activities and entrepreneurship development programmes (EDPs) conducted by the College.
  - e) Number of Collaborations with start-ups /Industry Associations/Knowledge Agencies to promote I & E activities and/or internship opportunities
  - f) Number of hackathons conducted inhouse or hosted by the College in a year
  - g) Number of Copyrights/Designs applied/granted per year
  - h) Number of Patents Filed/Published/Granted per year
3. Number of upskilling activities for faculty related to project guidance, advanced topics in science and technology, entrepreneurship, IPR, product prototyping, simulation/development tools, etc.
  4. Number of internships taken up by the students in a year in industry
  5. Number of peer-reviewed research papers authored by the students/faculty per year.
  6. Number of training programmes organized annually by the students through the student bodies, professional/industry bodies, etc.
  7. Number of start-up proposals from students/faculty/staff/alumni per year

#### **4.2.HIGHER ORDER KPIS**

1. Number of prototypes developed from Student projects in a year
2. Number of linkages with national and international bodies in a year
3. Number of international projects/tie-ups initiated in a year
4. Number of Start-ups with CIN / Entrepreneurial Ventures with at least GST number started by students/ faculties/ Staff/Alumni and facilitated by HEI/EDC/ Pre-incubation/Incubation/ Research Park etc.
5. Total amount raised by innovators/start-ups pre-Incubated/incubated at HEI from Angel/VC Fund/High Net worth Individual (HNI)
6. Amount of fund received by the College from Governmental agencies for incubation of the start-ups

## **5. THRUST AREAS**

ISPM will focus on the expertise and facilities available at the institute, and the regional requirements as the primary criteria for identifying thrust areas/ domains. This is according to the criteria specified by the National Science & Technology Entrepreneurship Development Board for identifying the thrust areas. ISP at MBCET shall promote innovation lead technology entrepreneurship that focuses on the future and emerging technologies like:

1. Virtual and Augmented Reality
2. Artificial Intelligence and Machine Learning
3. Blockchain
4. Internet of Things
5. Robotics and Automation
6. Electric Vehicles and e-mobility
7. Cyber-Security

8. Renewable Energy
9. E-waste Management
10. Green Technology
11. Sustainable Development

Based on the requirements and the expertise available with the institute, ISPM can support technology start-ups in various sectors like:

1. Information Technology
2. Software and Simulation
3. Electronic Industries
4. Manufacturing
5. Agriculture and Allied Fields
6. Healthcare
7. Biotechnology
8. Nanotechnology
9. Financial Services
10. Educational Services
11. Administrative Services

## **6. EXISTING FACILITIES AT MBCET**

As per the guidelines in NISP-2019, creation of pre-incubation and incubation facilities for nurturing innovations and start-ups in HEIs institutions should be undertaken. Incubation and Innovation needs to be organically interlinked. Without innovation, new enterprises are unlikely to succeed. The goal of the effort should be to link innovation to enterprises to financial success. NISP-2019 advises all the HEIs to create facilities within their institution for supporting pre-incubation (e.g., IIC, EDC, IEDC, New-Gen IEDC, Innovation Cell, Start-up Cell, Student Clubs, etc.) and Incubation or acceleration by mobilizing resources from internal and external sources. MBCET has well established facilities to support the implementation of NISP. These facilities include Institute Innovation Council (IIC), Innovation and Entrepreneurship Development Centre (IEDC), Intellectual Property Rights Cell (IPR Cell), Student clubs, Departments, Technology Business Incubator (TBI), Training & Placement (T&P) Department, Alumni associations, and other external partnerships. MBCET shall aim to integrate these facilities in different combinations to develop an entrepreneurial culture within the institute. An overview of the existing facilities at Mar Baselios College of Engineering & Technology, Thiruvananthapuram, is presented below.

### **6.1. TECHNOLOGY BUSINESS INCUBATOR (TBI)**

Concerning the role of entrepreneurship in stimulating economic growth, TBI-MBCET aids the aspirants by improving the survival and growth of experimental entrepreneurial units. TBI performs a level playing role by acting as a focal point of interactions between seed funding governmental agencies, academicians, students, venture capitalists, industry and other government institutions. These potential stakeholders enable the start-up companies by providing with solutions to the problems they come across their journey as start-up businesses. Thus, these stakeholders act as catalysts for the economic development of the region and thus the country as well. The goal of TBI, MBCET is to nurture fresh ventures into established businesses by applying good practices through systems of benchmarking and continuous learning. TBI-MBCET encourages innovative ideas by means of mentoring, infrastructure and resources, which is essential for successful technology businesses.

## **6.2.INSTITUTION'S INNOVATION COUNCIL (IIC)**

MBCET, with an aim of fostering entrepreneurship initiatives among the students, has established IIC in association with MoE (then MHRD) in the year 2018-19. The role of IIC would be to identify and nurture technology based innovative start-ups. Following are the major focus areas of IIC-MBCET.

- To create a vibrant local innovation ecosystem.
- Start-up supporting mechanism.
- Prepare institute for Atal Ranking of Institutions on Innovation Achievements (ARIIA) framework.
- Establish function ecosystem for scouting ideas and pre-incubation of ideas.
- Develop better cognitive ability for technology students.

IIC at MBCET is planning to conduct various innovations and entrepreneurship related activities such as periodic workshops, seminars, interactions with entrepreneurs, investors, professionals and create a mentor pool for student innovators. Such activities bring outcomes such as successful innovative projects carried out by institution's faculty and students. Hackathons, idea competitions, and other mini challenges are some of the other programmes which can also be organized by IIC.

## **6.3.INNOVATION AND ENTREPRENEURSHIP DEVELOPMENT CENTRE**

At MBCET, Innovation and Entrepreneurship Development Centre (IEDC) serves as a key platform for fostering innovation and entrepreneurship among students. The Kerala Start-up Mission (KSUM), the former Technopark TBI, acts as the nodal agency of the Kerala government for entrepreneurship development and incubation activities in the state and it has set up IEDCs in 193 institutions across the State. IEDC stands as an enabler in promoting Entrepreneurship among students by converting innovative ideas from the ideation phase to commercially viable products/ services. IEDC stands for nurturing the creative and innovative ideas of students and help them in transforming these ideas into feasible products and services. IEDC acts as the first launch pad for a student's entrepreneurial journey and provides them with access to cutting-edge technology, world-class infrastructure, high-quality mentorship, early risk capital and global exposure. IEDC also provide opportunities for the student community by organizing various IEDC events in association with KSUM and various other agencies like ICT Academy of Kerala (ICTAK). Various kinds of training in business planning, product designing, frontier technology domains and product presentation skills will be provided in collaboration with the various industry partners. Several workshops and competitions would be organized both at institutional and regional levels so as to identify the top aspiring student start-ups. Several other events like hackathons and ideathons organized and facilitated by IEDC are also expected to contribute to the entrepreneurial interests of the students. IEDC offers the students a platform to showcase their innovations, share their success stories, learn from each other's failures, meet up with like-minded individuals and develop networks that may eventually turn out as long-term successful businesses.

## **6.4.IPR CELL**

The IPR Cell of the institute helps the faculty, staff, and students to know more about the ways for securing the IP rights. Cell joins with various agencies and the IPR Cell of KSCSTE to conduct workshops and training programmes for making the people understand about the significance of inventiveness in the research and also the mechanisms for obtaining

IPRs. Cell maintains the database of patent attorneys and a login in the website of Indian Patent Office. Activities also reach out to the start-ups in the TBI to guide them in protecting their business interests by properly securing their IPRs. MBCET is getting support from the Kerala State Council for Science, Technology & Environment (KSCSTE) under Government of Kerala for providing Patent related services to inventors through the IPR Cell of KSCSTE. Many patent searches have been conducted with the help of the Patent Information Centre in KSCSTE. The following are the patent related services offered by IPR Cell, MBCET: Patent Search (through the Patent Information Cell of Kerala), Patent Application (facilitated through competent attorneys for Institute owned patents).

## **7. INNOVATION PATHWAYS AND PIPELINES FOR ENTREPRENEURIAL ACTIVITIES AT MBCET**

Innovation pathways and pipelines for entrepreneurial activities start from the existing pre-incubation facilities of MBCET. These facilities include Institute's Innovation Council (IIC), Innovation and Entrepreneurship Development Centre (IEDC), Intellectual Property Rights Cell (IPR Cell), Student clubs, Departments, Technology Business Incubator (TBI), Training & Placement (T&P) Department, Alumni associations, and other external partnerships. Under the auspices of these facilities, events related to innovation and entrepreneurship such as competitions, bootcamps, conferences, seminars, business conclaves, hackathons, ideathons, awareness programs, training programs, exhibitions, industrial interactions, long-term and short-term certificate courses, teaching and research exchange programs, social gatherings, etc. can be organized.

In addition to this, the institute curriculum and syllabi can be appropriately reframed to call the interest of students towards innovation and entrepreneurial activities. MBCET will enable partnerships with other educational institutions, research organizations, and training institutes to promote innovation and entrepreneurship culture among the students and faculty. Partnerships can be either national or international level. Internships/ teaching and research exchange programmes can be organized in this way.

Students/faculty who have a feasible idea for constituting a start-up can contact the TBI-MBCET for incubation. In the incubation stage, TBI-MBCET offers services like mentoring, monitoring, resourcing of finance, resourcing of technology, resourcing of space, assistance for IPR, etc. The assistance for IPR will be through the institute level IPR cell. Activities of TBI-MBCET and IPR cell needs to be updated in the knowledge sharing platform. Regular updates in the knowledge sharing platform will help the stakeholders to effectively utilize the innovation and entrepreneurial initiatives from the institute. For financial resourcing, TBI-MBCET is already in touch with central and state level funding agencies. In addition to this, incubatees can get support from angel investors or venture capital providers via TBI. Angel investors/venture capitalists can follow the institute level entrepreneurial initiatives/activities through the knowledge sharing platform.

## 8. ORGANIZATIONAL STRUCTURE FOR THE IMPLEMENTATION OF NISP

The proposed organizational structure for the implementation of NISP at MBCET is depicted in the following diagram.

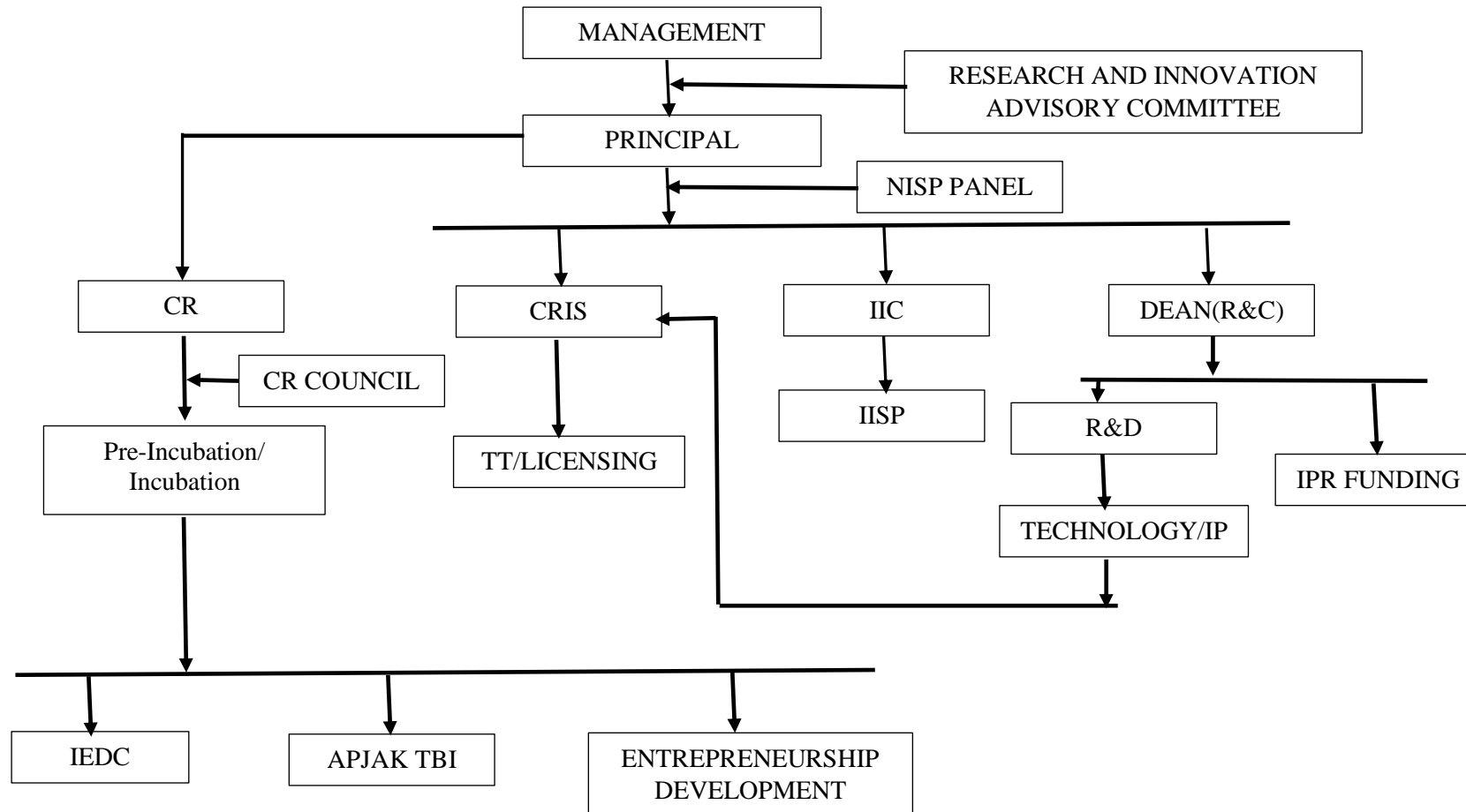


Fig.1 High Level Organizational Structure

## 9. NURTURING INNOVATION AND START UPS AT MBCET

MBCET is committed to serve the society by inculcating an innovation ecosystem to address the various challenges and for imparting quality education to ensure a future which evolves from the pursuit of excellence. An expert committee is set up to review the feasibility of potential ideas for start-ups by students/faculty/staff of the institution. This committee puts forward recommendations based on which further decisions related to innovation/start-ups/patenting will be taken. The innovation and start up policies of MBCET have been framed with the following **objectives**:

- a) To improve innovation, creative and design thinking among the student community.
- b) To provide an incubation facility for faculty/staff/student driven start-ups.
- c) To organize FDPs, seminars and workshops, distinguished talks for students, faculty and alumni to promote innovation culture.
- d) To bridge the gap between various stakeholders and thereby aiding them to collaborate and cross-pollinate ideas.
- e) To provide impetus to Innovative and Entrepreneurial ideas.
- f) To create a vibrant and conducive start up culture in the institute.

The key **features** of the innovation and start up policies at MBCET are as follows:

- a) MBCET offers an ambient ecosystem that enhances observation, empathy, creative and design thinking among the student and faculty community to identify existing problems & opportunities for improvement in the society.
- b) Establishment of a collaborative environment which promotes practicing engineers who propose solutions for the identified problems using creative problem-solving skills.
- c) MBCET provides proper infrastructural support including the idea to prototype lab, pre-incubation and incubation space which will plan and organize activities and skill development programmes sequentially to imbibe the essence of innovation as a habit.
- d) The staff, faculty and students who come up with an innovative product/process/service will get the opportunity for Incubation, based on the business feasibility and scalability.
- e) MBCET encourages students to work as interns or part-time employees in start-ups incubated in the TBI while studying/working.
- f) The staff, faculty and students pursue targeted and applied research in various domains in a transparent and responsible manner for advancement of knowledge and development of novel processes, technologies and products possibly culminating into start ups.
- g) MBCET promotes a culture of integrity and professionalism, fairness, equality, and intellectual honesty, ensuring that the outcomes of entrepreneurial activities are appropriately disseminated to reach the widest possible audience at both national and global levels.



- h) MBCET ensures that start ups supported are compliant to professional ethics pertaining to the health, safety, privacy and other personal rights of any human being.
- i) Product development, commercialization, participating and nurturing of start-ups is encouraged in the institute, to strengthen innovation and social responsibility.

## **10. PRODUCT OWNERSHIP RIGHTS FOR TECHNOLOGIES DEVELOPED AT MBCET**

The increasing awareness in the need for protecting the knowledge asset, MBCET is committed to promote and preserve the Intellectual Property Rights (IPR) of the institute for the ethical and technical development of the society. With an aim to attract students, staff, and faculty of HELs towards I & E, NISP-2019 introduces a set of guidelines on product ownership rights for technologies or intellectual property rights (IPRs) in general. MBCET has an IPR cell within the institute. Institute can implement the guidelines on IPR with the help of IPR cell. Notably, NISP-2019 recommends allowing licensing of IPR from institute to start-up in an easier way. Ideally, students and faculty members intending to initiate a start-up based on the technology developed or co-developed by them or the technology owned by the institute, should be allowed to take a license on the said technology on easy term, either in terms of equity in the venture and/ or license fees and/ or royalty to obviate the early-stage financial burden (Section 3, Paragraph b (ii) of NISP-2019). The major objectives of the MBCET IPR Cell are consolidated below:

- a) To motivate, promote and protect the innovations and research findings of the faculty, staff and students that leads to new products/procedures/design
- b) To develop a framework and manage the IP policy for the smooth transfer of technology from the institute to the benefits of the society.
- c) To set up a transparent administrative process for assigning and preserving the IP rights and share the generated revenue from the IP produced and owned by the institute.
- d) To encourage collaborations between the academia and the industry by gaining better understanding of IP ownership and licensing.

The policy is applicable to all faculty, students and staff of MBCET and to all external agencies associated in the process of the scientific and intellectual pursuit. The institute IPR policy covers all rights including protection arising from the intellectual property devised, created or generated by the faculty members, staff, students, research scholars, persons employed in sponsored research and consultancy projects. The key features of the IPR policy are as follows:

### **a) Applicability**

This policy will be applicable to all potential IP related inventions/innovations created by the Faculty, Staff, Research Scholars and all students during their course of stay in MBCET.

### **b) Ownership**

- MBCET will be the sole owner of all inventions developed by substantially utilizing the institute facilities/funds or when IPR is developed as a part of

curriculum/academic activity of students/faculty/staff. If the product/IPR is developed by innovators not using any institute facilities or not as a part of curriculum by student/faculty/staff, then product/IPR will be entirely owned by inventors in proportion to the contributions made by them.

- If the invention is the result of the work carried out with collaborating with external agencies, the ownership of the IP is determined by the agreement signed between the concerned parties.
- If on any basis the inventor must leave the institute, the rights of the disclosed IP are to be mandatorily assigned to the institute.

#### **c) Patenting Fees and Revenue Sharing**

- If MBCET is the sole owner of IP, the costs of IP protection shall be borne by the academic institution.
- In the case of collaborative work, the expenses involved in obtaining and maintaining IP protection may be shared between the parties, depending on who owns the IP.
- The revenue sharing will be determined by the agreement signed between the concerned parties.
- In case of multiple inventors, every inventor will get equal share or as per already agreed terms.
- If MBCET reassigns IP rights to inventors due to any reason, Inventors should reimburse patenting fees to the institute.

#### **d) Equity shares**

- In return for the services and facilities offered by MBCET, the institute may take zero to less than 9.5% equity/stake in the start-up/company, on a case-to-case basis, depending on factors like space, infrastructure, mentorship support, seed funds, support for accounts, patents, student/faculty contribution, support provided and use of institute's IPR.
- For staff and faculty, MBCET can take no-more than 20% of shares that staff/faculty takes while drawing full salary from the institution; however, this share will be within the 9.5% cap of company shares.
- No restriction on equity shares that faculty/staff can take, as long as they do not spend more than 20% of office time on the start-up in advisory or consultative role and do not compromise with their existing academic and administrative work/duties. In case the faculty/ staff holds the executive or managerial position for more than three months in a start-up, then they will go on sabbatical/ leave without pay/ earned leave.
- MBCET provides services based on a mixture of equity, fee-based and/ or zero payment model. So, a start-up may choose to avail only the support, and not seed funding, by the institute on rental basis.

#### **e) Disputes**

- In case of any disputes between the institution and the inventor(s)/ any other aggrieved person(s), regarding the implementation of the guidelines, operation or effect of any contract/ agreement entered into, or the validity thereof, the inventor(s)/any other aggrieved person(s) may appeal to the dispute resolution committee appointed by MBCET. The committee shall be a minimum five membered committee consisting of two faculty members (having developed sufficient IPR and translated to

commercialisation), two of the institute's alumni/ industry experts (having experience in technology commercialisation) and one legal advisor with experience in IPR and will examine the issue after meeting the inventors and help them settle the dispute.

The key **responsibilities** of the IPR cell are listed below:

- a) The IPR cell of the college formulates the procedures and guidelines for the effective implementation of the IP policy.
- b) Maintains records of the Institution's IP in an appropriate form and in sufficient manner
- c) Monitors the deadlines for the payment obligations related to the maintenance or annuity fees of protected IP, and shall, within a reasonable time, inform the person or department designated to make such payments.
- d) Conducts IP awareness programs for educating faculty/ students/ supporting staff/project staff/ visitors.
- e) Collaborates with organizations for filing, licensing/assigning of IP's to generate revenue through commercialization and Technology marketing and IP contract negotiation with third parties.
- f) Takes up issues related to the violation of IP policy of the Institute and reports the same to the management for necessary actions.
- g) Encourages and implements the IP policy in a proactive manner for the shared benefits of both the inventor and institute.
- h) Maintains the records of income/expense accounting records on each IP so that revenue sharing allocations can be calculated.

## **11. RESOURCE MOBILIZATION AND KEY INCENTIVES**

A sustainable **financial strategy** to reduce the organizational constraints to work on the entrepreneurial agenda of the Institute has been defined as follows:

- a) Investment in the entrepreneurial activities is a part of financial strategy of MBCET. Minimum 1% fund of the total annual budget of the institution is allocated for funding and supporting innovation and startups.
- b) Bringing in external funding through government sources (state and central) such as DST, MoE, AICTE, Technology Development Board (TDB), Technology Information Forecasting and Assessment Council (TIFAC), Department of Scientific and Industrial Research (DSIR), Council of Scientific & Industrial Research (CSIR), National Science & Technology Entrepreneurship Development Board (NSTEDB), National Research Development Corporation (NRDC), Startup India, Invest India, Ministry of Electronics and Information Technology (MeitY), Ministry of Skill Development and Entrepreneurship (MSDE), Ministry of Micro, Small and Medium Enterprises (MSME), etc. and non-government sources is encouraged.
- c) To support its TBI, the Institute may approach private and corporate sectors to generate funds, under Corporate Social Responsibility (CSR) as per Section 135 of the Company Act 2013.

- d) The Institute raises funding through sponsorships and donations, actively engaging its alumni network for promoting Innovation & Entrepreneurship (I&E).

The student/staff/faculty members who significantly contribute to entrepreneurial and start up activities are recognized/enabled through **incentives** listed below:

- a) The reward system for the staff/faculty includes sabbaticals, office and lab space for entrepreneurial activities, awards, and trainings related to entrepreneurship.
- b) Reduced teaching loads for those faculty members involved in start-up and entrepreneurial activities may be considered depending on the amount of work/effort required to be invested.
- c) To facilitate entrepreneurship among faculty/staff, MBCET allows the faculty/staff to take a semester/year break as sabbatical/unpaid leave/casual leave/earned leave for working on start-ups and come back. The seniority and other academic benefits during such period will be preserved for such staff or faculty.
- d) Student innovations and entrepreneurship are promoted also by facilitating break of study. This is for initiating start up if they have viable propositions for further development. In the B.Tech Regulation 2020 (Autonomy) the break of study is permitted under R16 *Break of Study*: Clause R16.3. By this rule, student will have to apply for the break of study. If the case is admissible, the College will permit students to take an academic break of study for two semesters so as to fully focus on their startup ventures and to re-join the Programme of study after the break.
- e) Students who are under incubation, but are pursuing entrepreneurial ventures while studying, are allowed to use their address in the institute to register their company with due permission from the institution.
- f) Student Entrepreneurs may earn academic credits for working on innovative prototypes/Business Models, to recognize their efforts while creating an enterprise.
- g) Student inventors are allowed to opt for start-up in place of their mini project/major project, seminars or summer trainings. The area in which student wants to initiate a start-up may be interdisciplinary or multidisciplinary. The student must describe how they will separate and clearly distinguish their ongoing research activities as a student from the work being conducted at the start-up.
- h) Student entrepreneurs having prior permission (recommended by a review committee constituted for innovation and entrepreneurship) will be given attendance proportionate to their work at the pre-incubation or incubation centres and allowed to sit for the examinations.
- i) The institution may allow use of its resources to faculty/students/staff wishing to establish a start-up as a full-time effort, on a case-by-case basis.

- j) Stakeholders in the associated start-ups may be recognised by offering use of facilities and services. The strategy for shared risk of the stakeholders may include employment as guest teachers, provision of fellowships, associateships, on a case-by-case basis.

## **12. COLLABORATIONS FOR IMPLEMENTATION OF NISP AT MBCET**

Collaborations always bring mutual benefits for the involved parties. MBCET can create collaborative environments inside and outside the institute to extend and gain benefits for the sake of successfully implementing NISP. Collaborations can range from inter-departmental level to international level. NISP-2019 insists all the institutes to collaborate with external agencies/ organizations to get benefits in various aspects. Strategic international partnerships should be developed using bilateral and multilateral channels with international innovation clusters and other relevant organizations. Moreover, international exchange programs, internships, engaging the international faculties in teaching and research should also be promoted (see Section 1, paragraph i, sub-paragraph (ii) of NISP-2019). Industry linkages should be leveraged for conducting research and survey on trends in technology, research, innovation, and market intelligence (see Section 8, paragraph b (iii) of NISP-2019). Guidelines related to collaboration, co-creation, business relationships, and knowledge exchange, proposed in NISP-2019 are consolidated below.

- a. Stakeholder engagement should be given prime importance in the entrepreneurial agenda of the institute. Institute should find potential partners, resource organizations, micro, small and medium sized enterprises (MSMEs), social enterprises, schools, alumni, professional bodies and entrepreneurs to support entrepreneurship and co-design the programs.
- b. The institute should develop policy and guidelines for forming and managing the relationships with external stakeholders including private industries.
- c. Knowledge exchange through collaboration and partnership should be made a part of institutional policy and institute must provide support mechanisms and guidance for creating, managing and coordinating these relationships. Through formal and informal mechanisms such as internships, teaching and research exchange programs, clubs, social gatherings, etc., faculty, staff and students of the institute should be given the opportunities to connect with their external environment. Connection of the institute with the external environment must be leveraged for absorbing information and experience from the external ecosystem into the institute's environment. Mechanisms should be devised by the institutions to ensure maximum exploitation of entrepreneurial opportunities with industrial and commercial collaborators.
- d. Collaborations between departments are to be encouraged. Faculty and departments of the institute must work in coherence and cross-departmental linkages should be strengthened through shared faculty, cross-faculty teaching and research in order to gain maximum utilization of internal resources and knowledge.

### **13. THE WAY FORWARD**

The uniform and successful implementation of the 'National Innovation and Start-up Policy 2019' for students and faculty of MBCET is the main objective of this policy document. To achieve this, full-fledged integration of existing facilities in the institute will be important. The roadmap suggested through this document is in accordance with the NISP-2019 framework proposed by the MoE. This will also lead to the attainment of global recognition by the College.

## REFERENCES

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- ❖ Course guideline and curriculum MBA/ PGDM in Innovation, Entrepreneurship & Venture Development (IEV), MHRD's innovation cell
- ❖ National Innovation and Start-up Policy (2019)
- ❖ Ordinance and regulations for PhD programme (2017), National Institute of Technology Calicut
- ❖ Regulations of ME/ M.Tech degree programmes (2018), PSG College of Technology, Coimbatore
- ❖ Regulations-2019, APJ Abdul Kalam Technological University (KTU)
- ❖ Revised incubation policy (2013), Indian Institute of Technology Madras
- ❖ Rules for assigning activity points for students, APJ Abdul Kalam Technological University (KTU)

## IMPORTANT WEB LINKS

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All links given below are accessed in March and April 2021 and are referred in different places in this document.

- ❖ <http://cepqip.iitd.ac.in/>
- ❖ <http://entiisc.iisc.ernet.in/>
- ❖ <http://www.incubation.iitm.ac.in/>
- ❖ <http://www.incubation.iitm.ac.in/incubation>
- ❖ <https://academia.electronicsforu.com/iit-delhi-to-allow-phd-students-to-convert-their-thesis-to-start-ups>
- ❖ <https://csie.iitm.ac.in/Education.html>
- ❖ <https://doms.iitm.ac.in/iVEIN/>
- ❖ <https://economictimes.indiatimes.com/small-biz/start-ups/newsbuzz/iit-m-cii-team-up-to-promote-innovative-green-start-ups/articleshow/71047946.cms>
- ❖ <https://entrepreneurship.mit.edu/courses/>
- ❖ <https://fitt-iitd.in/innovationplatform/faculty-innovation-and-research-driven-entrepreneurship-fire/>
- ❖ <https://mic.gov.in/PGDM-MBA>
- ❖ <https://online.stanford.edu/graduate-education>