NATIONAL INSTITUTE OF TECHNICAL TEACHERS' TRAINING AND RESEARCH BHOPAL

MINUTES OF THE 27th ACADEMIC COUNCIL HELD ON 23rd SEPTEMBER 2022 IN THE INSTITUTE'S BOARD ROOM.

No. NITTTR/AC/Min-XXVII/2022/1   Date: 6th Oct. 2022

Director, NITTTR Bhopal, chaired the twenty-seventh meeting of the Academic Council (AC) conducted on 23rd September 2022 at 10.30 AM in the Institute's Board Room. The following members were present in the meeting.

1. Dr. C. C. Tripathi, Chairman, Academic Council & Director, NITTTR, Bhopal
2. Dr. K.N. Singh, VC, Central university, South Bihar (External nominated member)
3. Dr. Binod Kumar Kanojia, Director, NIT Jalandhar, (External nominated member)
4. Dr. Avanish Shrivastava, Director AMPRI, Bhopal, (External nominated member)
5. Mr. Shishir Sinha, DG, CIPET, Chennai, (External nominated member)
6. Dr. Seema Singh, VC, UPRTOU, Prayagraj, (External nominated member)
7. Mr. G.T. Pandya, Director, DTE , Gujarat (External nominated member)
8. Dr. Anil Kothari, DG, MPCST, Bhopal (External nominated member)
9. Dr. Dharmendra Singh, Professor IIT Roorkee (External nominated member – attended Online)
10. Dr. Ashutosh Singh, Professor, NIT Kurukshetra (External nominated member)
11. Dr. Santhan Suhag, Professor, NIT Kurukshetra (External nominated member)
12. Dr. R.K. Baghel, Professor, MANIT, Bhopal (External nominated member)
13. Mr. K.K. Arora, General Manager NHAI (External nominated member – attended online)
14. Dr. Sudheer Bhadoria, Director UIT, RGPV, Bhopal (External nominated member)
15. Dr. Ramesh Chand Ramola, Director (HSST), Swami Rama Himalaya University, Dehradun (External nominated member)
16. DR. Shashi Ranjan Akela, RGPV, Bhopal (External nominated member)
17. Dr. K. K. Jain, Member
18. Dr. R.P. Khambayat, Member
19. Dr. B. L. Gupta, Member
20. Dr. A.K. Jain, Member
21. Dr. R. K. Dixit, Member
22. Dr. J. P. Tegar, Member
23. Dr. Anju Rawlley, Member
24. Dr. Aashish Deshpande, Member
25. Dr. Subrat Roy, Member
26. Dr. C. S. Rajeshwari, Member
27. Dr. P. K. Purohit, Member
28. Dr. Nishit Dubey, Member
29. Dr. S.S. Kedar, Member

30.   Dr. Sharad Pradhan, Member
31.   Dr. M.A. Rizvi, Member
32.   Dr. Ajay K. Sarathe, Member
33.   Dr. Vandana Somkunwar, Member
34.   Dr. K. J. Mathai, Member (nominated, Associate Professor)
35.   Dr. V.D. Patil, Member (nominated, Associate Professor)
36.   Dr. Anjana Tiwari, Member (nominated, Assistant Professor)
37.   Dr. Bashirullah Shaik, Member (nominated, Assistant Professor)
38.   Prof. A.A. Khachanchi (Professor Incharge Stores, Special Invitee)
39.   Dr. Sanjay Agrawal, Member Secretary, Academic Council.

The following could not attend the meeting.
1.   Dr. Parag Dubey, Member
2.   Dr. R.B. Shivagunde, Member
3.   Dr. A.S. Walke, Member
4.   Dr. Alan Rocha, Member
5.   Dr. Ravi Kant Kapoor, Member

The Chairman of, the Academic Council, welcomed the external nominated members of the academic council. With the permission of the Chair, the Secretary placed the agenda items. The following were resolved in the meeting after detailed discussions.

Agenda No. 27.1: To confirm the minutes of the 26th meeting of the Academic   Council held on 9th December 2020

It was informed to the house that the minutes of the 26th Academic Council meeting held on 9th December 2020 were circulated amongst the members. No Comments have been received to date.
The Academic Council confirmed the minutes of the meeting of the twenty-sixth academic council meeting.

Agenda No. 26.2: Action taken report on the minutes of the 26th meeting of the Academic Council held on 9th December 2020

The action taken report was tabled on the agenda items of the 26th Academic Council in the house, and the same was approved.

Agenda No. 27.3: To Organise Eminent Lecture Series (2022-23) celebrating Azadi Ka Amrit Mahotsav (75th Independence Day)

Council members very well appreciated the efforts of the Institute. Members approve the proposed themes for the eminent lecture series

- Best Teaching Learning Practices and Innovation
- Innovative Teaching and Learning Practices
- Indian scientists and technocrat's contribution to India's Independence and education

Apart from this Members are of the opinion that Lectures should also be organized on

- Indo Centric Education
- Scientist contribution to freedom fights
- Institutional Building
- Bhartiya Gyan Parampara
- Conviction and the determination of a developed India
- Get rid of any signs of slavery
- Take pride in India's history
- The power of unity
- duties of citizens

Members also suggested that These lectures should connect Past to Present and How these may be implemented in future. **The detailed proposal is placed as Annexure -1.**

The academic council approves the proposal.

Agenda No. 27.4: To Establishment of Centre for Experiential Learning Cell at NITTTR, Bhopal to enhance teaching-learning activities of the Institute.

Chairman Academic council appraise the house regarding the concept of the Centre of Experiential Learning Cell at NITTTR Bhopal, to promote innovation in teaching pedagogy and facilitate the development of experiential learning tools. This Cell will also help to integrate various experiential pedagogical practices into teaching models, thereby enabling multidisciplinary education in an interconnected world. The Vision, Mission, deliverables, financial requirements and Operational Plan were also discussed. The following deliverables and financial requirements are approved by the Academic Council:

Deliverables: It is estimated that the centre would facilitate 100 participants per annum initially, which will be revised based on the first-year review.

1. Develop 100 experiential learning teaching aids for dissemination amongst polytechnics and engineering colleges.
2. Generate 5-10 IPRs for possible commercialization
3. Develop 100 learning resources with teaching notes and multimedia presentations
4. 50+ Research publications

Financial requirements:
- Recurring: Rs. 100 Lakhs per annum
- Non-Recurring: Rs. 40 Lakhs for the first year of establishing the centre

Agenda No. 27.5 Research Project Proposals through Internal Funding for 2022-23

It was informed to the Council that the internal research funding initiative started in 2019-20, with reference to No. Admn/BOG/205/4229 dated 20.12.2018 of Extract from Minutes of the Meeting of 142nd BOG held on 03/11/2018. For the year 2019-20 17 research studies were given to the Faculty members, it was also informed that the report of the studies are also received and was well appreciated. In Continuation, it is proposed to invite research Project Proposals for FY 2022-23 from all the faculty members of the Institute.

It was also informed to the members that all the general conditions and project approval process would be similar as followed in the Internal Project funding cycle 2019-20.

The academic council appreciated the efforts and approved the proposal. **A list of suggestive sub-areas/topics under the five themes is also placed in Annexure - 2.**

Agenda No. 27.6 To offer Short-Term and Long-Term Internship Programmes.

The chairman Academic council appraise the council regarding the objective of the Internship Programme, that These internships will provide a platform where students will get hands-on experience with state-of-the-art technologies to develop abilities that will help them to prepare for taking up employment/self-employment opportunities in diverse sectors. At the same time, it will ensure working arms to the faculty in the Institute.

The Academic council approves the proposal of offering Short–Term and Long-Term Internship to the passed out/ongoing students of Diploma/UG/PG engineering/technology/science & diploma courses from recognized Universities and Colleges for getting project-based industrial training under internship programme. Council members also approve the three types of Internship

A. **Free Internship:** Internships will be free, where no Institute resources are used for the Institute purposes**,** and interns will act as working arms and Institute meeting social obligations.
B. **Paid Internship:** In the case of highly funded projects, the internship will be paid.
C. **Charged Internship:** If significant investments done by the Institute, the internship will be offered based on the Fee, such as in emerging areas under COE.

However, the power of exemption of fees/stipends under categories B and C will be with the competent authority.

Agenda No. 27.7 To offer PG Diploma and Certificate courses for UG and Diploma students through Siemens Centre of Excellence

Academic Council resolved to offer the following programmes through the Siemens Centre of Excellence.

i. **Certificate Course:** 2 Months duration in the subjects of emerging areas.
    Eligibility: Science / Engineering Graduates
ii. **Advanced Diploma** in emerging areas: Six Month duration
    Eligibility: Diploma / Degree (Three years in relevant Branch)
iii. **PG Diploma** in emerging areas: one-year duration
    Eligibility: Degree in Engineering / Science in a relevant Branch

It was also resolved that the above courses will be designed so that minimum hours/credits per course requirement will be maintained per regulatory body norms. A credit transfer mechanism will also be created as per NEP-2020.

Agenda No. 27.8 Revised Fee structure for conducting calendar training programme of NITTTR, Bhopal

Academic Council considers the proposal of revising the Fee structure for conducting the calendar training programme of NITTTR, Bhopal. The following Fee structure is resolved for conducting the calendar training programme of NITTTR, Bhopal.

AICTE approved Govt./Govt. aided Technical Institutions:

Sl. No.	Particulars of Fees and other Charges	Contact mode	Online mode
1.	Registration Fee	Rs. 100 + 18% GST (per participant per programme)	Rs. 100+18% GST (per participant per programme)
	Boarding/Lodging	Accommodation (on twin sharing basis) & food will be provided free of cost by Institute.	--
	TA	Reimbursable as per eligibility/ up to 3rd AC/AC bus	--

AICTE-approved self-financing Technical Institutions:

Sl. No.	Particulars of Fees and other Charges	Contact mode	Online mode
1.	Registration Fee	Rs. 100 + 18% GST (per participant per programme)	Rs. 100+18% GST (per participant per programme)
	Boarding/Lodging	Accommodation (twin sharing basis) will be charged @ Rs 200.00 per day per participant. Food will be charged on an actual cost basis as per institute norms.	--
	TA	Not reimbursable	--

It was also resolved that the maximum number of participants admissible from AICTE-approved self-financing Technical Institutions for the calendar programme, will be finalized by the separate committee constituted for the purpose.

Further, it was also resolved that for conducting need based Non-calendar training programme in Offline and online modes Rs. 500/- (Rs. Five hundred only) +GST per day per participant will be charged from the AICTE-approved self-financing Technical institutions and Govt./Govt. aided Technical Institutions

Agenda No. 27.9 To offer Modular M.Tech. Programmes with Education Technology by NITTTR, Bhopal

After detailed deliberations, the academic council resolved to start following M.Tech and MBA Programmes in the Emerging Areas with a minor in Education Technology in a modular mode having options of multi-entry and Exit.

To finalise the Curriculum, Mode of Delivery and other related details, the academic council authorized Director, NITTTR Bhopal to appoint a committee for the purpose.

Sl. No.	Discipline	Major/ Specialization	Number of seats
1.	Civil Engineering	Green and Sustainable Construction (GSC)	18
2.	Computer Science and Engineering	Data Analytics (DA)	18
3.	Mechanical Engineering	Industrial Automation (IA)	18
4.	Electrical & Electronics Engineering	IoT and Sensor Systems (ISS)	18
5.	Management (MBA)	Finance/ HR/ Marketing	30

Agenda No. 27.10 To Approve recognition/awards for good work by the faculty

Academic Council appreciated the proposal and resolved that recognition/awards for good work by the faculty members are to be given in the following seven categories and the award amount shall be Rs. 21,000/- for each of the categories.

1- Innovative Faculty development programmes offered, other than calendar programs in the Emerging areas
2- Best paper by the number of publications in SCOPUS journal
3- Best Research Award (H-index)
4- Best Researcher Category (SCI Journal with impact factor)
5- Best Researcher: Publications (Education Technology, Engineering & Technology/ Science, Management) – in terms of the highest number of external collaborations
6- Best Research Project (Engineering & Technology, Science, Management) by funding amount
7- Best Research Project (Education Technology)

Agenda No. 27.11 To approve the panel for selection of Professors, Associate Professors and Assistant Professors (selection grades), and Assistant Professor for recruitment/promotion under CAS for various departments.

Sealed envelopes received from the respective departments are handed over to the Chairman Academic council. Council members authorized the chairman Academic council to take further appropriate action on this.

Agenda No. 27.12 To Approve Innovation and Startup Policy of NITTTR Bhopal

It was informed to the council that Higher Education Institutions were directed by the ministry to form Institute's Innovation and Startup policy. Institute also developed its Innovation and startup policy. This policy will enable the institutes to actively engage faculties, staff, students, alumni, and potential startup applicants outside the institution in innovation and entrepreneurship-related activities.

Academic Council approves the Innovation and startup policy of NITTTR Bhopal. **This policy is placed as Annexure - 3.**

Agenda No. 27.13 To organize training programmes under PM Gati Shakti Project

Co-ordinator PM-Gatishakti, NITTTR, Bhopal appraise the council that NITTTR, Bhopal has identified the thirteen Titles of training programs in line with that of NITIE, Mumbai (a nodal hub designated by MoE for PM Gati Shakti Initiative) in which the curriculum of the program will be suitably modified using Institute experience and expertise.

Members of the Academic Council were of opinion that these, programs are the indicators of our proactive commitment towards the PM Gati Shakti project of the Government of India and approved the proposal for organising training programmes under PM Gati Shakti Project.

Agenda No. 27.14 To develop a Digital Platform to offer various Courses on Education Pedagogy and emerging area subjects.
Academic Council approved the proposal to develop a facility over Cloud platform for the teachers and Institutions of various disciplines like Humanities, Science, Agriculture, Pharmacy, Engineering and Technology, management, Arts and Commerce, Social Science and Liberal Arts etc. to offer their MOOCs on the platform.

Agenda No. 27.15 Any other matter with the permission of the chairman.

**Agenda No. 27.15.1 Equivalence of Induction Training Programme Phase – I
and Phase – II to Advanced Pedagogy Programme**

Dean Academics, NITTTR, Bhopal informed the Academic Council that NITTTR, Bhopal is actively supporting AICTE in the National Initiative for Technical Teachers Training (for Inductee Teachers). Having profoundly studied the broad aim and the overall content coverage, it is observed that most of the contents covered in the induction programme phase 1 and 2 offered by NITTTR, Bhopal are equivalent to the advanced pedagogy programme proposed by AICTE.

After detailed deliberations members approved the proposal that the teachers who have already completed the both induction training programme Phase - 1 and induction training programme Phase - 2 from NITTTR, Bhopal from April 2016 onwards may be considered equivalent to the Advanced Pedagogy course as proposed by the AICTE, to benefit the in-service teachers in getting the promotional benefits under the CAS by the respective States.

Agenda No. 27.15.2 To consider renaming the existing departments

After detailed deliberations academic council approves to rename the existing departments as per the following nomenclature. The suggested names would be:

1. Department of Civil and Environmental Engineering
2. Department of Computer Science and Engineering
3. Department of Applied Science
4. Department of Electrical and Electronics Engineering
5. Department of Management
6. Department of Mechanical Engineering
7. Department of Technical and Vocational Education
8. Department of Curriculum Development and Assessment
9. Department of Media Research and Development

The meeting concluded with a vote of thanks to the chair and the esteemed members.

Sd/	Sd/
Dr. Sanjay Agrawal	Dr. C.C. Tripathi
Member Secretary, Academic Council	Chairman, Academic Council

Copy to:

1.	All members of the Academic Council
2.	PA to Director for kind information to the Director;

Eminent Lecture Series (2022-23)

Celebrating Azadi Ka Amrit Mahotsav

Themes

This year the themes for the lecture series are;

- *Best Teaching Learning Practices and Innovation*

- *Innovative Teaching and Learning Practices*

- *Technical Teachers' contribution in India's Independence and education*

Rationale

Is 21st Century Pedagogy a new approach? The 21st century pedagogy aims to develop skills and knowledge students need to succeed in the workplace, their lives, and as citizens. The 21st century skills can be incorporated into any educational, career, or civic setting that a student experiences throughout his or her lifetime. In many cases, college is the most diverse environment that students ever experienced. Our educational system provides the opportunity for students to become the architects and actors of a better, more inclusive world. The foundation for this opportunity lies in the quality of education. Every discipline has the potential to enable diverse students to learn from one another, work together, solve problems, and envision possibilities together.

Purpose

Azadi Ka Amrit Mahotsav is an initiative of the Government of India to celebrate and commemorate 75 years of independence and the glorious history of it's people, culture and achievements. This year, celebrating Azadi Ka Amrit Mahotsav, the purpose of the Eminent Lecture Series is to share the vast and interesting knowledge of experts of the technical teachers fraternity, academia, industry, government from India or abroad, while also providing a sense of community, allowing institute faculty from various disciplines to gather and providing faculty with the opportunity to learn about other disciplines.

Characteristics & Expectations

The following are characteristics and expectations of the Lecture Series.

- Presenters will usually be eminent speakers from academia, industry, government from India or abroad.

- A faculty member can nominate a presenter or volunteer to present, through their respective department Head and approval of the Director.
- The nominating department will select and organize presentations 3 to 5 lecture a year.
- The goal is to have three to five lecture presentations per department, evenly spread throughout the year.
- A short biography and an abstract of the speaker's talk will be requested approximately two to three weeks prior to the event.
- Although the target audience for the lectures are faculty, student, participants of training programmes, any employee or member of the public may attend (up to room capacity).
- Lectures will be of 50 minutes or less followed by Q&A, at the discretion of the speaker .
- If the speaker has special needs, such as props, furniture, use of water, etc, this should be discussed with the Planning and Monitoring Office before the date and time of the lecture are determined in order to assure adequate facilities in consultation with MRDC.
- A "lecture" may include, but is not limited to, a typical lecture, demonstration, performance, or interactive activity for the purposes of this programme. Non-traditional lectures should be discussed with the Director when finalizing a speaking engagement.
- The speaker slots may be based on the speaker's nomination by each department and their availability, and the slot must be booked as soon as confirmed by the speaker for better plan and management.

Outcomes

Besides offering new insights from experienced academics and industry professionals, the lecture series will also offer guidance for knowledge development and research to faculty, students, and participants. It would provide;

- Interactions with highly accomplished academicians, researchers and industry experts
- Bring togather faculty from various disciplines, and provide faculty, students and participants the chance to learn about other disciplines.
- Over the course of an academic year, a good number of lectures will be planned for the lecture series.
- MRDC will record interviews in cooperation with the organizing department for the institute's website hosting / podcast.

Operationalization Plan

In an academic year, at least three to five lectures must be organized by each department. The individual departments are in-charge of selecting speakers in consultation with the Director and determining lecture dates and times, which are assisted by the Planning and Monitoring office. Various sections/office institute level committees would jointly organise the event. After the lecture presentation/ talk, informal interaction would be on high tea for each lecture. The speakers would be institute guests and the *event would be organized by the nominating department*.

An outline of activities and responsibilities are as under;

I. Organizing department will prepare proposal

A proposal to be given by departments in the following format via Planning & Monitoring Office for consideration of the Director with a brief biography with following details.

- Name of Invited Expert with affiliation and contact details
- Bioskech
- Lecture title
- Proposed date and time for lecture
- Mode of presentation / lecture

II. Organizing demaprtment will process and cover the following with due approval of the Director

- Honorarium
- TA & DA of the speaker
- All administrative and financial approvals
- Acadmic activity of the event (Q&A session and Interview recording with DMRDE) etc.

III. Orgnizigng department will also arrange

- Raportier to prepare the summary of the session
- Session overall coordination and anchoring
- Participants registration and invitation etc.

For the above activities, the functional sections/offices and constituted Insitute level committees will work together in coordination with the organizing department. An indicative list of task is listed below;

I. Institute Web Committee

A. Creating activity page of the Lecture Series

B. Posting and updating as received from the organizing departments from time to time

C. Promotion poster for web (in coordination with DMRDE)

D. Bio sketch posting

E. Link for webcast (if any)

F. Video recording / interview snipits (in coordination withDMRDE) etc.

II. Hospitality committee (Dean (E & IM) Offce, Warden Office, and Establishment Section in consultation with the organizing department)

A. For speaker's pick-up and drop

B. Accommodation and housekeeping

C. Sightseeing and local engagements

D. Security and housekeeping arrangements etc.

II. Event organizing committee (DMRDE in consultation with the organizing department)

A. Banner design and presentation

B. Poster design and print (if needed)

C. Dias management

D. Audio video facility

E. Welcome kit for the speaker (flowers, memento, gifts) etc.

III. Press & Publicity (PRO in consultation with the organizing department)

A. Press release

B. Web posts including social media engagements

C. Invite press and media personnel for coverage etc.

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National Institute of Technical Teachers' Training & Research, Bhopal

Call for Project Proposals (Internal Research Funding)- 2022-23.

Continuing the internal research funding initiative started in 2019-20, a 'Call for Project Proposals' (CFPP) for FY 2022-23 is open for all the faculty members of the institute.

The technology development, technology impact, engineering education, and especially reviving of India's knowledge systems for modern Indian education and society are important research areas for aligning technical teacher training and research with NEP-2020 goals. This year, the project proposals are invited in the five themes and preference would be given for the research projects from the nine priority areas as detailed below.

Themes

1. TECHNOLOGY DEVELOPMENT
2. TECHNOLOGY IMPACTS
3. ENGINEERING EDUCATION
4. REVIVING INDIA'S KNOWLEDGE SYSTEMS FOR INDIAN EDUCATION AND SOCIETY
5. NATIONAL EDUCATION POLICY – 2020

For this year's the following within these five themes the projects under the following nine areas are proposed for priority funding and would be given preference.

Priority Areas

I. INTEGRATED TRANSPORT
II. WASTEWATER TREATMENT AND WATER RESOURCE RECOVERY
III. DRONE (UNMANNED AERIAL VEHICLE) TECHNOLOGY
IV. CLIMATE CHANGE AND GREEN ENERGY
V. FARM TECHNOLOGIES (AGRICULTURE) & GEOSPATIAL TECHNOLOGY
   - REMOTE SENSING/GIS/ GPS ETC
VI. SENSOR DISPLAY TECHNOLOGIES
   - OUTSOURCED SEMICONDUCTOR ASSEMBLY & TEST (OSAT) ETC
VII. NANOTECHNOLOGIES
VIII. INDIAN KNOWLEDGE SYSTEM
IX. WASTE TO WEALTH / CIRCULAR ECONOMY

A list of suggestive sub-areas/topics under the five themes are annexed with this CFPP.

Important Dates

- Launch of CFPP via email notification: **July 22, 2022**
- Last date to submit project proposal: **August 16, 2022**
- Review and evaluation: **August-September 2022**
- Announcement of final result: **September 2022**

Eligibility

- Each application must list one Principal Investigator and opt one Co-Principal Investigator if needed.
- Project in above listed nine areas will be prioritized for funding; the technology concept and/or application must be formulated.

Project Timeline and Budget Parameters/Amount

Innovative proposals with maximum duration of **24 months** are invited. In continuation of the recommendations of the Project Award & Monitoring Committee (PAMC) 2019-20 the budget will cover;

- Each project investigator (PI) may hire a research fellow (JRF) for maximum of two years as per AICTE/UGC norms (the required qualifications may be clearly specified for preparation of common advertisement for the recruitment on purely contractual basis)
- Rs. 75,000 towards travel expenses (one time), and
- Rs. 25,000 towards contingency (one time)

In addition to above, the projects, in listed priority areas will be provided the equipment and software etc. from the institute main budget through respective departments with the limit to be decided by the PAMC when project awards are made.

Expected Outcomes:

- Publication in SCI Journal with minimum 1 Impact Factor/ Patent for product/process.

Application Instructions

A. Please note following important application instructions.
   - Research projects of two (2) years in duration are eligible for funding.
   - Each faculty member should submit one proposal as PI, and no faculty member can be a Co-PI without submitting a proposal as PI.
   - Funding beyond the first year of the project will be contingent upon successful progress being made in the previous year as determined by the review processes.
   - Any shortcomings in the proposal or non-submission through the official mode of the institute the PI will be responsible for the shortcomings.

B. Applications must address all the following criteria to be considered for funding:
   - Quality of the proposal and research findings, including significance and originality;
   - Relevance and outcomes, including benefit to society;
   - Knowledge transfer and dissemination;
   - Expected results, outcomes, and appropriateness of financial prudence to achieve them.

Review Process for Evaluation of Applications

- All applications will be handled in the strictest of confidence.
- A Review Committee as Project Award and Monitoring Committee (PAMC) comprised of institute representatives and independent external reviewers will examine the proposals and reach consensus within the overall budget framework about which projects should be funded.
- Once a consensual decision has been reached on projects to be funded the institute will follow normal processes and norms to notify applicants about their funding decisions.
- PAMC may consider inviting Project Investigator for presentation of the proposed work as part of the review process. Applications must attain a positive rating to be considered eligible for funding.
- For projects in priority area, the PAMC would invite PI and concern HOD for discussion on equipment, software, subscriptions etc. requirements and recommend to include in procurement through institute budget as per institute norms.
- Decisions made by the Review Committee i.e. PAMC will be final.

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Research Themes & Areas

For the year 2022-23, project proposals under the following themes and areas are invited;

Technology Development

1. Artificial Intelligence
2. Internet of Things (IoT)
3. Block chain
4. Machine Learning
5. Robotics
6. Quantum Computing
7. Data Sciences
8. Cyber Security
9. 3D Printing and Design
10. Augmented Reality (AR)/ Virtual Reality (VR)
11. Drones

Technology Impacts

12. Nano Materials
13. Green Chemistry and Catalysis
14. Geological Remote Sensing
15. Environmental Engineering
16. Green Technology
17. Automotive Research
18. Smart Infrastructure
19. Education Technology
20. Climate Change
21. Sustainability
22. Biodiversity and Conservation

Engineering Education

23. Engineering epistemologies (research what constitutes engineering thinking and knowledge in current and future social contexts.)
24. Engineering learning systems and mechanisms (research on the development of engineering learners' knowledge and competencies in context and engineering educators' instructional culture, institutional infrastructure, and their epistemology.)
25. Engineering diversity and inclusiveness (research how diverse human talents solve social and global challenges.)
26. Engineering assessment (research into the assessment methods, instruments, and metrics to improve engineering education practice and learning.)

27. Holistic Education
28. ABC Credit System
29. Innovative Pedagogical Practices
30. Instructional practices promoting emotional, social and academic development
31. Culturally responsive teaching
32. Artificial Intelligence in Education
33. Multilingual translation
34. ICT-infused Education & E-Learning
35. Teaching-learning with new technologies
36. Art integrated Education
37. Meditation & Allied Practices
38. Brain-Based Learning
39. Visual & Performing Arts

Reviving India's Knowledge Systems for Indian Education and Society

40. The essence of the Bhagwat Gita in modern management
41. Significance of Kautilya's Arthsastra in Modern Management, Good Governance, Ethical Leadership and imperatives for economic development.
42. Application of Ancient Indian Sutras in Strategic Management and Sustainability
43. Value-based transformational leadership and good governance
44. Connective Indian philosophy – IKS with the corporate world
45. Organizational Development based on Kautilya's Arthshastra
46. Vedic perspective on Emotional Intelligence
47. Mathematics in Sulabhasutra, Jyopatti, Pingala's Chandassastra,
48. Regional revitalization and Sustainable Development
49. Social Entrepreneurship village economy
50. Mercantile system and entrepreneurship development
51. Spirituality and capitalism (Coexistence)

52. Learnings for entrepreneurial success from ancient India
53. Management of Yogasutra in lifelong learning
54. Management of Yogasutra in leadership development
55. Human wellbeing in IKS and sustainability
56. Emotional intelligence through Vedas
57. Ethics and Moral value from the Indian mythology
58. HR and management lessons from Ramayana
59. The society of Ramayana
60. Ancient Indian wisdom from Ramayana
61. Sustainable agriculture and preservation methods
62. Indian psychology, yoga and consciousness studies
63. Development and management of water resources in Ancient India
64. Vaastu and Shilpa shastra in Indian architecture
65. Indigenous Knowledge Systems for Technology Development
66. Holistic medicine and wellness
67. Novel materials, metallurgy, and material sciences in India
68. Traditional knowledge systems in India

National Education Policy – 2020

69. Academic Leadership (Institution Building, Risk Management, Institute Resources Management, Decision Making, Time Management, Team building, Project Management)
70. Financing of Education: Cost-efficiency and Cost-effectiveness
71. Decentralization and liberalization in NEP-2020
72. Redefining quality in education policy
73. Strengthening linkages with industry
74. Equity in higher education
75. Academic followership
76. Sustainable change management
77. Quality Models for education performance excellence framework

78. Community service importance
79. Soft Skills and education
80. Education and culture
81. Universal Human Values
82. Contributions for Society
83. ABC Credit System
84. Mentoring
85. Governance, Autonomy and Accreditation
86. Internationalization of education
87. Vocationalization of education
88. Engaging Pedagogy
89. Portfolio-based assessment
90. Integrity and ethics in research
91. Regulatory mechanism and strategies
92. Dimension and magnitude of transformation in implementation of NEP-2020
93. Cooperative federalism and economic implications of NEP-2020
94. Education access and differentiation
95. NEP 2020 Implementation Successes and Failures case studies
96. Policy responses and programmatic interventions to improve higher education policies, planning, management, and financing.
97. Evaluation of educational reform initiatives
98. Closing the achievement gap and college readiness
99. Impact studies of NEP-2020 and future

*****

FORMAT for Project Proposal (Internal Research Funding) 2022-23.

Theme/Area of proposal:
Title of proposal:
Abstract:
Objective - Project Significance / Relevance:
Project Impact -Expected outcome:
Literature survey on National &International scenario
Techno-Commercial status / Outcome / IPR / Social benefit /other

Time and activity chart

Activity	Months												
	0	2	4	6	8	10	12	14	16	18	20	22	24

Add rows as required

Budget Estimates – Non-Recurring
(Preference would be given to priority areas for year 2022-23)

Proposed equipment/software	Specifications	No of units	Cost in Rs.	Justification
Total				

Add rows as required

Budget Estimates –Recurring

	Estimate for Year 1	Estimate for Year 2
Total		

Add rows as required

Requirement of Research Fellow (JRF): YES/NO **If Yes** **Essential Qualifications:** *Ps: To be hired for maximum of 2 years as per AICTE/UGC norms (the required qualifications may be clearly specified for preparation of common advertisement for the recruitment on purely contractual basis)*

Details of Principal Investigator

Name			
Designation			
Department			
Qualifications	UG:	PG:	PhD:
Experience in years	Teaching:	Industry:	Research:
Publications	National:	International:	Books:
Relevant experience	Attach separately as needed		
Other information	Give any other information that will help in accepting /funding this project		
Email			

Details of Co-Principal Investigator (Optional)

Name			
Designation			
Department			
Qualifications	PG:		PhD:
Experience in years	Teaching:	Industry:	Research:
Publications	National:	International:	Books:
Relevant experience	Attach separately as needed		
Other information	Give any other information that will help in accepting /funding this project		
Email			

Details of earlier projects awarded from the Institute (Give details of grants received in last three years)

Name of the coordinator	Project Title	Project Status	Brief about work done / reason for non-completion

I/We undertake to

- ☑ Abide by all the rules / regulations regarding utilization of amount that may be granted.
- ☑ Submit timely progress reports (quarterly).
- ☑ Submit utilization/completion certificate when project period is over.
- ☑ Submit project report in 3 copies and PDF.

Signature of Co-Principal Investigator (if any)   Signature of Principal Investigator

Date:
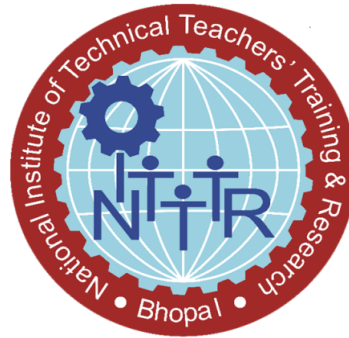
INSTITUTE INNOVATION & STARTUP POLICY & PROCEDURES 2021
(IISP 2021)
NITTTR BHOPAL

Contents

NITTTR BHOPAL Innovation and Startup Policy 2021

Vision

To become an internationally acclaimed centre for promoting innovative technologies and startup initiatives by providing support and assistance to the new-age innovators and entrepreneurial talents among students, faculty, staff, and community.

1. **Strategies and Governance**

   a. Entrepreneurship promotion and development will be one of the major dimensions of NITTTR Bhopal's strategy. For facilitating the development of an entrepreneurial ecosystem in the organisation, specific objectives and associated performance indicators have been defined.

   b. The mission statement of the institute will be modified in the future for the inclusion of entrepreneurial vision at NITTTR Bhopal. The entrepreneurial schema will be the responsibility of a senior person at the level of professor or equivalent position to bring in the required commitment and will be well understood by the higher authorities. This person will be very carefully chosen from someone who understands the industry and, above all, business.

   c. A resource mobilisation plan will be worked out at the Institute for supporting pre-incubation, incubation infrastructure, and related facilities. A sustainable financial strategy will be in order to reduce the organisational constraints to work on the entrepreneurial agenda.

      i. Investment in entrepreneurial activities will be included in the financial strategy of the institution. Two percent (which is the minimum) fund of the total annual budget (of the institution) will be allocated for supporting and funding innovation and startups related activities through the creation of a separate 'Innovation fund'.

      ii. The strategy will also include raising funds from diverse sources to reduce pendency on public funding. Bringing in funding through government (state and central) such as AICTE, DST, DBT, MHRD, TDB, TIFAC, DSIR, BIRAC, CSIR, NSTEDB, NRDC, Startup India, Invest India, MSDE, MSME, MeitY, etc. and non-government sources will be encouraged.

      iii. To support technology incubators, academic institutes will approach corporate and private sectors for generating funds under CSR per Section 135 of the Company Act 2013.

      iv. Institute will also raise funding through donations and sponsorships. Institute will actively engross the alumni network for promoting Innovation & Entrepreneurship (I&E).

   d. Decision making hierarchical barriers will be curtailed, and individual autonomy and ownership of initiatives will be promoted for expediting.

   e. The importance of innovation and entrepreneurial agenda will be known across the institute and will be promoted and emphasised at institutional programs such

as seminars, convocations, conferences, workshops, etc.

f.   Student and faculty startup policy, procedures, and action plan will be formulated at the Institute level, which is in line with the existing document along with well-defined short-term and long-term goals. A micro action plan will also be developed by the institutes to accomplish the policy objectives.

g.   Institute will develop and implement an I & E strategy and policy for the entire institute in order to assimilate the entrepreneurial activities across various centres, departments, faculties within the institutes, thus breaking the silos.

h.   Product to market strategy for startups will be developed by the institute on case to case basis.

i.   The development of entrepreneurship culture will not be limited within the boundaries of the institution.

    i.   NITTTR Bhopal will be the driving force in developing entrepreneurship culture in its vicinity (regional, social, and community level). This will include giving opportunities for regional startups, provision to encompass facilities for outsiders, and active engrossment of the institute in providing strategic direction for local development.

    ii.   Strategic international partnerships will be developed using two-sided and multilateral channels with international innovation groups and other relevant organisations. Also, international exchange programs, internships, engaging the global faculties in teaching and research will also be promoted.

2.   **Startups Enabling Institutional Infrastructure**

The creation of pre-incubation and incubation facilities for nurturing innovations and startups in NITTTR Bhopal will be undertaken. Incubation and Innovation will be organically interlinked. With innovation, new enterprises are likely to succeed. The aim of the efforts would be to link innovation to enterprises to financial success.

a.   NITTTR Bhopal will create facilities within their institution for supporting pre-incubation (e.g. IICs as per the guidelines by MHRD's Innovation Cell, IEDC, New-Gen IEDC, Innovation Cell, Startup Cell, Student Clubs, etc., and Incubation/acceleration by activating resources from external and internal sources.

b.   This Pre-Incubation/Incubation facility will be available 24x7 to students, staff, and faculty of all disciplines and departments across the institution.

c.   Pre-incubation facilities will not be a separate registered entity. Or 'Incubation cum Technology Commercialization Unit' (ITCU) will be a separate entity (SPV) registered under Section-8 of Company Act 2013 or 'Society' listed under Society Registration

Act with an independent governance structure. It will allow more freedom to Incubators in making decisions with less administrative hassles for performing the programs connected to innovation, IPR and Startups.

d.   NITTTR Bhopal will offer mentoring and other relevant services through Pre-incubation/Incubation units in return for fees, sharing of equity, and (or) zero payment basis. The norms regarding Equity Sharing in Startups supported through these units will rest upon the nature of services rendered by these units.

3.   **Nurturing Innovations and Startups**

a.   NITTTR Bhopal will establish processes and mechanisms for creation and nurturing of Startups/enterprises by students of UG, PG, Ph.D., staff (including temporary or project staff), faculty, alumni, and potential startup applicants even from outside the institutions.

b.   While defining their processes, NITTTR Bhopal will ensure to achieve the following:

i.   Incubation support: Offer to use pre-incubation & Incubation facility for startups by students, staff, and faculty for a mutually acceptable time frame.

In case a NITTTR Bhopal doesn't have a dedicated facility/infrastructure that fits its own, then it may reach out to the other incubation facilities in other HEIs in order to facilitate access to their students, staff, and faculty.

ii.   Will permit licensing of IPR from institute to start up: Preferably, students and faculty members aiming to initiate startups on the technology established or co-developed by them or the technology possessed by the institute will be allowed to take a license on the said technology on an easy term, either in the condition of equity in the venture and/or license fees and/or royalty to avoid the early-stage financial burden.

iii.   Will permit setting up a startup (including social and not for profit startups) and working part-time for the startups while studying/working: HEIs will allow their students/staff to effort on their innovative projects and establish startups (including Social Startups) or work as an intern/part-time in startups (incubated in any HEIs/Incubators) while studying/ working. Student Entrepreneurs will earn credits for working on innovative prototypes/Business Models. Institute will need to develop clear guidelines to formalise this mechanism. Student inventors will also be permitted to opt for a startup in place of their mini project/ major project, seminars, summer training. The area in which student wishes to initiate startup will be interdisciplinary or multi-disciplinary. However, the student must define how they will separate and clearly

differentiate the ongoing research activities as a student from work being carried at the startup.

c. Students who are under incubation and are pursuing some entrepreneurial ventures while studying will be allowed to use their address in the institute/hostel to register their company with due permission from the institution.

d. Students entrepreneurs will be allowed to take the examination, even if their attendance is less than the minimum required percentage, with due permission from the institute.

e. NITTTR Bhopal will allow their students to take a break of a semester/year (or even more to work on their startups and re-join academics to complete the course. Student entrepreneurs will earn academic credits for their efforts put in for creation of an enterprise. Institute will establish a review committee for review of a start-up by students, and based on the progress made; it will consider giving appropriate credits for academics.

f. NITTTR Bhopal will explore the provision of space to the entrepreneurs within the campus for some time.

g. Permit faculty and staff to take off or a semester/year (or even more) a sabbatical/unpaid leave/casual leave/earned leave or other leave for working on startups and coming back. The institution will consider allowing the use of its resource to faculty/students/staff wishing to establish start-up as a full-time effort. The seniority and other academic benefits in such a period will be preserved for such staff or faculty.

h. Start a part-time/full-time MS/MBA/ PGDM (Innovation, entrepreneurship and venture development) program where one will be able to get a degree while incubating and fostering a startup company. AICTE has issued guidelines for a similar program.

i. NITTTR Bhopal will facilitate the startup activities/technology advancement by allowing students/faculty/staff to utilise institute infrastructure and facilities, as per the will of the potential entrepreneur in the following manners:

   i   Short-term/six-month or one-year part-time entrepreneurship training.

   ii Mentorship support on a continuous basis.

   iii Facilitate in a variety of areas like technology development, ideation, creativity, design thinking, fundraising, financial management, cash-flow management, business development, new venture planning, product development, social entrepreneurship, marketing, brand development, product- costing, human resource management, law, and regulations.

iv NITTTR Bhopal will also link the startups to other seed-fund providers/angel funds/venture funds, or itself will set up seed-fund once the incubation activities mature.

v License institute IPR to others, as discussed in section 4 below.

j. In return for the services and facilities, NITTTR Bhopal may take 2% to 9.5% equity stake in the startup/company, considering brand used, faculty contribution, the support provided, and use of the institute's IPR (an upper limit of 9.5% is suggested so that NITTTR Bhopal has no legal liability arising out of the startup). The NITTTR Bhopal will normally take a much lower equity share (unless its full-time faculty/staff have substantial shares). Other factors for consideration will be infrastructure, space, mentorship support, seed- funds, support for legal, accounts, patents, etc.

- No restriction on faculty/staff of NITTTR Bhopal for taking shares, as long as they do not devote more than 20% of office time on the startup and do not compromise with their prevailing academic and administrative work/duties.
- In the case of the compulsory equity model, the Startup will be given a cooling time of 3 months to utilise incubation services on a rental basis to take a final conclusion based on the satisfaction level of services offered by the institute/incubator. In that case, during the cooling period, NITTTR Bhopal will not force the startup to immediately issue equity on granting incubation support.

k. The NITTTR Bhopal will also provide services based on the mixture of equity, fee-based, and/or zero payment models. Therefore, a startup may choose to avail only the support, not seed funding, by the institute on a rental basis.

l. NITTTR Bhopal could extend this start-up facility to alumni of the institute as well as outsiders.

m. Participation in startup-related activities will be considered as one of the legitimate activities of faculty in addition to teaching, industrial consultancy, R&D projects, and management duties and will be considered while evaluating the annual performance of the faculty. It is expected that every faculty will mentor a few startups.

n. Product development and commercialisation and participating and nurturing of startups will be added to a bucket of faculty duties, and each faculty will choose a mix of these activities (in addition to the minimum required teaching and guidance), and then respective faculty will be evaluated accordingly for their performance and promotion.

o.   NITTTR Bhopal will also update/change/revise performance evaluation policies for faculty and staff as stated above.

p.   NITTTR Bhopal will ensure that at no stage does any liability accrue to it because of any activity of any startup.

4.   **Product Ownership Rights for Technologies Developed in the Institute**

a.   When NITTTR Bhopal facilities/funds are used substantially or when IPR has developed as a part of curriculum/academic activity, IPR will be jointly owned by inventors and the institute.

    i.   Inventors and NITTTR Bhopal will together license the product/IPR to any commercial organisation, with inventors having a primary say. License fees could be either one of the below or mixed.

    1.   Upfront fees or one-time technology transfer fees

    2.   Royalty as a percentage of sale-price

    3.   Shares in the company licensing the product

    ii.   NITTTR Bhopal will hold the equity as per the current statute, so SPV will be requested to hold equity on NITTTR's behalf.

    iii.   If one or more of the inventors want to incubate a company and license the product to this company, the royalties should not be more than 4% of the sale price, preferably 1 to 2%, except it is pure software product. In case it is shares in the company, shares will again be 1% to 4%. For pure software product licensing, there will be a value-sharing to be mutually decided between the institute and the incubated company.

b.   If product/IPR is developed by innovators without the use of any institute facilities, outside office working hours (for staff and faculty) or not as a part of the curriculum by a student, then product/IPR will be entirely possessed by inventors in proportion to the contributions made by them. In this case, inventors can choose to use the technology in the way they deem fit.

c.   In case of a dispute in ownership, a minimum 5-member committee consisting of two faculty members, two of the institute's alumni/industry experts (possessing exposure in technology commercialisation), and one legal advisor with experience in IPR, will scrutinise the issue after meeting the inventors and help them settle this, hopefully to everybody's satisfaction. Institute will use alumni/faculty of other institutions as members if they cannot find sufficiently experienced alumni faculty of their own.

d.   NITTTR Bhopal's incubation centre will only be a manager and facilitator for providing facilities to faculty, staff, and students. They will not have a say on how the invention is done, how it is patented or how it is to be licensed. If NITTTR Bhopal is to pay for patent filing, they can have a committee that can examine whether the IPR is worth patenting. The committee will consist of faculty who have experience and in technology translation. If inventors are utilising their own funds or non- institute funds, then they alone will have a say in patenting.

e.   All institute's decision-making bodies with respect to incubation/IPR/ technology-licensing will comprise faculty and experts who have experience in technology translation.   Other faculty/staff in the department/institute will have no say, including heads of department, heads of institutes, deans, or registrars.

f.   Interdisciplinary research and publication on startup and entrepreneurship will be promoted by the NITTTR Bhopal.

5.   **Organisational Capacity, Human Resources, and Incentives**

a.   NITTTR Bhopal will recruit faculty and staff that have entrepreneurial/industrial experience, attitude, and behavior. This will help in maintaining the I & E culture.

   i.   Some of the faculty members with prior exposure and interest will be deputed for training to promote I&E.

   ii.   To achieve better engagement of staff and faculty in entrepreneurial activities, institutional policy on career development of staff will be developed with constant upskilling.

b.   Faculty and departments of the institutes will work with coherence, and cross-departmental linkages will be strengthened through exchanges like shared faculty, cross-faculty teaching, and research in order to harness maximum utilisation of internal resources and knowledge.

c.   Periodically some external subject experts such as guest lecturers or alumni will be engaged for strategic advice and bringing in skills that are not available internally.

d.   Faculty and staff will be encouraged to undertake courses on innovation, entrepreneurship management, and venture development.

e.   In order to motivate, attract and retain the right people, NITTTR Bhopal will develop academic and non-academic rewards and incentives mechanisms for all

f.   For Faculty, Staff, and stakeholders that actively contribute and support entrepreneurship agenda and activities.

     i.   The reward system for the staff will include sabbaticals, office and lab space for entrepreneurial activities, reduced teaching loads, awards, training, etc.

     ii.   The recognition of the stakeholders will include offering use of facilities and services, strategy for shared risk, as guest teachers, fellowships, associateships, etc.

     iii.   A performance matrix will be established and used for the evaluation of annual performance.

6. **Creating Innovation Pipeline and Pathways for Entrepreneurs at Institute Level**

   a.   Mechanisms will be developed to expose maximum students, faculty, and staff to innovative pre-incubation activities and pathways from ideation to innovation to market their early stage.

     i.   Spreading awareness among faculty and staff and about the value of entrepreneurship and its contribution to career development or employability will be a part of the institutional entrepreneurial agenda.

     ii.   Students/staff will be taught about innovation (technology, processor business innovation) as a mechanism to resolve the problems of society and consumers. Entrepreneurs will innovate keeping a focus on the market niche.

     iii.   Students will be encouraged to develop an entrepreneurial mindset through experiential learning by divulging them to training in cognitive skills like design thinking, critical thinking, etc., by inviting entrepreneurs or experts to address young minds. Initiatives like idea and innovation competitions, hackathons, workshops, boot camps, seminars, conferences, exhibitions, mentoring by academic and industry personnel, throwing real-life challenges, awards and recognition will be routinely organised.

     iv.   Integration of education activities and enterprise-related activities will be done to prepare the students for creating the startup through education.

   b.   The institute will link their startups and companies with a broader entrepreneurial ecosystem and by providing support to students who demonstrate potential in the pre-startup phase. Linking student entrepreneurs with real-life entrepreneurs will support the students in understanding real challenges that may be faced by them in the innovation process and will increase the probability of success.

   c.   The institute will establish Institution's Innovation Councils (IICs) as per the guidelines of MHRD's Innovation Cell and allocate an appropriate budget for its activities. IICs will guide the institution in conducting various activities related to innovation, startup, and entrepreneurship development. Collective and concentrated efforts will be undertaken to identify, scout, support, acknowledge,

and reward proven student ideas and innovations to further facilitate their entrepreneurial journey.

d. For strengthening the innovations at the institute, access to financing will be opened for the potential entrepreneurs.

  i. Networking events will be organised to create a platform for budding entrepreneurs to meet investors and pitch their ideas.

  ii. Provide business incubation facilities: premises at a subsidised cost. Laboratories, research facilities, training, IT services, mentoring, etc., will be accessible to the new startups

  iii. A culture will be promoted to make innovators understand that money is not FREE and is risk capital. The entrepreneur should utilise these funds and return them. While funding is taking a risk on the entrepreneur, it is an obligation on the part of the entrepreneur to make efforts to prove that the funding agency did right in funding them.

e. NITTTR Bhopal will develop a ready reckoner of Innovation Tool Kit, which will be kept on the homepage on the institute's website to clarify the doubts and queries of the innovators and enlist the facilities existing at the institute.

7. **Norms for Faculty Startups**

a. For better coordination of the innovation and entrepreneurial activities, norms for faculty startups will be created by the institutes.

  i. Role of faculty may differ from being a mentor, owner/direct promoter, consultant, or on-board member of the startup.

  ii. Institutes will work on developing a policy on conflict of interests to safeguard that the regular duties of the faculty do not suffer because of his/her involvement in the startup activities.

  iii. Faculty startup may comprise of faculty members alone or with students or with faculty of other institutes or with alumni or with any other entrepreneurs.

b. Faculty will clearly separate and distinguish ongoing research at the institute from work conducted at the startup/company.

c. In case of selection of a start-up founded by a faculty, by a national or international accelerator, leave (as sabbatical/existing leave/unpaid leave/casual leave/earned leave) of one year (or more based on decision of review committee) will be permitted to the faculty.

d. Faculty will not accept gifts from the startup.

e.   Faculty will not involve research staff or other staff of the institute in activities at the startup and vice-versa.

f.

8.   **Pedagogy and Learning Interventions for entrepreneurship Development**

a.   A diversified approach will be taken to produce desired learning outcomes, which will include cross-disciplinary learning using mentors, labs, games, case studies, etc., in place of traditional lecture-based delivery.

      i.   Student clubs/ bodies/ departments will be established for organising competitions, boot camps, workshops, awards, etc. These bodies will be integrated into institutional strategy, planning to ensure the enhancement of the student's thinking and responding ability.

      ii.   NITTTR Bhopal will start the annual 'INNOVATION & ENTREPRENEURSHIP AWARD' to recognise successful entrepreneurs, outstanding ideas, and contributors for encouraging innovation and enterprises ecosystem within the institute.

      iii.   The teaching methods will comprise case studies on business failure/success and real-life experience reports by startups.

      iv.   Tolerating and encouraging failures: Failures will be elaborately debated and discussed to imbibe that failure is a part of life for reducing the social stigma associated with it. It will be a part of the institute's philosophy and culture.

      v.   Innovation champions will be designated from within the students/ faculty/staff for each department/stream of study.

b.   Entrepreneurship education will be taught to students at curricular/ co-curricular/extra-curricular level through mandatory courses/short-term or long-term courses on innovation, startup/entrepreneurship, and venture development.

      i.   Integration of external expertise will be done in entrepreneurship education to evolve a culture of collaboration and engagement with the external environment.

      ii.   At the beginning of every academic session, NITTTR Bhopal will organise induction programs to emphasise the importance of I&E. Freshly inducted students will be made aware of the entrepreneurial agenda of the institute and available support systems. Course-Curriculum for entrepreneurship education will be unceasingly updated based on entrepreneurship research. This will also include case studies on success and failures.

iii. Industry linkages will be leveraged for research and survey on trends in technology, research, innovation, and market intelligence.

iv. Student innovators, experts, startups, will be engaged in the dialogue process while developing the strategy so that it becomes need-based.

v. Customised learning materials will be developed for startups.

c. Pedagogical changes will be done to ensure that a maximum number of student projects and innovations are based on real-life challenges. Learning interventions developed by the institutes for indoctrinating entrepreneurial culture will be constantly reviewed and updated.

9. **Collaboration, Co-creation, Business Relationships and Knowledge Exchange**

a. Stakeholder engagement will be given importance in the entrepreneurial agenda of the institute. Institutes will identify potential partners, resource organisations, micro, small and medium-sized enterprises (MSMEs), alumni, social enterprises, schools, professional bodies, and entrepreneurs to support entrepreneurship and co-design the programs.

i. For encouraging co-creation, bi-directional flow/ exchange of knowledge and people will be ensured between institutes such as incubators, science parks, etc.

ii. Institute will organise networking events for better engagement of collaborators and will open up the opportunities for staff, faculty, and students to allow a constant flow of ideas and knowledge through meetings, workshops, space for collaboration, lectures, etc.

iii. Mechanism will be established by the institute to exploit the knowledge gained through these collaborations.

iv. Care will be taken to safeguard that events do not become an end goal. First focus of the incubator will be to create successful ventures.

b. The institute will make policy and guidelines for founding and managing relationships with external stakeholders, including private industries.

c. Knowledge exchange through partnership and collaboration will be made a part of institutional policy, and institutes will provide support mechanisms and direction for creating, managing, and coordinating these relationships.

i. Through formal and informal mechanisms like internships, teaching and research exchange programs, social gatherings, clubs, etc., faculty, staff, and students of the institutes will be provided with the opportunities to connect with their external environment.

ii. Connect of the institute with the external environment will be leveraged to inform of absorbing experience and information from the external ecosystem into the institute's environment.

iii. A Single Point of Contact (SPOC) mechanism will be established in the institute for the faculty, students, collaborators, partners, and other stakeholders to ensure access to information.

iv. Mechanisms will be devised by the NITTTR Bhopal to ensure maximum exploitation of entrepreneurial opportunities with industrial and commercial collaborators.

v. Knowledge management will be managed by the institute through the development of an innovation knowledge platform using in-house Information & Communication Technology (ICT) capabilities.

10. **Entrepreneurial Impact Assessment**

a. Impact assessment of the institute's innovation and entrepreneurial initiatives such as pre-incubation, incubation, entrepreneurship education will be performed regularly using well-defined evaluation parameters.

i. Monitoring and evaluation of information/knowledge exchange initiatives, engagement of all departments and faculty in the innovation/entrepreneurial teaching and learning will be assessed.

ii. A number of startups created, support system provided at the institutional level, and satisfaction of participants, new business relationships created by the institutes will be recorded and used for impact assessment.

iii. The impact will also be measured for the support system created by the institute to the student entrepreneurs, faculty, and staff for innovation, pre-incubation, incubation, IPR protection, industry linkages, exposure to the entrepreneurial ecosystem, etc.

b. Preparation of strategy and impact assessment will go together. The information on the impact of the activities will be used for reviewing the entrepreneurial strategy.

c. Impact assessment for measuring the achievements will be in terms of sustainable social, financial and technological impact in the market. For innovations at the pre-commercial stage, the development of a sustainable enterprise model is critical. Commercial success of an innovation/entrepreneurial effort is the only measure in the long run.

NITTTR Innovation and Startup Procedures 2021

1. Introduction:

The Ministry of Education in 2019, released the National Innovation and Startup Policy 2019 for students and faculty of Higher Education Institutions (HEIs). The Policy is in line with the focus of the Central Government on entrepreneurial projects. The framework was created to enable the institutes to actively engage students, faculties, and staff (including temporary or project staff), alumni, and potential startup applicants from outside the institution in innovation and entrepreneurship-related activities. The Guidelines on National Innovation & Startup policy 2019 were published to provide the required direction and support in handling, Innovation Startup and Intellectual Property rights-related issues.

The framework is designed to facilitate Ministry of Education in bringing uniformity across HEIs in terms of Intellectual Property ownership management, technology licensing, and institutional Startup policy, thus enabling the creation of robust innovation and Startup ecosystem across all HEIs.

Innovation and Entrepreneurship must emerge as one of the focal points of today's education system with a focus on the creation of economic hubs so that the nation aspires to become a five trillion-dollar economy in the near future. To achieve this milestone, systems and mechanisms must evolve to convert the present demographic dividends into high-quality technical human resources, which could eventually create wealth generation hubs through Startups and entrepreneurship.

In Madhya Pradesh, there are multiple dynamics at play with regard to entrepreneurial activities. The MP government, entrepreneurs, and advocacy groups seek to promote entrepreneurship, which officially and logically forms part of their mandate. However, there are certain inherent factors that inhibit entrepreneurial activity. Madhya Pradesh is in the central zone and is full of opportunities. The biggest inhibiting factor, however, is an aversion towards entrepreneurship which is regarded as a fallback mechanism for enabling self-employment. It is fair to state that the first option for a vast majority of the population in the state is to secure a government job instead of fishing in the troubled waters of entrepreneurship. However, this space is also now squeezing. Government has reached its maximum capacity to offer jobs.

2. Department of Technical Vocational Education and Research (DTV&R)

DTVE&R continuously strived for entrepreneurship activities for the stakeholders. Training of Trainers programs on Entrepreneurship Development, FDPs, National and International Conferences were organized in the states of Madhya Pradesh, Gujarat, Maharashtra, Chhattisgarh a Goa. In DT&VE, Innovation, Incubation, and Entrepreneurship Development Center (IIED Center) will be established to create awareness of Startup activities, innovation, incubation, and entrepreneurship. The centre will be committed to offer meaningful and impactful assistance to the Startup ecosystem of the State/ stakeholders.

Recognizing the impediments of IIEDC to scale up as the main centre of innovation, incubation, and entrepreneurship, a state-of-the-art Incubation Centre will be established

to pursue its vision and mission. This IISP2020 document has been commissioned to prepare a comprehensive guideline for IIEDC and other stakeholders towards achieving the aim of setting up the Innovation and Startup hub that leapfrogs the contribution of centre at NITTTR Bhopal.

3. **"NAVNOMESH" incubation Centre:**

The Incubation Centre established at NITTTR Bhopal, shall be named as "NAVNOMESH. The term "NAVNOMESH' means innovation and the center would also stress greening technologies, making the mother planet a more congenial place to live. Greening and Innovating would be the focus of the incubation Centre. The term 'Green' has to be seen in a broader perspective here and may not only mean the conventional green technologies as defined. NAVNOMESH will be the hub of innovation that shall rejuvenate Ed-tech Startups along with other Startups. The purpose is not just to add a facility to aid in an equipped manner; rather, pursue the journey through the vision of the Centre; churning the startups with a high success ratio would be the fundamental aim of the Centre. The three fundamentals of a robust approach to raise start-ups i.e. role of the accelerator, appropriate funding/financing agencies, and selection of genuine startup team, shall be our core strategy to follow in letter and spirit.

4. **Vision of INCUBATION CENTRE:**

To be a center of excellence in incubation to foster innovative mindsets through innovative eco-system to support the development of sustainable technologies for the globe.

5. **Mission:**

Become the pioneer in supporting the sustainable startup and entrepreneurship ecosystem in the region and partner with leading incubators/innovation centres in India.

6. **Objectives**

This vision can be achieved by IIEDC if it can successfully meet the below-listed objectives: -
- Identify innovative ideas for startup and incubation.
- Create an eco-system for entrepreneurship training.
- Train potential persons to become entrepreneurs.

7. **Focus**

The focus of the proposed incubator shall be to help the students, faculties, staff (including temporary or project staff), alumni, and potential startup applicants from outside the institution to augment their innovative ideas through technology support, team building, mentoring, funding, and incubation support into products and offerings for reinforcing national policies and schemes.

8. Focus Sectors

INCUBATION CENTRE shall have focus areas like- Green Tech Startups, Hi-Tech Startups, Ed Tech Startups, Social Startups, Medical & Health Care startups, Agri-Tech Startups, Food Processing Startups, etc.

INCUBATION CENTRE
- Ed-Tech Startups
- Hi-Tech Startups
- Green-Tech Startups
- Social Startups
- Medical & Health Care Startups
- Agri-Tech Startups
- Food Processing Startups

9. **Incubator:**

There shall be a separate establishment of IIEDC responsible for the execution and operations of INCUBATION CENTRE. It shall be registered as section 8 company, having its own constitution and rules and regulations in conjunction with the formalities as laid by the government. Since, INCUBATION CENTRE shall be a government-funded organization, all the guidelines as defined from time to time, by the controlling competent authority, shall be binding.

i. **<u>Governing Board</u>**

This shall be the supreme decision-making authority and strategic roadmap defining syndicate of INCUBATION CENTRE. The Chairman BoG, NITTTR Bhopal shall be its ex-officio Chairperson with Director, NITTTR Bhopal as its Vice-Chair. CEO INCUBATION CENTRE shall be the Member Secretary of the board. The board shall have a representative of MHRD, GoI, the designated representative of Government of MP, and representatives from strategic partners and alliances as may be deemed necessary for quick disposal of matters under the purview of the governing board.

Some of the key responsibilities of the governing board shall be:
- Defining the overall strategic roadmap for the INCUBATION CENTRE.
- Deciding on various proposals received for strategic alliance and partnerships for the benefit of in cubatees.
- Approvals and monitoring of the budgets for various executions.
- Constitution of committees with respect to the procurement of equipment, infrastructure, and other assets for the centre.
- Appointment of the CEO of INCUBATION CENTRE and formation of the recruitment committee for hiring of staff.
- Appointment of expert committees and evaluation committees as per the incubation process laid down in this document.
- Relaxations of any nature in terms of extension of tenure of incubatee, etc., that may be brought to notice for necessary approvals.
- Delegation of powers – financial as well as administrative to the CEOINCUBATION CENTRE.

ii. Incubatee Selection Experts' Group (ISEG)

This is the apex body of eminent experts from divergent backgrounds who would select the incubatees having gone through the evaluation process as defined. The expert committee shall comprise of:

i. Chairman BoG NITTTR, Bhopal (Chairman)

ii. Representative from Industry (Co-Chair)

iii. Director NITTR Bhopal (Vice Chair)

iv. CEO INCUBATION CENTRE (Member Secretary).

v. Need based members from the domains of technology, education, business, industry, finance, and start-ups.

vi. Representative from Agriculture Background.

vii. Representative of recognized incubator–
Member

viii. Leading Start-up from Madhya Pradesh- Invitee Member

ix. Leading Investor (Venture Capital Firm/Angel Investor) - Invitee Member.

The members of ISEG shall be appointed by the governing board of INCUBATION CENTRE. However, they shall work independently and their role shall remain confined to the selection of incubatees. The recommendations of ISEG with respect to selection shall be binding on the governing board. In case of any extensions sought by any existing incubate, the governing board may recommend a re-evaluation by ISEG along with new applicants.

The members shall be entitled to remuneration as per rules. INCUBATION CENTRE shall pay for their travel and stay. The ISEG shall not report to any of the official or boards of INCUBATION CENTRE.

iii. **IEC:**

This is the first level of evaluation of the business proposals' committee entrusted with evaluating the proposals based on techno-commercial feasibility. The Committee with a maximum of 5 members shall comprise of:

i. Representative of NITTTR Bhopal, (at least of Professor Rank).

ii. Representative Member of Governing Board.

iii. Representatives from Industry, Academia, and other Incubators as deemed fit by the Governing Board.

IEC shall also work as an independent committee without reporting to any official or the board of INCUBATION CENTRE. The IEC members shall be remunerated as per rules. INCUBATION CENTRE shall bear the travel and stay expenses as admissible.

iv. **CEO INCUBATION CENTRE**

This is the key resource person at INCUBATION CENTRE. Reporting to the governing board, the CEO shall be responsible for all day-to-day activities of the centre for smooth functioning. Being appointed by the board, the CEO shall be responsible

for the initial booting up of the centre and later for the daily activities necessary to be performed within the powers and authority as may be delegated by the governing board.

Key functions of the CEO INCUBATION CENTRE shall be: -

- Maintaining financial as well as other types of office records.
- Day to day functioning of the centre.
- Convening of the meetings of the board and other committees/groups as may be required for the discharge of duties.
- To represent INCUBATION CENTRE in all forums as may be necessary for the functioning of the centre.
- To enter into agreements, MoUs, etc., after the necessary approvals of the governing board, if required.
- To procure resources including human resources for INCUBATION CENTRE as per the guidelines approved by the governing board.
- Operations of the centre in line with the budgets approved for operating expenses.
- Capital Expenditure purchases after administrative approval from the governing board to the extent of Rs 5 Lakh. For purchases above Rs 5 Lakh, the administrative, as well as financial approval of the board, shall be obtained.
- Ensuring strict adherence to the guidelines, procedures, and rules as laid by the governing board and/or competent authority.
- Compliance to any certifying body of which CAPEX purchases shall become a member. For instance, SO.

v. **INCUBATION CENTRE Staff**

The CEO shall be ably supported by a team of members responsible for the job roles defined. This team shall be responsible for the day-to-day activities of the incubator. It is proposed to have 18 members with the specific roles managing INCUBATION CENTRE, including the CEO.

INCUBATION CENTRE shall have a flat organizational structure to allow effective management along with quick communication. There shall be only three levels of hierarchy under the CEO. Each level shall be led by a Manager supported by an Executive and Assistant.

The general functions of the centre shall be administered directly from the CEO's office.

There are five important functions in INCUBATION CENTRE that require a dedicated leader to operationalize the work plan. These are:

- Incubation
- Alliances and Partnerships
- Marketing and Outreach
- Laboratories

- IT and Communications

10. INCUBATION CENTRE Enablement's& Norms:

i. **Incubation Support**: Pre-incubation & Incubation support will be offered to the start-ups by applicants, students, staff, and faculty for a period of one year at the initial stage which can later after the approval of IESG be extended. However, in case the institute doesn't have a dedicated facility/infrastructure, it enables incubation facilities in other HEIs in order to facilitate access to their students, staff, and faculty.

ii. **Attendance:** Students involved in setting up of startups shall be given a relaxation in attendance up to 50%.

iii. **Semester/YearBreak:**

    a. **Students:** The institute would allow their students to take a semester/year break (or even more depending upon the decision of the review committee constituted by the institute) to work on their start-ups and re-join academics to complete the course. Student entrepreneurs may earn academic credits for their efforts while creating an enterprise. Institute would set up a review committee (on case to case basis) for review of start-up by students, and based on the progress made, it may consider giving appropriate credits for academics.

    b. **Faculty & Staff** (including temporary or project staff**:** The institute will allow faculty and staff to take off for a semester/year (or even more depending) as sabbatical/ unpaid leave/casual leave/earned leave for working on startups and come back. Institution would consider allowing use of its resource to faculty/students/staff wishing to establish start-up as a fulltime effort. The seniority and other academic benefits during such period will be preserved for such staff or faculty.

iv. **Mentoring:**

The mentor program will be for the time period of 3-6 months or by mutual agreement. The mentors would be allocated, based on the entrepreneurs' needs identified through the basic gap analysis. Mentor teams and entrepreneurs will agree to meet in person or connect by Skype or teleconference for a minimum of 2 hours over the mentoring period. The relationship can be extended or terminated upon the mutual agreement.

v. **Financial Assistance:**

The predominant model of startup financing in entrepreneurship is debt financing and it is a big burden on the entrepreneurs. Equity financing is obviously entrepreneur-friendly and forms an integral part of the new age startup ecosystem.

    a. Minimum 1 % fund of the total annual budget of the institution would be allocated for funding and supporting innovation and Startups related activities through creation of separate 'Innovation fund' and managed by the Head IIED Centre/CEO

INCUBATION CENTRE established as a section 8 company. The Seed funding to the Start-ups would be taken up on case-to-case basis.

b. The Institute would also reach out to external funding agencies of government (state and central) such as DST, DBT, MHRD, AICTE, TDB, TIFAC, DSIR, CSIR, BIRAC, NSTEDB, NRDC, Startup India, Invest India, MeitY, MSDE, MSME, etc. and non-government sources would also be encouraged.

c. To support technology incubations within the institute, the institutes may approach private and corporate sectors to generate funds, under Corporate Social Responsibility (CSR) as per Section 135 of the Company Act2013.

d. Institute would also raise funding through sponsorships and donations.

e. Institute would actively engage alumni network for promoting Innovation & Entrepreneurship (I&E) and invite them to angel funding into the Start-ups as well.

VI. **Accommodation:** The institute would explore provision of accommodation to the student entrepreneurs within the campus for some period of time, depending upon availability of accommodation at no cost.

VII. **Permission to register from institute's address:** Students faculty and staff under incubation, but are pursuing some entrepreneurial ventures will be allowed to use their address in the institute (e.g. hostel/other) to register their company with due permission from the institution.

VIII. **Engagement in Startup and innovation**: Participation in startup-related activity will be considered as a legitimate activity of faculty in addition to teaching, R & D projects, industrial consultancy, and management duties will be considered while evaluating the annual performance. Product development and commercialization and participating/nurturing startups will be a faculty duty. Each faculty would choose a mix and match of these activities in addition to a minimum teaching load. The respective faculty will be evaluated accordingly for performance and promotion. T institute performance evaluation policy for faculty and staff will be changed accordingly. Employees under incubation, but are pursuing some entrepreneurial ventures will be allowed to use their address in the institute to register their company with due permission from the institution.

IX. **Norms for Faculty Startups**

    a. If it is a technology startup then only those technologies will be taken for faculty startups which originate from within the institute.

        i. Role of faculty may vary from being an owner/ direct promoter, mentor, consultant or as on-board member of the startup.

        ii. 20% relaxation of duties will be permitted to faculty or staff to pursue his startup. Institutes

        iii. Faculty startup may consist of faculty members alone or with students or with faculty of other institutes or with alumni or with other entrepreneurs.

    b. In case the faculty/ staff holds the executive or managerial position for more than

three months in a startup, they will go on sabbatical/leave without pay / utilize existing leave.

    c. Faculty will clearly separate and distinguish ongoing research at the institute from the work conducted at the startup/company.

    d. In case of selection of a faculty startup by an outside national or international accelerator, a maximum leave (as sabbatical/ existing leave/ unpaid leave/ casual leave/ earned leave) of one semester/ year (or even more depending upon the decision of review committee constituted by the institute) will be permitted to the faculty.

    e. Faculty will not accept gifts from the startup.

    f. Faculty will not involve research staff or other staff of the institute in activities at the startup and vice-versa.

X.   **Awards:** NITTTR Bhopal will start annual 'INNOVATION & ENTREPRENEURSHIP AWARDS' to recognize outstanding ideas, successful enterprises, and contributors for promoting innovation and enterprises ecosystem within the institute.

XI.   **Collaboration, Co-creation, Business Relationships and Knowledge Exchange**

    a. Stakeholder engagement will be given prime importance in the entrepreneurial agenda of the institute. Institutes will 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.

        i. To encourage co-creation, bi-directional flow/ exchange of knowledge and people will be ensured between institutes such as incubators, science parks, etc.

        ii. Institute will organize networking events for better engagement of collaborators and should open up the opportunities for staff, faculty, and students to allow a constant flow of ideas and knowledge through meetings, workshops, space for collaboration, lectures, etc.

        iii. Mechanism will be developed by the institute to capitalize on the knowledge gained through these collaborations.

        iv. Care will be taken to ensure that events do not become an end goal. The first focus of the incubator should be to create successful ventures.

    b. The institute will develop policy and guidelines for forming and managing relationships with external stakeholders including private industries.

    c. Knowledge exchange through collaboration and partnership will be made a part of institutional policy and institutes must provide support mechanisms and guidance for creating, managing and coordinating these relationships.

     i.   Through formal and informal mechanisms such as internships, teaching and research exchange programmes, clubs, social gatherings, etc., faculty, staff and students of the institutes will be given the opportunities to connect with their external environment.

     ii.   Connect of the institute with the external environment will be leveraged inform of absorbing information and experience from the external ecosystem into the institute's environment.

     iii.   Single Point of Contact (SPOC) mechanism will be created in the institute for the students, faculty, collaborators, partners, and other stakeholders to ensure access to information.

     iv.   Mechanisms will be devised by the institutions to ensure maximum exploitation of entrepreneurial opportunities with industrial and commercial collaborators.

XII.   Entrepreneurial Impact Assessment

a.   Impact assessment of institute's entrepreneurial initiatives such as pre-incubation, incubation, entrepreneurship education will be performed regularly using well defined evaluation parameters.

     i.   Monitoring and evaluation of knowledge exchange initiatives, engagement of all departments and faculty in the entrepreneurial teaching and learning will be assessed.

     ii.   Number of startups created, support system provided at the institutional level and satisfaction of participants, new business relationships created by the institutes will be recorded and used for impact assessment.

     iii.   Impact will be measured for the support system provided by the institute to the student entrepreneurs, faculty and staff for pre-incubation, incubation, IPR protection, industry linkages, exposure to entrepreneurial ecosystem, etc.

b.   Formulation of strategy and impact assessment will go hand in hand. The information on impact of the activities will be actively used while developing and reviewing the entrepreneurial strategy.

c.   Impact assessment for measuring the success will be in terms of sustainable social, financial and technological impact in the market. For innovations at pre-commercial stage, development of sustainable enterprise model is critical.

XIII   Incubation/Pre-Incubation:

a.   All the Pre-Incubation/Incubation facilities would be accessible 24x7 to students, staff, and faculty of all disciplines and departments across the institution.

b. The institute infrastructure in form of machines, equipment, tools, testing facilities and other resources available in various departments, workshops, laboratories, centers, CoEs etc. would be utilized for pre-incubation and incubation for nurturing innovators and start-ups, without hampering the normal academic schedule of the departments and centres.

c. The institute would offer mentoring and other relevant services through Pre-incubation/Incubation units in return for fees, equity sharing, and (or) zero payment basis. The modalities regarding Equity Sharing in Startups supported through these units will depend upon the nature of services offered by these units and are elaborately explained below:

  i. In return for the services and facilities, the institute would take 2% to 9.5% equity/ stake in the startup/company, (on case to case basis) based on brand used, faculty contribution, the support provided, and use of the institute's IPR (a limit of 9.5% is suggested so that institute has no legal liability arising out of the startup. The institute might normally take a much lower equity share unless its full-time faculty/ staff have substantial shares). Other factors for consideration should be space, infrastructure, mentorship support, seed funds, support for accounts, legal, patents, etc.

  ii. For staff and faculty, the institute would take no more than 20% of shares that staff/ faculty takes while drawing a full salary from the institution; however, this share will be within the 9.5% cap of company shares, listed above.

XIV   IPR Facilitation:

One of the important mandates of NITTTR Bhopal is to bring excellence to education, research, and innovation, however, it is equally important that protect Intellectual property. Therefore, it is important that the information with regards to rights over intellectual property is disseminated at the earliest. This policy should be applicable to all inventions and innovations belonging to NITTTR Bhopal and covers all different classes of Intellectual Property - Patent, Copyright, Design, Registration, Trademark, and Confidential Information.

The IPR provisions are created to provide a conducive environment leading to the development of the intellectual property. When institute facilities/funds are used substantially or when IPR has developed as a part of curriculum/ academic activity, IPR would be jointly owned by inventors and the institute. Inventors and institutes could together license the product / IPR to any commercial organization, with inventors having the primary say. License fees could be either / or a mix of

a. Upfront fees or one-time technology transfer fees

b. Royalty as a percentage of sale-price

c.   Shares in the company licensing the product

The institute would allow licensing of IPR from institute to start up: 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.

If product/ IPR is developed by innovators not using any institute facilities, outside office hours (for staff and faculty) or not as a part of curriculum by student, then product/ IPR will be entirely owned by inventors in proportion to the contributions made by them. In this case, inventors can decide to license the technology to third parties or use the technology the way they deem fit.

If there is a dispute in ownership, a minimum five-member committee consisting of two faculty members (having developed sufficient IPR and translated to commercialization), two of the institute's alumni/ industry experts (having experience in technology commercialization), and one legal advisor with experience in IPR, will examine the issue after meeting the inventors and help them settle this, hopefully to everybody's satisfaction. Institute can use alumni/ faculty of other institutes as members if they cannot find sufficiently experienced alumni/faculty of their own.

INCUBATION CENTRE will only be a facilitator or for providing services to faculty, staff and students. It will have no say on how the invention is carried out, how it is patented or how it is to be licensed. If the institute is to pay for patent filing, the INCUBATION CENTRE can have a committee which can examine whether the IPR is worth patenting. The committee should consist of faculty who have experience and excelled in technology translation. If inventors are using their own funds or non-institute funds, then they alone should have a say in patenting. All institute's decision-making bodies with respect to incubation / IPR / technology-licensing will consist of faculty and experts who have excelled in technology translation. Other faculty in the department/institute will have no say, including heads of department, heads of institutes, deans or registrars. Interdisciplinary research and publication on startup and entrepreneurship will be promoted by NITTTR Bhopal.

11.   Capacity Building Programs:
    a.   The institute would encourage training and development of faculty and staff involved in innovations and entrepreneurship development activities in the institute.
    b.   To achieve better engagement of staff in entrepreneurial activities, institutional policy on career development of faculty and staff would be developed with

constant upskilling.

c.   Faculty and departments of the institutes have to work in coherence and cross-departmental linkages would be strengthened through shared faculty, cross-faculty teaching, and research in order to gain maximum utilization of internal resources and knowledge.

d.   Periodically some external subject matter experts such as guest lecturers or alumni would be engaged for strategic advice and bringing in skills, which are not available internally.

e.   Faculty and staff would be encouraged to do courses on innovation, entrepreneurship management, and venture development.

f.   In order to attract and retain the right people, the institute would develop academic and non-academic incentives and reward mechanisms for all staff and stakeholders that actively contribute and support entrepreneurship agenda and activities.

g.   The reward system for the employees will include sabbaticals, office and lab space for entrepreneurial activities, reduced work/teaching loads up to 20%, awards, training, etc.

h.   The recognition of the stakeholders may include offering use of facilities and services, strategy for shared risk, as guest faculty, fellowships, associateships, etc.

i.   A performance matrix would be developed and used for the evaluation of annual performance.

12.   **Idea Bank:**
The 'INCUBATION CENTRE' shall also create an idea bank for small-scale improvements to innovations incubated from an idea through a development process. Students play an important role in bringing fresh thinking into various working models in any business. This can include improvements, and suggestions at early stages of an innovation process or even for an established system. The operating model allows all the innovators and students to participate and offer a common, easy-to-use channel for participation.

The Ideas stored in the bank can be identified with a unique identity number provided to them. The main characteristic of the idea bank has to be its openness and ease of use. The Ideas will be shared and development proposals shall be processed, in such a way that they can be further developed and exploited. The proposals then shall be forwarded to the right people for assessment and development for the further processing and exploitation proposals. An Institute will use the idea bank- operating model to collect, exploit and share information related to development and innovation activities.

13.   **Collaborations and Knowledge Exchange:**

The Institute has to collaborate and forge alliances with each and every important

ecosystem member to result in the best of synergies.

One of the fundamental tenets on which the incubator is envisioned is collaborating extensively with the stakeholders to derive synergies resulting in optimal outcomes.

The support expected from the stakeholders is listed below: -

- Funding for CAPEX and OPEX investments.
- Mentorship pool.
- Integration with start-up ecosystem.
- Extension of existing start-up programmes helping incubators to build resources at concessional rates.
- Technology expertise.
- Incubation expertise and best practices adoption.
- Promotion of incubation centre in industry, academia and funding ecosystem.
- Collaboration amongst incubators.
- Virtual incubation.
- Recognition of incubates and the incubator.

14. **The Incubation Process for Startups**

The INCUBATION CENTRE is envisioned to be the hub of innovation and entrepreneurship in central India. It shall not remain confined to the students of NITTTR Bhopal, but also engage students and pass outs of other colleges and universities besides industry and any individual including faculty and staff having a need for incubating the idea. The incubation services shall not remain confined offering the core incubation services helping to productize the idea. INCUBATION CENTRE shall offer more than necessary exposure and connect with the relevant stakeholders to increase the chances of the idea becoming a product and further a commercial entity.

The 'incubation' step is a process of series of steps that encompass the overall incubation model proposed at INCUBATION CENTRE. The model proposed is as follows:

Recruit	1
Evaluate	2
Select	3
Equip	4
Evolve	5
Board	6
Pitch	7
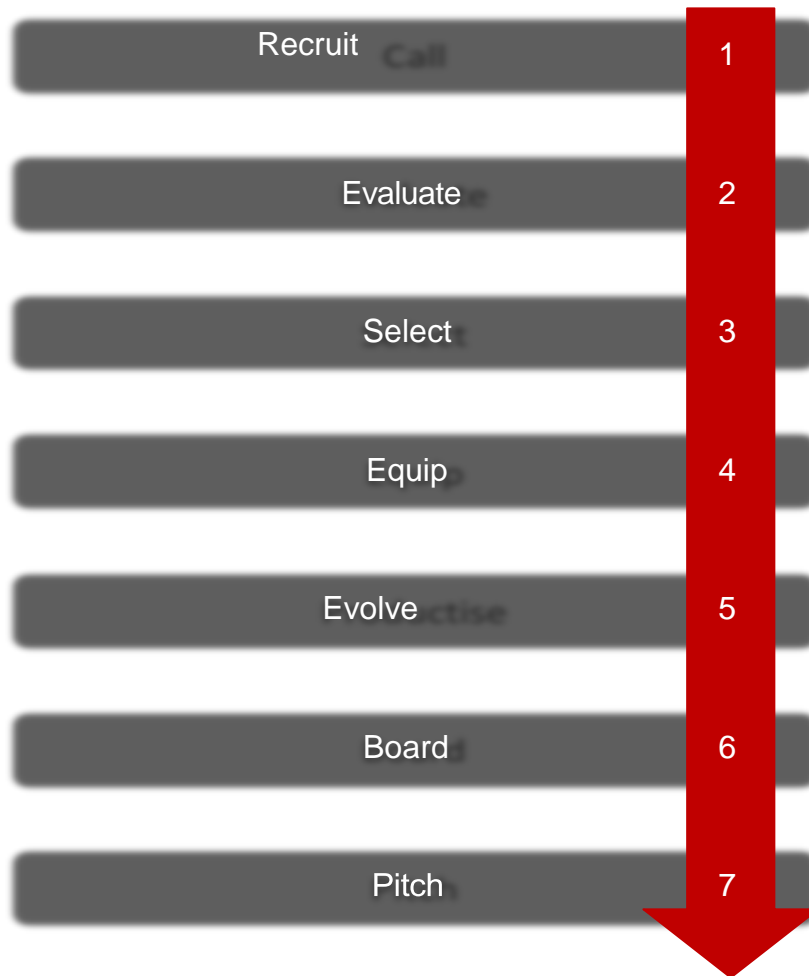
Recruit: It is one of the key success factors for any incubation centre. An outreach programme shall be designed essentially comprising of Digital / Print / Television / Radio and physical workshops to encourage people to come up with their ideas. Prospective Students Startups of the institute would be given first preference. Besides, workshops at various universities and colleges shall be conducted.

Evaluate: At the time of calling for ideas, INCUBATION CENTRE shall prescribe a format/template for the business plan essentially to ensure that all the major information required to evaluate an application is provided. There shall be two rounds of evaluation before the application is short listed for the selection process.

First Round: The first round of evaluation shall be done by the INCUBATION CENTRE staff subject to random verification of the IEC.

Second Round: The Evaluation at the second round shall be done by Incubatee Evaluation Committee (IEC) as defined.

The committee shall evaluate the proposals received and grade them as A, B and

Rejected. If the proposals marked A are at least thrice as much as ideas being considered for incubation, only such proposals shall be recommended for the selection process. Else, the proposals being graded B, shall be ranked and as many as the best of these shall be recommended for selection to achieve the minimum criteria of having at least 3 proposals to select from, for incubation at INCUBATION CENTRE. Otherwise, the INCUBATION CENTRE management shall convene an extra-ordinary governing board meeting to decide accordingly.

This shall be done immediately after the completion of 'First Round' of validating the business proposals received.

Select: Only the proposals having passed through the Evaluation stage, shall be considered for Selection. ISEG (Incubatee Selection Experts' Group) shall be the final selection committee.

The selection of an idea by the jury shall mean that the idea satisfies all the parameters including technical, commercial, know-how, and others defined by various stakeholders. At this stage INCUBATION CENTER shall issue a selection letter to the incubatee that needs to be formally accepted within the stipulated time.

Equip: The Equip stage is more about empowering the incubatee. Besides, providing the incubation space allotted to the incubatee, access to necessary resources of INCUBATION CENTRE shall also be granted. Based on their one-to-one interactions and agreement to work together, a mentor shall be mapped with the incubatee. Similarly, other services and experts as may be facilitated by INCUBATION CENTRE shall also be made available to the incubatee.

Evolve: Before the actual productisation kicks off, the incubatee shall have to submit a detailed project plan to the INCUBATION CENTRE. This shall calendarise the activities that are planned to be undertaken over the period of incubation and the resources / services that shall be put to use in due course.

A monthly status report shall be submitted by the incubate to the INCUBATION CENTRE management to keep a track of the project and justify the utilization of resources. However, if the scenario warrants, the incubatee may have to reveal all the details for which the INCUBATION CENTRE could enter into an NDA (Non-Disclosure Agreement).

Board: Once a breakthrough is achieved as per expected lines, the incubatees along with their mentor(s) and other experts involved, shall be asked to present the achievements before the board of experts. This board of experts (BoE) could be the same as IESG, may or may not have any of the IESG members as may be feasible and convenient for the time constraints or any other factor.

The board shall validate the genuineness of the claim in line with the product development details submitted in the business plan and reserve the right to declare an incubation a success or otherwise. If the board shall be of the opinion, that the incubation should be granted an extension as further research and development would result in remarkable value addition, the incubatee shall be re-admitted for a period of not more than 3 months. Any further extensions shall be recommended to the governing board of INCUBATION CENTRE

XV Key Performance Indicators
A. Short-term activities (one-year duration)
1. Numbers of students and faculty participated in awareness/training / programmes organized.
2. Numbers of students and faculty participation in events/programs organized by the external agencies
3. Numbers of ideas generated and number of innovations created
4. Numbers of innovative projects recognized at the national and international level
5. Number of ideas/innovations / start-ups supported through funds.
6. Number of Courses on Innovation, IPR and Entrepreneurship

B. Mid-term activities (two-year duration)
1. Number of intellectual property filed/provisionally granted
2. Number of patents granted
3. Number of technology transfers/commercialization
4. Grant / fund generated / received by institute to support Innovation & startup
5. Angel fund/venture fund / investment mobilized to support Innovation & start-up

C. Long-term program (three-year duration)
1. Number of successful innovations converted in to start-ups
2. Number of advance lab infrastructures, pre-incubation and incubation facilities created on-campus
3. Innovative solutions developed in-house and level of impact created so far after being adopted at institute or society

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