



Ministry of Human Resource Development
Government of India



ज्ञान - विज्ञानं विमुक्तये



National **INNOVATION** and **STARTUP** Policy 2019 for Students and Faculty

A Guiding Framework for Higher Education Institutions



Ministry of Human
Resources Development
Government of India

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Abstract

National INNOVATION and STARTUP Policy 2019 for Students and Faculty

A Guiding Framework for Higher Education Institutions

The National Innovation and Startup Policy 2019 for students and faculty of Higher Education Institutions (HEIs) will enable the institutes to actively engage students, faculties and staff in innovation and entrepreneurship related activities. This framework will also facilitate Ministry of Human Resource Development in bringing uniformity across HEIs in terms of Intellectual Property ownership management, technology licensing and institutional Startup policy, thus enabling creation of a robust innovation and Start up ecosystem across all HEIs.

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संदेश

मानव संसाधन विकास मंत्रालय



रमेश पोखरियाल 'निशंक'
मानव संसाधन विकास मंत्री

स्टार्ट-अप इंडिया भारत सरकार की एक प्रमुख पहल है, जो नवीन आविष्कारों को हाथ में लेने, सहायता और प्रोत्साहनों के वित्त पोषण, उद्योग-शैक्षणिक भागीदारी और इन्क्यूबेटरों के बुनियादी स्तंभों पर आधारित है।

मुझे भारत के सभी उच्च शिक्षा संस्थानों के छात्रों और शिक्षकों के लिए राष्ट्रीय नवाचार और स्टार्ट-अप नीति 2019 'पर ठोस दिशा निर्देश जारी करने की घोषणा करते हुए खुशी हो रही है। ये दिशा-निर्देश भारत के हजारों तकनीकी

कॉलेजों के लाखों युवाओं के मन मस्तिष्क में नवाचार की भावना को सशक्त करेंगे और संस्थानों को न केवल युवाओं के लिए रोजगार के अवसर पैदा करने में मदद करेंगे, बल्कि भारत के

उच्च शिक्षा संस्थानों में एक मजबूत स्टार्ट-अप पारिस्थितिकी तंत्र विकसित करने के लिए एक प्रेरणा प्रदान करेंगे।

मैं चाहता हूँ कि उच्चतर शिक्षा संस्थाओं के लिए निर्धारित दिशा-निर्देशों को इन संस्थाओं द्वारा नियमित प्रभाव मूल्यांकन के साथ कार्यान्वित किया जाए ताकि वांछित परिणामों को हासिल किया जा सके।

मैं भारत के सभी उच्च शिक्षा संस्थानों से अनुरोध करता हूँ कि वे नवाचर युक्त बुनियादी ढांचे के निर्माण के लिए अपना सर्वश्रेष्ठ और आवश्यक कदम उठाएं, ताकि हमारे शिक्षा संस्थानों में स्टार्ट-अप और उद्यमशीलता के पारिस्थितिकी तंत्र को अधिक सक्षम बनाया जा सके।

Message from Ministry of Human Resource Development



Sanjay Shamrao Dhotre
Minister of State for Human
Resource Development

India aspires to become a 5 trillion dollar economy in a near future. To reach this mark, it needs to evolve system and mechanisms to convert the present demographic dividend into high quality technical human resource, capable of doing cutting edge research and innovation, and deep-tech entrepreneurship. At this juncture, the MHRD's Innovation Cell and AICTE have brought out the 'National Innovation and Startup Policy 2019' for students and faculty.

I congratulate MHRD's Innovation Cell and AICTE for conceptualizing these

much needed guidelines. These envision an educational system oriented towards startups and entrepreneurship opportunities for students and faculty. I appeal all higher education institutions to adopt and popularize these guidelines amongst their faculty, staff and students, and encourage them to actively pursue path of innovation and entrepreneurship.

I also urge MHRD's innovation cell to proactively coordinate with education departments of all state governments to ensure that these policy guidelines are implemented in their true spirit.

Message from Ministry of Human Resource Development



R. Subrahmanyam
Secretary (Higher Education)
MHRD

Innovation and entrepreneurship need to emerge as one of the focal points of our education system and Ministry of Human Resource Development is making every possible effort to achieve this goal. We are aggressively promoting initiatives like Hackathons, tech-fests, idea competition, startup bootcamps, etc. to foster the culture of innovation in our education institutions. We want large number of students and faculty to work on new ideas and convert them into successful enterprises.

As no formal guidelines were

available for encouraging students and faculty to pursue startup and entrepreneurship related activities, a committee was formed under the guidance of Prof. Ashok Jhunjhunwala to evolve set of recommendations and guiding principles for higher education institutions for promoting innovation and entrepreneurship ecosystem within campuses.

I firmly believe that the recommendations prescribed in this document will pave the way for developing and supporting an entrepreneurial culture in all the higher education institutions of India.

Message from All India Council of Technical Education



Anil D Sahasrabudhe
Chairman, AICTE

I am very happy to see that the detailed guidelines have been issued by Ministry of Human Resource Development on National Innovation and Startup Policy for students and faculties of higher education institutions which further strengthens the Startup Policy released by All India Council of Technical Education in November 2016 from Rashtrapati Bhawan, just after few months of Startup action plan announced by the Government of India in January 2016.

I am pleased to share that the present policy guidelines are built on the earlier version

published by the AICTE and being implemented by the AICTE startup implementation committee headed by first generation entrepreneur Shri Sanjay Inamdar and covers several practical aspects of innovation and startups. The guidelines highlight various important points including revenue sharing mechanism for licensing, ownership of IP, equity sharing mechanism between institute and startups incubated at institute.

I wish Ministry of Human Resource Development and all the educational institutes in India a grand success in this mission.

Message from University Grant Commission



D.P. Singh
Chairman, UGC

I am delighted to know that Ministry of Human Resource Development has devised the guidelines for promoting innovation and entrepreneurship among students and faculty of higher education institutions. This will guide the institutions on the mechanisms of handling the students and faculty members and supporting their initiatives for innovations and startups. The best universities around the world have evolved sound

mechanisms for promoting and managing innovations. I believe that the 'Guidelines on National Innovation and Startup Policy 2019' will provide the required direction and support to a large number of universities and its affiliated institutions in India on handling Intellectual Property Rights, innovations and startup related issues,

I extend my best wishes to the institutions for stepping ahead to implement these guidelines.

Message from Chairman, 'National Innovation and Startup Policy 2019' Committee



Ashok Jhunjunwala
Chairman, NISPC

At the outset, I thank the Ministry of Human Resource Development for providing me an opportunity to work on the guidelines with an aim of nurturing Innovation and Startups ecosystem in higher education institutions. My firm belief is that Incubation and Innovation need to be organically interlinked. Without innovation, new enterprises are unlikely to

succeed. The goal of the institutions should therefore be to link Innovation to Enterprises to financial success.

I sincerely congratulate the Ministry of Human Resource Development for its initiative towards strengthening of innovation and startup ecosystem in education ecosystem and wish it a grand success.

Message from Innovation Cell, Ministry of Human Resource Development



Abhay Jere
Chief Innovation Officer,
MHRD

At the outset, I would like to acknowledge all committee members, without whose active contributions and support, these policy guidelines would not have been possible.

These policy guidelines on Innovation and Startups have been framed with an aim to promote the innovation and entrepreneurship culture within our higher education institutions. If India aims to become 5 trillion-dollar economy, then it needs to evolve systems and mechanisms to convert the present demographic dividend into high quality technical human resource capable of doing cutting edge research and innovation (R&I) and deep-tech entrepreneurship.

On Global Innovation Index (GII) 2019, India's rank is 52 while China is far ahead of us and ranks 14. Considering India's real R&I potential, we should certainly aspire to be within top 25 in next 5 years and it can happen only if we can develop robust Innovation and entrepreneurship ecosystem within our higher education institutions. Moreover, unfortunately at present, none of

our Indian institution figure in top 100 global R&I institutions and only 3 Indian institutions are within top 200. This needs to change and can only happen if our institutions give substantial emphasis on R&I. In next 5 years, India needs to systematically work to ensure that it's 10 institutions are amongst top 100.

To ensure that innovation and entrepreneurship emerges as the primary fulcrum of India's higher education systems, MHRD's Innovation Cell (MIC) is undertaking multiple initiatives like Smart India Hackathon, Atal Ranking of Institutions of Innovation Achievements (ARIIA), establishing Institution's Innovation Councils (IIC) in 1500+ institutions, Innovation Competitions, etc.

The present National Innovation and Startup Policy is yet another step in that direction. We believe that this policy will immensely benefit central institutions, state universities and affiliated institutions which are currently not well verse at handling challenges related to innovation, startup and entrepreneurship conceived by their faculty and students.



Committee for 'National Innovation and Startup Policy 2019' Guidelines for Higher Education Institutions

1.	Prof. Ashok Jhunjunwala Professor, Indian Institute of Technology Madras	Chairman
2.	Shri Sukhbir Singh Sandhu Additional Secretary (Higher Education) Ministry of Human Resource Development New Delhi	Member
3.	Prof. Anil D Sahasrabudhe Chairman, All India Council of Technical Education New Delhi	Member
4.	Dr. Rajnish Jain Secretary, University Grants Commission	Member
5.	Dr. G. Raghuram Director, Indian Institute of Management Bangalore	Member
6.	Dr. Anand Deshpande Chairman and Managing Director, Persistent Systems, Pune	Member
7.	Dr. Abhay Karandikar Director, Indian Institute of Technology, Kanpur	Member
8.	Dr. Udai B. Desai Director, Indian Institute of Technology Hyderabad	Member
9.	Dr. Appa Rao Podile Vice-Chancellor, University of Hyderabad	Member
10.	Dr. Mini Shaji Thomas Director, National Institute of Technology, Trichy	Member
11.	Dr. Sanjay H Inamdar CEO, Flucon Industries & Chairman, AICTE Startup Policy Committee	Member
12.	Dr. Uday Kumar Yaragatti Director, MNIT, Jaipur	Member
13.	Dr. Gautam Biswas Director, Indian Institute of Information Technology Guwahati	Member
14.	Sh. Hiranmay Mahanta Director, Gujarat Technological University Innovation Council	Invitee
15.	Dr. Abhay Jere Chief Innovation Officer, Ministry of Human Resource Development	Member Secretary

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17.	Dr. Pooja Rawat Innovation Officer, Ministry of Human Resource Development Innovation Cell



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Preamble

In November 2016, All India Council of Technical Education (AICTE) released a Startup Policy document for AICTE approved institutions, to address the need of inculcation of innovation and entrepreneurial culture in higher education institutions (HEIs). The policy primarily focused on guiding the AICTE approved institutions in implementing ‘Startup Action Plan’ of Government of India. Subsequent to release of the Startup policy by AICTE and further interaction & feedback received from education institutions, a need was felt for a more elaborate and comprehensive policy guiding document, which could be applicable for all the HEIs in India.

A fifteen membered committee was constituted by Ministry of Human Resource Development to formulate detailed guidelines for various aspects related to innovation, Startup and entrepreneurship management. This committee deliberated on various facets for nurturing the innovation and Startup culture in HEIs, which covered Intellectual Property ownership, revenue sharing mechanisms, norms for technology transfer and commercialization, equity sharing, etc. After multiple rounds of meetings, National Innovation and Startup Policy 2019 for students and faculties of HEIs were prepared.

Vision

India aspires to become 5 trillion-dollar economy by 2024. To reach the mark, it needs to evolve systems and mechanisms to convert the present demographic dividend into high quality technical human resource capable of doing cutting edge research and innovation and deep-tech entrepreneurship.

The 'National Student and Faculty Startup policy 2019' for HEIs is a guiding framework to envision an educational system oriented towards start ups and entrepreneurship opportunities for student and faculties. The guidelines provide ways to Indian HEIs for developing entrepreneurial agenda, managing Intellectual Property Rights (IPR) ownership, technology licensing and equity sharing in Startups or enterprises established by faculty and students.

In India, innovation is still not the epicenter of education. In order to achieve the cultural and attitudinal shift and to ensure that ‘Innovation and Startup’ culture is the primary fulcrum of our higher education system a policy framework and guidelines are the need of this hour. These guidelines will enable institutions to actively support their faculty, staff and students to participate in innovation and entrepreneurship (I&E) related activities, thus encouraging students and faculty to consider start ups and entrepreneurship as a career option. These recommendations and guiding principles will also help HEIs in creating their own policy framework, if required.

Moreover, these guidelines will facilitate Ministry of Human Resource Development in bringing uniformity across HEIs in terms of IPR ownership management, technology licensing and institutional startups policy, thus enabling creation of a robust innovation and Startup ecosystem across all HEIs. These guidelines will also help emphasize that the entrepreneurship is all about creating a business, which is financially successful.



National Innovation and Startup Policy 2019 for Students and Faculty

1. Strategies and Governance

- a. Entrepreneurship promotion and development should be one of the major dimensions of the HEIs strategy. To facilitate development of an entrepreneurial ecosystem in the organization, specific objectives and associated performance indicators should be defined for assessment.
- b. Implementation of entrepreneurial vision at the institute should be achieved through mission statements rather than stringent control system. The entrepreneurial agenda should be the responsibility of a senior person at the level of dean/ director/ equivalent position to bring in required commitment and must be well understood by the higher authorities. However, one must understand that promoting entrepreneurship requires a different type of mindset as compared to other academic activities. Therefore, this person should be very carefully chosen from someone who understands the industry and above all business.
- c. Resource mobilisation plan should be worked out at the institute for supporting pre-incubation, incubation infrastructure and facilities. A sustainable financial strategy should be defined in order to reduce the organizational constraints to work on the entrepreneurial agenda.
 - i. Investment in the entrepreneurial activities should be a part of the institutional financial strategy. Minimum 1% fund of the total annual budget of the institution should be allocated for funding and supporting innovation and startups related activities through creation of separate ‘Innovation fund’.
 - ii. The strategy should also involve raising funds from diverse sources to reduce dependency on the public funding. Bringing in external funding through 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 should be encouraged.
 - iii. To support technology incubators, academic institutes may approach private and corporate sectors to generate funds, under Corporate Social Responsibility (CSR) as per Section 135 of the Company Act 2013.
 - iv. Institute may also raise funding through sponsorships and donations. Institute should actively engage alumni network for promoting Innovation & Entrepreneurship (I&E).
- d. For expediting the decision making, hierarchical barriers should be minimized and individual autonomy and ownership of initiatives should be promoted.
- e. Importance of innovation and entrepreneurial agenda should be known across the institute and should be promoted and highlighted at institutional programs such as conferences, convocations, workshops, etc.
- f. Student and faculty startup Policy and action plan should be formulated at university level, which is in line with the current document along with well-defined short-term and long-term goals. Micro action plan should also be developed by the affiliated institutes to accomplish the policy objectives.



- g. Institute should develop and implement I & E strategy and policy for the entire institute in order to integrate the entrepreneurial activities across various centers, departments, faculties, within the institutes, thus breaking the silos.
- h. Product to market strategy for startups should be developed by the institute on case to case basis.
- i. Development of entrepreneurship culture should not be limited within the boundaries of the institution.
 - i. HEIs should be the driving force in developing entrepreneurship culture in its vicinity (regional, social and community level). This shall include giving opportunity for regional startups, provision to extend facilities for outsiders and active involvement of the institute in defining strategic direction for local development.
 - ii. Strategic international partnerships should be developed using bilateral and multilateral channels with international innovation clusters and other relevant organizations. Moreover, international exchange programs, internships, engaging the international faculties in teaching and research should also be promoted.

2. Startups Enabling Institutional Infrastructure

Creation of pre-incubation and incubation facilities for nurturing innovations and startups in HEIs institutions should be undertaken. Incubation and Innovation need to be organically interlinked. Without innovation, new enterprises are unlikely to succeed. The goal of the effort should be to link INNOVATION to ENTREPRISES to FINANCIAL SUCCESS.

- a. All HEIs are advised to create facilities within their institution for supporting pre-incubation (e.g. IICs as per the guidelines by MHRD's Innovation Cell, EDC, IEDC, New-Gen IEDC, Innovation Cell, Startup Cell, Student Clubs, etc.) and Incubation/ acceleration by mobilizing resources from internal and external sources.
- b. This Pre-Incubation/Incubation facility should be accessible 24x7 to students, staff and faculty of all disciplines and departments across the institution.
- c. Pre-incubation facilities may or may not be a separately registered entity or Special Purpose Vehicle (SPV), but we recommend that 'Incubation cum Technology Commercialization Unit' (ITCU) should be a separate entity preferably registered under Section-8 of Company Act 2013 or 'Society' registered under Society Registration Act with independent governance structure. This will allow more freedom to Incubators in decision making with less administrative hassles for executing the programs related to innovation, IPR and Startups. Moreover, they will have better accountability towards investors supporting the incubation facility.
- d. HEIs may 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 in Section 3.



3. Nurturing Innovations and Start ups

- a. HEIs are expected to establish processes and mechanisms for easy creation and nurturing of Start ups/enterprises by students (UG, PG, Ph.D.), staff (including temporary or project staff), faculty, alumni and potential start up applicants even from outside the institutions.
- b. While defining their processes, institutions will ensure to achieve following:
 - i. Incubation support: Offer access to pre-incubation & Incubation facility to start ups by students, staff and faculty for mutually acceptable time-frame.

In case an institute doesn't have a dedicated facility/ infrastructure of its own, then it may reach out to nearest incubation facilities in other HEIs in order to facilitate access to their students, staff and faculty.
 - ii. Will 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.
 - iii. Will allow setting up a start up (including social start ups) and working part-time for the start ups while studying / working: HEIs may allow their students / staff to work on their innovative projects and setting up start ups (including Social Start ups) or work as intern / part-time in start ups (incubated in any recognized HEIs/Incubators) while studying / working. Student Entrepreneurs may earn credits for working on innovative prototypes/Business Models. Institute may need to develop clear guidelines to formalize this mechanism. Student inventors may also be allowed to opt for start up in place of their mini project/ major project, seminars, summer trainings. The area in which student wants to initiate a start up may be interdisciplinary or multi-disciplinary. However, the student must describe how they will separate and clearly distinguish their ongoing research activities as a student from the work being conducted at the start up.
- c. Students who are under incubation, but are pursuing some entrepreneurial ventures while studying should be allowed to use their address in the institute to register their company with due permission from the institution.
- d. Students entrepreneurs should be allowed to sit for the examination, even if their attendance is less than the minimum permissible percentage, with due permission from the institute.
- e. HEIs should allow their students to take a semester/year break (or even more depending upon the decision of 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 should set up a review committee for review of start up by students, and based on the progress made, it may consider giving appropriate credits for academics.
- f. The institute should explore provision of accommodation to the entrepreneurs within the campus for some period of time.



- g. Allow faculty and staff to take off for a semester / year (or even more depending upon the decision of review committee constituted by the institute) as sabbatical/ unpaid leave/ casual leave/ earned leave for working on startups and come back. Institution should 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 may 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 can get degree while incubating and nurturing a startup company. AICTE has already issued guidelines for a similar program.
- i. Institute will facilitate the startup activities/ technology development by allowing students/ faculty/ staff to use institute infrastructure and facilities, as per the choice of the potential entrepreneur in the following manners:
 - i Short-term/ six-month/ one-year part-time entrepreneurship training.
 - ii Mentorship support on regular basis.
 - iii Facilitation in a variety of areas including technology development, ideation, creativity, design thinking, fund raising, financial management, cash-flow management, new venture planning, business development, product development, social entrepreneurship, product-costing, marketing, brand-development, human resource management as well as law and regulations impacting a business.
 - iv Institute may also link the startups to other seed-fund providers/ angel funds/ venture funds or itself may set up seed-fund once the incubation activities mature.
 - v License institute IPR as discussed in section 4 below.
- j. In return of the services and facilities, institute may take 2% to 9.5% equity/ stake in the startup/ company, based on brand used, faculty contribution, support provided and use of institute's IPR (a limit of 9.5% is suggested so that institute has no legal liability arising out of startup. The institute should normally take 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.
 - For staff and faculty, institute can take no-more than 20% of shares that staff / faculty takes while drawing full salary from the institution; however, this share will be within the 9.5% cap of company shares, listed above.
 - No restriction on shares that faculty / staff can take, as long as they do not spend more than 20% of office time on the startup in advisory or consultative role and do not compromise with their existing academic and administrative work / duties. In case the faculty/ staff holds the executive or managerial position for more than three months in a startup, then they will go on sabbatical/ leave without pay/ earned leave.
 - In case of compulsory equity model, Startup may be given a cooling period of 3 months to use incubation services on rental basis to take a final decision based on satisfaction of



services offered by the institute/incubator. In that case, during the cooling period, institute cannot force startup to issue equity on the first day of granting incubation support.

- k. The institute should also provide services based on mixture of equity, fee-based and/ or zero payment model. So, a startup may choose to avail only the support, not seed funding, by the institute on rental basis.
- l. Institute could extend this startup facility to alumni of the institute as well as outsiders.
- m. Participation in start up related activities needs to be considered as a legitimate activity of faculty in addition to teaching, R&D projects, industrial consultancy and management duties and must be considered while evaluating the annual performance of the faculty. Every faculty may be encouraged to mentor at least one startup.
- n. Product development and commercialization as well as participating and nurturing of startups would now be added to a bucket of faculty-duties and each faculty would choose a mix and match of these activities (in addition to minimum required teaching and guidance) and then respective faculty are evaluated accordingly for their performance and promotion.
- o. Institutions might also need to update/change/revise performance evaluation policies for faculty and staff as stated above.
- p. Institute should ensure that at no stage any liability accrue to it because of any activity of any startup.
- q. Where a student/ faculty startup policy is pre-existing in an institute, then the institute may consider modifying their policy in spirit of these guidelines.

4. Product Ownership Rights for Technologies Developed at Institute

- a. When institute facilities / funds are used substantially or when IPR is developed as a part of curriculum/ academic activity, IPR is to be jointly owned by inventors and the institute.
 - i. Inventors and institute could together license the product / IPR to any commercial organisation, with inventors having the primary say. License fees could be either / or a mix of
 - 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. An institute may not be allowed to hold the equity as per the current statute, so SPV may be requested to hold equity on their behalf.
 - iii. If one or more of the inventors wish to incubate a company and license the product to this company, the royalties would be no more than 4% of sale price, preferably 1 to 2%, unless it is pure software product. If it is shares in the company, shares will again be 1% to 4%. For a pure software product licensing, there may be a revenue sharing to be mutually decided between the institute and the incubated company.
- b. On the other hand, 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.

- c. If there is a dispute in ownership, a minimum five membered committee consisting of two faculty members (having developed sufficient IPR and translated to commercialisation), two of the institute's alumni/ industry experts (having experience in technology commercialisation) and one legal advisor with experience in IPR, 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.
- d. Institute IPR cell or incubation center will only be a coordinator and facilitator for providing services to faculty, staff and students. They will have no say on how the invention is carried out, how it is patented or how it is to be licensed. If institute is to pay for patent filing, they 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.
- e. All institute's decision-making body 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.
- f. Interdisciplinary research and publication on startup and entrepreneurship should be promoted by the institutions.

5. Organizational Capacity, Human Resources and Incentives

- a. Institute should recruit staff that have a strong innovation and entrepreneurial/ industrial experience, behaviour and attitude. This will help in fostering the I&E culture.
 - i. Some of the relevant faculty members with prior exposure and interest should be deputed for training to promote I&E.
 - ii. To achieve better engagement of staff in entrepreneurial activities, institutional policy on career development of staff should be developed with constant upskilling.
- b. Faculty and departments of the institutes have to work in coherence and cross-departmental linkages should be strengthened through shared faculty, cross-faculty teaching and research in order to gain maximum utilization of internal resources and knowledge.
- c. Periodically some external subject matter experts such as guest lecturers or alumni can be engaged for strategic advice and bringing in skills which are not available internally.
- d. Faculty and staff should be encouraged to do courses on innovation, entrepreneurship management and venture development.
- e. In order to attract and retain right people, institute should develop academic and non-academic



incentives and reward mechanisms for all staff and stakeholders that actively contribute and support entrepreneurship agenda and activities.

- i. The reward system for the staff may include sabbaticals, office and lab space for entrepreneurial activities, reduced teaching loads, awards, trainings, etc.
- ii. The recognition of the stakeholders may include offering use of facilities and services, strategy for shared risk, as guest teachers, fellowships, associateships, etc.
- iii. A performance matrix should be developed and used for evaluation of annual performance.

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

- a. To ensure exposure of maximum students to innovation and pre incubation activities at their early stage and to support the pathway from ideation to innovation to market, mechanisms should be devised at institution level.
 - i. Spreading awareness among students, faculty and staff about the value of entrepreneurship and its role in career development or employability should be a part of the institutional entrepreneurial agenda.
 - ii. Students/ staff should be taught that innovation (technology, process or business innovation) is a mechanism to solve the problems of the society and consumers. Entrepreneurs should innovate with focus on the market niche.
 - iii. Students should be encouraged to develop entrepreneurial mindset through experiential learning by exposing them to training in cognitive skills (e.g. design thinking, critical thinking, etc.), by inviting first generation local entrepreneurs or experts to address young minds. Initiatives like idea and innovation competitions, hackathons, workshops, bootcamps, seminars, conferences, exhibitions, mentoring by academic and industry personnel, throwing real life challenges, awards and recognition should be routinely organized.
 - iv. To prepare the students for creating the start up through the education, integration of education activities with enterprise-related activities should be done.
- b. The institute should link their start ups and companies with wider entrepreneurial ecosystem and by providing support to students who show potential, in pre-startup phase. Connecting student entrepreneurs with real life entrepreneurs will help the students in understanding real challenges which may be faced by them while going through the innovation funnel and will increase the probability of success.
- c. The institute should establish Institution's Innovation Councils (IICs) as per the guidelines of MHRD's Innovation Cell and allocate appropriate budget for its activities. IICs should guide institutions in conducting various activities related to innovation, startup and entrepreneurship development. Collective and concentrated efforts should be undertaken to identify, scout, acknowledge, support and reward proven student ideas and innovations and to further facilitate their entrepreneurial journey.



- d. For strengthening the innovation funnel of the institute, access to financing must be opened for the potential entrepreneurs.
 - i. Networking events must be organized to create a platform for the budding entrepreneurs to meet investors and pitch their ideas.
 - ii. Provide business incubation facilities: premises at subsidised cost. Laboratories, research facilities, IT services, training, mentoring, etc. should be accessible to the new startups.
 - iii. A culture needs to be promoted to understand that money is not FREE and is risk capital. The entrepreneur must utilize these funds and return. While funding is taking risk on the entrepreneur, it is an obligation of the entrepreneur to make every effort possible to prove that the funding agency did right in funding him/ her.
- e. Institute must develop a ready reckoner of Innovation Tool Kit, which must be kept on the homepage on institute's website to answer the doubts and queries of the innovators and enlisting the facilities available at the institute.

7. Norms for Faculty Startups

- a. For better coordination of the entrepreneurial activities, norms for faculty to do startups should be created by the institutes. Only those technologies should be taken for faculty startups which originate from within the same institute.
 - i. Role of faculty may vary from being an owner/ direct promoter, mentor, consultant or as on-board member of the startup.
 - ii. Institutes should work on developing a policy on 'conflict of interests' to ensure that the regular duties of the faculty don't suffer owing to his/her involvement in the startup activities.
 - 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 must clearly separate and distinguish on-going research at the institute from the work conducted at the startup/ company.
- d. In case of selection of a faculty start up 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) may be permitted to the faculty.
- e. Faculty must not accept gifts from the startup.
- f. Faculty must not involve research staff or other staff of institute in activities at the startup and vice-versa.
- g. Human subject related research in startup should get clearance from ethics committee of the institution.



8. Pedagogy and Learning Interventions for Entrepreneurship Development

- a. Diversified approach should be adopted to produce desirable learning outcomes, which should include cross disciplinary learning using mentors, labs, case studies, games, etc. in place of traditional lecture-based delivery.
 - i. Student clubs/ bodies/ departments must be created for organizing competitions, bootcamps, workshops, awards, etc. These bodies should be involved in institutional strategy planning to ensure enhancement of the student's thinking and responding ability.
 - ii. Institutes should start annual 'INNOVATION & ENTREPRENEURSHIP AWARD' to recognize outstanding ideas, successful enterprises and contributors for promoting innovation and enterprises ecosystem within the institute.
 - iii. For creating awareness among the students, the teaching methods should include case studies on business failure and real-life experience reports by startups.
 - iv. Tolerating and encouraging failures: Our systems are not designed for tolerating and encouraging failure. Failures need to be elaborately discussed and debated to imbibe that failure is a part of life, thus helping in reducing the social stigma associated with it. Very importantly, this should be a part of institute's philosophy and culture.
 - v. Innovation champions should be nominated from within the students/ faculty/ staff for each department/ stream of study.
- b. Entrepreneurship education should be imparted to students at curricular/ co-curricular/ extra-curricular level through elective/ short term or long-term courses on innovation, entrepreneurship and venture development. Validated learning outcomes should be made available to the students.
 - i. Integration of expertise of the external stakeholders should be done in the entrepreneurship education to evolve a culture of collaboration and engagement with external environment.
 - ii. In the beginning of every academic session, institute should conduct an induction program about the importance of I&E so that freshly inducted students are made aware about the entrepreneurial agenda of the institute and available support systems. Curriculum for the entrepreneurship education should be continuously updated based on entrepreneurship research outcomes. This should also include case studies on failures.
 - iii. Industry linkages should be leveraged for conducting research and survey on trends in technology, research, innovation, and market intelligence.
 - iv. Sensitization of students should be done for their understanding on expected learning outcomes.
 - v. Student innovators, startups, experts must be engaged in the dialogue process while developing the strategy so that it becomes need based.
 - vi. Customized teaching and training materials should be developed for startups.
 - vii. It must be noted that not everyone can become an entrepreneur. The entrepreneur is a leader, who



would convert an innovation successfully into a product, others may join the leader and work for the startup. It is important to understand that entrepreneurship is about risk taking. One must carefully evaluate whether a student is capable and willing to take risk.

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

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

- a. Stakeholder engagement should be given prime importance in the entrepreneurial agenda of the institute. Institutes should find potential partners, resource organizations, micro, small and medium-sized enterprises (MSMEs), social enterprises, schools, alumni, professional bodies and entrepreneurs to support entrepreneurship and co-design the programs.
 - i. To encourage co-creation, bi-directional flow/ exchange of knowledge and people should be ensured between institutes such as incubators, science parks, etc.
 - ii. Institute should organize networking events for better engagement of collaborators and should open up the opportunities for staff, faculty and students to allow constant flow of ideas and knowledge through meetings, workshops, space for collaboration, lectures, etc.
 - iii. Mechanism should be developed by the institute to capitalize on the knowledge gained through these collaborations.
 - iv. Care must be taken to ensure that events DON'T BECOME an end goal. First focus of the incubator should be to create successful ventures.
- b. The institute should develop policy and guidelines for forming and managing the relationships with external stakeholders including private industries.
- c. Knowledge exchange through collaboration and partnership should be made a part of institutional policy and 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 should be given the opportunities to connect with their external environment.
 - ii. Connect of the institute with the external environment must be leveraged in form of absorbing information and experience from the external ecosystem into the institute's environment.
 - iii. Single Point of Contact (SPOC) mechanism should be created in the institute for the students, faculty, collaborators, partners and other stakeholders to ensure access to information.
 - iv. Mechanisms should be devised by the institutions to ensure maximum exploitation of entrepreneurial opportunities with industrial and commercial collaborators.



- v. Knowledge management should be done by the institute through development of innovation knowledge platform using inhouse Information & Communication Technology (ICT) capabilities.

10. Entrepreneurial Impact Assessment

- a. Impact assessment of institute's entrepreneurial initiatives such as pre-incubation, incubation, entrepreneurship education should 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 should be assessed.
 - ii. Number of start ups created, support system provided at the institutional level and satisfaction of participants, new business relationships created by the institutes should be recorded and used for impact assessment.
 - iii. Impact should also 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 should go hand in hand. The information on impact of the activities should be actively used while developing and reviewing the entrepreneurial strategy.
- c. Impact assessment for measuring the success should 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. COMMERCIAL success is the ONLY measure in long run.

Way Forward

Uniform and successful implementation of the 'National Innovation and Startup Policy 2019' for students and faculty of all the HEIs across the nation is the main objective. In order to achieve this, full-fledged support of education institutions will be important. The roadmap suggested through this document is 'broad guidelines' and if required, these institutions may develop their own comprehensive guidelines and policy on innovation and startups with greater details. The institutes are expected to make use of already available infrastructure as much as possible to achieve the implementation of suggestive measures.



Glossary

Accelerators	Startup Accelerators design programs in batches and transform promising business ideas into reality under the guidance of mentors and several other available resources.
Angel Fund	An angel investor is a wealthy individual who invests his or her personal capital and shares experiences, contacts, and mentors (as possible and required by the startup in exchange for equity in that startup). Angels are usually accredited investors. Since their funds are involved, they are equally desirous in making the startup successful.
Cash flow management	Cash flow management is the process of tracking how much money is coming into and going out of your business.
Co-Creation	Co-creation is the act of creating together. When applied in business, it can be used as is an economic strategy to develop new business models, products and services with customers, clients, trading partner or other parts of the same enterprise or venture.
Compulsory Equity	An equity share, commonly referred to as ordinary share also, represents the form of fractional or part ownership in which a shareholder, as a fractional owner, undertakes the maximum entrepreneurial risk associated with a business venture. The holders of such shares are members of the company and have voting rights.
Corporate Social Responsibility	Corporate social responsibility (CSR) is a self-regulating business model that helps a company be socially accountable – to itself, its stakeholders, and the public.
Cross-disciplinary	Cross-disciplinary practices refer to teaching, learning, and scholarship activities that cut across disciplinary boundaries.
Entrepreneurial culture	A culture/ society that enhance the exhibition of the attributes, values, beliefs and behaviors that are related to entrepreneurs.
Entrepreneurial Individuals	An Individual who has an entrepreneurial mindset and wants to make his/her idea successful.
Entrepreneurship education	Entrepreneurship education seeks to provide students with the knowledge, skills and motivation to encourage entrepreneurial success in a variety of settings.
Experiential learning	Experiential learning is the process of learning through experience, and is more specifically defined as learning through reflection on doing.
Financial management	Financial Management is the application of general principles of management to the financial possessions of an enterprise.
Hackathon	A hackathon is a design sprint-like event in which computer programmers and others involved in software development, including graphic designers, interface designers, project managers, and others, often including domain experts, collaborate intensively on software projects.
Host Institution	Host institutions refer to well-known technology, management and R&D institutions working for developing startups and contributing towards developing a favorable entrepreneurial ecosystem.
Incubation	Incubation is a unique and highly flexible combination of business development processes, infrastructure and people, designed to nurture and grow new and small businesses by supporting them through the early stages of development.
Intellectual Property Rights Licensing	A licensing is a partnership between an intellectual property rights owner (licensor) and another who is authorized to use such rights (licensee) in exchange for an agreed payment (fee or royalty).



Knowledge Exchange	Knowledge exchange is a process which brings together academic staff, users of research and wider groups and communities to exchange ideas, evidence and expertise.
Pedagogy and Experiential Learning	It refers to specific methods and teaching practices (as an academic subject or theoretical concept) which would be applied for students working on startups. The experiential learning method will be used for teaching 'startup related concepts and contents' to introduce a positive influence on the thought processes of students. Courses like 'business idea generation' and 'soft skills for startups' would demand experiential learning rather than traditional class room lecturing. Business cases and teaching cases will be used to discuss practical business situations that can help students to arrive at a decision while facing business dilemma(s). Field based interactions with prospective customers; support institutions will also form a part of the pedagogy which will orient the students as they acquire field knowledge.
Pre-incubation	It typically represents the process which works with entrepreneurs who are in the very early stages of setting up their company. Usually, entrepreneurs come into such programs with just an idea of early prototype of their product or service. Such companies can graduate into full-fledged incubation programs.
Prototype	A prototype is an early sample, model, or release of a product built to test a concept or process.
Science parks	A science park, also known as a research park, technology park or innovation centre, is a purpose-built cluster of office spaces, labs, workrooms and meeting areas designed to support research and development in science and technology.
Seed fund	Seed fund is a form of securities offering in which an investor invests capital in a startup company in exchange for an equity stake in the company.
Special Purpose Vehicle	Special purpose vehicle, also called a special purpose entity, is a subsidiary created by a parent company to isolate financial risk. Its legal status as a separate company makes its obligations secure even if the parent company goes bankrupt.
Startup	An entity that develops a business model based on either product innovation or service innovation and makes it scalable, replicable and self-reliant and as defined in Gazette Notification No. G.S.R. 127(E) dated February 19, 2019.
Technology Business Incubator	Technology Business incubator (TBI) is an entity, which helps technology-based startup businesses with all the necessary resources/support that the startup needs to evolve and grow into a mature business.
Technology Commercialization	Technology commercialization is the process of transitioning technologies from the research lab to the marketplace.
Technology licensing	Agreement whereby an owner of a technological intellectual property (the licensor) allows another party (the licensee) to use, modify, and/or resell that property in exchange for a compensation.
Technology management	Technology management is the integrated planning, design, optimization, operation and control of technological products, processes and services.
Venture Capital	It is the most well-known form of start up funding. Venture Capitalists (VCs) typically reserve additional capital for follow-up investment rounds. Another huge value that VCs provide is access to their networks for employees or clients for products or services of the startup.



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