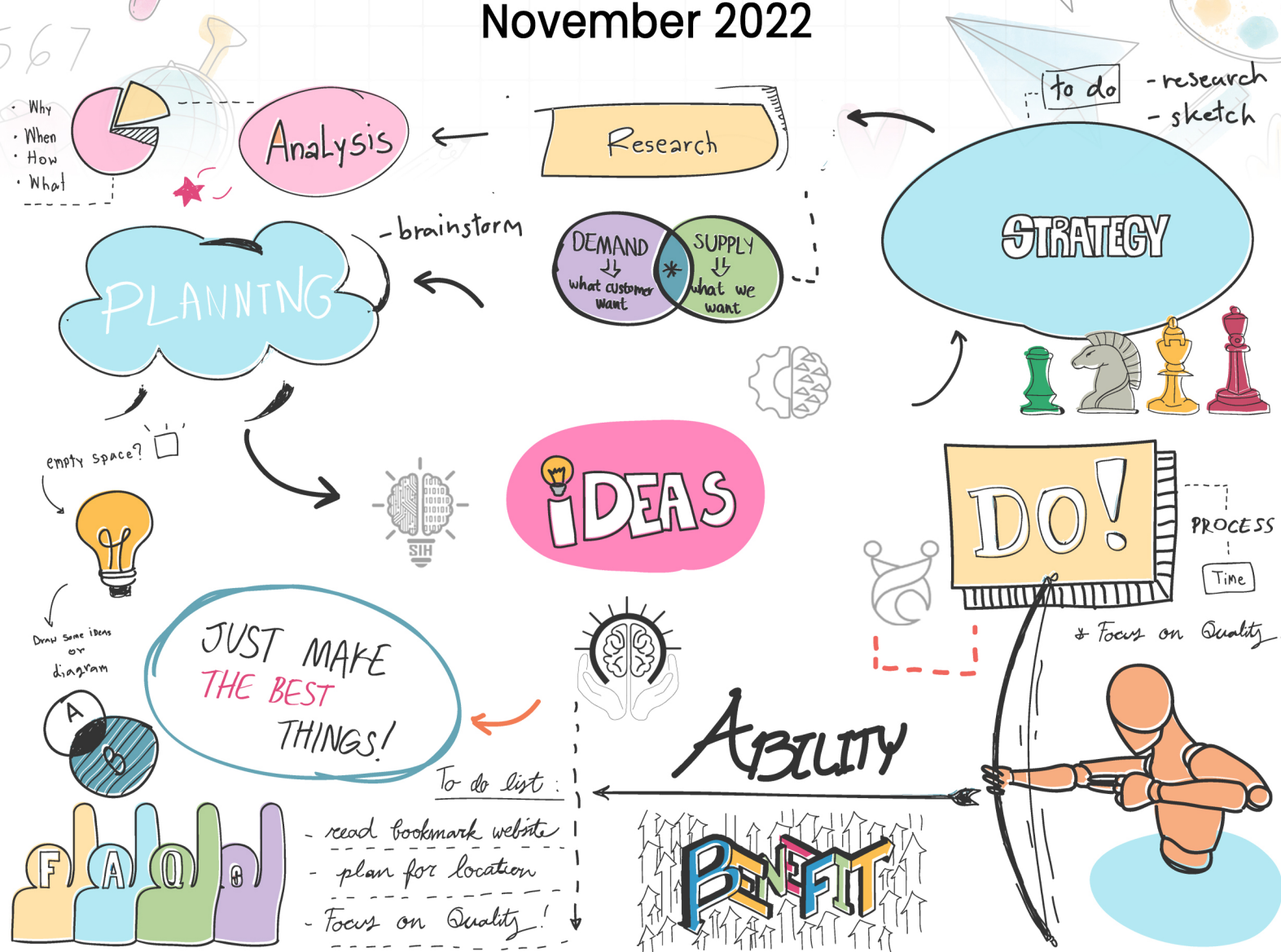


National Policy For Promoting Innovations In Schools

(A Guiding Framework)

November 2022









धर्मेन्द्र प्रधान
धर्मेन्द्र प्रधान
Dharmendra Pradhan



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आज़ादी का
अमृत महोत्सव

मंत्री
शिक्षा; कौशल विकास
और उद्यमशीलता
भारत सरकार



Minister
Education; Skill Development
& Entrepreneurship
Government of India

MESSAGE

Our Hon'ble Prime Minister has given us the vision of 'Atmanirbhar Bharat' and our Government has launched multiple unique initiatives like Skill India, Startup India, Make in India, Digital India. As a result, India has now emerged as the world's third largest economy.

Currently, India has more than 50% of its population below the age of 30 which is commonly referred as our demographic dividend. To realize the potential of this demographic dividend, large scale efforts are required to equip our youngsters with 21st century skills such as critical thinking, collaboration, digital literacy, problem solving abilities, flexibility and communication skills.

We need to ensure that the creativity and positive energy of our youngsters is directly utilized for the development of our nation. This is only possible if our youngsters have the mindset to offer great innovative solutions for some of the daunting challenges faced by humanity. Moreover, now in the era of Industrial Revolution 4.0, development of innovative and entrepreneurial attitude within our youngsters is very critical and for that, we need to encourage ideation and out-of-the-box thinking in our children from a young age. Our youth should have the mindset to be "job-creators" rather than "job-seekers".

Our 'National Policy for Promoting Innovations in Schools' is a big step in this direction. This policy focuses on inculcating innovation, entrepreneurial abilities, and problem-solving skills among schools' students. The policy guides schools on creating an enabling environment to promote creative ideation and innovation in classrooms wherein students are encouraged to work on real-world problems. With over 1.5 million schools and 250 million students in our schooling system, we expect to reach out to each and every student of the country.

With such an innovation and entrepreneurship policy framework for schools, India will also be able to provide a model for the world, especially emerging economies. I wish to take this opportunity to congratulate all the stakeholders who have contributed towards making this policy a reality.

I invite all the state governments, administrators, school principals, teachers and students to develop a thriving innovation ecosystem in our schools.

(Dharmendra Pradhan)

सबको शिक्षा, अच्छी शिक्षा



कौशल भारत, कुशल भारत

MOE - Room No. 301, 'C' Wing, 3rd Floor, Shastri Bhavan, New Delhi-110 001, Phone : 91-11-23782387, Fax : 91-11-23382365
MSDE - Room No. 516, 5th Floor, Shram Shakti Bhawan, Rafi Marg, New Delhi-110001, Phone : 91-11-23465810, Fax : 011-23465825
E-mail : minister.sm@gov.in, minister-msde@gov.in



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आज़ादी का
अमृत महोत्सव

अन्नपूर्णा देवी
ANNPURNA DEVI



राज्य मंत्री
शिक्षा मंत्रालय
भारत सरकार
MINISTER OF STATE
FOR EDUCATION
GOVERNMENT OF INDIA

26 JUL 2022



MESSAGE

National Education Policy (NEP 2020) has a great focus on innovation as a tool to reform the education system. It emphasizes constructive rather than rote learning and increased flexibility in school curriculum. There is a need to develop a curriculum which is flexible, has fundamental concepts of innovation and creativity and help students acquire entrepreneurial skills. Ministry of Education and National Council of Educational Research and Training (NCERT) are working towards rationalization of text books across different subject areas to achieve the same.

NEP also focusses on reducing the curriculum content to create space for critical thinking and equip the students with the 21st century skills. These 21st-century skills are of paramount importance to students now than ever before to ensure that students can thrive in a fast-changing world. We want our students to enter the world with an understanding about critical thinking, effective communication, collaboration, creativity, imagination, adaptability, etc.

'National Policy for Promoting Innovations in Schools' can be effectively implemented with restructuring of all aspects of curriculum and pedagogy. Implementation will also require encouraging teachers and students to explore, research, use all the tools to explore innovative ways of problem solving. I urge all stakeholders to come together and make this policy a resounding success.

Annpurna Devi

(ANNPURNA DEVI)







Message

The NEP-2020, in para 4.23 lists eighteen skills, subjects and capacities that must be necessarily imbibed by all students to become good, successful, innovative, adaptable, and productive human beings in today's rapidly changing world. These skills include - creativity and innovativeness; collaboration and teamwork; and problem solving and logical reasoning. Hence, the 'National Policy for Promoting Innovations in Schools' is a reflection of the path-breaking provisions of the NEP 2020.

This policy recommends several measures at different stages of schooling to promote critical thinking, flexibility, adaptability, and real-world problem-solving capabilities. It focuses on giving opportunities to teachers and students to be creative, out-of-the-box thinkers, enhance entrepreneurial attitude and thus become future-ready. The policy also highlights importance of innovative pedagogy which is very crucial to prepare youth to be life-long learners.

To make policy implementation a success, a large pool of trained educators needs to be created. School Management, teachers, parents and students need to be periodically sensitized towards importance of ideation, innovation and entrepreneurship. Constant upskilling of the existing teaching workforce will be also required. This will ensure that teachers are capable of using new pedagogy methods to engage students more productively in their classroom, thus achieving the intended outcomes. Recently we launched School Innovation Council to establish innovation and entrepreneurial ecosystem within schools. Our Innovation Ambassador training program is designed to cover latest concepts and methodologies like Design Thinking, Intellectual Property Rights, Ideation, Prototype Development, etc.

India is the first country to launch such a holistic framework on ideation, innovation and entrepreneurship for its schools. The objective is to not only make schools vibrant learning spaces, but also for schools to become hubs of innovation. In the very near future, we hope that problems related to socio-economic, technological, environmental, scientific, and many other such challenges may find innovative products, technologies and solutions emerging from schools.

I urge all the schools and other stakeholders to align their vision and values with the fundamentals of 'National Policy for Promoting Innovations in Schools'. Let us join hands to innovate for a better future, built on the innumerable contributions of our able and creative children, who surpass our imagination.

Smt. Anita Karwal
Secretary
Department of School Education
& Literacy, Ministry of Education
Government of India





Message

Our country is witnessing an excellent growth in the start-up ecosystem with the creation of new opportunities and markets for entrepreneurs. It is desirable to keep up this pace by training the young generation and building capacity with all the skills of an entrepreneur. At present, a gap exists between what is desirable and the current state of learning outcomes which needs to be bridged by undertaking major reforms in the education system. A Student Learning Assessment Survey (SLA) was carried out by AICTE, which suggested that in order to achieve higher gains in academics, higher order thinking skills, like analyzing, evaluating and creativity abilities are necessary, and that these skills must be inculcated right at the school level, before they enter into the college. Appropriate policy for School education is therefore very much desired. Therefore, I appreciate this initiative and hold a firm opinion that the 'National Policy for Promoting Innovations in schools' will be instrumental in bridging this gap.

At the All India Council for Technical Education, we have introduced many reforms in higher education including many policy initiatives, examination reforms, model curriculum, etc. Many such initiatives have been introduced recently in alignment with National Education Policy (NEP 2020), which will bring the highest quality and integrity into the higher education system. The NEP 2020 lays emphasis on usage of technology to make the youth ready for future; however large-scale development of digital infrastructure such as digital classrooms, remote expertise driven teaching models and laboratory infrastructure in all schools is a great challenge. Majority of the schools also don't have the proper set-up to support these modern tools. Implementation of the policy will therefore require strong interconnect and networking among stakeholders, sharing of resources and common resource pool. Higher education institutes will be one of the crucial stakeholders in the entire process. It will be important to create a community of mentors, entrepreneurs, student start up founders, CEOs from business incubators, industrial experts, etc. which the schools can have an easy access to. The school education is largely untouched by the concepts of innovation and entrepreneurship, therefore a lot more efforts will be required to initiate the spark. We need to shift gradually from subjective learning model to practical training methods by creating and fine tuning the appropriate methods.

To promote continuous tracking of learning outcomes, the NEP focuses on the change in assessment system from summative assessment to formative assessment. It will be important to include the assessment methods which can measure the creative, innovation and entrepreneurial capabilities of the school students. All the guiding principles mentioned in the policy like stage wise integration, innovative pedagogies, blended teaching, experiential learning of students, upskilling opportunities for teachers are futuristic and in alignment with NEP 2020. To enhance the quality of education in schools, it should be implemented soon.

Prof. Anil D. Sahasrabudhe
Chairman
All India Council for Technical Education



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Abbreviations

CAD	Computer aided design
CSIR	Council of Scientific and Industrial Research
CSR	Corporate Social Responsibility
DIKSHA	Digital Infrastructure for Knowledge Sharing
DIO	Defence Intelligence Organisation
DIY	Do-It-Yourself
DRDO	Defence Research and Development Organisation
FL	Financial Literacy
GII	Global Innovation Index
ICT	Information and communications technology
IIC	Institution's Innovation Council
IIE	Ideation, Innovation and Entrepreneurship
IP	Intellectual Property
ISRO	Indian Space Research Organization
LL	Legal Literacy
MIC	Ministry of Education's Innovation Cell
MOOC	Massive Open Online Course
MSME	Micro, small and medium-sized enterprises
NEP	National Education Policy
NGO	Non-Governmental Organisation
RP	Rapid Prototyping
SIATP	School Innovation Ambassador Training Program
SIC	School Innovation Council
SOLE	Self-Organized Learning Environment
SPV	Special Purpose Vehicle





Foreword

India's Ideation, Innovation, Entrepreneurship (IIE) ecosystem is growing very rapidly and our country has now emerged as world's third largest startup ecosystem with more than 100 unicorns and 70,000+ Startups. The latest report by Economic Survey (2021-22) indicates that over 600 K jobs have been created by the startups till date.

Also, we are seeing a large number faculty & students led startups from higher educational institutions which is a solid indicator of transformation currently underway in our higher education sector. This is indeed an outcome of the systematic efforts taken by Ministry of Education (MoE) in last 4-5 years.

Since 2018, MoE's Innovation Cell (MIC) at AICTE is working systematically to foster the culture of IIE in our educational institutions. MIC launched multiple initiatives like Smart India Hackathon, Toycathon, Institution's Innovation Council (IIC), KAPILA, etc. for higher education institutions which have yielded phenomenal results and helped establish IIE ecosystem in large number of HEIs.

In 2019, MIC also released 'National Innovation and Startup Policy for Faculty and Students of HEIs' with an aim to provide HEIs with a guiding framework on critical aspects such as equity sharing, norms for students' and faculty driven startups, IP ownership and management, creation of innovation pipeline and pathways for entrepreneurs, etc. Till date more than 3000 HEIs are in the process of adopting this policy.

However, to achieve more concrete and sustainable impact, it was felt that IIE related interventions should start at school level. Moreover, NEP 2020 also has huge emphasis on promoting problem solving capabilities, out-of-the-box thinking, creativity, ideation and innovation amongst school students. Hence, MIC in collaboration with Department of School education and Literacy has designed a multi-pronged strategy to promote ideation, innovation and entrepreneurial mindset amongst school students and teachers.

This approach involves systematic handholding of institutions through School Innovation Councils program; trainings of teachers in IIE aspects through a very unique 'Innovation Ambassador' initiative; promoting IP creation and filing through KAPILA program; organizing Hackathons and Idea competitions for giving opportunities to showcase innovations and more importantly providing clear guidelines for schools to establish IIE ecosystem through this 'National Policy for Promoting Innovations in Schools'.

This 'National Policy for Promoting Innovations in Schools' is a collaborative exercise involving consultation with large number of experts in school education sector over a period of eight months. The draft policy document was also put in public domain for wider consultations. More than 2500 responses were received from different stakeholders which were carefully reviewed and many of the suggestions were incorporated before finalizing this current version.

This Policy emphasizes on six important pillars related to Ideation, Innovation and Entrepreneurship. The first pillar describes need for the change in mindset and raising awareness about the important of IIE among students, teachers and parents. The second pillar focuses on infrastructure and mentoring support and guides schools on how they can access infrastructure by sharing of resources and mentor pool with other institutions.

The third pillar of the policy describes various mechanism to incentivize teachers for support in IIE activities. The fourth pillar focuses on pedagogy interventions to develop creativity, critical thinking and problem-solving abilities within students. Under the fifth pillar, the policy suggests various ways to establish collaboration with ecosystem enablers while the last (sixth) pillar focuses on encouraging school entrepreneurs' led startups and guides on equity sharing structures, IP ownership, innovation management, revenue sharing mechanism, etc. Further, the policy also describes the specific measures to be adopted by all schools, for students at different stages of learning i.e. foundational, Preparatory, Middle and Secondary stages, as per the new schooling structure (5+3+3+4 model) described in the NEP 2020.

Through 'National Policy for Promoting Innovations in Schools', the Ministry of Education envisions to give much-needed impetus at school level for IIE activities. Moreover, this policy is also in sync with our other initiatives like School Innovation Councils, KAPILA, 'Innovation Ambassador' training program, etc. so that we can give a comprehensive push to IIE ecosystem within our schools which is very critical considering our emphasis on '*AatmaNirbhar Bharat*' policy and '*Vasudhaiva Kutumbakam*' philosophy.

Dr. Abhay Jere
Chief Innovation Officer
Ministry of Education's Innovation Cell
Government of India

Introduction

The world is undergoing rapid changes in knowledge landscape. With various dramatic scientific and technological advances, the kind of jobs that will become mainstream in future is difficult to predict. To flourish in such rapidly evolving employment landscape, young students will need key skills like creativity, innovation, empathy, problem solving, team work, strategic thinking, entrepreneurship as well as learning to accept failures as a part of their development process.

Considering the fact that India aims to become a superpower backed by robust economic growth, we have to instill a culture of innovation and entrepreneurship in our education system beginning from the school level itself. An innovation and entrepreneurship focused education will play a central role in developing crucial life skills and prepare students for a life beyond classrooms.

The education system in the 21st century has to focus on innovation as a tool that revamps the traditional educational system. The need for quality improvement in the curriculum and the desire to produce students with 21st century competency skills has brought innovation at the core of the educational ecosystem. Hence, school cultures that support innovation should be developed and encouraged extensively. Pedagogical practices should be geared towards teaching children to think in ways that lead to innovation. Forming attitudes that are constructive to learning instead of test taking should be the goal of every school and the educational system.

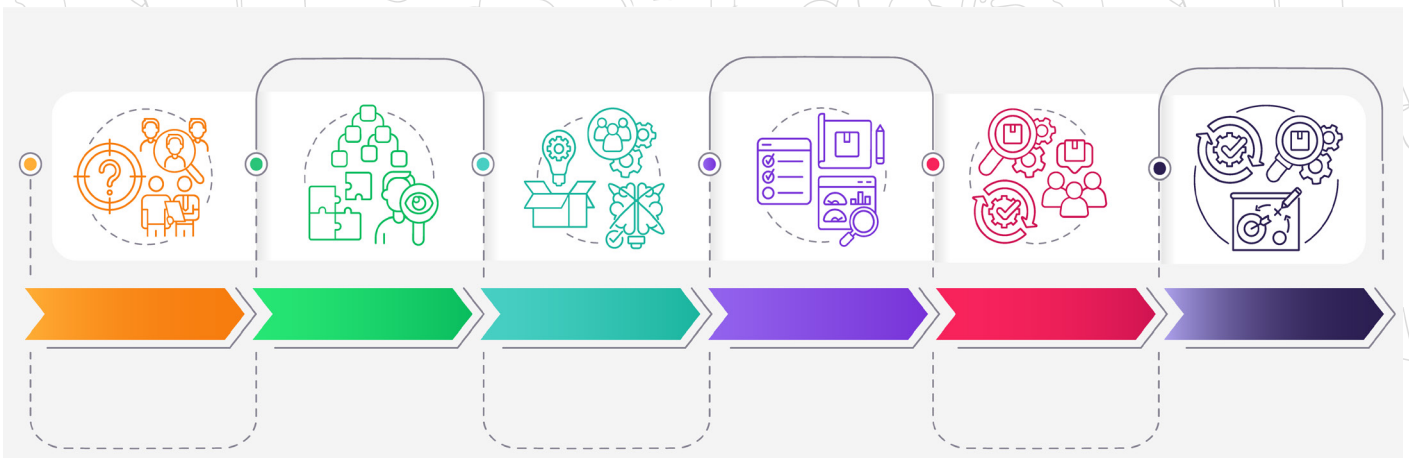
The National Education Policy 2020 lays particular emphasis on the development of the creative potential of each individual. The curricular and pedagogical structure of school education will be reconfigured to make it responsive and relevant to the developmental needs and interests of learners at different stages of their development, and will therefore be guided by a 5+3+3+4 design, consisting of:

- 💡 Foundational Stage (in two parts, that is, 3 years of Anganwadi/pre-school + 2 years in primary school in Grades 1-2; both together covering ages 3-8),
- 💡 Preparatory Stage (Grades 3-5, covering ages 8-11),
- 💡 Middle Stage (Grades 6-8, covering ages 11-14), and
- 💡 Secondary Stage (Grades 9-12 in two phases, i.e., 9 and 10 in the first and 11 and 12 in the second, covering ages 14-18).

It is against this backdrop the 'National Policy for Promoting Innovations in Schools' for Learners, Faculty and Institutions is being launched. The policy guides school education systems on various measures that may be adopted to promote a learning environment where creativity, ideation, innovation, problem solving and entrepreneurship skills of students are nurtured, irrespective of their age. The policy guidelines aims to ensure the mainstreaming of innovation-related activities in schools and converting the same into grades and credits towards college education.

There are six pillars under which specific actions can be taken at each stage of learning, from pre-school to higher education, to promote IIE in school education ecosystem. Specific sets of skills and values across domains will be identified for integration and incorporation at each stage. Curriculum frameworks and transaction mechanisms will be developed for ensuring that these skills and values are imbibed through an engaging processes of teaching and learning.

Six-Pillars of Ideation, Innovation and Entrepreneurship



I. Mindset Change, Awareness and Training

- i. The NEP 2020 fosters a new teaching-learning methodology that employs innovative tools and techniques to make the education experiential, holistic, integrated, learner-centered, inquiry-driven, discovery-oriented, discussion-based, and flexible. The fundamental principle of this paradigm shift is to facilitate the learners to inculcate the 21st Century skills that would enable them to stride ahead with grit and dauntless spirit. It also endeavors to create a pedagogy that invokes a problem-solving approach and out-of-the-box thinking and encourages the youngsters to emerge as individuals with discerning minds and firmness in decision-making.
- ii. The fundamental requirement for adopting a change in processes is a change in mindset. To nurture students' creativity, need for a change in outlook of the school environment must be reflected in school policy. Schools must acknowledge that without creation of awareness, such a change cannot be achieved. School's vision and mission must promote Ideation, Innovation, and Entrepreneurship (IIE) mindset as one of the major objectives. To achieve this, schools should set up specific objectives with tangible outcomes which are achievable within specific timelines.
- iii. By spreading awareness on IIE Agenda, students & teachers will become aware of the importance of IIE in education and its role in nurturing students' creativity.
- iv. School may introduce the concepts of ideation, innovation & entrepreneurship to the students in the Preparatory Stage (Grades 3-5) and integrate the same with curriculum topics as a student progresses to Middle Stage (Grades 6-8) and Secondary Stage (Grades 9-12).
- v. IIE agenda of the school may also be communicated to the parents during annual parents-teachers' meet. Parents serve as the first teachers of their children during their early years; therefore, they can play an important role in making students aware about how useful learning can be in shaping them as an individual and in developing entrepreneurial traits.
- vi. The creation of awareness should not be limited to school boundaries or parents, rather school may actively work to ensure that all students, irrespective of their socio-economic background, gender, geography & physical disability, are able to thrive in the education system. To extend its reach to un-served communities, school may engage volunteers, NGOs, and community centers.
- vii. The handholding of teachers is crucial for the successful implementation of the IIE programs. Teachers' trainings on IIE will be administered through the School Innovation Ambassador Training Programs for teachers, conducted by the Ministry of Education's Innovation Cell (MIC) or any other reputed agencies recommended by the Government. In addition, teachers may also opt for other courses/trainings on IIE for their continuous professional development (para 5.15, NEP 2020).
- viii. A 'Tool Kit on IIE for Students & Teachers' can be created and published by the school on their website. This Tool Kit can include all the pedagogical methods developed or adopted by teachers of the school along with the anticipated positive impacts that it can have on developing entrepreneurial and innovative traits in students.
- ix. A mechanism to measure school performance on IIE agenda will be devised under the School Innovation Council initiative of the Ministry of Education's Innovation Cell (MIC). All such activities on IIE outcomes shall be performed and measured under the SIC initiative of MIC and outcomes shall be published by the schools on its website.

II. Infrastructure and Mentoring to Nurture Innovations

- i. School may endeavor to instill inquisitiveness and foster creativity in students by providing access to required infrastructural facilities either through infrastructure development or through collaborative partnerships with external stakeholders.
- ii. Infrastructure in the form of innovation lab, rapid prototyping labs, 3D printing labs, makers' space, tinkering labs, pre-incubation center, digital libraries etc. will help nurture creative skills among students.
- iii. School should appoint a dedicated in-charge responsible for management of innovation lab/tinkering lab. The appointed in-charge should have a passion to innovate and a tendency to drive curiosity, who can connect with students, inspire them to think out-of-box and create a culture of innovation in school.

- iv. The appointed in-charge shall coordinate and collaborate with school teachers to create a timetable for engaging students, spread awareness and integrate the innovation, creative thinking and DIY activities in everyday school routine.
- v. School should set-up an advisory committee for monitoring the functioning of the innovation/ tinkering lab. Such committee may comprise of Principal, Vice-Principal, In-Charge and representatives from local industry/ local community/ young innovators/ industry and student representative/ parents.
- vi. To review the progress, school must ensure proper documentation of all projects and DIY activities which happen in the lab.
- vii. Innovation labs of a school can also be accessible to nearby schools' students & teachers. Schools can develop guidelines on how nearby schools can have access to their infrastructure for nurturing their students and these guidelines can be available on the school's website.
- viii. All the activities performed on IIE must be blended and mapped with learning objectives and resources available in school. The demonstration of such activities may be given by teachers in their regular classrooms.
- ix. In case the school doesn't have an infrastructure of its own, it may approach educational institution/ research institutions/ incubation centers/ centers of excellence/ Innovation, research and development labs/ tinkering labs/ tool-rooms/ industry/expert agencies, etc. in vicinity having the required infrastructure, to facilitate access for its students.
- x. Apart from ensuring infrastructure access within or in the vicinity, the school may allocate adequate funds ('Innovation Fund') from their annual budget for organizing IIE-related activities.
- xi. Apart from infrastructure, funds, and access to facilities, schools may tie up with experts/ mentors who will guide the students and play a role in inculcating a spirit of curiosity among students. Experts/mentors may be from within the school or maybe invited from nearby schools, higher education institutes, corporates, local entrepreneurs, student alumni, and experts from the IIE ecosystem.

III. Incentivizing and Encouraging Teachers

- i. According to NEP 2020 'creativity and critical thinking to encourage logical decision-making and innovation' is one of the fundamental principles that will guide both the education system at large, as well as the individual institutions within it. Teachers are the drivers of innovations in the schools and hence, to promote the culture of innovation in schools, it also emphasizes that teachers will be given continuous opportunities for self-improvement and to learn the latest innovations and advances in their professions. Educational leadership is the most important internal factor of a school, to bring in this culture of change.
- ii. School can provide opportunities to teachers for up-skilling and getting training & exposure in IIE. Teachers may be provided financial support to undertake certificate/diploma or other courses/training programs in relevant subjects/skill modules for their professional development.
- iii. School may also identify teachers with either prior exposure or interest in leading IIE related agenda in schools and assign responsibilities to them to promote IIE agenda at the school level.
- iv. School can encourage teachers to familiarize themselves, experiment and design pedagogical techniques aimed at nurturing creativity in students. School can encourage teachers to explore exchange programs, teacher development programs like MOOCs, internships in teaching, etc.
- v. School may organize frequent goal-oriented trainings for teachers and encourage them to undertake relevant teacher training courses on Digital Infrastructure for Knowledge Sharing (DIKSHA) portal and School Innovation Ambassador Training Portal of Ministry of Education's Innovation Cell.

- vi. In order to drive the adoption of digital technologies by teachers, the school can promote the use of information and communication technology (ICT) tools like online teaching, interactive whiteboard etc. IIE enabling activities like teacher trainings, organizing events, providing scholarships to bright/gifted students, purchasing EdTech solutions, supporting the development of creative learning methods by teachers, funding innovative projects, developing prototypes/products, and securing Intellectual Property Rights of student/teacher's innovations can be organized by School.
- vii. While assessing the annual performance and incentivization, schools may consider their teachers' contribution towards IIE initiatives and activities.
- viii. The schools and their teachers exhibiting best practices and efficiently adopting IIE Agenda will be recognized through institutional awards including MoE's Innovation Cell Awards.

IV. Pedagogical Innovations

- i. In place of traditional lecture-based delivery, cross disciplinary and experiential learning may be introduced by schools. This will enhance learning experiences by instilling a sense of discovery and spirit of enquiry in students.
- ii. Schools may encourage blended learning experiments by teachers in the classroom through the implementation of flipped classroom models, lab-based models, etc.
- iii. Peer learning can be promoted by the school through projects and discussions between senior and junior students where senior students learn leadership and junior students learn quickly through experiences. If possible, the project teams can have members from different classes to work as a team.
- iv. To inculcate risk-taking attitude and learning from failures, exercises/activities promoting problem-solving, reflection and resilience can be undertaken in school.
- v. Schools can conduct an induction program for students and teachers every year and sensitize them about the IIE agenda of the school, opportunities and support system, various events and activities conducted by the school as well efforts made by the school to nurture innovative minds.
- vi. The use of digital technologies in pedagogy may be promoted by school.
- vii. Best pedagogy innovations may be identified by schools and promoted among all the teaching staff.
- viii. Schools may identify the teachers actively engaged in pedagogy innovations and appropriately incentivize such teachers.
- ix. The innovative pedagogical interventions adopted by the schools may be constantly reviewed by schools and modified as per changing requirements.

V. Collaborative Partnership- School & Community

- i. IIE agenda of school must give prime importance to the collaborative partnerships with stakeholders, which is focused mainly on the outcomes for the students.
- ii. To facilitate the knowledge exchange and co-creation, the school may ensure that their students and teachers are not limited to the school boundaries but they constantly interact with the partners and ecosystem enablers. This exchange could be facilitated by allowing students of the school to participate in the IIE-related events organized by different agencies.
- iii. The school may enter into collaborative agreements with the nearest innovation labs, science parks, business incubators, higher education institutes/ Institution's Innovation Council (IIC), professional bodies/firms, micro, small and medium-sized enterprises (MSMEs), social enterprises, Government-sponsored Incubators and Scientific Labs (like ISRO, CSIR, DRDO, DIO) etc. to provide diverse exposure to its students and teachers.

- iv. Schools may engage with nearby Higher Educational Institutions that have enrolled under the Institution's Innovation Council (IIC) program of MoE's Innovation Cell (MIC). Schools may endeavor to implement the best practices of IIC program through School Innovation Council for fostering a culture of Innovation & Entrepreneurship (I&E) in the school.
- v. Collaboration may also be done to help the students and student founders (of startups) with mentorship support. School may also consult social entrepreneurs for design and delivery of content meant for teachers' professional training.
- vi. Schools may develop appropriate knowledge management mechanisms to ensure that knowledge and experiences are captured, stored, shared and appropriately utilized.
- vii. Schools may also assess the impact of such collaborative efforts on the IIE culture of the school using well defined evaluation parameters.
- viii. Schools may leverage the resources made available by Startup India Initiative. Schools can create their profiles on Startup India platform to collaborate with the ecosystem for the following purposes:
 - 💡 Establishing connects with ecosystem enablers –incubators, mentors, investors.
 - 💡 Showcasing innovations and startups by students and teachers on their profiles
 - 💡 Hosting events through the application management system

VI. Managing Intellectual Property & Handholding School Entrepreneurs

- i. The school may set up an 'Expert Committee' or assign an already existing committee with a role of identifying best ideas/innovations/technologies for which the school can offer Intellectual Property (IP) filing support and facilitate pre-incubation or incubation facilities and services either at its own center or at a nearby location. For such purpose, 'School Innovation Council' members can also play the role of expert committee provided it has appropriate external members. Such committee should consider all important aspects such as innovativeness, value proposition, market research and team capabilities, before giving a go-ahead for next step.
- ii. School should define very clearly the role of such committee and revise the committee from time-to-time as per the requirement.
- iii. The committee set up by the school should have members from the startup ecosystem community so that diverse expertise in innovation and entrepreneurship can be brought within the school.
- iv. In case the school has a pre-incubation and incubation center, it must be accessible to the selected students and teachers with exceptional innovative projects. School shall endeavor to provide space, infrastructure, IP filing and mentorship support as desired by these students & teachers.
- v. On case-to-case basis, product design to market entry strategy of the startups incubated by school should be developed. Such incubation facilities may or may not be a separately registered entity or *Special Purpose Vehicle (SPV)*.
- vi. Through pre-incubation/ incubation units, the school can offer mentoring and other services to startups, in-return for fees, share in equity and/ or zero payment basis for mutually acceptable time-frame.
- vii. In case, the school doesn't have its own pre-incubation or incubation facility, it may reach out to nearby incubation centers for getting pre-incubation or incubation support for innovations developed by its students/teachers.
- viii. Exceptional students identified by the committee who are also provided with incubation support for his/her innovation, may be allowed a break from academics and join back, in consultation with parents. Such students shall not be subjected to minimum percent attendance criteria to sit for an examination.
- ix. School's SPV (Special Purpose vehicle) may take an equity share in a student or teacher-led startup. The equity percentage of the school's equity may be in the range from 2% to 9.5% in such a startup, in return of the facilities and services provided.

- x. The equity shall be decided based on the contribution of teachers and school in terms of time, infrastructure, mentorship, support for IP protection, legal matters, facilitating market research or use of intellectual property partially or jointly owned by the school, seed funds contribution, startup registration, developing business plan, etc. In case of startups in which the teacher is one of the founders, the percent equity of the school will be within the limit of 20% of the equity of the teacher drawing full salary from the school. However, this equity percentage of schools should be within an upper cap of 9.5%. Eg. In the case of teacher and student-led startup with an equity share of 40%, equity share of the school's SPV will be 8%. Separate supplementary guidelines will be issued for equity and IP sharing.
- xi. In case of innovation jointly developed by the students and teachers, teachers can also take equity in the school start-ups with no restriction on its share and can have an advisory or consultative role. However, teacher must ensure that not more than 20% of their school hours are spent on the startup related activities and they don't compromise with their existing academic or other responsibilities assigned by the school.
- xii. In case the teacher holds the executive or managerial position for more than three months in a startup, then they should go on sabbatical without pay or earned leave.
- xiii. Equity in startups may also be shared with external experts/ mentors/ incubation units for their critical or substantial contribution towards making startup successful. The percentage of this equity allocation will be determined by an 'Expert Committee' constituted by school to ensure fairness and transparency.
- xiv. In case of innovations developed by students and teachers using facilities, funds and services availed from the school, the Intellectual Property (IP) rights may be jointly owned by student and/ or teacher inventors, as the case may be and the school incubator/ School's SPV (Special Purpose vehicle). In such cases, school should provide support for filing of IP.
- xv. In case of an IP owned by the school wholly or partially, licensing of IPR may also be allowed by the school to student and/ or teacher willing to pursue that innovation, on easy terms.
- xvi. In case jointly owned IP, student and school incubator may together license it to other commercial organizations in exchange of license fees comprising of one or more of one-time upfront fees, royalty, equity shares.
- xvii. School shall encourage teachers/ students to take online courses on Intellectual Property Rights filing and management on MOOC platform like Swayam or DIKSHA as a part of continuous professional development.
- xviii. The School Innovation Council should have IPR expert as an external member.



Stage Specific Measures

I. Foundational Stage (Pre-school & Grades 1-2)

- i. Education must promote learning on aspects like how to think critically and solve problems, how to be creative and multidisciplinary, and how to innovate, adapt, and absorb new material. Pedagogy must evolve to make education more experiential, holistic, integrated, learner-centered, flexible, and enjoyable.
- ii. Schools can focus on joyful and experiential learning through art, stories, poetry, rhymes, games, toys, songs, or activity-based in-Home Language/Mother tongue focusing on rich local traditions. (Integrating art, sport, ICT, storytelling, toys, games, puzzles, etc.)
- iii. Classroom transactions based on Lesson Plans integrating real-life situations keeping in view inter/multi-disciplinary learning for the student to be able to attain competency in each area.
- iv. Several activity-based teaching-learning exercises may be undertaken in the classroom focusing on major aspects including – pre-literacy skills (e.g., letter recognition and correlation to letter sounds), pre-numeracy skills (e.g., number counting and comparison), cognitive skills (e.g., pattern recognition, classification etc.) and other key skills like social skills etc.
- v. Various child-friendly components such as poem corners, message boards, theme boards, various charts like class responsibility chart, midday meal chart, chart of stories etc., display boards (children's writings, drawings, collections, variety of texts, pictures with captions, instructional material developed by teacher etc.) may be developed and displayed on walls at the eye level of children.
- vi. School teachers may ask Open-ended questions which will encourage various answers and points of view. Students' answers can lead to strong collaboration, exciting conversations, new ideas, as well as encourage leadership skills.
- vii. High ability learners can be identified and nurtured with opportunities to develop to their full potential by providing intensive and extensive learning beyond the common curriculum.

II. Preparatory Stage (Grades 3-5)

- i. School may launch drives to mobilize their students towards identifying real-life problems, preferably local issues and creating awareness in the community regarding the same. These activities can be taken up by students during summer breaks.
- ii. Introduction of topic-centered and project-based clubs ('Innovation Club') in school with active involvement of parents and members from different vocations in society can be encouraged. These Clubs could be online or offline, or both. These clubs can have annual day celebrations to showcase the projects undertaken by the member students in the interim period.
- iii. Innovation Club can intersperse learning with fun by conducting fests, exhibitions & seminars by young entrepreneurs, and organizing Do-It-Yourself (DIY) activities. Schools can adopt techniques like gamification, case studies, integration of content related to innovation, design thinking, critical thinking, and entrepreneurship to capture students' interest while enhancing their capacity to handle complex situations.
- iv. Students may be encouraged to create posters, stickers, or signs for display at home and school. Wall paintings and comics may also be created and posted with due permission from the school authority to create awareness on Innovation Agenda.
- v. School may organize in-house workshops on National Innovation Day. Science teachers or any other teacher can organize these workshops for students to emphasize the need of Innovation, enabling development of creative mindset in students.

III. Middle Stage (Grades 6-8)

- i. All schools can dedicate a minimum of 2 hours per week to compulsory tinkering activities. These classes will focus on providing hands-on learning of curriculum topics to students by engaging in experiential learning activities.

- ii. School may promote a Self-Organized Learning Environment (SOLE) for students to foster collaboration, innovation, and creativity which requires minimum instructor intervention.
- iii. To augment student learning with practical insights, professional and real-life entrepreneurs may be invited to conduct classes/lectures either in-person or through the use of technology-enabled solutions.
- iv. IIE courses can be introduced as student enrichment programs.
- v. Schools may ensure the availability, accessibility, quality, and readership of books across geographies, languages, levels, and genres.
- vi. Students may be encouraged to take a course that gives hands-on experience of important vocational crafts, such as carpentry, electric work, metal work, gardening, pottery making, etc.
- vii. Activities on 10 bagless days can be designed so that students have an opportunity to intern with local vocational experts such as carpenters, gardeners, potters, artists, etc.
- viii. Some of the additional activities that could be taken up by School are-
 - a. Socio-economic innovation challenge programs which mobilize their students to solve various real-life problems, preferably local issues.
 - b. Competitions that facilitate participation in activities related to IIE.
 - c. Provide additional enriching course material.
 - d. Provide specific resources to identified gifted children.
 - e. Create Network of Mentors
- ix. Students will be given periodic exposure to activities outside school through visits to places/monuments of historical, cultural and tourist importance, meeting local artists and craftsmen and visits higher educational institutions in their village/Tehsil/District/State.
- x. Financial Literacy (FL) & Legal Literacy (LL) can be initiated by the SIC through a club/unit/team of qualified teachers and a student's committee selected after proper screening.

IV. Secondary Stage (Grades 9-12)

- i. All schools can dedicate a minimum of 2 hours per week to compulsory tinkering activities for students. These classes will focus on providing hands-on learning of curriculum topics to students by engaging in experiential learning activities.
- ii. Entrepreneurship and innovation courses can be introduced as student enrichment programs for students.
- iii. Programme for institutionalizing Summer-Winter internships/live-projects for students can be conceived. Relevant tie-ups shall be done by schools with local industries to secure internships/live-projects for all the students.
- iv. Students-in-residence program that allows students to undertake part-time internships in startups or engage in entrepreneurship related activities, may also be encouraged by school. Appropriate weightage can be given to such activities in subject assessments.
- v. In order to network all schools, students and teachers, a web portal will be developed by MoE's Innovation Cell to create an "innovation community" for the free exchange of innovative ideas. This one-stop portal will help students network together.
- vi. Schools can register themselves under the 'School Innovation Council' (SIC) initiative of MIC. The SIC will focus on fostering the culture of Innovation ideation and Entrepreneurship in schools. All the activities that SIC undertakes should encourage the promotion of creativity, design thinking, and critical thinking among students and teachers.
- vii. To lead the IIE agenda, the Principal/Head of school shall nominate the staff/ teachers as 'Innovation Coordinator/SIC convener'. SIC will have external IIE experts, teachers and even students as members. (More details regarding SIC are available on website <https://sic.mic.gov.in/>).
- viii. Critical details regarding School Innovation Council are as under-

Functionaries

- a) The schools may establish School Innovation Council (SIC) as per the guidelines of the Ministry of Education's Innovation Cell. School Principal/Headmaster will be the Chairperson, vice-principal or senior teacher will be the convener while teachers trained as 'Innovation Ambassadors' under SIATP (School Innovation Ambassador Training Program), external experts and selected students will be the 'members' of this council. The external experts could be entrepreneurs, CEO/Officers from nearby Incubation/ Pre-incubation Centers, makers-lab, industry experts, toolroom officials, finance experts/investors, IP experts, etc. as 'Members' for this council.


Functions

- b) Encourage experiential learning through workshops, training programs, exhibitions, entrepreneurship contests, hackathons, innovation boot camps, school innovation fest, poster design competitions, student-led marches/initiatives, organizing sessions with startup founders, conducting Do-It-Yourself (DIY) activities etc.
- c) Organize activities on National Innovation Day (15th October).
- d) Develop collaborative partnerships with external stakeholders.
- e) Promote students to propose innovative ideas, and discuss, deliberate, and hone/ accentuate those with the support of peers, teachers, experts, and mentors.
- f) Organize students' visits to nearby business incubation centers, innovation labs of nearby schools or other higher education colleges/universities/Institution's Innovation Council (IIC), scientific labs (like ISRO, CSIR, DRDO, DIO etc.) and industrial R&D facilities to generate awareness.
- g) Present an annual award to recognize the best idea/ innovation/ startup and most innovative student.
- h) Engage mentors and facilitate following services for the selected innovation/ startup: technology development, ideation, creativity, design thinking, facilitating market research, assessing business potential, protecting Intellectual Property (IP) Rights, 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.
- i) Maintain a "Wall of fame" in school premises featuring Alumni who are now successful Entrepreneurs.
- j) Maintain a list of nearby incubators and Atal Tinkering Labs for easy connection.
- k) Create an "Innovation Wall" (like an Art Gallery) to showcase the creativity and innovation of students and teachers.
- l) Publish an annual self-assessment of the achievements made on IIE-oriented activities on the school website.
- m) Guide in matters related to school innovators/entrepreneurs led startups including percentage equity stake to be taken, approving teacher's engagement in a startup, IPR licensing etc. Separate supplementary guidelines shall be provided for the same.

Funds/Finances

- n) An 'Innovation Fund' may be created for SIC by allocating adequate funds from School's annual budget for organizing IIE-related activities.
- o) SIC may also choose to raise funds for itself or for a student led startup from external funding sources.

- ix. Based on activities undertaken for furthering the IIE Agenda, every SIC will be awarded credit points which shall drive the performance rating of the SIC. A SIC with a good performance rating will be more likely to perform better in market outreach activities.
- x. School shall provide mentoring opportunities to students to gain a breadth of understanding across contemporary disciplines while developing deeper expertise in few disciplines. It can offer number of online courses in the area of skill development, design thinking and innovation-related courses.
- xi. Financial Literacy (FL) & Legal Literacy (LL) can be initiated by the SIC through a club/unit/team of qualified teachers and a student's committee selected after proper screening.



Enabling Mechanisms for Policy Implementation

Nominating dedicated staff in school



Principal will nominate a staff/ teacher from school to lead the Ideation, Innovation and Entrepreneurship (IIE) agenda.



As per National Education Policy 2020 para 5.15, all the teachers in their own interest, should do Continuous Professional Development (CPD), for which they have to undergo 50 hours of CPD. The School Innovation Ambassador Training Program of the Ministry of Education's Innovation Cell may also be considered for this CPD obligation.



Principal will nominate 5 or more teachers to undergo training in the following 5 modules under the School Innovation Ambassadors Training Program (SIATP) of the Ministry of Education's Innovation Cell:

Module 1: Design Thinking & Innovation

Module 2: Idea generation & Idea hand-holding

Module 3: Entrepreneurship & Product/ Prototype development

Module 4: Intellectual Property Rights (IPR)

Module 5: Finance / Sales / HR

Mobilizing funds



An 'Innovation Fund' may be created by School by allocating adequate fund from its annual budget for organizing the IIE related activities.



School may also choose to raise funds from external funding sources like donations from corporate sectors under Corporate Social Responsibility (CSR) etc. In case, School decides to raise such funds, it will have to register itself as a separate entity or Special Purpose Vehicle (SPV). A separate entity may be registered under Section-8 of Company Act 2013 or 'Society' registered under Society Registration Act with an independent governance structure.

Operationalizing Innovation Club/School Innovation Council



School Innovation Council (SIC), will be established as per guidelines of Ministry of Education's Innovation Cell. 'School Innovation Council' will follow the calendar of activities recommended by Ministry of Education's Innovation Cell.



School may establish Innovation Club for students in the Preparatory and Middle Stages in line with guidelines issued in this policy.



Performance of SICs established by schools will be assessed with Star Rating.

Promotion of Innovation Agenda



At the beginning of every academic year, school may organize an induction program for students where I&E agenda of school will be highlighted.



School can announce annual awards for teachers and students- the best idea/ innovation/ startup and most innovative student, Most Innovative Teacher.



School can design a suitable incentive structure for teachers for driving IIE Agenda.



School will submit a bi-annual report of SIC at SIC's online platform which will be used to assess the performance of SICs by the Ministry of Education's Innovation Cell.

Important Links



Ministry of Education's Innovation Cell
<https://mic.gov.in>



School Innovation Council Registration
<https://sic.mic.gov.in/signup>



School Innovation Ambassadors Training Program
Registration Link for Schools
<https://sia.mic.gov.in/spoc/register.php>



Operational Atal Tinkering Labs in India
<https://www.aim.gov.in/pdf/OperationalATLsInIndia.pdf>



Atal Incubation Centres in India
<https://aim.gov.in/atal-incubation-centres.php>



Higher education institutes where Institution's Innovation Council (IICs) have been established by
Ministry of Education
<https://iic.mic.gov.in/institute-list>



National IPR Policy
<https://dpiit.gov.in/policies-rules-and-acts/policies/national-ipr-policy>



AICTE- Gifted Children Scheme
https://www.aicte-india.org/sites/default/files/Final%20Document_Gifted%20Children%20Scheme%20.pdf

Glossary



CSR - Corporate Social Responsibility (CSR) can be simply defined as the grants and funding process under which various Non-profit Organizations (NGOs) can get financial and other assistance from the corporate sector.



Critical thinking - Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action.



Co-creation - Co-creation is the act of creating together. When applied in business, it can be used as 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.



Cross-disciplinary - Cross-disciplinary practices refer to teaching, learning, and scholarship activities that cut across disciplinary boundaries.



Design Thinking - Design Thinking is an iterative process in which we seek to understand the user, challenge assumptions, and redefine problems in an attempt to identify alternative strategies and solutions that might not be instantly apparent with our initial level of understanding.



Equity share - 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.



Entrepreneurial culture - A culture that enhance the exhibition of the attributes, values, beliefs and behaviors that are related to entrepreneurs.



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 narrowly defined as "learning through reflection on doing".



Financial Literacy (FL) - a combination of awareness, knowledge, skill, attitude and behavior necessary to make sound financial decisions and ultimately achieve individual financial well-being.



Hackathon - A hackathon is a design sprint-like event; often, in which computer programmers and others involved in software development, including graphic designers, interface designers, project managers, domain experts, and others collaborate intensively on software projects.



Ideation - Ideation is the creative process of generating, developing, and communicating new ideas, where an idea is understood as a basic element of thought that can be either visual, concrete, or abstract. Ideation comprises all stages of a thought cycle, from innovation, to development, to actualization.



Idea Competitions - Idea Competitions are becoming a popular mechanism chosen by firms to perform Open Innovation. They are a way to engage with external sources of knowledge such as individual entrepreneurs and small firms who are asked to submit ideas and compete for a prize.



Innovation ecosystem - An "innovation ecosystem" is the term used to describe the various players, stakeholders, and community members that are critical for innovation. ... Each plays a significant role in creating value in the larger ecosystem by transforming new ideas into reality through access and financial investment.



Innovation - Innovation is the practical implementation of ideas that result in the introduction of new goods or services or improvement in offering goods or services.



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).



Intellectual Property Rights - Intellectual Property Rights (IPRs) are legal rights that protect creations and/or inventions resulting from intellectual activity in the industrial, scientific, literary or artistic fields. The most common IPRs include patents, copyrights, marks and trade secrets.



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.



Legal literacy (LL) - knowledge of the primary level in law. By 'knowing the law' people are more able to uphold the rule of law and are aware of their obligations under the law and can also challenge laws that threaten their fundamental rights and freedoms.



Makerspace - A makerspace is a place where you can make things. It's a place for hands-on learning with all the tools for creativity.



Performance Evaluation - It is defined as a formal and productive procedure to measure an employee's work and results based on their job responsibilities.



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. 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 - Pre-incubation refers to the phase aimed at validating projects ideas, company planning and creation, and the possibility of developing possible business by analyzing technical and economic viability and entrepreneur profile. Pre-incubation aims to support ambitious and innovative entrepreneurs by enabling them to transform their ideas into a minimum viable product.



Prototype - A prototype is an early sample, model, or release of a product built to test a concept or process.



Rapid prototyping - Rapid Prototyping (RP) enables the quick fabrication of physical models using three-dimensional computer aided design (CAD) data.



Resource mobilization - Resource mobilization is the process of getting resources from the resource provider, using different mechanisms, to implement an organization's predetermined goals.



School Innovation Ambassador Training - School Innovation Ambassador Training program is a program launched by Ministry of Education's Innovation Cell, and AICTE in collaboration with CBSE and EMRS of Ministry of Tribal Affairs. The School Innovation Ambassador Training Program will train 50,000 school teachers from CBSE and Eklavya Model Residential Schools. The program aims at training school teachers in innovation, entrepreneurship, IPR, design thinking, product development, idea generation, among others.



Science park - 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

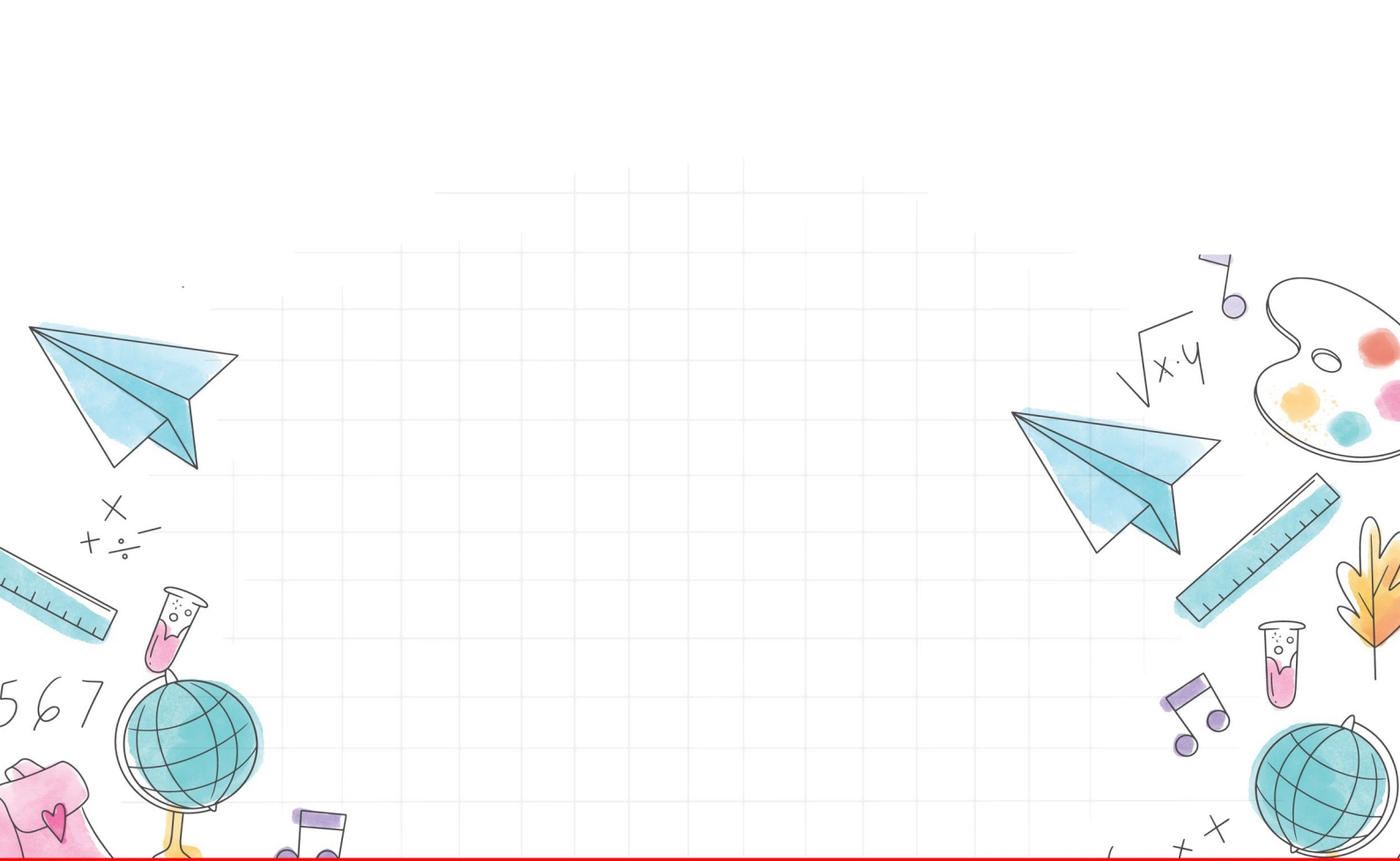


Special purpose vehicle (SPV) - it is a subsidiary created by a parent company to isolate financial risk. Its legal status as a separate company makes its obligations secure even if the parent company goes bankrupt.



Section 8 company - The Companies Act defines a Section 8 company as one whose objectives is to promote fields of arts, commerce, science, research, education, sports, charity, social welfare, religion, environment protection, or other similar objectives. These companies also apply their profits towards the furtherance of their cause and do not pay any dividend to their members.





Contact Us

Deputy Secretary/Director
School Section-3
Dept. of School Education and Literacy
Ministry of Education
Government of India
✉ sch3.edu@gmail.com

Assistant Director
MoE's Innovation Cell
Dept. of Higher Education
Ministry of Education
Government of India
✉ mic-mhrd@gov.in

