Initiatives of IIT Hyderabad towards the Implementation of NEP

Key Features of IITH

Ranking: IIT Hyderabad (IITH), established in 2008, is ranked 8 in 2021 NIRF Ranking in Engineering for the third consecutive time, 16th Overall ranking and 15th rank in Research. In QS-2022 rankings, IITH is placed at 591-600 in the world, 168 in Asia and 11 in India (8th among Engineering Institutes in India).

Departments, Students and faculty: IITH has 17 departments (including unique departments like, AI, Design, Climate Change, Liberal Arts, Entrepreneurship & Management) with ~3800 students (~1000 PhD students), ~250 faculty members and over 270 staff.

Research: We have ~6600 Scopus publications, 1440 projects worth of Rs. 500 Crores, over 190 patents and ~100 start-ups. IITH has been striving for excellence passionately to with a moto "Invent and Innovate in Technology for Humanity (IITH)".

Infrastructure: The Phase-2 construction is ongoing and is expected to be completed by December 2022, which will provide hostel accommodation for 5000 students, individual departmental buildings, large capacity guest house, conference facility, lecture hall complex, library and a sports complex.

National Education Policy (NEP) Initiatives at IITH

Flexible Academic Curriculum:
- IITH is the first institute in the country to start Fractal Academics (courses have credits ranging from 0.5 to 3), to enable students to have the breadth and depth in the subjects of their interest.
- The curriculum in all UG programs has 5 verticals, namely, basic sciences (12-15%), Basic Engineering (12-15%), Professional major (50-55%), Liberal arts/creative arts (8-10%) and free electives (10%), to enable students to have freedom in their learning.
- The institute allows the students to earn credits from outside the institute.
- All the BTech students can opt for a Dual degree with a wide choice of specializations.

Multidisciplinary Education:
- IITH has unique multidisciplinary departments such as AI, Design, Climate Change, Liberal Arts and Entrepreneurship & Management.
- IITH has started unique BTech programs in (a) Artificial Intelligence, (b) Biomedical Engg., (c) Biotechnology & Bioinformatics, (d) Computational Engg. and (e) Industrial Chemistry.
- IITH started several Interdisciplinary (ID) MTech programs, namely, Additive manufacturing (supported by DRDO), E-waste resource engineering & management (jointly with CMET, Hyderabad), Smart Mobility (supported by TiHAN), Energy science & technology, Integrated sensor systems, Networks & information security, Polymers & biosystems engineering and Medical device innovation (jointly with AIG, Hyderabad).
- A Centre for Interdisciplinary Programmes (CIP) has been established.
- ID PhD has been initiated with about 20 fellowships annually.
- Last year IITH supported multidisciplinary research projects to the tune of Rs. 1 Crore.

Multi Exit Program for Diploma holders:
A program aimed at picking up bright diploma holders through a national entrance examination and provide them to growth opportunity in a multi exit mode is under discussion in the Senate. Those who join the program would get a Certificate after 1 year, Advanced Diploma after 2 years, Eng. Degree after 3 years, Dual degree (UG+PG) after 4 years and also have a chance PhD, if they are interested.

International outlook:
- To attract international students for a PhD at IITH, Fellowship for International Research Scholars in Technology (FIRST) with a monthly fellowship of Rs. 60,000 has been started.

- Joint Doctoral Programme (JDP) has been initiated with Swinburne University of Technology and Deakin University, Australia.
- IITH-NIMS (Tsukuba, Japan) Research Centre has been established.
- Phase-2 of the FRIENDSHIP project with Japan has been initiated (2021-2027).

Encouraging Innovation:
- Minor in Entrepreneurship for BTech students.
- Dual degree MTech in Techno-Entrepreneurship has been initiated for BTech students.
- MTech in Techno-Entrepreneurship is planned to be started from August 2022.
- To nurture innovative ideas of students, financial support through BUILD (Bold and Unique Ideas Leading to Development) projects is initiated.
- The curriculum is revised to ensure a larger lab component to encourage hands on learning.
- A proposal to provide credits and semester break for pursuing innovation is under discussion.

Atma Nirbhar Bharat through Association with Industry & Research Labs:
- A semester long UG internship (with 6 credits) is introduced in the 6th semester for UG students.
- Mandatory Course on Industry Lectures started for MTech students.
- A number of industry oriented MTech programs have been introduced.
- At least 50% of the MTech projects in each department are defined by the industry.
- To encourage industry personnel to do PhD at IITH, the residential requirement is waived.
- IITH-DRDO Research Cell has been established to bring out innovation in strategic sector through collaboration.
- About 20 PhD students have been admitted exclusively to work on problems defined by DRDO.
- Technology Innovation Hub on Autonomous Navigation (TiHAN) under DST NMICPS has been established with first of its kind Testbed in an Indian academic institute.
- A DRDO Centre of Excellence in Additive Manufacturing approved.
- A Centre of Excellence for Medical devices has been sanctioned by ICMR.
- A Centre of Excellence for Transportation Research has been sanctioned by NHAI.
- Established incubators like Centre for Healthcare Entrepreneurship (CƒHE) for medical innovations and FabCI for unique fabless chip design.
- Research Park and Innovation Park with 150,000 sft each space are being created in 2 months.

Towards Digital Education:
- Several Online MTech and MDes programs initiated to reach out to industry with an option for a PG Diploma/Executive MTech after the course work.
- Several Certificate Courses such as AI, Digital Design, started.
- A High-Performance Computing (HPC) Centre with 800 Teraflop capability and an AI Centre have been established to support digital innovations in education and research.

Participating in the Endeavor to make India a Global Leader
- Established a Rural Development Centre to work closely with rural India.
- Adopted about 5 nearby villages and provided research support to its faculty (Rs. 50 lakhs) to implement deep tech innovations in these villages.
- Introduced 5 Sanskrit courses in the curriculum to enable students to explore ancient treasures of India and bring back the glory of Indian global leadership. Established a Cell on Indian Knowledge Systems with an intention to provide holistic education to its students.

Life Skills and Overall Development:
- The curriculum is revised to bring a lot of flexibility with about 8-10% of liberal arts and creative arts courses and about 10% free electives.
- Personality development related courses introduced for the overall development of the students.