

8 DECENT WORK AND ECONOMIC GROWTH



SDG 8: Decent Work and Economic Growth

PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

Sustainable Development Goal 8, as defined by the United Nations, focuses on promoting sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all. SDG 8 is crucial as it addresses some of the most pressing global challenges. Economic growth is a fundamental driver of social and individual well-being. Decent work opportunities, in turn, are essential for poverty reduction, social inclusion, and overall human development. This goal underlines the need for balanced and sustainable economic development, which creates jobs, ensures workers' rights and well-being, and helps eradicate forced labour and child labour.

This report delves into the efforts of the Indian Institute of Technology (IIT) Gandhinagar in fostering Sustainable Development Goal 8 (SDG 8) - Decent Work and Economic Growth. SDG 8 emphasises the significance of promoting economic growth, full employment, and decent work for all. IIT Gandhinagar, as an academic institution, plays a vital role in shaping the future workforce and fostering economic development in the region. This report investigates various actions and activities undertaken by the institute to support SDG 8, both within its campus and in its broader community engagement.

RESEARCH

Research and innovation are critical drivers of economic growth. IIT Gandhinagar has prioritised research in fields with high economic potential and actively encourages innovation among students and faculty. Institute has already established a fully dedicated research park for this. IIT Gandhinagar also collaborated with other institutions to organise events that emphasise on research and innovation. Some of the highlights were:

- IITGN hosted the third edition of the Invention Factory India, a one-of-its-kind intensive summer programme in inventing. 20 students from 10 IITs participated and worked in teams of two to conceive, prototype, and pitch ten unique inventions that addressed various societal and consumer needs, and filed the US as well as Indian provisional patent applications for their inventions, over seven weeks.

- IITGN, along with IIT Hyderabad and IISc Bangalore, organised a virtual ‘International Workshop on Quantum Information in QFT and AdS/CFTII’ during August 18-20, 2021. The workshop brought together some of the leading global experts. It featured 14 talks by international speakers and 4 talks by students/postdocs from India. More than 100 participants attended the workshop from all over the world. T
- IITGN and IIT Kharagpur jointly organised the second edition of the ‘Indian Symposium on Machine Learning (IndoML)’ during December 16-18, 2021, on the theme “AI for Data and Data for AI”. It served as a forum to discuss state-of-the-art machine learning research through invited talks from leading experts from India and abroad.

Three research scholars from IITGN have won Gandhian Young Technological Innovation Awards 2021. Harini Gunda, a PhD scholar of Chemical Engineering, has won SRISTI-GYTI Award 2021 for developing ‘Novel Boron Nano-additives for Improving the Performance of Solid Propellants’. Yogesh Singh, a PhD scholar of Mechanical Engineering, and Dr Chandan Kumar Jha, a PhD alumnus and now a postdoctoral fellow in Electrical Engineering, have won the BIRAC SITARE-GYTI Appreciation Awards 2021 for developing ‘Wearable Interactive Parkinson's disease Assistive Device (WIPAD)’ and ‘An Intelligent Hand Rehabilitation and Assessment System for Stroke Patients’, respectively.

Patents granted

Low-cost Hand-driven Bamboo-cored Incense-stick Making Machine: Inventors include Keshav Giriyanavar (a BTech alumnus of 2012). Patent number is 375325.

Polymer Reinforced Metal Matrix Composites and a Process for Fabricating the Same: Inventors include Prof Amit Arora, Prof Chandra Sekhar Tiwary, Arpan Rout, Anurag Krishnakedar Gumaste, and Mahesh V P. The patent number is 389338.

Method for the Asymmetric Synthesis of (S)-Paraconic Acid: Inventors include Prof Chandrakumar Appayee and Dr Abhijeet Madhukar Sarkale. The patent number is 391941.

A Filter for Water Purification and a Process for its Manufacture: Inventors include Prof Chinmay Ghoroi and Dr Deepa Dixit. The patent number is 397587.

OPERATIONS

With an aim to guide students, faculty and research staff on various aspects of Intellectual Property (IP), the IIT Gandhinagar Innovation and Entrepreneurship Center (IIEC) has started an initiative called ‘Intellectual Property Clinic’. The first IP Clinic was organised on July 3, 2021, with Mr Nilesh Pandit, IPR Lead, Tata Consultancy Services (TCS). Dr Malathi Lakshmikumar, Executive Director and Practice Head, Lakshmikumar & Sridharan Attorneys conducted the second IP Clinic on July 10, 2021.

InfyU Labs, an agritech startup pre-incubated at IIEC and supported under the Nidhi Prayas programme, has raised Rs 1.8 crores in a seed round from Indian Angel Network (IAN). The company, currently part

of IITGN Research Park, specialises in creating portable devices that determine the internal quality of fresh fruits without cutting them open.

AAGMAN: The Staff Development Cell (SDC) organised “Aagman” during July 2-3, 2021, an orientation programme to welcome and acquaint new staff members with the Institute, its functions and campus culture. Mr Saumil Shah coordinated the event.

EDUCATION

IIT Gandhinagar recognizes that education is a powerful tool for promoting economic growth and decent work. The institute has initiated several programs to ensure students are equipped with the skills and knowledge required to thrive in a rapidly changing job market. The institute has continuously updated its curriculum to align with industry demands and global trends. This includes offering courses on emerging technologies, entrepreneurship, and soft skills that enhance students' employability. Some of the recent additions in this are :

- IIT Gandhinagar introduced its first online master's course, focusing on Energy, Policy, and Regulation, starting in January 2024
- In June 2023, IIT Gandhinagar released a new BTech course in Artificial Intelligence.

All the students are also given a choice to do their minor in management.

IIT Gandhinagar has also established skill development centres that provide students with training in specific areas such as coding, data analytics, and communication skills. Some of the dedicated centres are:

- Design and innovation centre
- Centre for biomedical engineering
- Centre for creative learning
- Makers Bhavan

IITGN's community outreach program, NEEV, conducted six skill development courses, training nearly 150 rural youth and women. The program culminated in a valedictory event where certificates were awarded to successful participants, allowing them to earn income using their newfound skills.

Continuing its commitment to impact the surrounding communities through skill development, NEEV-IITGN conducted four training courses in Basic Computer Skills, Tally Skills, and Stitching (in Ratanpur and Basan villages) from September to December 2021, and three training courses in Basic Computer Skills, Stitching (in Basan village), and Vocational Skills (wiring and CNC machining) during November and December 2021. A total of 118 rural women and youth were impacted through these training.

COMMUNITY OUTREACH

STRIDES 5.0: The fifth edition of 'Strides', an annual cultural function for IITGN staff and their family members, was held on October 23, 2021. The programme is aimed at celebrating each staff member and recognises their qualities, talents, hobbies and interests. The IITGN staff members made the evening bright with their dance, music, and poetry performances.

ESIC workshop for outsourced workers: The Outsourced Workers Outreach Programme Committee at IITGN organised a workshop for the outsourced workers of the Institute, including housekeeping staff, solid waste management staff, horticulture staff, maintenance staff, office boys, supervisors, and hostel caretakers, on December 4, 2021, to make them aware of ESIC (Employees' State Insurance Corporation) benefits and proper procedures to avail the same.

Industry Connections: IITGN conducted an Industry Connection meeting with the members of the Gujarat Chamber of Commerce and Industry (GCCI) on March 3, 2022. GCCI's Chemical Task Force Chairman, Mr Shrenik Merchant, and Vice-Chairman, Mr Prashant Patel, along with several other industry members attended the event. The meeting acted as a forum for understanding industry needs and knowing the expertise of various faculty at IITGN as well as the state-of-the-art facilities available at the campus. The event was coordinated by Prof Chinmay Ghoroi.

Mentorship programmes by IIEC: During the quarter, Shri Kamallesh Dwivedi, highly-regarded business leader, investor and mentor-in-residence at IIT Gandhinagar Innovation and Entrepreneurship Center, conducted the following programmes for the Institute community: Critical Success Factors for Early-stage Start-ups on January 6, 2022, Fundraising Masterclass on January 10, 2022, and Business Communication for Start-ups on January 12, 2022.

Invention Factory India 2022: After a gap of two years due to the global pandemic, IITGN hosted the third edition of the Invention Factory® India, a one-of-its-kind intensive summer programme in inventing. 20 students from 10 IITs participated and worked in teams of two to conceive, prototype, and pitch ten unique inventions that addressed various societal and consumer needs, and filed the US as well as Indian provisional patent applications for their inventions, over seven weeks. The teams were directly mentored by IITGN Professors Nithin George, Madhu Vadali, and Jaichander Swaminathan, as well as the founders of the original programme in the US, Cooper Union Professors Alan Wolf and Eric Lima.

Startup mentorship by IIEC: During May 3-7, 2022, the IIT Gandhinagar Innovation and Entrepreneurship Center (IIEC) organised 'Build your Startup with B V Jagadeesh', a highly regarded serial entrepreneur, mentor, and angel investor, to help the participants understand the fundamentals of the entrepreneurial journey. In addition, the participants also received entrepreneurial lessons from other successful entrepreneurs such as Mr Jimmy Padia, Founder & CEO, Floatbot; Mr Sharad Sanghi, Managing Director & CEO, NTT Ltd, India; and Mr Naveen Varma Alluri, Co-founder, My Ally.

STUTI workshop: IITGN successfully conducted two seven-day technical workshops-cum-hands-on training programmes on the DST-funded equipment under the 'STUTI' scheme. The first training session was held on 'Single Crystal X-Ray Crystallography' from April 18-24, 2022, under the supervision of

Prof Vijay Thiruvengadam, Associate Research Professor, Biological Engineering; and the second workshop on 'Analytical SEM' was held during April 25-May 1, 2022, under the supervision of Prof Pradipta Ghosh, Assistant Professor, Materials Engineering. Each workshop had more than 30 participants from about 15 different institutes across the country. The STUTI project at IITGN is being handled by Prof Emila Panda.

Entrepreneurship is a key driver of economic growth, and IIT Gandhinagar actively promotes a culture of innovation and entrepreneurship. The institute has an incubation centre that nurtures and supports startups. It provides infrastructure, mentorship, and access to funding to help entrepreneurs turn their ideas into viable businesses. The institute also organises entrepreneurship challenges and competitions that encourage students to develop innovative business ideas and solutions. These events often lead to the creation of new startups. Some of the highlights of these activities are:

- During May 03-07, 2022, the IIT Gandhinagar Innovation and Entrepreneurship Center (IIEC) organised 'Build your Startup with B V Jagadeesh', a highly regarded serial entrepreneur, mentor, and angel investor, to help the participants understand the fundamentals of the entrepreneurial journey
- IITGN conducted an Industry Connection meeting with the members of the Gujarat Chamber of Commerce and Industry (GCCI) on March 3, 2022. GCCI's Chemical Task Force Chairman, Mr Shrenik Merchant, and ViceChairman, Mr Prashant Patel, along with several other industry members attended the event. The meeting acted as a forum for understanding industry needs and knowing the expertise of various faculty at IITGN as well as the state-of-the-art facilities available at the campus. The event was coordinated by Prof Chinmay Ghoroi
- Havi, a consumer electronics and robotics toys start-up from IIT Gandhinagar Research Park became one of the 90 start-ups selected from across the globe for the prestigious Stanford Seed programme 2022 by the Stanford Graduate School of Business. Havi designs sustainable and fun technology products that help learn and create robotics, IoT, electronics, and other STEAM projects
- MiCoB, a young startup owned by IITGN alumni and incubated at IIT Gandhinagar Innovation and Entrepreneurship Center (IIEC), has raised 0.5 million USD in a seed round from 3 Lines Venture Capital, a venture capital firm from Denver, Colorado, USA. The startup provides speedy, higher quality, and relocatable 3D concrete printing solutions for various construction segments, including military, residential, commercial, infrastructure, and architecture.
- InfyU Labs, an agritech startup pre-incubated at IIEC and supported under the Nidhi Prayas programme, has raised Rs 1.8 crores in a seed round from Indian Angel Network (IAN). The company, currently part of IITGN Research Park, specialises in creating portable devices that determine the internal quality of fresh fruits without cutting them open.
- With an aim to guide students, faculty and research staff on various aspects of Intellectual Property (IP), the IIT Gandhinagar Innovation and Entrepreneurship Center (IIEC) has started an

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- Following programmes for the Institute community were conducted to generate awareness about startups : Critical Success Factors for Early-stage Start-ups on January 6, 2022, Fundraising Masterclass on January 10, 2022, and Business Communication for Start-ups on January 12, 2022.