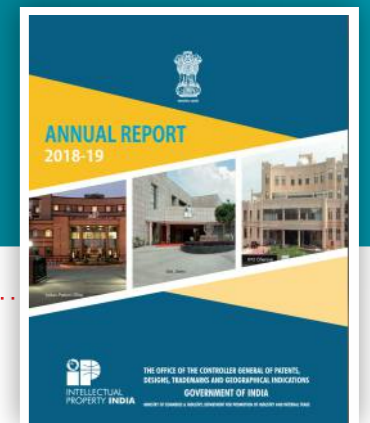


Chandigarh University RANKED No.1

as a single institution in India for filing
Highest Number of Patents

📍 NH-95 Chandigarh-Ludhiana Highway, Mohali, Punjab, India
1800-1212-88800 | www.cuchd.in

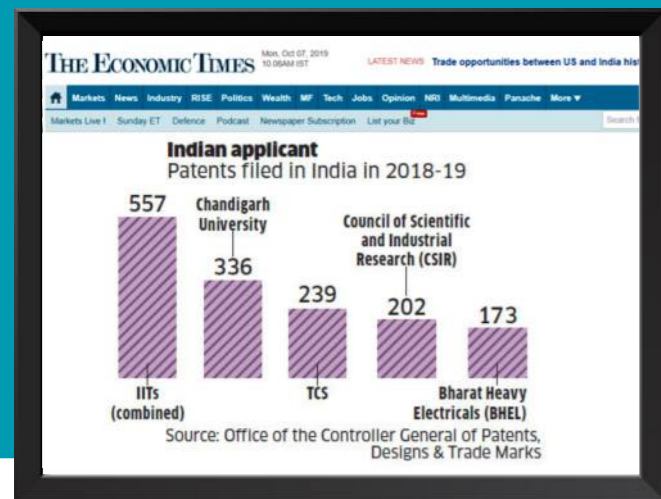


CHANDIGARH UNIVERSITY IS RANKED No. 1

AS A SINGLE INSTITUTION IN INDIA TO FILE HIGHEST NO. OF PATENTS

In the recently published Intellectual Property India Annual Report-the Office of the Controller General of Patents, Designs & Trade Marks, CU features at the top as a single institution in the country for filing the highest number of patents in the year 2018-19.

We at Chandigarh University have always kept research and innovation at the core of our academics. We have provided our students with the best environment, facilities, opportunities, and funding for research and this new milestone is a testimony to that.



Top 10 Indian Applicants
for patents from Academic Institutes and Universities

Sl. No.	Name of Institutes/Universities
1	INDIAN INSTITUTE OF TECHNOLOGY (Collective)
# 2	CHANDIGARH UNIVERSITY
3	SHOOLINI UNIVERSITY
4	AMITY UNIVERSITY
5	SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
6	CHANDIGARH GROUP OF COLLEGES
7	BHARATH UNIVERSITY
8	INDIAN INSTITUTE OF SCIENCE
9	GARGOJIAS UNIVERSITY
10	SONOOS PROFESSIONAL UNIVERSITY



“PAVING THE WAY FOR A NEW INDIA THROUGH PIONEERING RESEARCH”

Eight years ago, Chandigarh University made its first foray into the world of education, with a vision to provide quality education of global standards on the bed-rock of Indian ethos and culture, leading to man-making and nation-building. We strive to make a far-reaching and positive impact on the world through the education of our students and through our pioneering research. As an integral part of CU, we also plan to make a significant contribution to the social and economic growth of the nation by facilitating advanced research. Research discovers, elucidates, and evaluates new knowledge, ideas, and the technologies essential in driving the future of society and humanity. We are glad to have research as one of our core strengths since we believe that it is the most significant aspect of the advancement of any institution.

We are committed to educate and endow our students with the latest knowledge and skills in the milieu of Indian culture and values to enable them to face the challenges of the economy and with a vision to shape them into responsible citizens of India. We want our students to develop into the leaders of tomorrow, infuse the world with the energy of their ideas and innovations, and advance the frontiers of knowledge and research in ways that translate into tangible benefits for the community and the country.

We are grateful to our students, faculty, research scholars, corporate mentors and international university partners who helped us file the highest number of patents in the country. We hope that they continue to support and guide us towards newer milestones.

Satnam Singh Sandhu

Chancellor, Chandigarh University

Mob.: +91 81464-34000

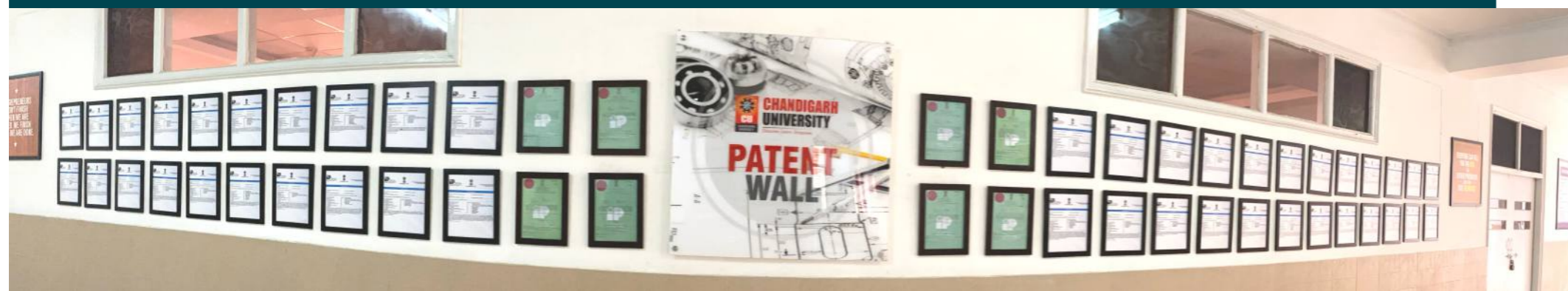
Email: chancellor@cumail.in

No. 1 UNIVERSITY IN INDIA TO FILE HIGHEST NUMBER OF PATENTS IN **INFORMATION TECHNOLOGY**

We at Chandigarh University have always prioritized digitalization in line with the revolutionary **'Digital India' campaign**. With the adaptation of the latest technology beforehand, we have facilitated all possibilities of advancement in Information Technology. We are the only educational institution among the top 3 Indian applicants to file the highest number of patents in a year. We have also advanced ahead of IITs and top-ranked universities of the country by filing the highest number of patents in Information Technology.

Sl. No.	Name of applicants
1	TATA CONSULTANCY SERVICES LIMITED
2	WIPRO LIMITED
# 3	CHANDIGARH UNIVERSITY
4	CHANDIGARH GROUP OF COLLEGES
5	INDIAN INSTITUTE OF TECHNOLOGY (Collective)

Top 5 Indian Applicants for patents in the field of Information Technology



OUR CORE AREAS OF RESEARCH

We believe that Agriculture, Health, Automation & IT and Manufacturing sectors are significant in the overall development of a nation. If they remain strong then the foundation of a progressive nation will remain strong. Leading the country towards advancement, we have been pursuing research in the following fields:

AREAS OF RESEARCH	NUMBER OF PATENTS	AREAS OF RESEARCH	NUMBER OF PATENTS
→ Information Technology	→ 148	→ Manufacturing/Product	→ 203
→ Automation	→ 85	→ Domestic	→ 113
→ Health	→ 27	→ Water	→ 20
→ Agricultural	→ 31	→ Others	→ 57
→ Safety	→ 95	→ TOTAL PATENTS	→ 779

DOMAINS	SUB-DOMAINS OF RESEARCH
Information technology	AI in Agriculture, AI in Health, AI for Home automation, Deep Learning, Image Processing
Automation	Automated Smart Device, Agriculture Automation, Vehicle Automation, Home Automation
Health	Health Monitoring, Hygiene, Medicine, Smart Health, Assistance for Diwyang Jan
Agriculture	Water Conservation, AI in Agriculture, Agriculture Monitoring, Crop Management
Safety	Vehicle Safety, Human Safety, Road Safety, Animal Safety, Theft Safety
Manufacturing/product	Electric Vehicle, Vehicle Safety, Smart Vehicle,
Domestic	Health & Hygiene, Human Comfort, Human Safety, Assisting Devices, Kitchen Appliances
Water	Water Conservation, Waste Water Management, Water Hegieence, Water Quality Monitoring

OUR FEW PROMINENT PATENTS

PATENTS IN AGRICULTURE

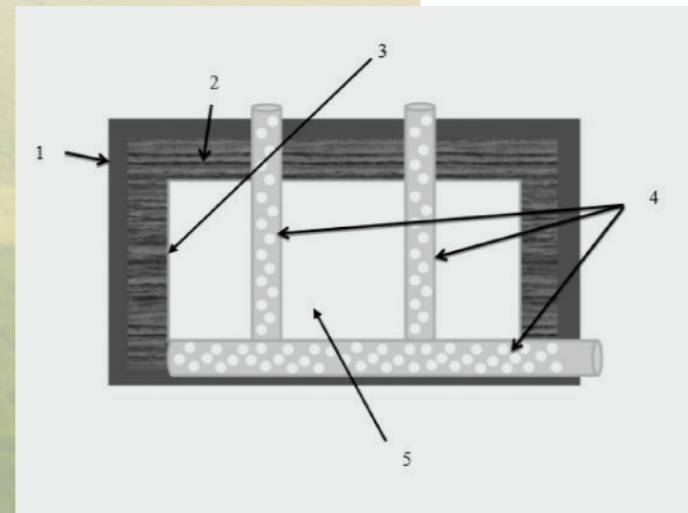
IoT-based Automated Irrigation and Soil Management System (Patent no.- 201811021657)

This invention relates to an Internet of Things (IoT) automated irrigation and water management system for minimizing irrigational water wastage and increasing agricultural productivity. It is a compact, affordable, easy to install the system, and runs on a renewable source of energy.



Storage System for Preserving Agricultural Products (Patent no.- 201911008799)

This invention relates to the preservation of stored agricultural products. Its primary objective is to provide a low-cost agricultural-produce preserving system to reduce the losses due to spoilage of vegetables. It has a system for preserving vegetables in a vault made up of wood and stone where anti-sprout suppressing treatment is given to the stored agricultural products.



PATENTS IN HEALTHCARE

A Psychological device to influence emotional behaviour (Patent no.-201811016504)

This invention relates to a device which is used to change the emotions of an individual with the help of music based on emotions by using EM-OTE software application through the wireless earphone. It changes emotion according to the user's mood with the help of musical notes.



Apparatus for reducing Air Pollution (Patent no.-201911008802)

This invention relates to an apparatus for reducing air pollution by adsorption of harmful gases. The primary objective of this invention is to provide a cost-effective and efficient apparatus capable of adsorbing harmful gases.

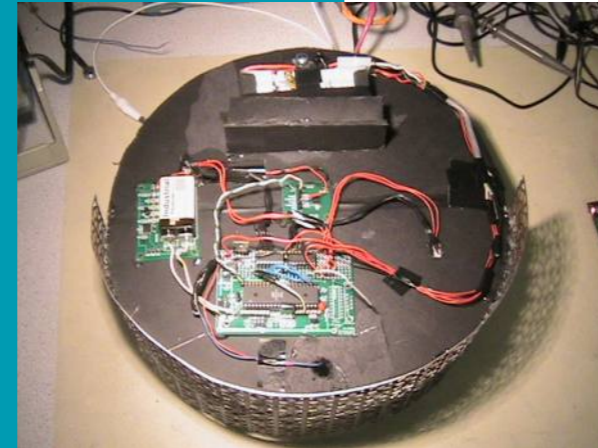


PATENTS IN AUTOMATION & IT

Intelligent Garbage collecting system and method

(Patent no.- 201811040616)

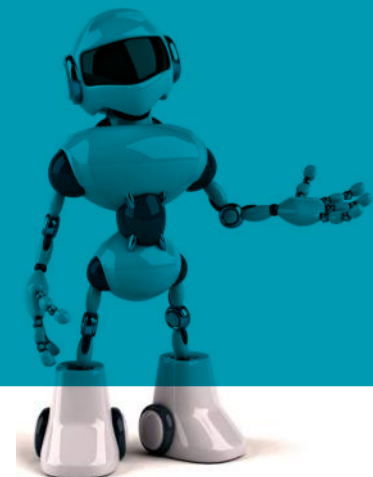
This invention relates to a system having an inbuilt device which automatically collects garbage by moving around predefined paths and a method for collecting the garbage at a fixed interval of time. It is aimed at providing a system for enabling garbage collection in a user-friendly way and to increase the storage capacity of compartments that are used for garbage collection by providing a compressor.



Robotic Rover

(Patent no.- 201911008246)

The robotic rover is a device used for exploring the flat terrain and rugged terrain. Some off-road robots are very flexible, however, very few robots can move in uneven or rough terrain. This invention relates to unmanned vehicles and an all-terrain robotic device activated to push the garbage so as to increase the storage capacity of the compartment.

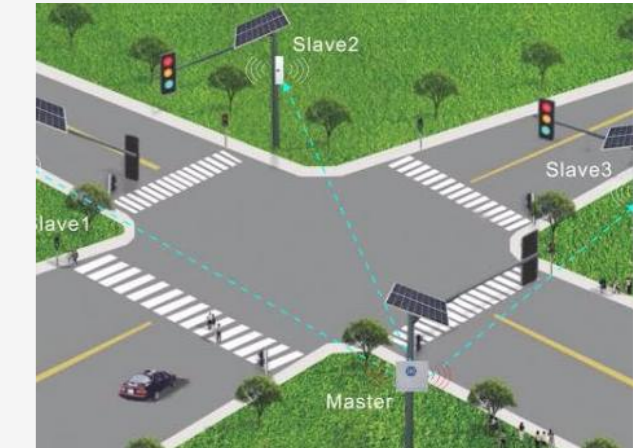


PATENTS IN MANUFACTURING

Solar-powered traffic light control system

(Patent no.- 201811040359)

The invention relates to a traffic light control system based on traffic density. The traffic lights are preprogrammed and the timings of the lights are decided while the crossing is designed. Its primary objective is to provide a system to automate the traffic lights, thereby reducing traffic and road accidents due to improper traffic lights.



Solar-powered Electric Bicycle

(Patent no.- 201811036393)

This invention relates to an electric bicycle capable of harnessing solar energy to charge batteries. This solar-powered electric vehicle has an improved driving range and is also capable of harnessing power from the sunlight efficiently. Its objective is to conserve non-renewable natural resources by providing an eco-friendly alternative to conventional electric-powered bicycles.



MEET THE YOUNG RESEARCHERS OF CHANDIGARH UNIVERSITY

We at Chandigarh University have always encouraged our students towards research and innovation so that they are able to contribute to society using their creativity and knowledge. Here are the champs of CU who carved their success stories by shaping their incredible ideas into inventions.



He has filed **70 Patents** in Automobile, Biological, Transportation and other sectors in less than a span of one year. Some of his patents include Cleaning System for Trains, Automobile Windshield Cleaning Device, Fire Ignition Device, Sheet Perforating Apparatus among others. He has also **6 research papers published** in reputed national and international journals.

Akash Tiwary
Mechanical Engg.
Batch 2019-23

He is the proud owner of **Gearr Technologies**, a smart Bicycle Manufacturing Unit with advanced features such as GPS Tracker and Navigation device. He created a single-frame bicycle, which is a **global patent** now. He received a grant by the government of Jammu and Kashmir for his achievement. He has exported his bicycles to Europe as well. He is also successfully running another start-up named 'Safe-zone', a bike-riding gear store aimed at providing a list of more than 2000 government legalized products and 40 brands including safety kits, accessories and service for the two wheeler.

Tirlok Singh
Mechanical Engg.
Batch 2014-18



STUDENTS WHO MADE US PROUD

B.Sc. Computer Science students Javtesh Singh, Lalita Thakur and Sushil Kumar invented a special belt 'Queen-Belt' for protecting women against heinous crimes. The belt comes with an electronic circuit breaker system which is activated once someone tries to forcibly open the belt and hence the mobile sim fitted in it makes a distress call to the three numbers feed into it. The caller also gets the location of the victim through GPS tracking system which can be tracked using any mobile and hence can be reached out to the victim for any help. The trio filed the patent with Government of India under their start-up Arbad Electronics.



Javtesh Singh, Lalita Thakur & Sushil Kumar
B.Sc. Computer Science
Batch 2015-18



An Automobile Engineering student, Vikramjeet Singh along with his team developed a **Biometric Conversion Kit for vehicles** in which the user has to just apply his fingerprint for various operations of the vehicle. It is the first-of-its-kind conversion kit applicable on both two-wheelers and four-wheelers. It is a highly reliable service which provides security from theft through biometric ignition.

Vikramjeet Singh
Automobile Engg.
Batch 2019-23

RECORD NUMBER OF PATENTS FILED BY CU STUDENTS



A BBA student, Lovelash Dutt created a Smart Bin to eradicate the problem of garbage disposal and pollution caused due to polythene. Delhi CM Mr. Arvind Kejriwal applauded his innovation of Electronic Smart Dustbin which works on echo by opening and closing the flap by sensing motion. It also speaks in all global languages along with using salutations such as 'Hello' and 'Use Me'. Lovelash has successfully filed 10 patents which include an Intelligent Mobility Aid device for visually impaired people, a Smart Bracelet, a Nimble Bin which is an initiative towards clean India campaign, Secure Dutt, a women safety device, Thermoelectric Hand Gloves and much more.

Lovelash Dutt
BBA
Batch 2016-19

Aniket, 3rd year Mechanical Engineering Student has filed 42 Patents and published 7 Research Papers. Amongst the 40+ patents filed by him, some of them are Filament feeding device of FDM 3D printer, Liquid dispensing device for 3D printers, Intelligent laptop covering device, Cylinder tilting device, etc.

Aniket
Mechanical Engg.
Batch 2017-21



B. Tech Computer Science, 2nd-year student, Mohit owns 6 start-ups in different fields including sports and Information Technology. In the past one year, he has been granted 24 patents. He has also created the first-of-its-kind software capable of preventing road accidents.

Mohit Kumar
Computer Science
Batch 2019-23

HOW WE MADE IT TO THE TOP IN RESEARCH



In the pursuit of becoming a globally recognized Centre of Excellence in Research, Innovation and Entrepreneurship, we at Chandigarh University have kept our primary focus on research. In this journey towards excellence, we have received tremendous support from all the Central and State Government leaderships & their affiliated institutions which helped us scale new heights in Research & Development.

We are grateful to the Ministry of Education, National & State institutions, Educational bodies and Associations for trusting a young university like ours to elevate the stature of Research in the country.

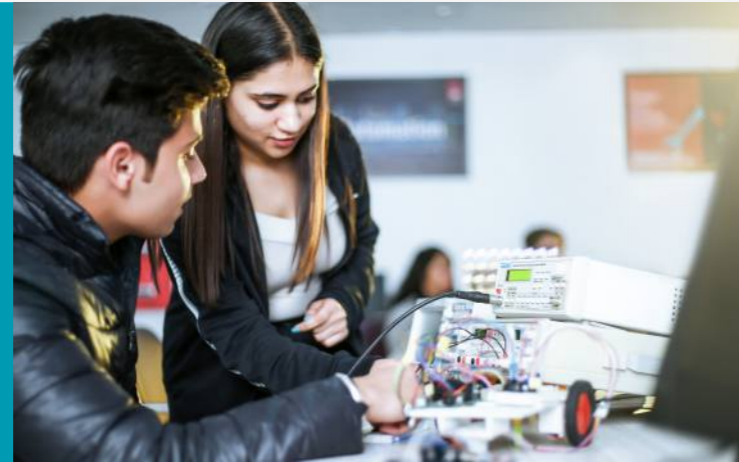


RESEARCH IS AT THE CORE OF OUR ACADEMICS



Our vision is to be globally recognized as a Centre of Excellence for Research, Innovation & Entrepreneurship. With the aim of becoming the most preferred destination for research among students across the world, we have always kept Research at the core of our academics.

University Center for Research and Development (UCRD) at CU is fully devoted to coordinating research and consultancy activities in collaboration with industries. UCRD not only provides financial support to the students but also helps them to hone the skills that are vital to success as a researcher. CU has established 50+ departmental research groups that support and promote discovery, inquiry, and creativity-based opportunities. Our researchers are involved in cutting-edge technological and medical research in some of the thrust areas such as Advanced Materials, Biomedical Engineering, Clean Energy & Environment, Computational Biology, Micro-Nanotechnology, Internet of Things (IoT), Cancer Treatment with advanced technologies & other prominent areas. Research in any University depends on the quality of students and their faculties.



3D PRINTING LAB

779
Patent Filed Successfully

7000+
Research Publications

50+
Departmental Research Groups

4th best research institute in India by Times of India

Recognised as Scientific and Industrial Research Organisation by DSIR, GOI

INTERNATIONAL TIE-UPS TO FACILITATE RESEARCH OF GLOBAL STANDARDS

We at CU have collaborated with the world's top-ranked universities to conduct joint research in significant areas of technology. Through our strategic partnerships with globally recognized institutions, we get profound knowledge, support and guidance in conducting research in certain areas. These alliances also contribute to our academic and scientific progress by constructively challenging accepted opinions and ideas, thereby opening new doors of innovations. In addition to that, we are mentored by international researchers which plays a vital role in raising the standards of research.

→ DOMAINS OF COLLABORATIVE RESEARCH:

- Artificial Intelligence technology innovation
- IoT
- Agriculture
- Sustainability
- Biotech
- Molecular Biology
- Cotutelle Ph.D.
- Science Education

→ WE ARE CONDUCTING JOINT RESEARCH WITH THE TOP INTERNATIONAL UNIVERSITIES:

 University of North Alabama, USA	 Arkansas State University, USA	 University of Southern Queensland, Australia	 La Trobe University, Australia
 Curtin University, Australia	 University of Newcastle, Australia	 Lakehead University, Canada	 Management and Science University, Malaysia
 Glasgow Caledonian University, Scotland	 National Chung Cheng University, Taiwan	 Southern Federal University, Russia	 Concordia University, Canada



INDUSTRY CENTRES OF EXCELLENCE FOR ADVANCED RESEARCH

To keep up with the fast-growing technology and the dynamic global trends in research, we have cultivated strategic alliances with reputed multinational companies. We have collaborated with the top corporates to keep abreast of the advancements in technology and facilitate our students with experiential training, thereby enhancing the quality of research. These research centres play a crucial role in conducting cutting edge research through various training programs by industry experts.



1

Cappgemini data and insight centre for joint research and Ph.D. in AI/Machine learning



2

Centre of excellence in Additive Manufacturing (3D Printing) in collaboration with Redington



3

HPE: R & D in Ph.D. work using Java Programming



4

Cognizant: Advance Computing Technologies: R&D in Ph.D. work using Open Source Technologies



5

Virtusa: R & D in Ph.D. work using Automation anywhere software. (Bot development)



OVER 30 Industry-Sponsored Advanced Research Labs (Microsoft, HPE, IBM, RedHat, etc.)

14 CENTERS OF EXCELLENCE (Industry-Collaborated Labs) Launched On Campus by Top MNCs

OVER 300 Corporate mentors constantly guide our students with their research and entrepreneurial initiatives



& many more...

→ INSPIRATION FROM WORLD RENOWNED NOBEL LAUREATES

We at CU offer our students regular interactions and engagement with eminent national and international personalities who inspire them with their pearls of wisdom. We have had the privilege to host maximum number of Nobel Laureates from different fields i.e. science, economics, philosophy, literature etc. They have been a source of inspiration to our students and faculty with their illustrious career and rich experience.



**His Holiness
The 14th Dalai Lama**
A Buddhist Monk- Philosopher
& Nobel Laureate



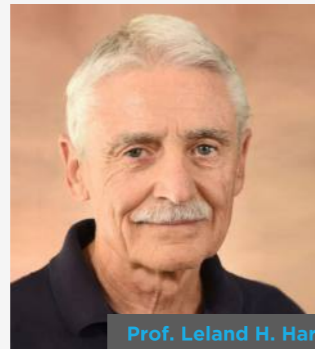
Prof. Roger D. Kornberg
Nobel Laureate & American Biochemist
& Professor of Structural Biology at
Stanford University School of Medicine



Prof. Dr. Wole Soyinka
World-renowned Writer, Poet &
First African Nobel Laureate in the
field of Literature



Prof. (Dr.) Muhammad Yunus
Nobel Laureate & Chancellor,
Glasgow Caledonian University (UK)



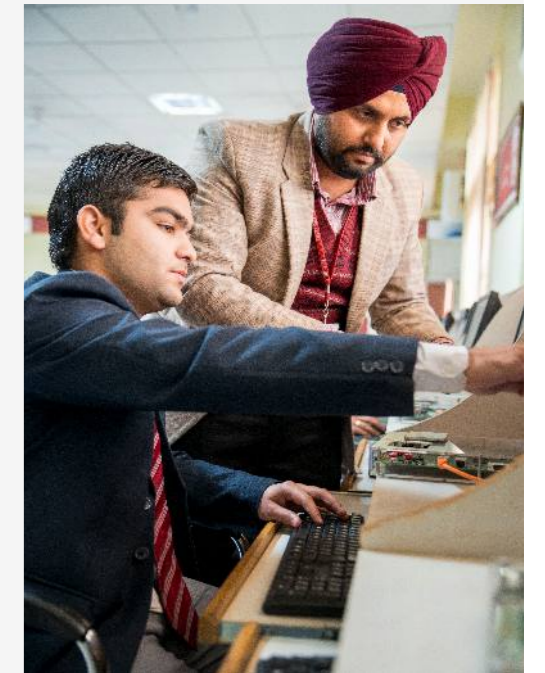
Prof. Leland H. Hartwell
Nobel Laureate, USA, Director of the
Fred Hutchinson Cancer Research
Center in Seattle, Washington

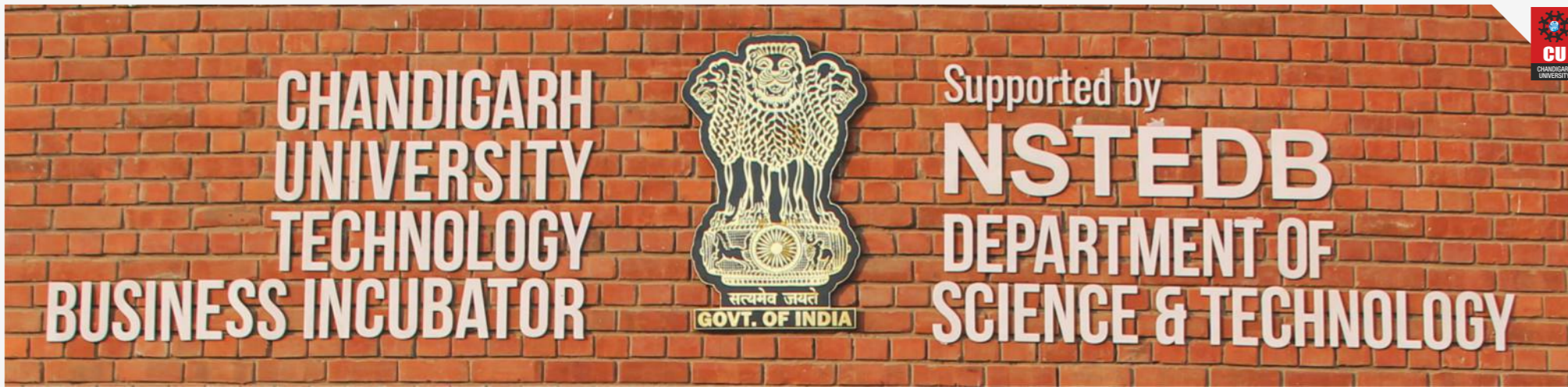


Prof. John C. Mather
Nobel Laureate & Sr. Astrophysicist
at NASA, Space Flight Center

EXTRAORDINARY LEAGUE OF FACULTY & STUDENTS - KEY TO OUR SUCCESS

Research in any University depends on the quality of students and their faculties. We are fortunate to have faculty of high standing who are highly motivated and passionate about shaping our students into excellent researchers by assisting them with all the necessary guidance. With our faculty who are acknowledged experts from the industry as well as academics, we give our students an environment that combines the best of pedagogy with an encouragement to ask, be curious and explore their research skills. Our students are inquisitive with a quest to learn, explore, and research which drives them towards analyzing the effects of applying new thought processes through study and testing. While time in the classroom is invaluable, having access to an on-site research department enables students to grow and challenge the boundaries that were established by their predecessors in the field. We encourage our students to push their limits by indulging in intensive research activities. We believe in making the world- a better place to live by introducing new methods of simplifying complex problems through research. And with the joint efforts of our qualitative league of faculty and self-motivated students, we have been able to deliver exhilarating breakthroughs in research.





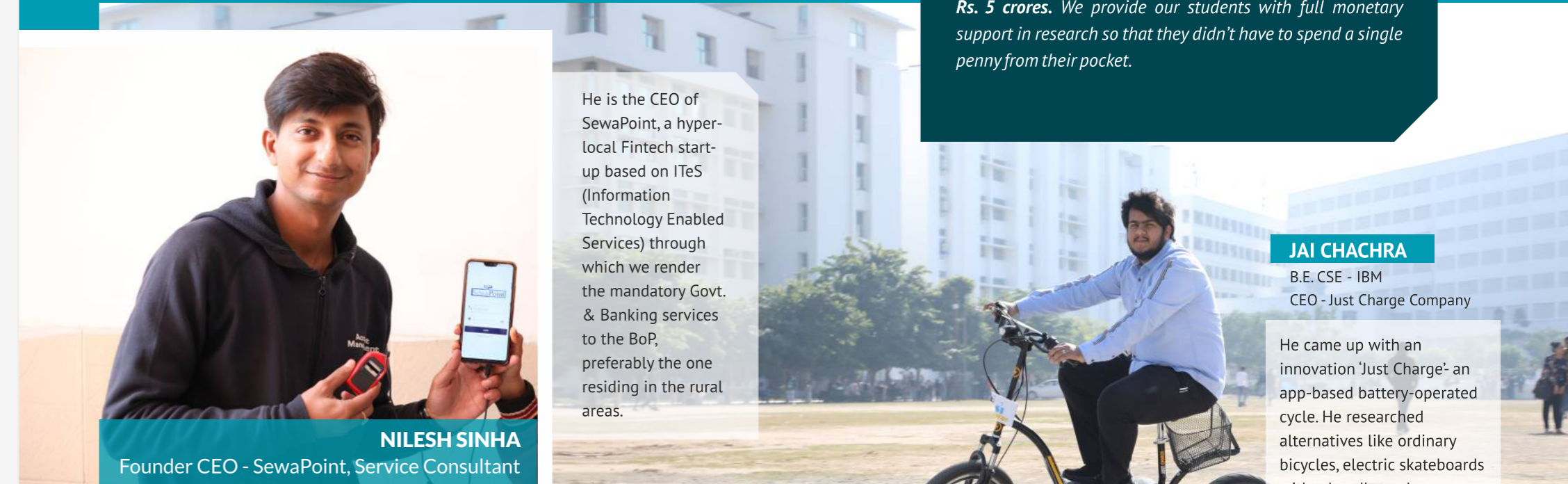
We have always abided by the visionary 'Make in India' campaign by speeding up productivity and employment generation among youth. CU not only provides job opportunities to its students but also make them capable of creating jobs by driving them towards research and innovation. We have been promoting the culture of creating jobs since inception. CU has established **Technology Business Incubator (TBI)** and **Innovation and Entrepreneurship Development Cell (IEDC)** to facilitate product development, business development, and entrepreneurship.

➔ TECHNOLOGY BUSINESS INCUBATOR (TBI)

Founded with the aim of promoting entrepreneurship among youth, Technology Business Incubator is an innovative platform offering mentorship and financial support to passionate individuals aspiring to be entrepreneurs. TBI accelerates the development of budding start-ups from early to mid-stage entrepreneurial development. TBI supports and facilitates selected innovative ideas across all disciplines to turn them into valuable business propositions. TBI is open to any individual with an innovative idea for a startup in any sector. After identification of the most relevant ideas, TBI offers a customized road map, assign the required resources and support via financial aids. Each selected business idea has the support of domain experts assisting with strategic and business's crucial aspects. Students with a passion for creative problem solving, individual looking to create business towards societal benefits, investor or an organization looking to expand its horizons with new-age progressive thinking, all can benefit from TBI.

➔ INNOVATION AND ENTREPRENEURSHIP DEVELOPMENT CELL (IEDC)

Innovation and Entrepreneurship Development Cell provides a platform to the students and faculty to transform their ideas into products and services. Under this center, a student gets up to Rs. 1 lac to develop a prototype for research. IEDC at CU is committed to the cause of nurturing the creativity, innovation, and entrepreneurial skills among the students. It helps our students develop skills to observe and articulate business propositions by providing critical knowledge of the market and conducting regular sessions with successful entrepreneurs. We have **over 100 start-ups** running successfully. We have **47 government-funded projects worth Rs. 5 crores**. We provide our students with full monetary support in research so that they didn't have to spend a single penny from their pocket.



NILESH SINHA
Founder CEO - SewaPoint, Service Consultant

He is the CEO of SewaPoint, a hyper-local Fintech start-up based on ITeS (Information Technology Enabled Services) through which we render the mandatory Govt. & Banking services to the BoP, preferably the one residing in the rural areas.

JAI CHACHRA

B.E. CSE - IBM
CEO - Just Charge Company

He came up with an innovation 'Just Charge'- an app-based battery-operated cycle. He researched alternatives like ordinary bicycles, electric skateboards with a handle, and hoverboards from the perspective of affordability, usage over uneven terrain, and the weight it may be able to transport and battery life.



100 Start-ups
running
successfully

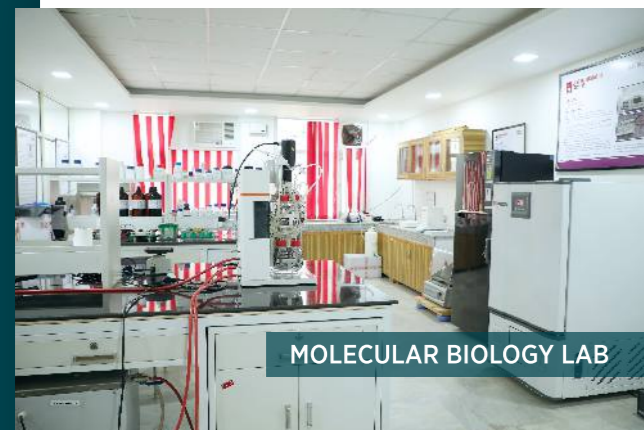


7 Start-ups
Recognised by
Start-up India



5 Companies
with more than
20 Lakh Turnover

BEST-IN-CLASS INFRASTRUCTURE & FACILITIES FOR PROMOTING HIGH QUALITY RESEARCH



MOLECULAR BIOLOGY LAB



XRD LAB



GENETICS LAB



SEM LAB

→ NEXT-GEN RESEARCH LABS

To facilitate the outstanding scientific talent with world-class research facilities and to train new generations of professionals, Chandigarh University has established state-of-the-art research labs and facilities at its disposal, some of which are unique among Indian universities. We have multiple advanced research labs especially, designed for experiential training in booming industries like Artificial Intelligence, Robotics, Additive manufacturing, Molecular Biology, to name a few.

EMPOWERING THE SOCIETY THROUGH RESEARCH & INNOVATION

We believe in making the world a better place by educating and empowering the society with the help of research and innovation. We aim to make a difference to the society by providing solutions to complex day-to-day problems faced by society. Also, our students & faculty from University Centre for Research & Development regularly conduct training & mentoring camps for students from rural areas of Punjab in collaboration with DST, GOI.



○ **50000+**

school students trained under Science Outreach Program

○ **11000**

students trained under the INSPIRE internship program

○ **15000+**

Students trained under Science Bus

○ **WATER TESTING**

for the villages - Gharuan, Mammupur, Rurki Pukhta under Eco-Eureka Project in collaboration with DST

