



LOVELY
PROFESSIONAL
UNIVERSITY

Transforming Education Transforming India

SUSTAINABLE DEVELOPMENT

ANNUAL REPORT - 2021



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The university recognizes and supports the need to continue friendly partnerships in order to address environmental issues on a global scale. LPU collaborates closely with the public and private sectors, NGOs, charities, and research institutions to establish successful relationships with regard to sustainable development. The university is categorically committed to fostering civic and social duties related to sustainable development.

The institution supports the UNDP's commitment to "Leave No One Behind," in which nations agreed to prioritize the most disadvantaged people for advancement. Being an internationally connected institution, LPU collaborates with other institutions to give its students a genuinely global education and uphold the idea that everyone should have access to possibilities. University collaborates with numerous governmental, non-governmental, and local organizations to create not only an educational atmosphere on campus but also an attitude of sustaining inclusivity in society. The university also informs its students about local Sustainable Development activities and places a strong emphasis on research dynamics to keep all stakeholders fully informed about the wide range of research and development projects that are underway.

In order to up skill its academic fabric, the university also commits to building a constructive relationship with its stakeholders and participates in the cross-sectional conversation. In short, the university recognizes the necessity of forming partnerships with the public and corporate sectors, civic society, and individual individuals to ensure that we leave the earth in better shape for future generations.

1. QUALITY EDUCATION

Introduction

Lovely Professional University (LPU) is committed for emerging as an academic hub for quality education, magnificent learning opportunities, tremendous research avenues and many more. LPU has been an ultimate destination for national and international fraternity in an area of college education, conferences, guest lectures and workshops.

Academic Initiatives

The academic excellence of the University is the by-product of quality education which is the result of intelligent efforts which are made in an area of “Quality in Curriculum” through stake holder participation, pedagogy, evaluation, experiential learning, students centre method of learning, participative learning, skill enhancement and course enrichment. In addition to that the intelligent efforts are made in an area of “Review of Quality Education” through inspection and feedback system. The academic experience of the LPU’s quality education system can be felt with the key features as discussed below.

Quality in Curriculum

The backbone of any Higher Education Institution is its curriculum which gives strength to the institutions for addressing the international and national level concerns. At international level such as UNO’s Sustainable Goals, Rights for person with disabilities etc., similarly at national level such as Outcome Based Education (OBE) model, National Education policy, various accreditation, ranking and regulatory body guidelines etc. Few of the intelligent efforts made by LPU such as Curriculum & Pedagogy policy of LPU is rooted in its guiding philosophy, ‘*Transforming Education Transforming India*’, Blended Learning options are incorporated by giving weightage to MOOCs offered by credible national/international platforms, Regular review of scheme and syllabi, International orientation of students, Courses in emerging areas like Artificial Intelligence, Precision Agriculture, Disaster Management, Green Economy etc. have been introduced.

Quality in Pedagogy

A successful faculty connects with their students through effective content delivery, well planned teaching strategy and most important appropriate pedagogy used. The academic fraternity at LPU gives due importance to the quality in pedagogy at the time of CDRC before starting every academic

session. LPU e-Connect with features like e-Resource, Exam Connect, Relationship Management System etc. offers Anytime-Anywhere connectivity that links ODL students with the University.

Quality in Evaluation

The class teaching is incomplete without measuring the level of understanding of the learners. Appropriate evaluation and assessment methods are required to check the higher order of learning by students in course. Various efforts have been made such as design of evaluation and assessment tool keeping the Bloom's taxonomy into consideration, Question wise table evaluation, Transparency through answer sheet scrutiny by students, speed up evaluation process with IT, Declaration of results to students through UMS, etc.

Experiential learning

Experiential Learning is facilitated by incorporating workshops, laboratories, tutorials, projects, and studio-based courses in the curriculum. Field visits, live projects, design projects, simulation, and training in industry-relevant software are other enrichment activities.

Access to University Education Resources

Central Instrumentation Facility (CIF)

Lovely Professional University established Central Instrumentation Facility (CIF) to support and boost the advancement in research and development in the field of science and engineering. The modern analytical instruments present in this facility offer a wide range of analytical methods/techniques for chemical/material testing and analysis. The concerted efforts of the CIF will contribute to the upliftment of the society at large.

Instruments available at CIF

S. No.	Name of the Instrument	Make & Model
1.	Powder XRD	Bruker D8 Advance
2.	Gas Chromatography with MS/MS and FID	Shimadzu TQ8040
3.	FE-SEM coupled with EDS detector; Au Sputter Coater	JEOL JSM-7610F Plus EDS: OXFORD EDS LN2 free Au Coater: JEOL Smart Coater
4.	Electrochemical work station	Metrohm Multi Autolab M204
5.	Fluorescence spectrophotometer	PerkinElmer LS6500
6.	Refrigerated Centrifuge	Eppendorf Refrigerated Centrifuge 5804R

7.	Thermo gravimetric analyzer	PerkinElmer TGA 4000
8.	Differential scanning calorimeter	PerkinElmer DSC 6000
9.	Density meter	Axis Density Meter with analytical balance ALN-220
10.	Viscometer	LABMAN model of LMDV-200 with small sample adaptor, low viscosity adaptor and software.
11.	Probe Sonicator	LABMAN MODEL PRO-500 with probe assembly of 9.5mm, 6 mm and 3mm
12.	Particle size and Zeta potential analyzer	Malvern Zetasizer Nano ZS90
13.	HPLC with RI and PDA detectors	Shimadzu Prominence I LC2030 Plus
14.	FTIR with Diamond ATR	Perkin-Elmer Spectrum 2 with ATR & Pellet accessories
15.	-86°C Deep Freezer	Thermo Scientific FORMA 900 Series

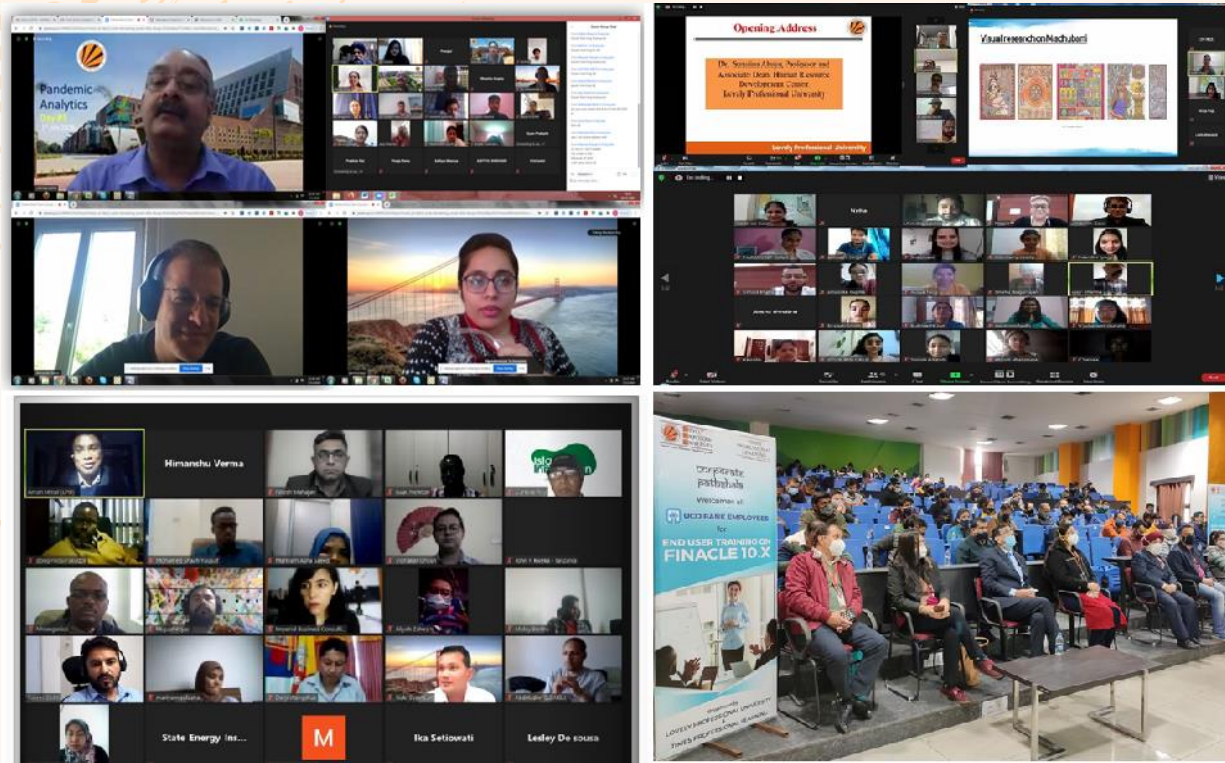


Website link: <https://www.lpu.in/cif/cif.php>

LinkedIn Profile: <https://www.linkedin.com/in/central-instrumentation-facility-cif-drd-lpu-20a2ab239/>

Professional Enhancement Programmes

Professional enhancement programmes such as short-term courses (STC) are a great way to fill the gaps in professional knowledge without the more substantial investment. In the academic year 2020-2021 University organizes 23 short term courses/workshops in various fields. These events are primarily focused to provide a wide variety of skills in faculty and students. Research based STC's are beneficial for Masters and PhD students.



Various short term courses organised in LPU

Despite of COVID 19, University had organized 14 International/National Conferences in the Academic year 2020-2021. Research/Professional conferences are one of the major activities in the life of academicians. Lovely Professional University has signed more than 250 MOU's with reputed National and International students. USA based Multinational Healthcare organization 'Eminent Physicians' and LPU sign MoU on August 26, 2021.



MOU with Multinational Healthcare organization ‘Eminent Physicians’

An historically important Memorandum of Understanding (MoU) has been signed between Lovely Professional University (LPU) of India and Russia’s Southern Federal University (SFedU), as a part of 28 Government to Government (G2G), commercial and other agreements/MoUs signed during His Excellency, President of Russian Federation, Vladimir Putin’s recent visit to India. This collaboration is for academic and research activities, exchange of academic information, and students & faculty exchange programmes.



21st India-Russia Annual Summit held in New Delhi

Targeting to keep its personnel healthfully fit, the Central Reserve Police Force (CRPF) has collaborated with LPU to establish ‘Institute of Immunity and Nutrition Management (IINM)’ at the Force Group Centre in Jalandhar.



Inauguration of Institute of Immunity and Nutrition Management (IINM)

Access to Health Services

The Department of Health services caters high-quality physiotherapy services and open OPD through outpatient departments located in the OPD-LPU campus, OPD-Phagwara and OPD-Jalandhar for the general public, students and faculty members. The Physiotherapy department and open OPD facility also can be availed by general public.



Physiotherapy Camps

Access to Sports

LPU has a swimming pool for the standards of the Olympic Swimming pools. There are two more swimming pools in the indoor stadium of the University. The LPU Swimming pools facilities are available to all the students of the university and the external users as well. These indoor swimming pools are massive in size and kept clean by the University Staff on a regular basis. The boys and girls have separate indoor swimming pools.

LPU hosted Five-Day **National American Football (Gridiron) Championship 2020** at its campus. The Board of Control for Gridiron (BCGI) in India preferred to organize its ‘First National Championship’ at LPU. All Matches for Gridiron under 16/19 Boys & Girls and Senior Boys’ (above 19 age Group) ‘Tackle’ Game were played at LPU’s American Football Ground. 300 Boys, 150 Girl-Players and 50 Team Managers & Officials participated in the First National Gridiron Football Championship-2020. BCGI has also signed MoU with LPU’s Student Organization ‘Mission Towards Vision’ to organize matches for Championship in future, too, and establish to American Football game as a global sport.





Executive Development Program

Lovely Professional University has taken multiple initiatives to cater professional and organizational competencies leading to business growth and development. One of the initiatives of university is Corporate Pathshala that provides tailor made solutions to its clients.



Train The Trainer: Creating and Delivering Virtuous Training-Physical & Digital, a Corporate Training Program was organized by Lovely Professional University for the participants of Trainers Academy, Zone I, JCI India. Workshop on Transition from Imagination to Reality was organized by Lovely Professional University for the Managers of Hero Steels Limited, Ludhiana. The workshop aimed at preparing the Middle Managers to handle people and processes more effectively.



Workshop on Tools and Techniques of Building Highly Effective TEAM was organized by Lovely Professional University for the managers of Digi Mantra Labs, Mohali. The workshop aimed at building competencies of the Managers and to enable them to work effectively in order to manage their team in a better and more efficient way. NAV-DISHA: Management Development Program was designed for Indian Oil Corporation; Indane Distributors received active participation of the target audience of Jalandhar District. The program aimed at capacity building for Business Development and Team Leadership in the digital era.



2. RESEARCH AND DEVELOPMENT

Lovely Professional University has a commitment for the creation of research environment that can stimulate the atmosphere which fosters and rewards innovation, collaboration and societal issues with focus on research. University has dedicated focus on the development of research leadership, support for the campus-wide research efforts and optimizes resource to support trans-disciplinary research benefitting society. Some of the other key purposes of LPU to engage in research and build reputation of research and become one of the leading research-intensive University. LPU faculty members have been actively carrying out research that have yielded more than 2200 research paper and above 370 books/book chapters in the calendar year.

To promote research among young budding researchers, University provides an initial grant called as seed money. This year seed money was sanctioned to 5 faculty members with amount worth more than 25 lakhs to carry out their preliminary research work. The given seed money can be utilized for the purchase of equipment, consumables and non-consumables, travel for surveys, testing, and analysis purposes.

Furthermore, LPU has commitment to maximize the experience of its faculty and staff by encouraging them to attend and participate in national and international conferences/symposiums, initiate collaborative research work, attends various workshops and seminars, for their professional growth and excellence. The grant can thus be used to meet the expenses of registration and attending research events. University has provided financial support for active participation of 32 faculty members in international/ national workshops, seminars, conferences, and towards membership of various professional bodies.

The research carried out by LPU faculty as research papers, books/book chapters, IPR etc. helps them to earn leave points which can be availed as research leaves for attending research and academic development programs.

LPU faculty have been awarded with Research Grants wherein 8 Government research projects with amount more than 1043 Lacs were also funded by national and international government agencies like NMPB (National Medicinal Plants Board), Ministry of Ayush, DST (Department of Science and Technology), SERB (Science and Engineering Research Board), Department of International Trade, Newport United Kingdom, Erasmus+: Higher Education - International Capacity Building.

Some selected projects have been funded by:

- Science and Engineering Research Board, Govt. of India
- National Council for Science and Technology Communication, Govt. of India
- Department of Science and Technology, Ministry of Science and Technology, Government of India National Medicinal Plants Board), Ministry of Ayush
- Department of International Trade, Newport United Kingdom
- Erasmus + K2- Capacity building in the field of Higher Education, Programme of the European Union
- UGC-DAE Consortium for Scientific Research, Govt. of India
- Research Institute for Humanity and Nature [RIHN], Kyoto, Japan
- UNESCO

Memorandum of Understandings for joint research with national organizations of repute and industries were signed during this academic year, this includes National Bureau of Plant and Genetic Resources; Central Council For Research in Ayurvedic Sciences; National Institute of Urban affairs; Banaras Hindu University; Central Research Institute for Jute and Allied fibres; Central Council for Research in Ayurvedic sciences; Central Power Research Institute; Pushpa Gujral Science City, Bruker, Toshwin Analytical etc.

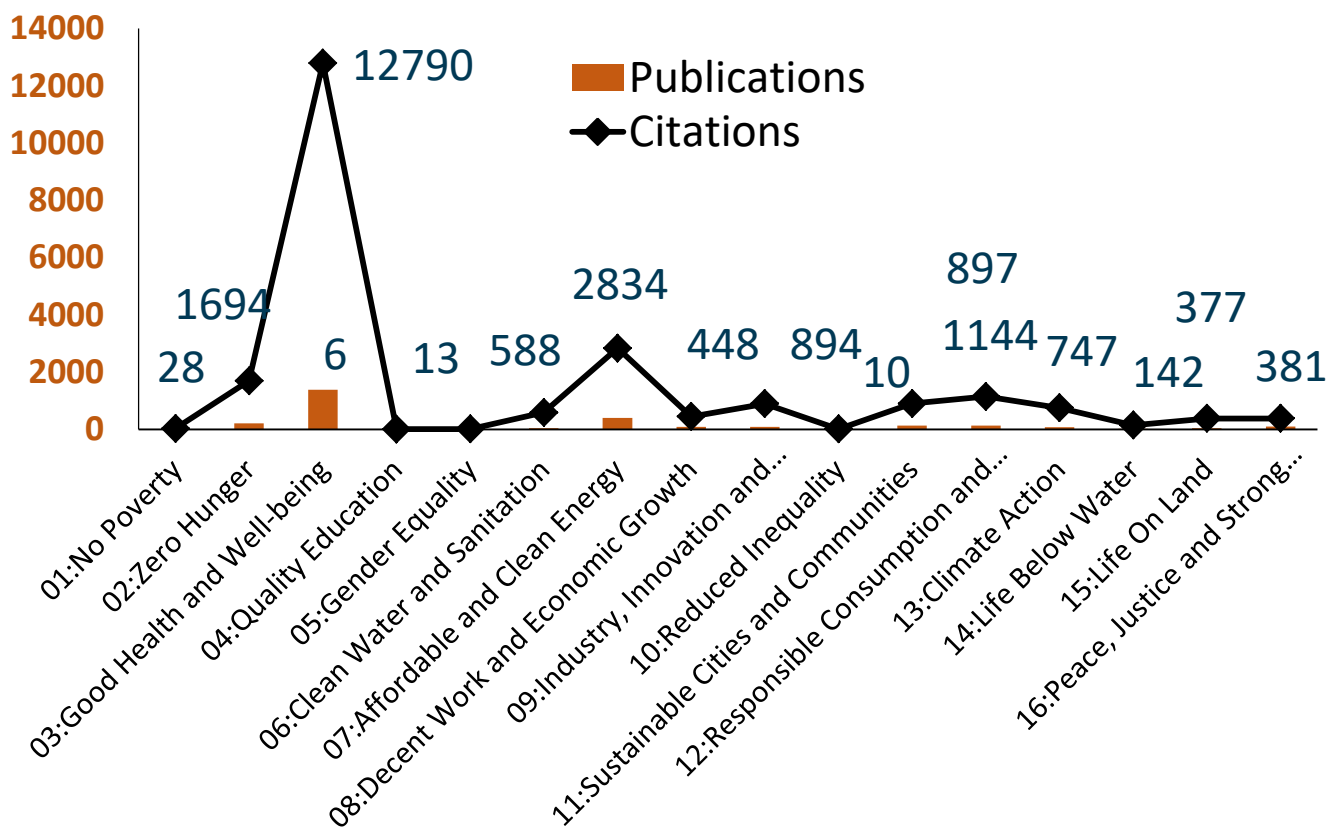
Intellectual Property Rights (IPR) have been actively playing a key role in the enhancement of socio-economic and innovation in the country. With the increase in the relevance of Intellectual Property (IP), there is an urge to create large public awareness about the pivotal role of IPR in globalized knowledge. With the perspective to create awareness on the importance of IPR to the people, LPU organized number of workshops on IPR with focus on Patents, Copyrights, Trademarks, etc. The technical sessions were led by the speakers having thorough knowledge in the subject who have been practicing in the field for many years. Thus, in academic calendar year 2020, more than 610 Patents were published and 22 were granted.

In accordance with UN SDG9; Innovation and Infrastructure, LPU generated considerable income from industry by doing research projects amounting to 2.69 Crores by handling 132 projects in the field of science, engineering, medicine, humanities and social sciences.

List of Conferences

S. No	Conference	Date
1	E-Conference on Education and Development: Post Covid-19	26 September,2020

S. No	Conference	Date
2	International Conference on Advances in Sustainable Technologies	6-7 November,2020
3	International Conference Rethinking Business: Designing Strategies in The Age of Disruptions	19 December,2020
4	International Conference on Global Emerging Innovations Summit- 2021	9-10 April, 2021
5	International Conference on Energy Efficiency and Energy Storage Technologies	9th-11th April, 2021
6	International Higher Education Opportunities in The Post Covid World: Combating Crisis, Accepting Vaccines and Living Together in The World!!!	16th April, 2021
7	3rd International Conference on Recent Advances in Fundamental and Applied Sciences	25-26 June 2021



3. INNOVATION

LPU has focused on nurturing culture of Innovation and encouraging socially meaningful research through following initiatives:

Courses on Innovation, IPR and Entrepreneurship: LPU offers Open Minor specialization courses on Innovation and Design Thinking, Family Business, Entrepreneurship Development and Boot Camp to the students, with enrollment of 150+ students in previous academic years.

Awareness Programs: 100+ Entrepreneurship Awareness Programs conducted in previous years involving Professionals, Entrepreneurs, Venture Capitalists and Angel Investors for Business Plan competitions, Hackathons, entrepreneurship camps and flagship event IE-CON. Google Start-Up Weekend, Mahindra's Make-A-thon etc. are hosted on-campus, benefiting about faculty and students.

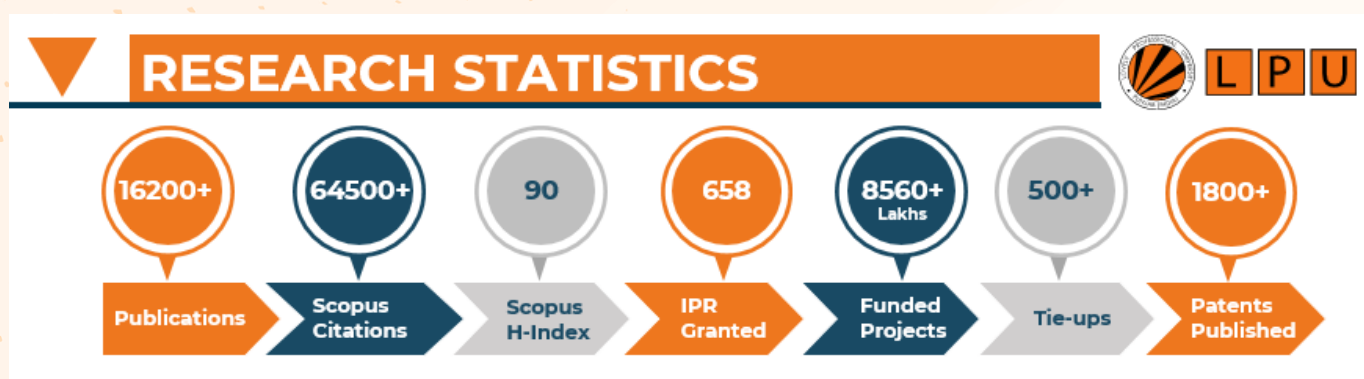
Innovation & Incubation facilities:

- Innovation Studio (Over 50000sqft.) for idea generation, prototype and product development with labs for Ideation, Computer Aided Engineering, Internet of Things, Prototyping, Fabrication/ Assembly and Paint booth. Outcome of Innovation endeavors include student projects like Autonomous Solar Bus, Paddy Transplanter, All-Terrain Vehicle (ATV), Metal Magna Mega Structure, Multi Paddle Bus, Agriculture Drone etc.
- **Experiential/Tinkering labs:** equipped with household items, tools and basic components, for students to understand scientific principles and explore new applications.
- **Pre-Incubation facility:** Student Entrepreneurship Cell provides mentorship, infrastructure & IT support to student for their business Innovation and Startups.
- Each LPU school has faculty as **Entrepreneurship Coach (E-coach)** who conduct Entrepreneurship awareness activities, identify students with entrepreneurial orientation, mentor and develop their business ideas.
- **Incubation facilities** are provided through Division of Start-Up inaugurated by the then Honorable Finance Minister of India, Shri Arun Jaitley in 2016. It provides office space, equipment, and technology support and seed capital to nurture the upcoming entrepreneurial talent for viable projects/start-ups. Start-up school incubation center also has dedicated Business Development mentors to guide students.
- **For collaborative research/innovation** LPU has established labs in tie-up with international brands JEOL, BRUKER, METROHM, PERKIN ELMER, SHIMADZU to offer training and research support

to faculty/students. Pharmacy school has tie-ups with companies like Dhanwantri Herbals and Overseas Healthcare for formulation development and evaluation.

- **Knowledge Transfer:** As knowledge transfer initiative, four technologies have been forwarded to National Research Development Corporation (NRDC) for exploring commercialization. LPU’s innovation focus has resulted in publication of 360 patents, 164 copyrights, and 5 design registrations in the last 5 years. For commercialization the University works hand in hand with both government and private organizations like NRDC, Biotech Consortium India limited, Agni Initiative etc. LPU has been included among the top-25 institutes of India, ranked 6th to 25th in Atal Ranking of Institutions on Innovation Achievement by Ministry of Education for the year 2018-19. LPU students keep participating in events related to Innovation, organized by reputed agencies at the National/International level. Few achievements include:
 - STEM Award in NASA Human Exploration Rover Challenge in USA (2019).
 - 1st Prize in Smart India Hackathon, March 2019 at All India Level.
 - Startup India, Punjab Yatra event, in January, 2019 had 3 winning ideas from university

Overall University research statics can be presented schematically till October 2022 as shown below:



Innovation Ecosystem

Lovely Professional University (LPU) has always been a hub for innovation and entrepreneurship throughout the country. Round the year, LPU orchestrates countless sessions with industry leaders and successful entrepreneurs, which over the years have spawned numerous thriving startups like “Syntax Edutek” by Amit Kumar (MBA) listed among the top 50 international tracks in Startup Wheel 2021, “Sixinterns” by Tharun Kumar Vulli (B.Tech.), “Micro-house OPods” by Perala Manasa (B.Tech.) & Donthireddy Naveen Reddy (MBA) the first of its kind in India, “Enviropromise” by Sai Abhinay Chepuri, etc. While some Vertos are busy whipping up startups, some Vertos love brainstorming like

Kunwar Sahi (B.Tech.), who secured 2nd position at the ASB Ideathon 2021, with that Lovely Professional University, never fails to impress.

Acknowledging Lovely Professional University's chronicles, the Institution's Innovation Council, Ministry of Education, and Government of India have selected Lovely Professional University as a Mentor Institution for Innovation & Entrepreneurship. Under this program, Lovely Professional University will facilitate knowledge exchange and sharing of interdisciplinary expertise with other participating institutions. Lovely Professional University will act as a hub for all mentee institutions, for innovation & entrepreneurship-related programs like seminars, workshops, guest lectures, etc.



LPU SELECTED AS
MENTOR INSTITUTION
FOR INNOVATION & ENTREPRENEURSHIP
BY INSTITUTION'S INNOVATION COUNCIL, MINISTRY OF EDUCATION, GOVT. OF INDIA

LPU is appointed as **HOST INSTITUTE** by **MSME**
"Financial Assistance for Students under the Scheme"

Accolades - Student

Jahanvi Dangeti, a student at Lovely Professional University, representing India in International Air and Space Program at Kennedy Space Center (NASA Launch Operations Centre). The program is coordinated for youngsters from everywhere the world to utilize teamwork, problem-solving, and communication skills among students and expert NASA engineers to adapt and solve any unexpected problem.



LPU students won biggest Innovation Competition ‘Smart India Hackathon-2020’ conducted by HRD and

Bharat Youth Award



A serial entrepreneur and an Amazon Best Selling Author, LPU Alumni Durvesh Yadav has achieved great heights at a very young age. His book, “What They Don’t Teach Us”, has been supported by numerous Bollywood celebrities. He is the founder of the company “Rising Star Digital Media” which helps brands and companies grow using branding and marketing.

Kunwar Sahi received award for the Best Innovation in AI Hardware



Lovely Professional University’s prodigy, Kunwar Sahi (B.Tech.) pupil to the Department of Biomedical Engineering, has received the prestigious award for Best Innovation in AI Hardware at AICRA Global AI Summit supported by NITI Aayog, Government of India. The theme of the event was “the prominence of AI in human lives & business industries”.

Team “Digantara”



Team “Digantara” launched its Space Weather Instrument Onboard ISRO’s PSLV- Rocket Mission

Accolades – Faculty



Smart City Award 2020



Platinum Award for Mentor in CII MILCA Awards 2022



Mr. Chirag Chopra won IARDO Young Scientist Award



Dr. Rohit Rai awarded BRICS Young Scientist in 4th BRICS-Young Scientist Conclave, Brazil



Dr. Sachin Kumar Singh received Dr. B. C. DEB Memorial Award By ISCA, Kolkata

Market Ready Prototypes



Algae-based Respirator



Filtration Water Assembly



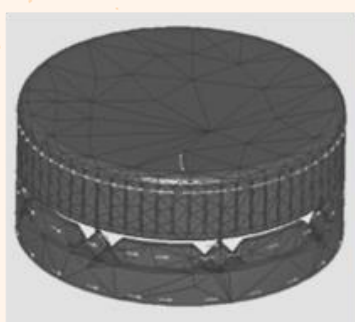
Sita By Chair



Driverless Solar Bus



A Plug Gauge



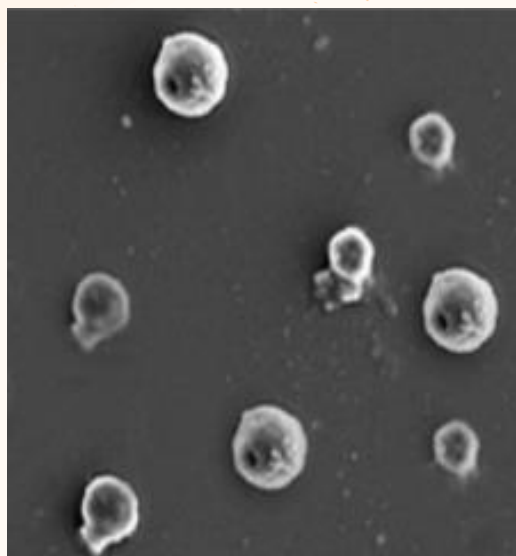
Bottle Neck Cap Assembly



Teri-Kanjli Wetland



A Novel Sugar Free Asva Formulation



Improved Oral Target Drug Delivery System



A Drilling Machine and a Method of Drilling



Coal Tar Formulation



Ally: Smart Dustbin



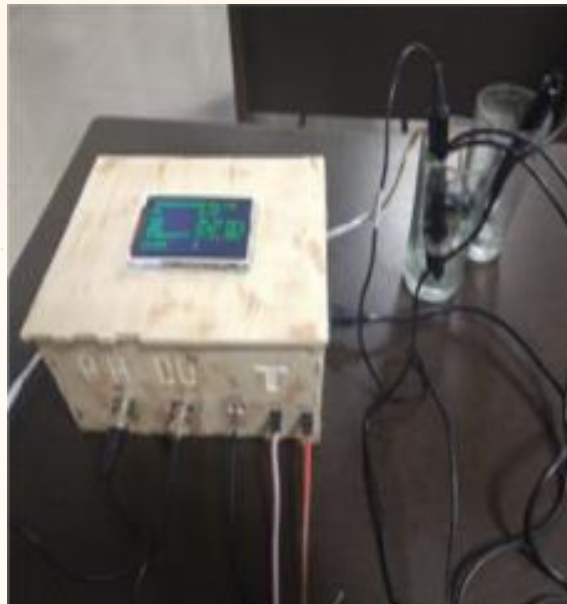
An Apparatus for Sorting Agriculture Products



Flying Farmer



A Device for Measuring Pervious Concrete

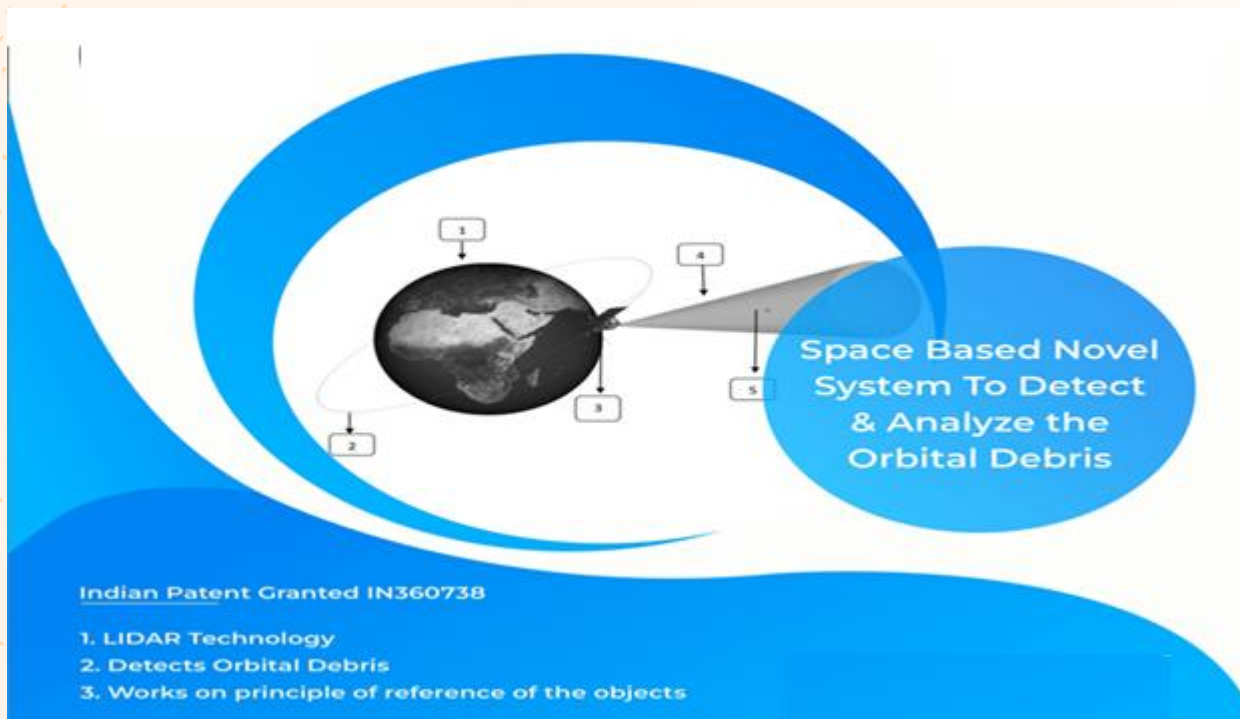


A Novel Method for Water Quality Parameter

Technology Transfer



20 SEC FOR LIFE



Space Based Novel System to Detect and Analyze the Orbital Debris

4. OUTREACH

Lovely Professional University is committed to providing equal opportunities for lifelong learning and quality education for the general public including persons with disabilities, and underprivileged children to get access to basic education by conducting various outreach activities.

Outreach Activities

ITEC (Indian Technical And Economic Cooperation) is a flagship programme under Ministry of External Affairs, GOI. Under this initiative, GOI grants full scholarship to foreign participants to undertake a short-term training programme in both Offline & Online Mode. LPU is empanelled in ITEC since 2019 and have successfully conducted **11 Programmes** till now (6 in Offline and 5 in Online)

Broader areas of trainings are Information Technology, Healthcare, Management. More than **300 participants** from more than **27 countries** have attended ITEC Programs at LPU. Total revenue received till now is about **INR 5 Crores**



- During 2020-21, LPU organized events to promote educational outreach activities beyond the campus through its students and faculty members. An event named “Bags Distribution Drive” was organized on 20th November 2021 in the Government School of the adopted village Nanaknagri. The volunteers of LPU-NSS have distributed bags among the students of Primary school. A total of 160 units of bags were distributed among all the students of the school.
- LPU also organized a “Joy of Giving drive” on November, 27, 2021 in the slum areas near the Phagwara bypass. LPU-NSS volunteers on September 28, 2021, actively took part in the “Pulse Polio Campaign” organized by the Ministry of Health & Family Welfare, Govt of India. Volunteers at various locations of Jalandhar, Punjab lead the Pulse Polio Drive.
- LPU’s United Nations Youth Committee (UNYC) started a program “Educate a Child” under which they decided to educate the children in the nearby villages. Members of the organization used to visit a nearby village every Saturday and Sunday and used to spend some of their valuable time building the upcoming future leaders of the nation. Motive behind this program was to generate awareness among the local people about the importance of education in today’s world for their children; to make them realize the need for sending their children to school.



Outreach activities beyond the campus

- LPU-NSS under the aegis of community service Cell, organized “Tree Plantation Drive” on September 9, 2022 under Van Mahotsav.
- LPU on July 03, 2021 in collaboration with “Greening Bharat and Baba Parshad Giri Mandir Yog Samiti, Jhajjar” organized an awareness session and Plant adoption drive under “My Pet Plant”. In which 60 students adopted a plant in a single day.

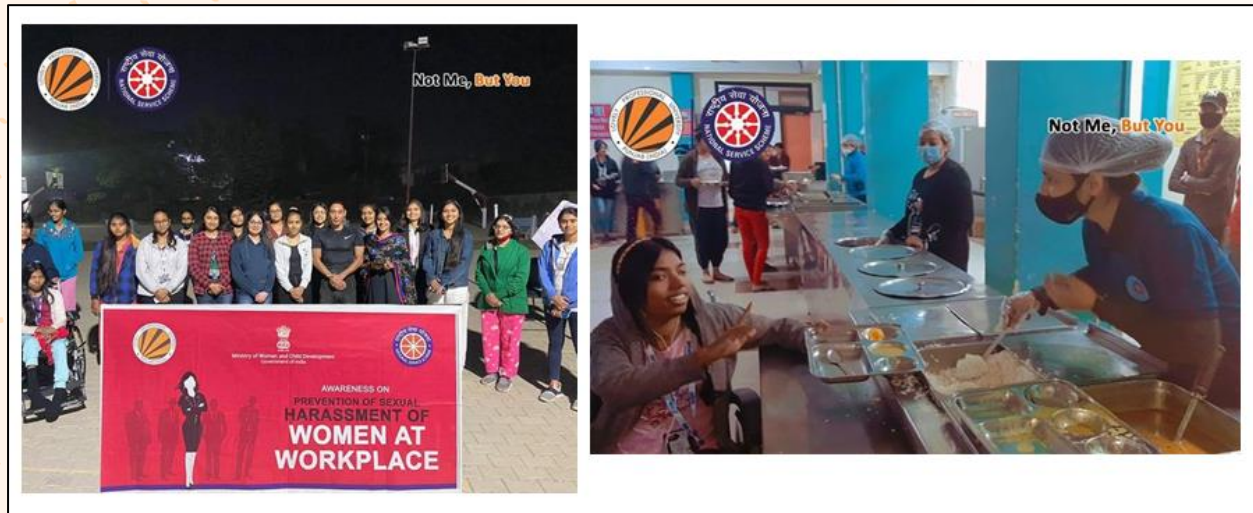


- LPU NSS adopted more than 14 Villages & Slums in Maheru, Chaheru, Madhopur, Raipur Prohala, Hardaspur, Salarpur, Narang Shahpur, Nangal Majja, Hardo Farala, Semi, Khajurla, Saproor, Mehta, Chak Hakim etc. Medical camps & health check-ups are being conducted in these villages in collaboration with different hospitals & Physiotherapy Department, of LPU.
- SATHI is the abbreviated form of Skills, Agriculture, Technology, Health, and Ideation, and those are the primary aims of the organization for the villages. The project is focused on harnessing the untapped potential of these villages in every department so as to uplift the status of the village, and hence the society as a whole. The project aims to give employment skill training in these villages, such as security guard training, firefighter training, and training on enhancing the shelf life of home produce. Also, they aim to bring more of their products to the market, such as dairy products, handicrafts, and agricultural produce. In the long run, the organization is seeking Government collaboration for the development of roads, sanitation and so on. SATHI has a vision for these villages and doesn't plan on stopping until it is achieved – till the villages have become ‘smart’.



Various camps organized under SATHI

- Division of Student Welfare on December 11, 2021 successfully organized an “Awareness Rally on Prevention of Sexual Harassment of Women at Workplace”. "Hunger, a serious kill" as per the recent reports of United Nations Organization every day more than 40,000 children die due to hunger. On the occasion of Food Waste Awareness Week (6th to 12th Dec, 2020), the Volunteers of LPU-NSS, have actively taken role to aware students.



Awareness campaigns

5. COLLABORATIONS

LPU aims to be a premier academic institution, recognized internationally for its contribution to industry and society through excellence in teaching, learning, research, internationalization, entrepreneurship, and leadership. To achieve this goal, the University builds and enhances valuable relationships and partnerships with other governmental and non-governmental institutions, universities, companies, NGOs, recruiters, parents, alumni, staff & society, recognizing the significant role they play in the success of the University. University comprehends and endorses the requirement of maintaining congenial alliance and collaborations to address sustainability concerns worldwide. LPU works in proximity with public and private sectors, NGOs, charities and research organizations in order to formulate productive liaison vis-à-vis sustainable development. The varsity showcases its perseverance in nourishing the civic and social responsibilities pertaining to higher education and emphasizes on playing an instrumental role through various teaching, research and engagement-oriented activities. To achieve its objective, the University is determined to forge myriad international collaborations to address local, national and international concerns. LPU is a globally connected university, working in tandem with universities across the globe in its quest to provide a truly global experience to its students. The flourishing association between educational institutions provides the researchers to gain knowledge and access information which become a helpful tool in their academic journey. Furthermore, the University goes an extra mile and partners with various governmental and non-governmental bodies to fashion an intellectual ambience within the campus. Additionally, University is committed to develop fruitful communication with its stakeholders and thus engages in cross-sectional dialogue in order to up-skill its academic fabric.

Student Exchange Programmes

Student mobility to different parts of the world is an important agent for driving internationalization. At LPU, student mobility or exchange study programmes entail attending or participating in non-degree semester study exchange programs, short courses, training, Cultural exchanges, seminars, and other conferences or meeting settings that are done outside of the country. LPU serves to bridge the gap between traditional textbook learning and career development for positive change through short-term, experiential education programmes abroad. LPU's student exchange programme continues to send students to partner universities to study about challenges and initiatives around the world. LPU's aim is to continue reshaping higher education through international university tie ups.

Students from various programmes went to numerous foreign universities under student exchange programs



30 Canadian Students attended Student Exchange Program at LPU



Aayush Pokharel
Bachelor of Science
(Honours) (Agricuture)
2017
Mendel University,
Czech Republic



Aditya Prem Sharma
Bachelor of Technology
(Information Technology)
2017
IMT Lille Douai , France



Agrani Anand
Bachelor of Design
2018
University of A. Coruna , Spain



Anish Agarwal
Bachelor of Technology (Computer
Science and Engineering) (Cloud
Computing) 2017
Vilnius University, Lithuania



Asima Bashir
Bachelor of Business
Administration, 2017
Livingstone College,
USA



Harsh Singh
Bachelor of Business
Administration (Airlines and
Airport Management) 2020
EPF school of Engineering,
France



Anas Malik
Bachelor of Technology
(Aerospace Engineering)
2018
IMT Lille Douai, France



Arman Singh Sehgal
Bachelor of Hotel
Management and Catering
Technology 2017
Livingstone College, USA



Krishna Gopal Sharma
Bachelor of Technology
(Computer Science and
Engineering), 2018
Vytautas Magnus
University, Lithuania



Bidhun Joseph
Bachelor of Technology (Computer
Science and Engineering) 2018
University of Lethbridge, Canada

Few of Our Students in various International Universities (Under Student exchange Program)

Projects and Consulting:

University has initiated many projects and consultation in collaboration with International Institutions. Some of them are mentioned below:

- Lovely Professional University bagged an Erasmus+ Capacity building in Higher Education project by the name of Sport and Physical Education as a vehicle for inclusion and recognition in India, Indonesia and Sri Lanka (SPIRIT). LPU became lead university in this project among the consortium of 12 universities in India, Indonesia and Sri Lanka. LPU would be leading all universities in the project and running it along with foreign Universities.
- Lovely Professional University bagged a co-project with Cardiff Metropolitan University with the name of Entrepreneurship in Food.

International Networks: The University is a part of many international networks, like the International Student Exchange, Program (ISEP), the Institute of International Education (IIE), Asia Exchange, the Association of Common Wealth Universities (ACU), the International Association of Universities (IAU), the Accreditation Council for Business Schools and Programs (ACBSP), and the United Nations Institute for Training and Research (UNITAR). The Italian National Agency for New Technologies, Energy, and Sustainable Economic Development (ENEA), the Research Institute of Humanity and Nature (RIHN), and the Scientific-Practical Materials Research Centre of the NAS of Belarus (S&PMRC)



Lovely Professional University Signs MoU with Shanghai Vocational College of Agriculture and Forestry (SHAFC)

International Government and Non-Government MOUs and Memberships:

LPU is setting milestones by connecting the dots of education worldwide. It has tie-ups with 270+ leading overseas universities that provide multiple golden opportunities for students to study abroad. Following these MOUs, foreign partner universities ensure excellence not only in academics but also in other areas such as research conferences, training programs, summer school, counseling sessions, and many more. The dedicated members of the International Division at the University are working diligently to inspire our students to opt for desired study abroad options which include international credit transfer, semester exchange programs, summer/winter programs, and master's abroad programs at the esteemed partner foreign universities in countries like Canada, UK, USA, Australia, New Zealand, Dubai, France, and also the European countries. Hence, being graduated or post-graduated from aspired foreign University is not a hard nut to crack at LPU as 30+ leading overseas universities, such as the University of Lethbridge, Canada; University of Buffalo, USA; Teesside University, UK; Curtin University, Australia, The University of Architecture, Civil Engineering & Geodesy (UACEG), Bulgaria; University of Nantes, France; Vytautas Magnus University, Lithuania;

Massey University, New Zealand welcome LPU students from various domains to attain excellence in their academics as well as real life.

To provide students with international academic exposure university has successfully alliance with prestigious international agencies such as:

- **ISEP (International Student Exchange Program)**
- **German Varsity**
- **UNITAR (United Nations Institute for training and research), Switzerland**
- **Asia Exchange, Finland**
- **Alliance Francaise, France**
- **Scientific-Practical Materials Research Centre of NAS of Belarus**
- **Education, Audiovisual and Culture Executive Agency (Under European Commission)**

Research Partnerships: LPU has created a rich research environment that fosters innovation, and inspires the faculty and students to undertake focused research, making it one of the leading research-intensive universities in India and the world. The university encourages hypothesis inception, testing, and smooth execution of research projects, and has state-of-the-art facilities for researchers to engage in world-class research and development.

LPU is a hotspot for research, innovation, and knowledge creation. The Division of Research and Development (DRD) was established at LPU with an aim to strengthen and support research in STEM, Humanities, and Management with a strong emphasis on interdisciplinary research and innovation by fostering well-equipped labs and cultivating a strong culture of inter-and intra-institution research collaborations. In a very short span of time, Lovely Professional University has received grants worth millions from various public and Govt. bodies. This speaks for the research strength of LPU that lies in its faculty, research scholars, students, and research focus. For encouraging and motivating faculty members to undertake quality research, this university provides financial support

Below is the list of some of the organizations with which the University has collaborated:

- Central Power Research Institute (CPRI), Ministry of Power, Government of India
- IC-IMPACTS, India-Canada Centre for Innovative Multidisciplinary Partnerships to Accelerate Community Transformation and Sustainability

- Indian Council of Social Science Research, Ministry of Human Resource Development, Government of India
- Department of Science and Technology, Ministry of Science and Technology, Government of India
- Central Council for Research in Ayurvedic Sciences, Ministry of Aayush, Government of India
- National Council for Science & Technology Communication, Department of Science and Technology, Government of India
- Indian Council of Medical Research, Department of Health Research, Ministry of Health and Family Welfare, Government of India
- Vilnius University, Lithuania
- Punjab Biodiversity Board, Punjab State Council for Science & Technology
- National Institute of Urban Affairs, Ministry of Housing and Urban Affairs, Government of India
- Indian Council of Agricultural Research, Government of India
- Ministry of Earth Sciences, Government of India
- Research and Innovation, Lakehead University
- Science and Engineering Research Board, Department of Science and Technology, Government of India
- Council of Scientific and Industrial Research, Government of India Curtin University, Australia
- Ministry of Education, Culture, Science, and Sports of Mongolia
- Erasmus+ Programme of the European Union
- Punjab State Council for Science and Technology
- Indian Space Research Organization, Department of Space, Government of India
- Education, Audio-visual and Culture Executive Agency, Co-funded by the
- Department of Science and Technology, Ministry of Science and Technology, Government of India

6. ENERGY AND CLIMATE CHANGE

The entire World's growing population is a key factor for environmental pollution and has necessitated human beings to use clean energy resources in order to protect the environment in future for its survival. The dependency on electricity generation using coal-based power plants is in practice. A concentrated effort to expand capacity in the field of clean and inexpensive energy is necessary to make the transition from the current fossil fuel-based energy system to the renewable energy-based systems of the future. The harnessing and use of solar energy are playing an important role to achieve this task worldwide. India faces twin challenges to fulfill the energy demand of its population keeping in mind global efforts to mitigate climate change. Fossil fuels dominated the twentieth century, with the twenty-first century serving as an era of transition from fossil fuels to renewable energy. The Indian government has set a goal of 500 GW of renewable energy capacity by 2030. Lovely Professional University (LPU) is likewise moving on the same path as the Government of India's ambition. LPU is committed to clean energy deployment, academic programmes, research, professional training, and consulting in the areas of renewable energy, energy-efficient buildings, energy conservation, and sustainability management.

Academic Initiatives

LOVELY PROFESSIONAL UNIVERSITY
Transforming Education Transforming India

09TH - 11TH APRIL 2021 **ThinkBIG**

INTERNATIONAL CONFERENCE ON ENERGY EFFICIENCY & ENERGY STORAGE TECHNOLOGIES

Registration link: <https://bit.ly/3cXJl08>

Prof. Dan T Major
Department of Chemistry
Bar-Ilan University, Israel

Prof. Prabesh Barpanda
Material's Research Center
IISc, Bangalore

Prof. Sourav Pal
Director
IISER, Kolkata, India

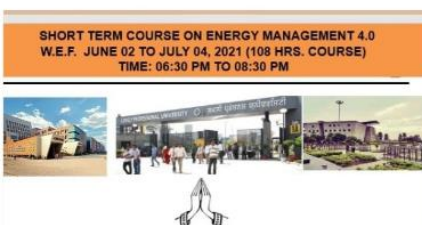
Prof. Sagar Mitra
Professor
IIT Bombay

Prof. Palani Balaya
Associate Professor
National University of Singapore

Prof. Surendra K. Martha
IIT, Hyderabad

Prof. Ali Halder
Associate professor
IIT, Delhi

The courses on green economy and sustainability namely 'Renewable Energy Systems', 'Sustainability Ecology and Landscape', and 'Sustainability and Energy Efficiency' have been incorporated into the curriculum of undergraduate programs wherein the live project is an integral component of these courses respectively. LPU is devoted to increasing the usage of clean energy sources and is now working on a number of small-scale sustainable power projects as well as extensively promoting green energy. Various companies awarded the University's faculty member project totaling Rs. 59.15 lakhs. Also, the university signed MOU with CSIR-AMPRI, for students to convert 'Waste into Wealth' and various campus engagement activities organized in the year 2020-2021.



Home > HRD > Short Term Course on Energy Management 4.0 organized by LPU in association...

HRD

Short Term Course on Energy Management 4.0 organized by LPU in association with ENEA

By The Happenings Team - July 15, 2021 140 0

Solar Power Plant

The University's commitment to guidelines contributes to the United Nations' sustainable development goals, and it's worth noting that in 2018, the University erected a 1.1 MW rooftop solar PV plant. In the year 2021, total solar electricity generation is expected to be 1.39 million kWh, saving 1271 tonnes of CO₂. Not only has the university lowered the total power use by 15941400 kWh (reduced by 74.15%), but it has also boosted the university's renewable generation by 97074 kWh (increment of 7.49%), while the university's conventional energy consumption has decreased by 15844325.8 kWh (reduced by 73.71%). Currently, 5.1 MW of Solar Power Plant is installed in university



A view of Rooftop Solar PV Plant

Solar Irrigation System:

The University installed three solar-powered irrigation systems. Each unit has a five-horsepower capacity. These motors are used in drip irrigation systems to irrigate orchards. This system is extremely efficient in terms of reducing water loss and making efficient use of energy and water resources.



Centralized Chiller Plant:

The University replaced split and window air conditioners in administrative buildings with a 265 TR centralized chiller water-based cooling system. When compared to conventional air conditioners, the new system uses 40% less electricity. The university has a strategy for lowering energy usage by

scheduling the running duration of air conditioning devices during the day and during peak summer months.



Vermicompost: It is nothing but the excreta of the earthworms which is rich in humus. In situ preparation of vermicompost is done in various parks by “Pit / Tank Method”. In this method layers of cow dung slurry and dried & chopped green wastes are dumped with scientific specifications of 1:3 proportion of layers in a pit or a tank. Earthworms are then released in the tank and allowed to feed on the matter for a period of 60-80 days with a regular sprinkling of water.



Recycling of Agro waste into compost

Amphitheatre:

The University has 3 amphitheatres of different capacities to conserve energy by organizing cultural events, competitions and plays in natural light. The university is committed to increasing its numbers in the future.



Energy-Efficient Building:

In an era of smart cities, sustainable buildings and contemporary interiors, University designed an energy-efficient building with specialized architects. They have also trained our students to become lateral thinkers by focusing on the critical design approach. With exposure to an international environment, and access to the latest tools, software, and technology, our students also become architects that create buildings and infrastructure that are globally acknowledged. Due to the incorporation of energy-efficient building strategies, the energy consumption density of the LPU buildings is much lower than a 5-star rated building by the Bureau of Energy Efficiency, Government of India.



Energy-Efficient Building - Academic & Administrative Blocks

Energy efficiency plan to reduce energy consumption:

To reduce energy consumption at the university level, University has well-defined guidelines to be followed in the university. University has also taken various initiatives to reduce energy consumption which are listed below.

A. The conventional lights have been replaced with LED lights at locations where the working hours are high.



LED-based street lighting

B. High power consumption and low efficient lights like mercury vapour lamp were replaced by sodium vapour and metal halide-based lamps.

C. The star-rated equipment is used to boost the energy savings, 43% of the total air conditioners installed in the campus are star rated. The regular maintenance of the air conditioners is being done to ensure maximum efficiency.



Star rated Ac's



D. **Energy-efficient Lifts** of make M/s OTIS are used which have Re-Gen drive to enhance energy savings up to 75% as compared to the conventional models. 53 out of 83 lifts installed in the campus have a regenerative braking system.

E. For the awareness of end-users, stickers are pasted near the switchboard for the conservation of energy and all the users are regularly guided not to miss use the electricity.



Well labeled switchboards

F. For energy conservation, 50 percent of street lights are turned off at 10:00 p.m., and another 30 percent are turned off at 12:00 a.m.

G. Majority of the students in the campus rely on eco-friendly public transport.

H. The bicycle facility is available inside the campus area. Nearly 600 bicycles have been made available to students at 15+ stands across the campus which is shared by nearly 4000 students per day.



I. To maintain the proper discipline and traffic system inside the campus the University has multiple parking areas.

J. University promotes vehicle pooling transportation. The majority of faculties and staff members follow the carpooling system to come university campus.

Green transportation:

Solar power bus and battery-operated e-rickshaw in the campus are operating since 2017. 22 e-rickshaws service connecting its major buildings, departments, hostels for students and faculty members. Nearly 100 Km mileage is giving by each e-rickshaw. In this way, the university strives to combat the detrimental carbon-emitting conventional fuel vehicles and helping towards the improvement of air quality at the micro-level.



Green house at LPU



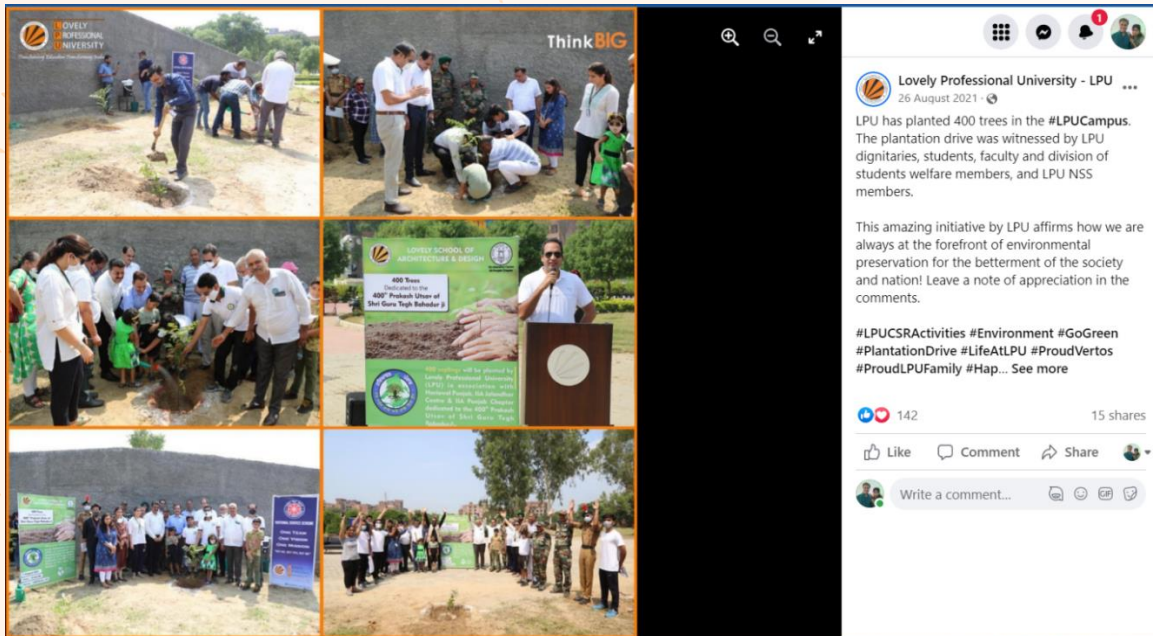
Polyhouse is a type of greenhouse where specialized polythene sheet is used as a covering material under which the crops can be grown in partially or fully controlled climatic conditions. Traditionally, the greenhouses were constructed on wooden frames where the glass was used as a cladding material.





Hi-tech Poly houses at LPU

EVENTS 2020-21



Tree Plantation Drive



World Bicycle Day

INNOVATIONS

LOVELYWORLD 03

• Vol-02 • Iss-01 • 15 June 2021

FORBES FEATURES 'FLYING FARMER'
 A drone for pesticide treatment, it enables farmers to detect weeds and pesticide treatment required

In a coverage by 'Forbes India' on the 'Innovations built to help farmers,' the novel invention of Vertos, the 'Flying Farmer,' got featured. It's not the first time that Vertos have come up with their unique innovations, now and again, LPU continues to achieve fame for its novelties that contribute to society.

FLYING FARMER
A drone for pesticide treatment developed by 45 students and 5 faculties at LPU is a unique approach that enables farmer to detect weeds and pesticide treatment required. These pre-programmed drones may further target particular areas on the field and spray pesticides, resulting in 85% pesticide

The Flying Farmer is a wireless and sensor-like drone machine used for yield and biomass mapping and surveying

preservation. Currently, in the testing phase, the drones have an air time of 25 minutes. And are programmed with machine vision algorithms and infrared sensors, which can also detect the precise location of weeds and send information promptly to the farmer.

AI-BASED INTERFACE TO DETECT COVID-19 FROM X-RAYS

Researchers at LPU have developed an easy-to-use cloud-based web interface powered by artificial intelligence (AI), which can

Flying Farmer



LPU Distance Education

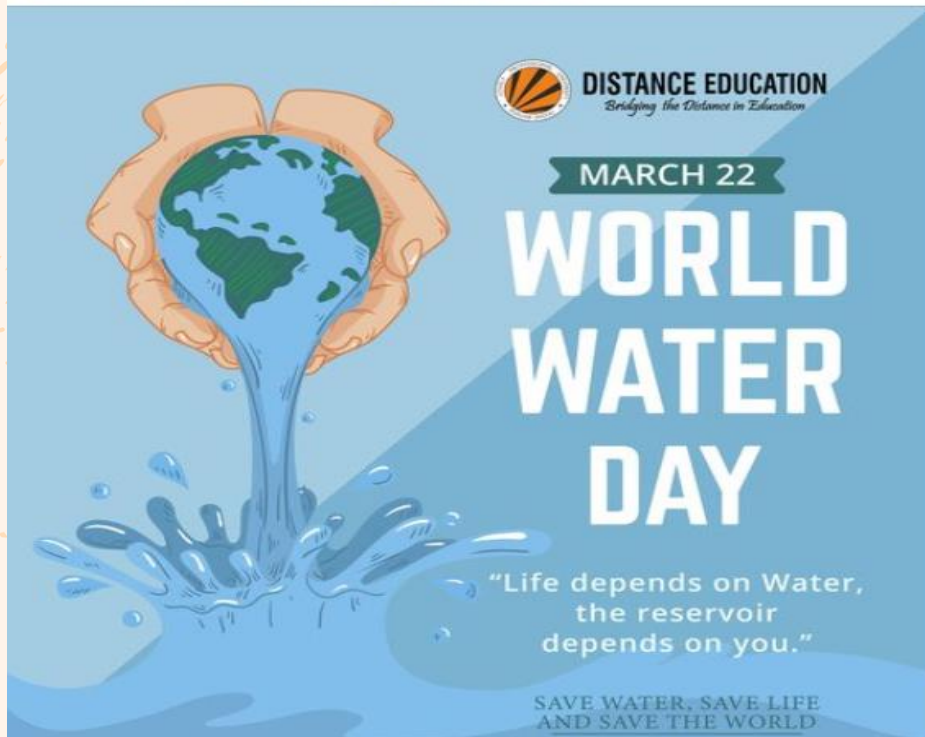
March 22, 2021

#WorldWaterDay

World Water Day is an annual observance day held on 22th March that highlights the importance of fresh water. The day is used to advocate for the sustainable management of freshwater resources. The theme of each day focuses on topics relevant to clean water, sanitation and hygiene.

"Don't let the water run in the sink, our life's on the brink."

#savetheforests #earth #enviroment #globalwarming #helpearth #everydayclimatechange #environment #environmentalprotection #worldwaterday #waterislife #weareallresponsible #worldwaterday2021 #actnow #globalgoals #climateaction



World Water Day

Live webinar on Role of Wastewater on Sustainable Solutions and Policy Recommendation

By **Diotima Bhattacharya** - March 20, 2021 389 0



The **AMI-LPU unit**, Department of Microbiology, **School of Bioengineering and Biosciences**, organized a live webinar on **Role of Wastewater on Sustainable Solutions and Policy Recommendation** today. With the **Resource person Dr. Justin Samuel**, Assistant Professor, Department of Microbiology, this session was coordinated by **Dr. Gurmeen Rakhra**, Assistant Professor, Department of Biochemistry. Established in 2018, the AMI-LPU unit has annual members counting up to 80 with 28 live members.

Dr. Justin Samuel holds a **Ph.D. in Microbiology**, has been working as Assistant Professor at the School of Bioengineering and Biosciences, LPU for quite a long time. He focuses his research on **Water Valorization, Toxicology, Sustainable Technology, Wastewater reuse, Microplastic pollution, and nanoplastics**. He has written more than 20 articles and is a reviewer of **high-impact factor journals** and owns chapters in publication houses as well.

Here, I will share some of the key points from the webinar:

What is waste-water and what does it contain?

While introducing the topic, Dr. Samuel explained how different people have different perspectives of wastewater. So collectively, it is defined as the combination of domestic effluents having black and grey water; industrial effluents and commercial establishment's

Featured



A Neoteric Human
January 6, 2018



LPU organized COVID-19 Vaccination Drive at its Campus
April 6, 2021



Welcome to one of the largest and safest Hostels in the...
August 2, 2022



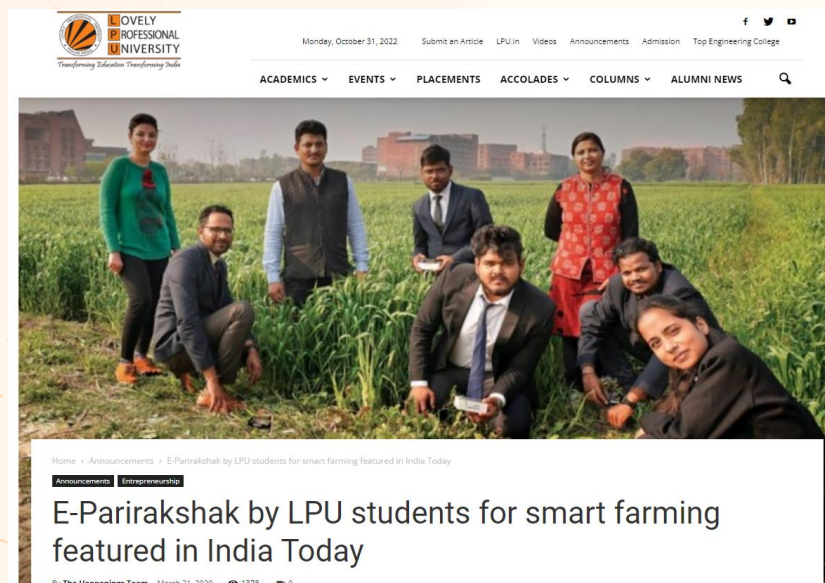
Youth Talk: NCC Adl. DG Maj Gen Rajiv Chhibber visited...
August 18, 2022



"Fortune favours the brave" Abhishek Singh
October 8, 2022



Lord Dr Diljit Singh Rana applauded LPU's mammoth educational endeavours
October 10, 2022



Smart Farming

7. USE OF TECHNOLOGY

In the pursuit to maintain Sustainable Development and up the ante in educational resources vis-à-vis technology, Lovely Professional University has categorically scaled new heights in embracing technology within the campus. Lovely Professional University is always in forefront to help the country to achieve the sustainable development goals not only in planning and dissemination of information among different stake holders regarding the importance of food but also in the production of high yielding seeds in the department of agricultural sciences. At the same time the university believes in low waste production especially in food resources in this direction by reducing the wastage of food in the hostels. In addition to the above initiatives, the faculty of Lovely Professional University is contributing through Research publications and Patents. More than 100 Research Papers has been published on Zero Hunger and many patents are published. Few of the published patents are given below:

- An IOT-Based Real-Time Platter Weight Analysis for Food Wastage Management
- A Virus Disinfecting System for Food
- A Customized Device for Fermentation of Food
- A Novel Tiffin Box for Food Freshness
- An Instant Food and Process Thereof
- Artificial Intelligence Based System for Monitoring the Hygiene Level of Food-Processing Facility
- Food Packaging Disposal Waste Segregation Machine
- An Apparatus for Sorting Agricultural Products
- An Iot Based Real-Time Smart Fencing System for Agricultural Fields
- Iot Based Solar Powered Agricultural Dyer System
- Smart Surveillance System for Water Distribution In Agriculture Field

Biogas Plant:

Organic waste can be collected and used to make biogas, a renewable source of energy, to minimize greenhouse gas emissions and the danger of pollution to rivers. Biogas is made up of about 50% to 70% methane, 30% to 40% carbon dioxide, and trace amounts of other gases. In this regard, the University has three 3-cubic-meter biogas systems in operation across campus which processes and treats kitchen waste.



Creating Rain water harvesting trenches: In order to raise the water table in the Lovely Professional University, there are more than 35 Rain water harvesting Tanks for rain water harvest from roads, walkways, roof terrace, road sides etc. In addition, there are trenches/chambers by the roadside with piping system so that the rain water can be trapped to Rain Water harvesting tanks through these trenches which are inter-connected with each other.



In House Waste Water Treatment

University has made dedicated efforts towards the provision of fresh water facilities as well as the treatment of water. University has provided 3 Sewage Treatment Plants (STPs) for the treatment of waste water generated from the Campus which is collected into the main Sewage Treatment Plant (STP) i.e. 5 MLD (50 lakh liter) for treatment. There is a network of water pipes to ensure that the sewage from all the Blocks/Labs/Hostels/Cafes/ Canteens/Residential flats/Laundries etc. which is directed to the Sewage Treatment Plant for further treatment. This treated water is supplied, for horticulture purpose, across the University through a 9-inch Diameter and more than 1-Kilometer-long pipeline laid in the university. The water is then used by the Karnal Technology for irrigation and horticulture purposes i.e. watering the plants (Eucalyptus, etc.) and vegetation in the campus through number of tributaries from the pipeline. In addition to this, treated water is used for flushing in the toilets in Block-38. Thus, the University ensures the proper use as well as less wastage of water. The sludge obtained after water treatment is used as manure in horticulture. Another small capacity STP of 10 KLD (10,000 litres) is provided in the Main University Play grounds and additional 10 KLD (10,000 litres) is available at Agriculture farmland. This helps in reducing the wastage of water as well as helps in efficient use of treated water. The plant are authorized by Punjab Pollution Control Board for discharge of effluent(s) under Water (Prevention and Control of Pollution) Act, 1974 and under Air (Prevention and Control of Pollution) Act, 1981.

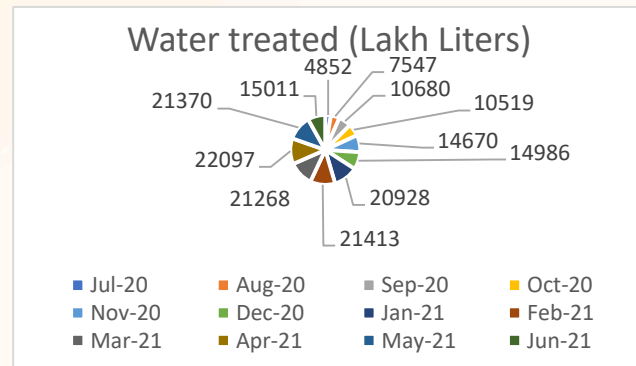
Furthermore, treated water from 5 MLD Sewage Treatment Plant has proper utilization by storing it in overhead tanks for drip irrigation, horticulture and agriculture, polyhouse farming etc. making campus quite an oasis which is healthy, pleasing to eyes and one that inspires concentration and creativity. To ensure the prevention of entry of polluted water to university water system, loft tanks are installed at the waste water outlets, as per BMW-2016 guidelines, for the primary treatment of water using hypo solution.



5 MLD Sewage Treatment Plant at LPU



Loft water tank for pretreatment of



STP treated water analysis for 2020-21

8. CONCLUSION AND FUTURE PLANS

The Sustainable Development Goals (SDGs) are a collection of 17 interlinked global goals designed to be a "shared blueprint for peace and prosperity for people and the planet, now and into the future". The SDGs emphasize the interconnected environmental, social and economic aspects of sustainable development, by putting sustainability at their center.

Conclusion

Lovely Professional University believes that no human should suffer at the hands of poverty. Every student should be able to have education, and no one should be left to get this necessity because of financial constraints. Therefore, LPU takes various kinds of initiatives to eradicate poverty. LPU not only provides help to students to be skillful enough to get good job but also offers various part time jobs so that they can earn while learn. Scholarships can be availed across a wide array of programmes ranging from Undergraduate to Ph.D. Study Grant is also available which can be availed by students. LPU helps students become entrepreneurs, own start-ups and ventures.

Nature has provided food for all but the increased population and changes in consumption patterns has put a pressure on environment adding the need to produce more food to give food and nutritional security. To reduce the rate of hunger in the country, LPU is actively contributing to end the hunger, achieve food security with improved nutrition and sustainable agriculture. The university believes in low waste production especially in food resources in this direction by reducing the wastage of food in the hostels. The university is organizing the conferences, workshops, seminars, workshops, training programs for different stakeholders. Meaningful research papers and 50 patents have been published on Zero Hunger and above 570 citations in Scopus on platter weight analysis, virus disinfecting systems, monitoring of hygienic level of food processing facility, food packaging disposal waste segregation machine, process for recycling tea and coffee waste are published. Agriculture and nutrition related programmes are offered to address the issue.

The health and well-being of not only LPU students, faculty, and staff but also of local community is the top priority of University. Health and well-being comprise physical health, psychological and emotional stability, and social engagement. LPU has state of the art sports and medical facilities that offers students, staff and the general public access to high quality facilities and services including a Uni-hospital, physiotherapy center, counseling and happiness cell, fitness center, personal training, swimming pool, gym, courts for different sports and play fields.

According to the National Institutional Ranking Framework 2021 (NIRF), Government of India, LPU has been placed among the top 50 institutions in India. The academic excellence of the university is a by-product of the quality education that is provided by the institution. This quality education is the result of intelligent efforts made in the area of "Quality in Curriculum." These efforts include stakeholder participation, pedagogy, evaluation, experiential learning, students-centered method of learning, participatory learning, skill enhancement, and course enrichment. In the academic year 2020-2021, amid of pandemic many online and offline events, guest lectures, workshops, MOU's, and entrepreneurship development programmes were organized by LPU in conjunction with great visionaries. Industry experts and business leaders through guest lectures inspire students to remain motivated and focused on their careers.

As a community, LPU has been working towards ensuring gender equality through appropriate policies, processes, programs and protocols. The University ensures equal opportunities for staff recruitment, promotion to leadership positions, career growth and professional development. Students have an equal opportunity of being selected in academic programs, represent in student committees, lead student entrepreneurial ventures, host literary, cultural and sports events and campus placements.

The pandemic crisis which challenged the world had made the significance of sanitation and need of better health facilities clear along with emphasizing that the availability of clean water is a blessing. Lovely Professional University has contributed in the efforts by initiating integrated efforts to ensure adequate infrastructure with minimum wastage of clean water. The automatic sensor-based urinal pot, semi-automatic minimum water usage push button taps, two button toilet flush water tanks, water saving spray jet nozzles etc. for providing sufficient water facilities. Comprehensive and continuous efforts are made by the university to facilitate safe and free supply of drinking water for all including students, staff and visitors. Apart from various initiatives in-campus, LPU focused towards holistic approach through academics too.

LPU is dedicated to resource conservation and sustainability. As a result, 115 courses for undergraduate, postgraduate, and research studies programmes have been embedded by the university. More than 8000 students are the beneficiary of these courses/programs. LPU is committed to clean energy deployment, academic programmes, research, professional training, and consulting in the areas of renewable energy, energy-efficient buildings, energy conservation, and sustainability management. The university has 5.1 MW solar power plants and an energy performance index of 33.42

kWh/m²/year. The consumption is much lower than a 5-star rated building as per Bureau of Energy Efficiency, Government of India. Continuous power supply is ensured in the campus through 66 KV sub-station available within the campus.

In order to improve the quality of work life for all of its stakeholders, LPU adopted a multi-pronged strategy of innovation, collaboration, and continuous improvement in the years 2020–21. This was done in response to the call to action for promoting sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all. 1850 courses promoting decent work and economic growth as a part of the curricula of Science, Technology, Engineering and Mathematics (STEM), Business Management, Agriculture, Design Thinking, Liberal Arts and Humanities. Also, several International Conferences on diverse themes with the overarching goal of promoting scientific development, enhancing the quality of human life and propelling economic growth in a pandemic affected world.

Lovely Professional University is committed to foster innovation to support sustainable industrialization and to build resilient infrastructure. The commitment is well reflected in the research areas identified, academic initiatives taken and activities upheld to develop the culture of ideating and innovation in the campus. Keeping in mind, the intent behind SDG 9 of 3i – infrastructure, industrialization & innovation, LPU focuses on the approach for driving innovation process within, not only to “do the things right” but also to "do the right things right", to achieve visible and tangible outcomes. The university not only strives to build capacity and diversity in STEM disciplines as part of its premier research agenda through collaborative networking and interdisciplinary research related to innovative pedagogy and cutting-edge educational practices and programmes but also has collaborated with top companies for providing its students with industry exposure.

Due to the power of diversity, LPU is dedicated to eradicating inequality in all areas and making sure that no one is left behind. Every effort is made by LPU to prevent any form of discriminatory practices and to give all of its students, employees, and visitors—regardless of their backgrounds, ethnicities, or special abilities—equal chances to succeed on all fronts. Our educational system and research endeavors are very much in line with SDG 10, or decreasing disparities. Lessening inequalities is a sustainable development aim that can be achieved with the kind of curricula and educational practices that LPU has embraced. University has policies that are well aligned with the SDGs and are meaningful to achieve these goals.

The university has its one of the most beautiful campus in India which incorporates sustainable and safe departmental buildings, sports complex, auditoriums, markets and a mall along with lush green belts at every nook, safe and comfortable pathways for the pedestrians and roads for the smooth movement of the vehicles during the campus. LPU is home to enriched artwork galleries, departmental and central libraries and different buildings with beautiful artwork effects such as sculptures, painting, installations and work of art. It may not be out of place to mention that the role of LPU in maintaining the heat balance of the entire area is poignant. The university has built and maintained the regulators of sustainable development and it has a committed framework of regulations, implementations and processes through which we extend this history to a wider community. LPU as a campus is the real reflection of the commitment towards developing sustainable cities.

Nature has provided with abundant of resources but the unwise utilization of resources has resulted in depletion of resources. We need to learn how to utilize and produce in more sustainable ways so that we can undo the damage we've done to the earth. For achieving sustainable development goal LPU emphasizes responsible consumption through its policies related to ethical sourcing of raw material from local suppliers, waste disposal mechanism, no plastic usage, reduction in disposable items, recycling used water etc.

Over the past few decades, the climatic shift has attracted attention on a global scale. Numerous interconnected issues, including pollution, plastics, e-waste, carbon emissions (global warming), natural disasters, socioeconomic barriers, conventional farming methods, and others, are making a direct or indirect contribution to it. LPU is an organization that understands the importance of the person and society in addressing climate change. Through a variety of intellectual, social, and economic efforts, University is making every effort to conserve the environment. LPU Students designed and built a solar car that claims to do away with costly fuel options and promises the 'highest mileage on solar energy'. It is completely pollution free. E-rickshaws are being used within the campus as a means of public transport. The university has steadily increased its use of renewable energy, which has grown from 1.1 MW to 5.1 MW. This is further supported by the installation of star-rated products, the replacement of conventional lighting with LED, and many such initiatives which leads to reduction in greenhouse gas emissions to atmosphere.

Water is extremely precious. Sustenance of different life forms depends upon the purity and contamination free status of water. LPU as a major educational institution takes every step to reduce

this burden. It involves plethora of steps ranging from utilization of advance technology in reducing its waste water, harvesting of rain water, to raising awareness campaigns among students and educating common population. LPU supports research in the field of life below water and research is carried out in this relevant field by faculty and students. Students have carried out more than 300 water related projects in the field microbiology, environmental sciences, civil engineering, soil engineering, nanotechnology and geology. Seminars on the topic such as water quality causes and cures for depletion of ground water, contamination in underground water are an important part of the teaching & learning process. Water treatment technologies include removal of pollutants from the aquatic environment to reduce the toxicity on the aquatic flora and fauna. A team of LPU researchers in collaboration with McGill and Guelph University Canada, continuously working on process involved in improving the technologies for the development of system.

Any damage to our ecosystem increases the risk to our society's survival and wellbeing. Hence, conservation efforts are essential and urgent. In order to achieve this goal, LPU has implemented a number of initiatives to promote sustainability in agricultural practices, biodiversity protection and preservation, and natural resource management, among other things. It's a wonderful illustration of our dedication to research and development, education, and the building of a cooperative ecosystem encompassing local, state, and federal partners. Crop museum, Seed museum, orchid's trees, newer flowering plants and other varieties which attracts a lot of birds, butterflies, and other life forms.

The foundation for sustainable development is the formulation of a comprehensive strategy for attaining sustainable development for all, together with peace, stability, strong institutions, efficient rule-of-law governance, and maintaining the values of equality, human rights, and justice. By planning a wide range of activities in 2020-2021, LPU an educational powerhouse, demonstrates its dedication to and focus on fostering non-violence, peace, justice, and collaboration among all facets of our society. These activities are intended to help students become more deeply committed to improving the world in which they live.

The University builds and enhances valuable relationships and partnerships with other governmental and non-governmental institutions, universities, companies, NGOs, recruiters, parents, alumni, staff & society, recognizing the significant role they play in the success of the University. University comprehends and endorses the requirement of maintaining congenial alliance and collaborations to address sustainability concerns worldwide. LPU works in proximity with public and

private sectors, NGOs, charities and research organizations in order to formulate productive liaison vis-à-vis sustainable development. The varsity showcases its perseverance in nourishing the civic and social responsibilities pertaining to higher education and emphasizes on playing an instrumental role through various teaching, research and engagement-oriented activities. To achieve its objective, the University is determined to forge myriad international collaborations to address local, national and international concerns.

It can be concluded that Lovely Professional University has aligned all its activities with the United Nations Sustainable Development Goals and has visualized its achievement by 2030. Every faculty, staff and student is made aware of these SDGs and its importance. In addition to this, the University has extension and outreach activities aligned with UN SDGs so that benefits can be transferred to neighbouring communities to achieve these goals. Further, University has recently put its focus on research in the area of SDGs which is improving over the years. Policies are well aligned with the SDGs and collaborations are meaningful to achieve these goals by joining hand with various government, non-government organizations, industries, academic & research institutes and other stakeholders.

Future Plans

- LPU firmly believes that “If the poor student cannot come to education, education must go to them”. Keeping this in view, there is a need to create more affordable education and learning opportunities for learners, especially the economically weaker and marginalized sections of society. This can be achieved through life skill workshops, skill training apps and conducting in campus trainings.
- To end hunger and ensure safe, nutritious and sufficient food access to all the poor people in vulnerable situation.
- To enhance the participation in rural infrastructure, agricultural research and extension services, technology development and plant and livestock genetic banks.
- Enhance mental well-being of students by organizing workshops on developing grit, emotional and mental resilience.
- Improving happiness index of students and staff through workshops and training programs.
- Opening of more physiotherapy OPDs in nearby areas.

- For making India and the world a better place in terms of quality education, LPU will continue its initiatives like executive development programmes, extension and outreach activities such as adoption of slums and villages, arranging some development programmes for nearby villages related to new techniques in farming are directed at eradicating poverty through quality education.
- The University commits to undertake research and community development projects focused on furthering gender equality and addressing issues such as protection of women's rights, gender inclusive workplace, breaking the glass ceiling, addressing the issues of domestic violence, honour killings, misogyny through community development projects and research work.
- To minimize the wastage of water within campus. Ensure more water harvesting methods within the campus. Increasing the STP water treatment capacity.
- Support and strengthen the participation of local communities in improving water and sanitation management.
- Updation of existing infrastructure into the energy-efficient green buildings.
- Identification of essential and non-essential operation.
- Promotion of 100% technology-driven green commuting system within the campus.
- Collaboration with NGOs, guidelines organisations and research organisations to explore the dynamics, issues and logistics of developing green and sustainable energy sources.
- Creepers vertical greening strategies for saving energy and reduction of urban heat island effects.
- Focus on enhancing the reach of human resource development interventions, additional measures for enhancing well-being and happiness, further development of research facilities and infrastructure, higher quality of job offers to students, promoting on-campus start-ups, entrepreneurships.
- Future research projects and live projects will be focused on solving the upcoming challenges, like energy markets, resource and environment markets, and transport economics, with the focus on sustainable development goals.
- Development of special labs, accomodation rooms, for disabled students.
- In order to advance gender equality and address issues like domestic abuse, honour killings, misogyny, the preservation and protection of women's rights, among others, the university pledges to engage in research and community development initiatives.
- Make campus more environmentally friendly through necessary discussions with the local government, with net zero carbon foot print.

- Encouragement in the preservation of the unique art and culture of the university and to give more importance to the local cultural features.
- To substantially reduce waste generation through prevention, reduction, recycling and reuse
- To reduce per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains
- To ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.
- Reduction the use of conventional energy resources by 30%
- Identification of essential and non-essential operation
- Promotion of 100% technology-driven green commuting system within the campus.
- Efficient management and conservation of water resources by 25%
- Improving water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials would be in sharp focus.
- Lovely Professional University is striving to promote the extension of existing ecosystems and their biodiversity by plantation of nearly 10,000 plants on the campus.
- An effort will be made to spread awareness among local and national communities by introducing online/offline courses on green economy in practice under the European funded project entitled “Enhancing green economy in 3 countries of Asia”.
- In accordance with domestic law and international agreements, guarantee public access to information and preserve fundamental freedoms.
- Encourage the national rule of law and make sure that everyone has access to justice.
- The university intends to open a multi-disciplinary incubation centre to provide research, policy analysis, and educational programs to help business and government confront energy issues of national significance.
- Future research projects and live projects will be focused on upcoming challenges like energy markets, resource and environment markets, and transport economics.

9. LINK TO SDG WISE ANNUAL REPORT

Sustainable Development Goal	Web Link to SDG Report
SDG01: No Poverty	https://www.lpu.in/sustainable/doc/1/report.pdf
SDG02: Zero Hunger	https://www.lpu.in/sustainable/doc/2/report.pdf
SDG03: Good Health and Well Being	https://www.lpu.in/sustainable/doc/3/report.pdf
SDG04: Quality Education	https://www.lpu.in/sustainable/doc/4/report.pdf
SDG05: Gender Equality	https://www.lpu.in/sustainable/doc/5/report.pdf
SDG06: Clean Water and Sanitation	https://www.lpu.in/sustainable/doc/6/report.pdf
SDG07: Affordable and Clean Energy	https://www.lpu.in/sustainable/doc/7/report.pdf
SDG08: Decent Work and Economic Growth	https://www.lpu.in/sustainable/doc/8/report.pdf
SDG09: Industry Innovation and Infrastructure	https://www.lpu.in/sustainable/doc/9/Report.pdf
SDG10: Reduced Inequalities	https://www.lpu.in/sustainable/doc/10/report.pdf
SDG11: Sustainable Cities and Communities	https://www.lpu.in/sustainable/doc/11/report.pdf
SDG12: Responsible Consumption and Production	https://www.lpu.in/sustainable/doc/12/report.pdf
SDG13: Climate Action	https://www.lpu.in/sustainable/doc/13/report.pdf
SDG14: Life Below Water	https://www.lpu.in/sustainable/doc/14/report.pdf
SDG15: Life on Land	https://www.lpu.in/sustainable/doc/15/report.pdf
SDG16: Peace Justice and Strong Institutions	https://www.lpu.in/sustainable/doc/16/report.pdf
SDG17: Partnerships for the Goals	https://www.lpu.in/sustainable/doc/17/report.pdf



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