

NED UNIVERSITY SUSTAINABILITY REPORT - 2018

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PREFACE

This is the first sustainability report published by the University with the aim to report on progress in the commitment of the University to sustainable development covering the breadth of contribution that NED University makes to the sustainable development agenda. NED University has explored to enhance its impact on sustainability in many and various ways including campus infrastructure and setting, institutional policies and strategies, curriculum, and community engagement. The report outlines key achievements, summarizes performance and provides detailed evidence and data, with reference to published documentation where appropriate. The report also highlights the diverse sustainability initiatives in progress across the campus and looks ahead to those planned for 2019 onwards.

The Honorable Vice Chancellor of the NED University has taken the lead in transforming the Main Campus of the University into a 'live lab' working towards a sustainable and ultimately first carbon neutral engineering university campus of Pakistan. He himself chairs a variety of University forums to address challenges and monitor the progress of all the activities related to sustainability. The NED University has taken up the responsibility in leading the Higher Education Institutions of Pakistan in becoming the sustainable campus sites and host academic and research activities for the local and international industries and municipalities working towards the establishment of a sustainable future for us all.

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1. VISION

Be a leader in enabling Pakistan's social and economic transformation.

2. MISSION

Acquire education and research excellence in engineering and allied disciplines to produce leadership and enabling application of knowledge and skills for the benefit of the society with integrity and wisdom.

3. QUALITY POLICY

NED University of Engineering and Technology believes in establishing environment conducive to continual improvement its efforts for providing the highest-level quality education.

The University is making all out efforts to raise its standards through teaching excellence and quality research. These efforts are carried out with involvement of the entire university work force – to obtain utmost possible satisfaction of its customer.

Our endeavors are to make our students useful to the society in particular and to humanity in general. In dealings with industry and utilities, attempts are made to maintain standards of integrity as well as quality.

4. NED UNIVERSITY CARBON NEUTRAL INITIATIVE

NED University is the oldest institution and one of the leading engineering universities of Pakistan. On February 12, 2018, the worthy Vice Chancellor of NED University **Dr. Sarosh H. Lodi** has signed the **Talloires Declaration** to become Carbon Neutral Campus and brought Pakistan as a member of Talloires Signatory List. As an institution of higher education, concerned about the state of the world environment and the advancement of sustainable development, NED University shall strive to promote actions that will achieve a sustainable future. By signing the Talloires Declaration, a university agrees to Increase Awareness of Environmentally Sustainable Development, Create an Institutional Culture of Sustainability, Educate for Environmentally Responsible Citizenship, Foster Environmental Literacy for All, Practice Institutional Ecology, Involve all Stakeholders, Collaborate for Interdisciplinary Approaches, Enhance Capacity of Primary and Secondary Schools, Broaden Service and Outreach Nationally and Internationally, and Maintain the Movement.

More than ever, our world is facing the challenges of climate change and sustainability. The future of our existence is at stake. NED University has taken this initiative to bring together professionals in academia and research, practicing and consulting engineers/ architects, construction and energy industry professionals, public and private sector managers, builders, policy makers, assessors, certification and funding bodies and government officials concerned with climate change and sustainability projects and programs from all over the world, for engagement and exchange of thoughts and experiences regarding the concepts of climate change, sustainability and carbon neutrality.

The term carbon neutrality generally refers to achieving a net zero carbon emission. The task of achieving carbon neutrality requires taking two parallel lines of actions.

- i. **Reducing Carbon Emission:** In order to reduce carbon emission on campus following measures need to be taken such as Creating general awareness, carbon emission studies, improving energy efficiency to reduce carbon emission related to energy generation/ making the campus green and use of renewable energy sources.
- ii. **Balancing Carbon Emission:** In order to balance carbon emission on campus following measures need to be taken such as tree plantation, optimize water use, optimize land use and turning the campus into forested campus.

NED University has started working on this initiative and several Steering Committee meetings have been organized. Active working on creating general awareness, tree plantation, waste water treatment, solar power harvesting, and efficient use of energy has been initiated. NED University aims to achieve carbon neutrality by its centennial year 2021.

5. GOOD HEALTH AND WELL-BEING

5.1 Medical Department

Medical Department is located next to Humanities Department of this University and is administered by Principal Medical Officer, accompanied by two Senior Medical Officers and One Lady Medical Officer, all are posted at main Campus. One male and two female nurses are also present in Main Campus.

Medical Sub Centre is located at each LEJ and City Campus, dispenser is available at LEJ while Female Nurse at City Campus.

There are numerous diagnostic & therapeutic modalities available free of charges for the students at the Main Campus. Emergency/routine Outpatient Department Service (OPD), Pathological, Radiological and Electrocardiographic facilities are also available. Similarly therapeutic support in the form of Airway, Breathing and Circulatory (ABC) assistance are available. Besides that Outpatient facilities are available at peripheral Medical Sub-Centers, i.e. City and LEJ Campus. However, X-Ray, Pathological Laboratory and Ambulance facility are restricted to Main Campus only.

5.2 Pedestrian Path Policy On Campus

- i. Railings and supports.
- ii. Street lamps for pedestrian in night.
- iii. Ramps and guiding blocks which have suitable design for pedestrian having physical disabilities.



Pedestrian Paths With Disability Access

6. QUALITY EDUCATION

Number of courses/modules related to environment and sustainability offered at Undergraduate Programme.

S. No.	Course Code	Course Title	Credit Hrs.	Department
1	AR-121	Introduction to Environmental Studies	3	Architecture
2	AR-221	Development Studies	3	
3	AR-231	Environmental Design and Systems-I	3	
4	AR-308	Urban Infrastructure Planning & Management	2	
5	AR-309	Architecture and Town Planning	3	
6	AR-310	Architectural Studies for Engineers	3	
7	AR-331	Environmental Design and Systems-II	3	
8	AR-361	Introduction to Architectural Conservation	3	
9	AR-381	Introduction to Landscape Architecture	3	
10	AR-403	Introduction to Interior Design	3	
11	AR-421	Urban Planning & Design	3	
12	AR-431	Environmental Design and Systems-III	3	
13	AR-521	Comprehensive Environmental Design	6	
14	CH-411	Environmental Pollution Control	3	Chemical
15	CN-418	Systems in Building Constructions	4	Construction
16	CN-421	Sustainable Technologies and Disaster Management	4	
17	CN-425	Environment Issues in Construction	4	Chemistry
18	CY-402	Environmental Chemistry	3	
19	DS-202	Theory and Practice of Development Work	4	Development
20	DS-304	Urban Development	4	
21	DS-307	Agricultural Development	3	
22	DS-406	Environmental Issues in Development	3	

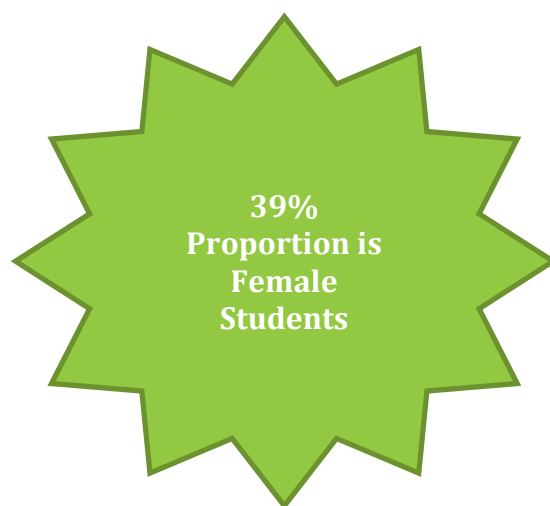
23	DS-408	Sustainability in Development	3	
24	EE-412	Alternate Energy Systems	3	Electrical
25	EF-304	Occupational Safety & Health	2	Economics
26	EN-301	Environmental Engineering - I	3	Environmental
27	EN-401	Environmental Engineering - II	3	
28	EN-402	Environmental Impact Assessment	2	
29	IM-414	Industrial Safety & Environment	3	Industrial & Manufacturing
30	IM-417	Health, Safety & Environment	3	
31	ME-424	Clean Energy Technology	3	Mechanical
32	ME-428	Health, Safety & Environment	3	
33	ME-429	Water Treatment & Desalination	3	
34	MG-451	Green Supply Chain Management	3	Management
35	PP-412	Environmental Engineering	3	Polymer & Petrochemical
36	TE-318	Textile & Environment	2	Textile
37	TE-407	Textile & Environment	3	
38	UE-320	Urban Hydrology and Municipal Engineering	3	Urban
39	UE-418	Hydraulic Engineering and Water Resources Management	3	
40	UE-421	Modern Aspects of Construction Project Management	3	
41	AR-615	Economic Development and Regional Planning	3	Architecture
42	AR-625	Statistical Methods in Planning	3	
43	CE-558	Sustainable Water Resources Management (SWRM)	3	Civil
44	CH-523	Process Safety Management	3	Chemical
45	EE-563	Energy Conservation	3	Electrical
46	EN-508	Environment Impact Assessment	3	Environmental
47	EN-515	Air Pollution and Control	3	
48	EN-516	Environmental Health	3	
49	EN-518	Sustainable Development & Appropriate Technology	3	
50	EN-520	Marine Pollution and Control	3	
51	EN-521	Special Topics in Environmental Engineering	3	
52	EN-523	Analysis of Environmental Contaminants	3	
53	EN-524	Wastewater Engineering	3	
54	EN-526	Solid Waste Management	3	
55	EN-540	Health, Safety & Environmental Management	3	
56	EN-541	Remote Sensing in Environmental Management	3	
57	ME-542	Energy Management	3	Mechanical
58	ME-545	Renewable Energy	3	
59	ME-556	Renewable Energy Systems	3	
60	ME-557	Energy Economics, Policy and Assessment	3	
61	ME-558	Energy Modelling and Forecasting	3	
62	ME-560	Energy Management and Conservation	3	
63	ME-563	Wind Energy: Design and Integration	3	
64	UE-512	Sustainable Urban Transport	3	Urban

Total number of courses offered in 2018	= 1221
Undergraduate Courses	= 868
Related to Environment & Sustainability	= 40 (4.6%)
Postgraduate Courses	= 353
Related to Environment & Sustainability	= 24 (6.8%)
Total courses related to Environment & Sustainability	= 64 (5.24%)

7. GENDER EQUALITY

7.1 Undergraduate Admissions

A total of 2393 candidates succeeded in securing admissions in undergraduate programmes at NED University after qualifying the entry test conducted by NED University or Higher Education Commission (HEC). A healthy 39% proportion is female students qualified for admission this year.



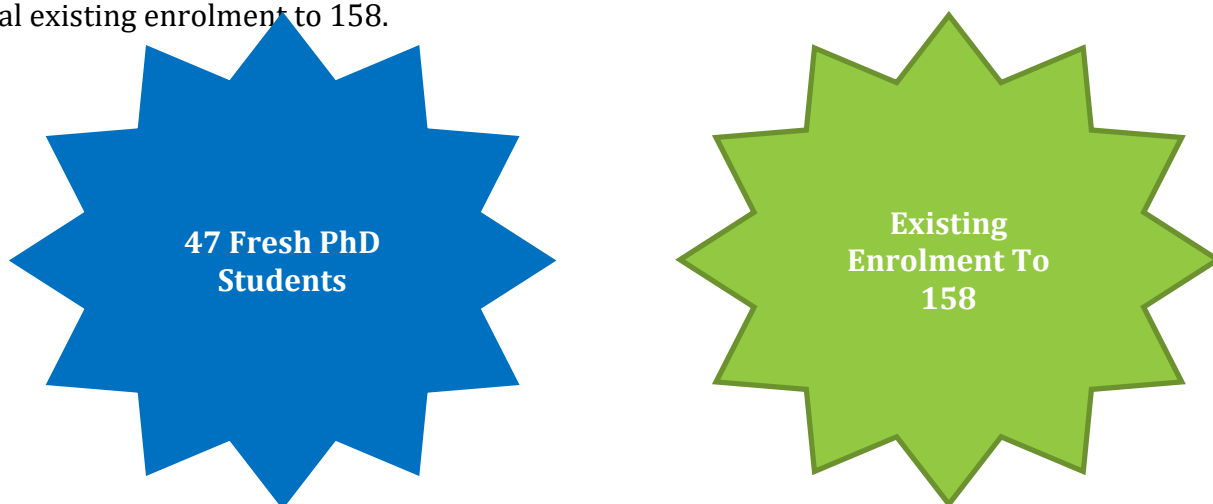
7.2 Masters Admissions

Due to shift in the academic calendar of the university, two postgraduate batches were admitted this year. A total of 1753 students were admitted in various programmes out of which 1033 were admitted in Fall 2017 batch and 660 were admitted in Fall 2017-18 batch. This year intake consisted of about 23% female cohort.



7.3 PhD Admissions

A total of 47 fresh PhD students were admitted in two postgraduate intakes this year, taking total existing enrolment to 158.



8. DECENT WORK AND ECONOMIC GROWTH

8.1 Norwegian Centre of Petroleum Studies

The Norwegian Centre of Excellence in Petroleum Studies (NCEPS) is established with the cost of PKR 44.924 M in collaboration with Government of Kingdom of Norway. The Centre is the foremost facility in the country aimed to develop expertise for teaching and research in Petroleum Engineering discipline. Through the establishment of this centre a significant capacity building in teaching and research have been achieved. Four faculty members have received MS degree from NTNU, training of faculty in teaching and research at NTNU. It is strongly believed that the outcome of NCEPS will benefit the industry, the country and the region and will contribute in the improvement of the socio-economic conditions of the common people of Pakistan.

8.2 Panjwani Hisaar Water Institute

The ground breaking ceremony of the Panjwani Hisaar Water Institute at NED University was held on 4th May 2018 by the Chief Guest Mr. Muhammad Zubair, Governor Sindh. The institute is a collaborated effort of NED University, Panjwani Charitable Foundation and Hisaar Foundation. The institute will provide multidisciplinary research facility that will not be restricted to just water engineering but aims to integrate the currently isolated nodes of engineering, natural sciences, economics and social sciences to bring forth a new generation of water professionals. The institute will be home to advanced social and scientific water labs and be the hub of all cutting edge water related research which would be driven by the real world issues and hence bridge the gap between the world of academia and market demand.

8.3 National Incubation Centre, Karachi

NED University in collaboration with LMKT is hosting the National Incubation Centre; Karachi which was inaugurated the Prime Minister of Pakistan, Mr. Shahid Khaqan Abbasi on 11th May 2018. The centre will offer talented entrepreneurs and promising start-ups of Sindh quality incubation programmes, access to mentor and investor networks as well as technical resources.

9. INDUSTRY, INNOVATION AND INFRASTRUCTURE

9.1 Building Information Modeling Centre (BIM)

BIM is a state of the art Centre, which provides free service to industrialists for resolving pre-construction issues of high rise and complex structured buildings related to wind zones, emergency exits and temperature through developing visual models of the projects. The Centre is providing a platform to bring all engineers including civil, mechanical, electrical, structural and material to work together under the same umbrella while preparing building modeling using software that adds everything. This is first Centre of its kind in Pakistan established in collaboration with NED Alumni Association of Tri-State (NEDATS) with the total cost of Rs 3.5 million.

9.2 NED Virtual Reality Center (VR Center)

The NED University has recently established a state-of-the art facility for integrating virtual reality in the education, research and practice. The facility that is housed at the Department of Civil Engineering is named as “NED University Virtual Reality Center” is the first of its kind in the entire region (sub-continent). The facility houses three major system including, virtual teaming system, walking VR systems, and Projection VR system. The virtual teaming system is equipped with latest interactive panel, video conferencing and webcasting equipment and software. There are multiple walking VR systems available at the center to provide virtual immersive environment to the user specifically for VR designing, and VR based individual training, as per customized needs of the trainee. The project VR system is based on a Corner Cave-in concept that has the capability (both from software and hardware perspective) to provide a virtual-cum-immersive experience to a group of people. The center is equipped with VR designing and development software, Building Information Modeling platforms, 3D to VR transformation platforms, and VR experience software platforms etc. The center was indigenously designed for customized needs and has the capacity to be integrated and expanded towards Augmented Reality in near future.

9.3 Research Center for Artificial Intelligence (RCAI)

Research Center for Artificial Intelligence (RCAI), is an initiative towards, creating research based environment, producing professional and high quality engineers in the field of Information & Communication Technologies (ICT), and creating ways to step in the field of innovative and cost effective product design. The team has worked on variety of IoT related projects i.e., Smart irrigation & Agricultural systems for water resource management and preserving food quality, Smart home solution for efficient energy management and security purposes, Automatic secure entrance system by exploiting RCAI technology, smart health care system for monitoring oxygen concentration and heart rate of patients, and many others project related to different technologies like satellite communication, Speech processing, and Image processing.

9.4 High Performance Computing Centre (HPCC)

High Performance Computing Centre at NED University of Engineering & Technology manages high performance computational resources to address the miscellaneous computational needs. With 10 TFLOPS of computational power and various scientific software along with related expertise, the centre provides an excellent state-of-the-art R&D and business opportunities for its users.

9.5 Advanced Material Testing Facility

The Advance Material Testing laboratory is another state of the art facility. The facility is used to conduct full scale static and pseudo dynamic testing of various structural components of buildings and bridges. This facility is collection of various state of the art advance lab facilities for research and advance materials including Rapid Alloy Analysis Lab; Composite Materials Lab; Magnetic Materials Lab; Thermal Analysis Lab; Nano Materials Lab; Advanced Coatings Lab; Surface Engineering; XRD Lab; Advanced Ceramic Materials Lab; Powder Materials Characterization Lab; Advanced Materials Processing Lab; Scanning Electron Microscopy Lab and Transmission Electron Microscopy Lab.

9.6 Water Modeling Centre (WMC)

The Water Modeling Centre (WMC) was inaugurated on May 21, 2013. This Centre serves as a research institute with urge of providing better understanding of private and public water resources and management strategies. Research and outsourced projects are conducted by the team of WMC. WMC is equipped with various computer based models for performing water supply analysis flood plain mapping, drainage system design, groundwater assessment, watershed simulation, climate change, computational fluid dynamics (CFD), irrigation system design, and many more related tasks.

9.7 NED-DICE Energy Innovation Center

NED-DICE is a joint collaborative initiative of NED University of Engineering and Technology and DICE Foundation. NED-DICE provides a platform for energy related innovations and for collaboration among academia, industry, government, entrepreneurs and expatriates to integrate science, technology and policy solutions to solve pressing energy challenges faced by Pakistan. NED-DICE aims to mobilize Energy Professionals of Pakistani origin around the world, to take advantage of their expertise and experiences for growth of energy sector in Pakistan.

9.8 K Electric Lab

K-Electric has partnered with NED University to establish its Electrical Engineering lab along with the provision of integrated equipment so as to further strengthening the platform for engineering students. The Lab equipment includes modified relays, test benches, transformers and various other valuable devices used in grid stations. Moreover, separate areas for lectures and experiments have been established as well. This lab is enabling electrical engineering students to gain first-hand access to complex electrical equipment, while enhancing R&D activities in line with the utility's research driven approach.

9.9 Electronics Design Centre (EDC)

Electronics Design Centre performs cutting-edge fundamental and commercially driven research in electronic devices and circuits, radio frequency and microwave integrated circuits. Since its inception (January 2011), EDC's primary objectives have been to investigate scientific fundamentals necessary to obtain incessant improvements in ultimate miniaturization, increased functionality, enhanced bandwidth and improved efficiency. EDC has several international linkages in US, Europe and Asia pertaining to its expertise. The Centre has produced three PhDs so far, and continues to enhance NED University's reputation for quality research output. At present, EDC consists of a RF (Radio Frequency) Lab, DC

(Device Characterization) Lab, Design Tools and expertise including Sonnet, Cadence, Mentor Graphics, MicroTech (TCAD) and AWR Microwave.

9.10 Product Development Centre

This Centre is fully equipped with complete range of sophisticated equipment and software to be used for re-engineering. Faro Arm scanning system along with Fused Deposition Moulding machine is available in the center where reverse engineering of any product can be obtained and its prototype developed. The center facilitates the industry for developing the prototypes.

9.11 Cowasjee Earthquake Study Centre

Cowasjee Earthquake Study Centre (CESNED) was established in 2001 after the devastating Bhuj earthquake. The Centre is currently administered by the Department of Earthquake Engineering. The objectives of this Centre include (a) housing national and global data pertaining to earthquake; (b) to act as a Centre for disseminating accumulated knowledge; (c) to respond to the emergency needs; and (d) be able to providing guiding principles for pre and post disaster earthquake mitigation. It has become a hub of the earthquake related activities with time. The vital role played by CESNED after 8th October, 2005 Kashmir earthquake led to its recognition as one of the two earthquake study centers in the Country.

9.12 Shake Table Testing Facility

The Shake Table laboratory is a state of the art facility which is available in the Department of Earthquake Engineering. The facility is used to simulate real time earthquake ground motion to record the dynamic response of a given structure placed on the table.

9.13 National Center for Data Analytics and Cloud Computing

National Center for Data Analytics and Cloud Computing is a unique public private partnership concept which will provide framework through which NEDUET can collaborate with leading ICT companies and national and international academia to accelerate the development and deployment of the cutting edge ICT solutions related to big data and its analytics on cloud using Open source platforms.

A Lab like this provides excellent opportunities for inter-disciplinary collaborations including national and international partnerships. The overall mission of the lab is to bring cutting-edge exascale open source data analytics research to the Pakistan. Mentor and provide platform to all national students, scientists industry from all domain of sciences and engineering, finance, economic and finance, environment, medical to solve their related data analytics problems. There can be number of application domains for this lab Computational fluid dynamics (CFD), Climate modeling, Combustion Modeling, Fusion Energy and Nuclear Engineering, Multimedia Content Analysis, Cyber Physical Systems and Security etc. However, the lab will be focusing particularly on four different application domains which are Astrophysics, Tsunami Modeling, Genomics, and Transport Modeling.

9.14 National Center for Cyber Security

The center aims to develop a unified security framework which will be useful for stakeholders from all the related areas of computing (software, operating systems, network, Internet,

databases, mobile, cloud, etc.). The unified security framework will be based on joint research in the four application domains which are End Point Protection, Internet Security, Digital Forensics, and Quantum Technology.

The main focus of the center is to develop defensive framework from malware and other Cyber threats by understanding their development, evolution, proliferation, prediction, damage, forensics and ensuring data security by efficient quantum based cryptographic methods. The Higher Education Commission has approved 118.04 Million PKR for the establishment of this center.

9.15 National Center for Artificial Intelligence

Through a long competitive process HEC has selected 06 national universities to establish affiliated labs of National Center for Artificial Intelligence (NCAI). NED University won funding of two affiliated labs of NCAI that will be established and will constitute Research Center for at Artificial Intelligence NED. Total funding of 167 Million will be used to establish two labs namely Neurocomputation Lab and Smart City Lab.

9.16 National Center for Robotics and Automations

Higher Education Commission (HEC) and Planning Commission (PC), Pakistan invited to establish top-tier research-oriented National Center of Robotics & Automation (NCRA). NCRA is designed to create national capacity in key emerging areas of Robotics and Automation that have received a lot of attention and focus in the recent years. NED University is selected for the Haptics, Human-Robotics and Condition Monitoring Lab (combined Lab of NED and MUET) worth Rs. 90 Million which is one of the 11 selected labs across the country. However, the Haptics and Human-Robotics Lab is going to be separately established at NEDUET worth Rs. 45 Million. The lab will specifically focus on the design and development of Haptics and Teleoperation Setups for disaster management and tele-surgery etc. In addition, the lab will also research in the design of the STEM-based education and assistive robots.

9.17 Heritage Cell

The Heritage cell at Department of Architecture and Planning, NEDUET, is a research unit established in 2006 to support and sustain DAPNED's ongoing efforts towards creating general awareness of issues related to heritage conservation in Pakistan. Since its establishment in 1998 the department has endeavoured to develop technical support and professional capacity building in the field of heritage conservation through its activities of focused research, training and advocacy. Heritage Cell functions as a full-fledged research unit housed within NED University's historic 'City Campus'.

9.18 Environment & Sustainability Related Research

Total research funds dedicated to sustainability research (in US Dollars)

2017-18		
S. No.	Research Title	Funding Approved (USD)
1	Modelling and Optimization of Solar Energy based Thermoelectric Power Generation System	\$62,500
2	Development of Guidelines For Energy Efficient Housing	\$47,250
3	Integrating Renewable Energy, Waste Management, and Green Transport Practices into Urban Transformation in Turkey and Pakistan	\$36,667
4	Ensuring Transparent, Sustainable & Resilient Infrastructure Development: A Decision Support Framework	\$56,333
5	Study of Nanocomposite materials for water treatment	\$15,250
6	Fabrication of Third Generation Solar Cells with improved Photovoltaic properties	\$55,167
7	Synthesis of ZnO, TiO ₂ and their composite with non-precious metal nanoparticles for renewable and environmental applications	\$73,650
8	Energy Recovery from Co-Digested Agricultural Bio-mass, Sugar Industrial Waste and Municipal Organic Fraction of Solid Waste using Indigenous Technology of Anaerobic Digestion	\$12,999
9	Energy-Retrofit Optimization Model for Sustainable Energy	\$381,583
10	Water Resource Management for Agriculture	\$33,333
11	Environmental uplift of NED University City Campus precinct; through community involvement in a sustainable design intervention.	\$4,167
12	Characterization of Biofuel produced by pressure and temperature dependent pyrolysis of waste cooking oil	\$4,167
13	Exploration of the Advantages and Commercial Viability of Wheat strew on a Soil Stabilizing Agents	\$7,500
14	Achieving Sustainable Safety - A Perception Based Expert Safety Model for Construction Worker	\$8,333
15	An Optimization Model for Improving Energy Efficiency of Existing Buildings	\$7,500
16	Performance Enhancement in Dye-Sensitized Solar Cell Through Nano Technology Using Electro Spinning Techniques	\$8,333
18	Energy Consumption Optimization for a Large Scale Industrial (Steel Hot Rolling) Process	\$8,333
Total		\$823,066

10. REDUCED INEQUALITIES

10.1 Regular Scheme - Distribution of Seats

5.1(i) Distribution of Seats

CATEGORY NO.	CE	UE	PE	CE (CN)	ME	TE	IM	AU	EE	TC	CS	EL	CH	MM	PP	MY	CT	SE	AR	BM	FD	MG	TS	DS	CF	IC	AP	EG	EC	Total
R-1(a)	HSC (Pre-Engineering/Computer Science) from Board of Intermediate Education, Karachi																													1485
	103	49	25	25	133	42	72	34	126	44	89	93	43	38	37	33	34	58	20	36	17	36	60	18	56	57	58	30	19	
R-1(b)	HSC (Pre-Medical) from Board of Intermediate Education, Karachi																													17
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	2	0	3	0	0	0	0	2	0	
R-1(c)	HSC (Commerce) from Board of Intermediate Education, Karachi																													22
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	3	0	0	0	0	3	9	
R-1(d)	HSC (Arts) from Board of Intermediate Education, Karachi																													10
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	5	
R-2(a)	HSC (Pre-Engineering/Computer Science) from Board of Intermediate Education, Hyderabad																													40
	3	2	1	1	2	2	1	0	2	2	1	2	1	1	0	1	1	2	1	0	0	2	2	1	2	2	2	1	2	
R-2(b)	HSC (Pre-Engineering/Computer Science) from Board of Intermediate Education, Mirpurkhas																													33
	2	2	0	1	2	0	1	0	3	1	1	0	1	1	0	1	1	2	1	0	0	2	2	1	2	2	2	0	2	
R-2(c)	HSC (Pre-Engineering/Computer Science) from Board of Intermediate Education, Sukkur																													34
	2	2	0	1	2	1	1	0	2	1	1	1	1	0	0	1	1	2	1	0	0	2	2	1	2	2	2	1	2	
R-2(d)	HSC (Pre-Engineering/Computer Science) from Board of Intermediate Education, Larkana																													33
	2	2	0	1	2	1	1	0	2	1	1	1	1	0	0	1	1	1	1	0	0	2	2	1	2	2	2	1	2	
R-2(e)	HSC (Commerce) from Board of Intermediate Education, Hyderabad																													4
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	1	
R-2(f)	HSC (Commerce) from Board of Intermediate Education, Mirpurkhas																													4
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	1	
R-2(g)	HSC (Commerce) from Board of Intermediate Education, Sukkur																													4
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	1	
R-2(h)	HSC (Commerce) from Board of Intermediate Education, Larkana																													4
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	1	
R-3(a)	HSC (Pre-Engineering/Computer Science) from Federal Board of Education, Islamabad																													53
	5	2	1	0	3	2	1	0	5	1	3	3	2	0	0	2	2	2	3	0	1	1	2	1	2	2	2	2	1	
R-3(b)	HSC (Pre-Engineering/Computer Science) from Aga Khan Board																													39
	2	2	0	0	3	3	3	1	1	1	1	1	2	0	1	1	1	1	2	0	2	1	1	1	1	1	1	2	3	
R-3(c)	HSC (Commerce) from Aga Khan Board																													11
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	4	0	0	0	2	2	
R-3(d)	HSC (Pre-Medical) from Aga Khan Board																													7
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3	0	0	0	1	0	

CATEGORY NO.	CE	UE	PE	CE (Cn)	ME	TE	IM	AU	EE	TC	CS	EL	CH	MM	PP	MY	CT	SE	AR	BM	FD	MG	TS	DS	CF	IC	AP	EG	EC	Total
R-4(a)	A-Level (Pre-Engineering) Institutions																													129
	2	3	3	2	2	9	4	5	1	7	3	3	5	4	4	2	3	1	1	9	4	3	3	3	3	10	6	6	12	5
R-4(c)	12th Grade & equivalent																													27
	1	2	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1
R-4(d)	A-Level (Pre-Medical)																													11
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	2	0	4	0	0	0	1	0
R-4(e)	A-Level (Commerce) Institutions																													14
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	3	0	0	0	3	4
R-4(f)	A-Level (Arts) Institutions																													8
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	3
R-5	HSC (Pre-Engg./Comp. Sc.) from Board other than Karachi, Aga Khan, Hyderabad, Mirpurkhas, Sukkur, Larkana, Federal & Foreign Exams																													19
	1	1	1	0	1	1	1	0	0	1	0	0	0	0	0	1	0	0	1	1	1	0	1	1	1	1	1	1	1	1
R-6	Candidates from Rural Areas of Karachi																													7
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
R-7(a)	Real sons/daughters of NED University Teachers																													32
	1	1	1	0	2	1	2	0	2	1	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1
R-7(b)	Real sons/daughters of NED University Non-Teaching Staff																													31
	1	1	1	0	2	1	2	0	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
R-9	Outstanding Sportsmen																													6
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	1	1	0	0
R-10(a)	Nominees of Dinshaw Family																													4
	1	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R-10(b)	Nominees of LEJ Foundation																													6
	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2	1	0	0	0	0	0	0	0	0
R-11(a)	Nominees of UET Lahore/Taxila																													4
	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R-11(b)	Nominees of UET Peshawar																													2
	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R-12(a)	Nominees of Government of Balochistan																													4
	1	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R-12(b)	Nominees of FATA																													12
	2	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	1	1
R-12(c)	Nominees of Government of Kashmir																													4
	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CATEGORY NO.	CE	UE	PE	CE (CN)	ME	TE	IM	AU	EE	TC	CS	EL	CH	MM	PP	MY	CT	SE	AR	BM	FD	MG	TS	DS	CF	IC	AP	EG	EC	Total
R-12(d)	Nominees of Government of Gilgit Baltistan																													1
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
R-12(e)	Nominees from Federal Capital																													1
	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
R-13(a)	Nominees of G.H.Q (Army)																													9
	2	0	0	0	2	1	0	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
R-13(b)	Nominees of N.H.Q (Navy)																													1
	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
R-13(c)	Nominees of P.A.F (Air Force)																													1
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	
R-13(d)	Nominees of Sindh Rangers																													1
	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
R-14	Foreign Candidates of Economic Affairs Division (Ministry of Finance), Islamabad																													6
	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	
Total	140	70	34	31	172	61	91	36	163	57	111	111	59	47	45	45	47	82	37	61	28	78	79	69	79	80	74	73	2140	

Key for abbreviations:

CE	Civil Engineering	EL	Electronic Engineering	AR	Architecture
UE	Urban Engineering	TC	Telecommunications Engineering	TS	Textile Sciences
PE	Petroleum Engineering	MM	Materials Engineering	DS	Development Studies
CN	Construction Engineering	CH	Chemical Engineering	MG	Management Sciences
ME	Mechanical Engineering	MY	Metallurgical Engineering	CF	Computational Finance
TE	Textile Engineering	PP	Polymer & Petrochemical Engineering	IC	Industrial Chemistry
IM	Industrial & Manufacturing Engineering	SE	Software Engineering	AP	Applied Physics
AU	Automotive Engineering	BM	Bio-Medical Engineering	EG	English Linguistics
EE	Electrical Engineering	FD	Food Engineering	EC	Economics & Finance
CS	Computer Systems Engineering	CT	Computer Science & Info. Technology		

- NOTE:**
- Applicants for admission in Bio and Medical Engineering should have interest in Natural and Basic Sciences as they will be studying Biology, Physiology, Anatomy and Biochemistry.
 - Applicants for admission in Architecture Programme should have skill and interest in free hand sketching drawing and communication.

11. SUSTAINABLE CITIES AND COMMUNITIES

11.1 Sewerage Disposal

Major portion of the wastewater generated at the NED University main campus is aerobically treated at the wastewater treatment facility onsite and is then used for watering plants and vegetation.



Wastewater aerobic treatment and use for plant watering

11.2 Inorganic Waste Treatment

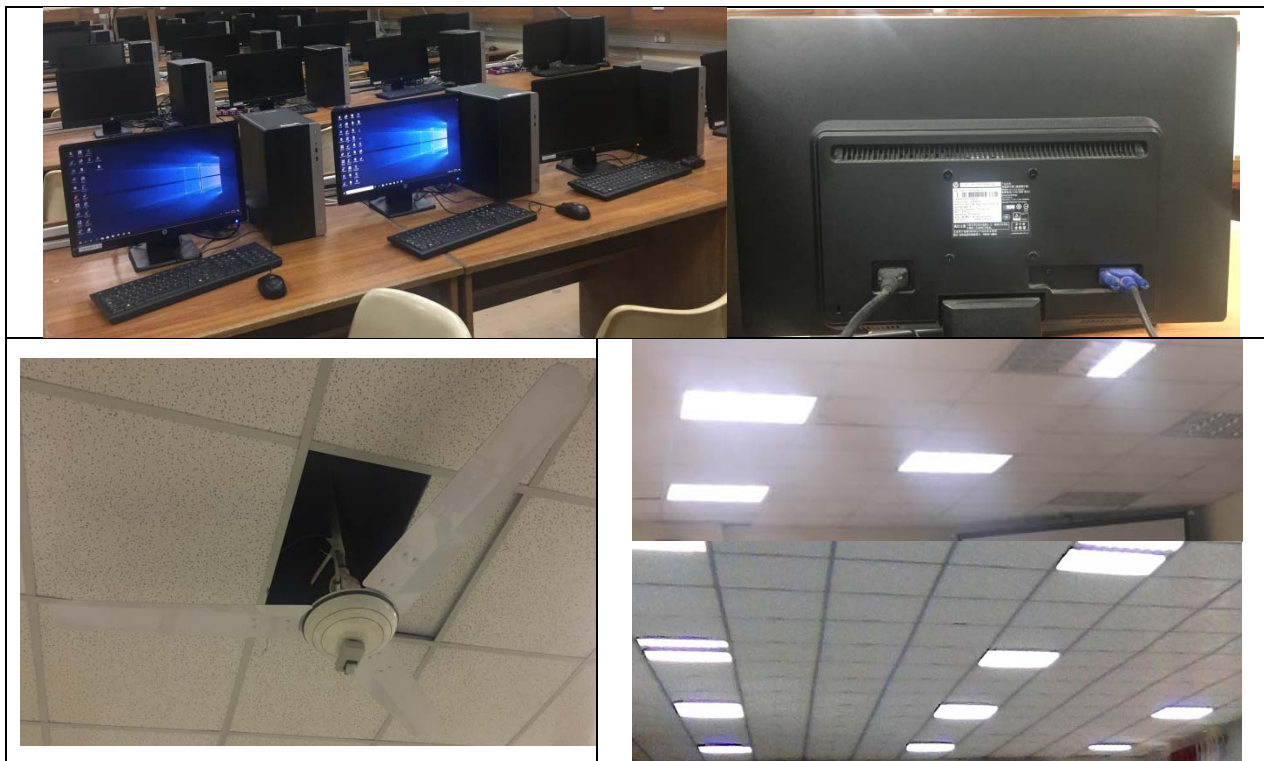


Inorganic Waste Sorting

The inorganic waste generated at the University is sorted and sorted in the junkyard and is periodically disposed-off via recycling and/or down-cycling.

12. RESPONSIBLE CONSUMPTION AND PRODUCTION

Energy efficient appliances usage are replacing conventional appliances. 100% of the computer monitors used at the NEDUET campuses are energy efficient LCD monitors. The lighting equipment is gradually being switched to LED bulbs while the ceiling fans are being modified to consume less electrical energy through their conversion to DC source.

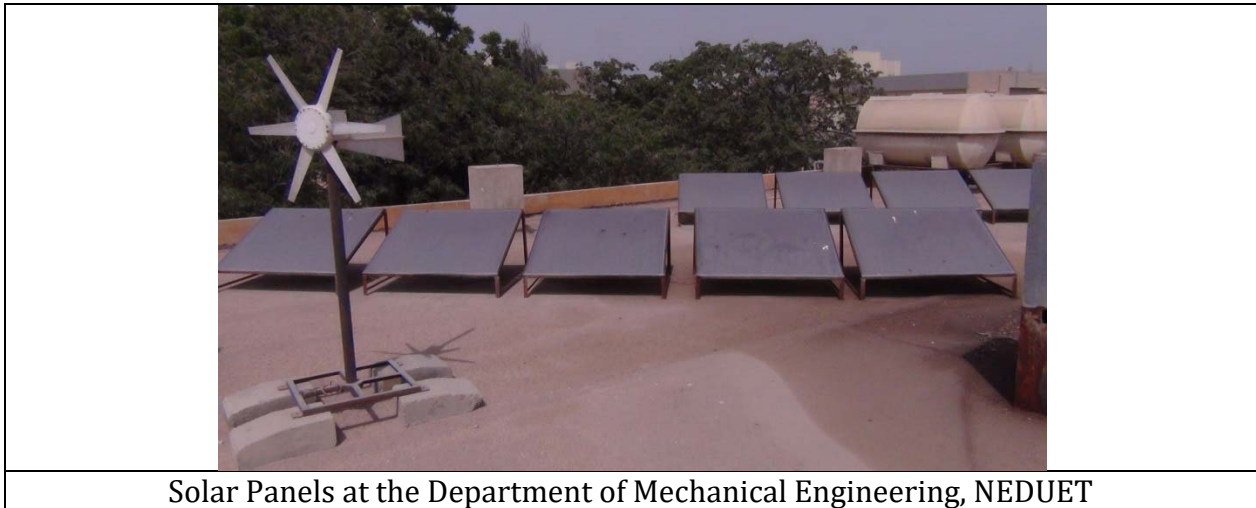


The Energy efficient appliances are gradually replacing the conventional high energy consumption appliances

12.1 Renewable Energy Produced Inside Campus



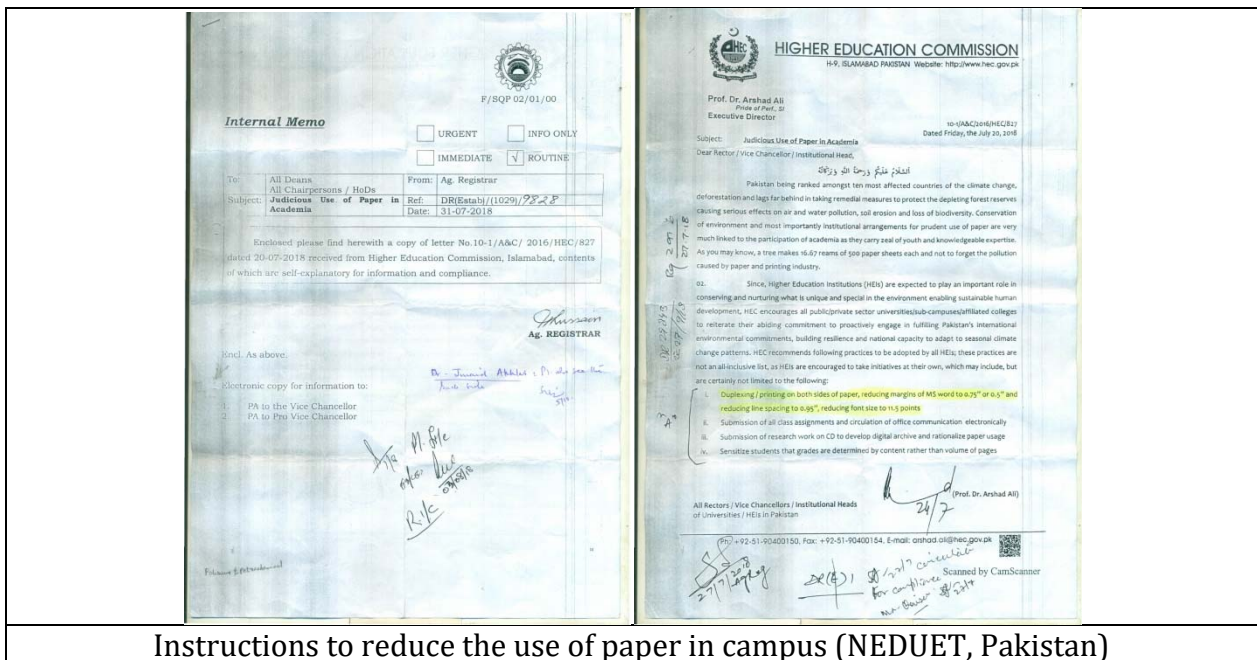
Solar Panels at the Department of Civil Engineering, NEDUET



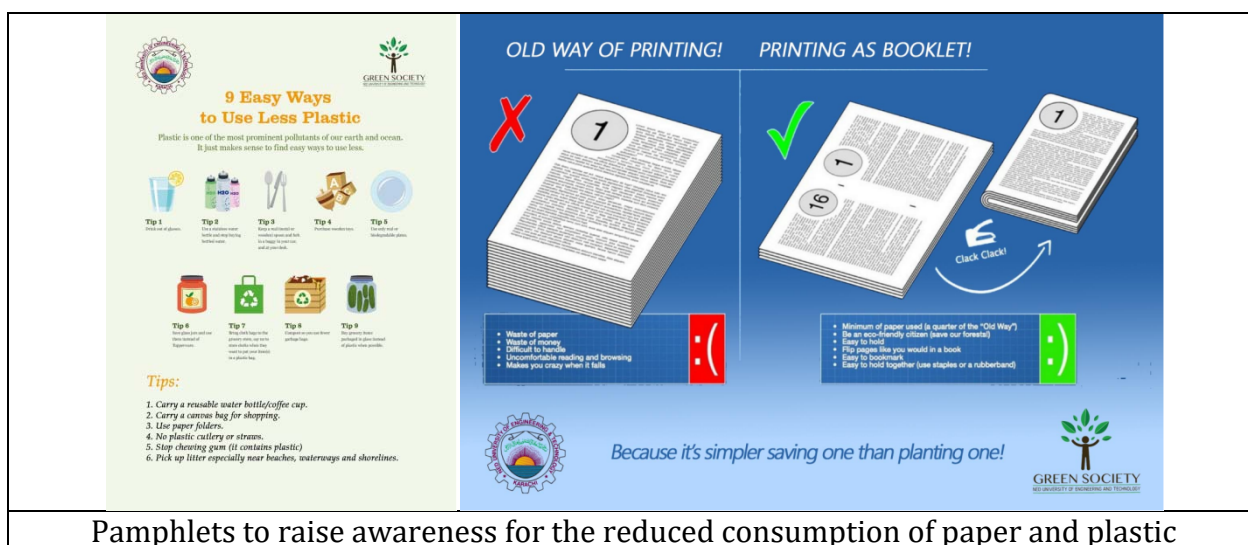
Solar Panels at the Department of Mechanical Engineering, NEDUET

The University has installed solar panels in the departments of Civil and Mechanical Engineering with 15 kW power rating. The power produced is being utilized for powering certain offices and buildings at the main campus.

12.2 Program to Reduce the Use of Paper and Plastic in Campus



Instructions to reduce the use of paper in campus (NEDUET, Pakistan)



Pamphlets to raise awareness for the reduced consumption of paper and plastic

- The University dedicatedly follows the guidelines on the judicious use of paper both by the staff members and the students.
- The Green Society of the NEDUET actively promotes the minimal use of paper and plastic products at the campus and in daily lives among the students and the staff members of the University.

13. CLIMATE ACTION

Elements of green building implementation as reflected in all construction and renovation policy. Majority of the buildings at the NED University of Engineering & Technology are designed to take maximum advantage of sunlight and coastal winds. The classrooms are especially designed for efficient daylighting and with provision of large windows for cross-ventilation.



Natural Ventilation, Department of Industrial & Manufacturing Engineering



Natural Day-Lighting, Department of Polymer & Petrochemical Engineering

13.1 Environment and Sustainability Events



Events Related to Environment and Sustainability

There were 06 events organized by the academic and students' bodies of NEDUET in 2018 addressing environment and sustainability:

1. Workshop titled "Green Climate Fund (GCF) & Mass Transit Projects under CPEC", January 2018
2. SME Workshop (Energy Outlook) organized by SME Student chapter
3. Tawanai Workshop on DIY Solar Power at home organized by ELD students
4. Green Build Competition & Result on 10th August 2017 Organized by Green Society in collaboration with Department of Students' Affairs
5. Seminar Green Society 2018 on 09th April 2018 Organized by Green Society
6. Annual Tree Plantation Campaign Organized by Green Society

13.2 CO₂ Smart Project

The project focuses on raising awareness among the young students of Thar and Karachi about the challenges being faced by the environmental sustainability due to increased carbon dioxide (CO₂) levels in the atmosphere and how this can be addressed partly by increasing the rate of trees plantation and decreasing deforestation. The project is being carried out in collaboration with HEC, SECMC and Thar Foundation. 35 to 40 best performing students from class 5 to 10 from Thar region and similar number students from Karachi will be selected. The students selected from Thar will be invited to Karachi where they will spend time with the students of the local schools. They will learn about their life, culture, and social issues and share views and ideas. All the students will be given a short seminar to educate them about greenhouse gases, their anthropogenic release in the atmosphere and its effect on climate, and the consequent impacts on local and global environment and ecology. They will also plant trees in designated plantation site with their names on them and a tracking number. The students will be able to track the status of their planted tree via online medium along with the amount of CO₂ sequestered. Similar activity will be reciprocated with the selected students from Karachi schools for Thar region. Together, these students will share a part of their life learning about their similarities and differences and compare the lifestyles in ultra-urban and remote rural-areas.



13.3 CO₂ Smart Executive Club

Governor of Sindh, Mr. Imran Ismail launched CO₂ Smart Executive Club at NED University today as Patron by planting a Neem tree. As part of converting NED University to a Carbon Neutral Campus, this initiative aims to engage executive leadership of the country to the cause. Dr. Sarosh Hashmat Lodi, Vice Chancellor NED University, Dr. Muhammad Tufail, Pro-Vice Chancellor and Deans also planted trees on the occasion.



CO₂SMART EXECUTIVE CLUB
Smart Executives Leading the Community to A Sustainable Future

CO₂ Smart Trees Planted **41** Carbon Reduction Impact (Till Date) **9820.830544799** Grams | Executive Club Contribution **409.307611434** Grams

PATRON



CO₂SMART EXECUTIVE CLUB
Smart Executives Leading the Community to A Sustainable Future



Dr. Sarosh Hashmat Lodi
Vice Chancellor
NED University of Engineering and Technology



Dr. Muhammad Tufail
Pro Vice Chancellor
NED University of Engineering and Technology



