

EDITORIAL



India is aiming to build 140 gigawatts (GW) of wind capacity by 2030, which could light about 100 million homes as part of its wider goal to install 500 GW of renewables by the end of the decade.

Wind is a vital factor for India's energy transition, as providing round-the-clock green power will require faster deployment of wind and solar energy.

Technological advances such as floating wind turbines, AI-powered predictive maintenance, modular wind systems, and offshore wind energy are driving the future of the wind industry. This way, wind sector is able to move towards a greener future.

NIWE being one of the technical arms of the MNRE has undertaken R&D projects involving various stakeholders, and multiple research and development initiatives. Recently, the R&D Council of NIWE has been reconstituted with a clear mandate to lead the works related to development of advanced facilities of research and conceptualizing laboratories, facilities to meet the future needs.

On the off shore Wind development front, as per the Revised Strategy for Establishment of Offshore Wind Energy Projects published on 26th September 2023, offshore wind power development will be undertaken under 3 models of development. NIWE has identified suitable locations for deploying the Offshore Lidar at VOC port (4 to 5 km inside sea) and at Udangudi, Tuticorin Dist, Tamil Nadu.

On completion of phase I of IWSRA project in the area of Wind Resource assessment, dismantling of sensors was carried out at various locations of Wind Monitoring Stations. On the data analytics area, the division is currently handling 8 nos. of consultancy projects towards supporting the stakeholders of the wind industry. 2 nos of RE projects are in vogue (viz) 2 MWp Ground Mounted Grid Connected Solar Power Plant at

Indian Institute of Management (IIM)-Trichy and 1 MW (AC) Ground Mounted Grid Connected Solar Power Plant at Madurai Kamaraj University (MKU), Madurai.

The second round of Documentation Review has been completed successfully by the certification division. Initial Assessment (IA) has been completed successfully by NABCB, QCI as per the requirements of ISO/IEC 17020:2012. Development of version 1.0 of the offshore portal was successfully completed.

Review of documentation has been completed by the S&R division for 10 wind turbine models submitted by various wind turbine manufacturers. They also provided technical support to Bureau of Indian Standards (BIS) in connection with the works related to standards.

To promote interest in renewable energy research among students, 5 students are undergoing an internship under the NIWE-Academic Associate Programme (NIWE-AAP).

As part of the Vayumitra Skill Development Programme, a total of 171 trainers and 1230 participants have been trained thus far and 120 participants are undergoing the training. Four events were held under Azaadi Ka Amrit Mahotsav during the period from April to June 2023. Notably, 662 students visited the NIWE campus during the quarter to gain insights into Wind Energy.

Customized online training course was conducted for the officials of NTPC Limited and trained 18 participants. Three events were held under Azadi Ka Amrit Mahotsav during the period from July to September 2023. Notably, 409 students visited the NIWE campus during the quarter to gain insights into Wind Energy.

As NIWE completes another successful quarter, we are happy to share our milestones achieved. In spite of many challenges, NIWE is proud to present this newsletter and the progress made towards achieving the goals.

Dr. Rajesh Katyal
Director General

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Research & Development

Secretary, MNRE in capacity as Chairman, GC has reconstituted the R&D Council of NIWE. The RC Chairmanship is helmed by Dr M V Ramana Murthy Director at Deep Ocean Mission under the Ministry of Earth Sciences. The RC has members from MNRE & other premier academia like IITs, IITM, NIT and Industry to support NIWE in its Research thrust.

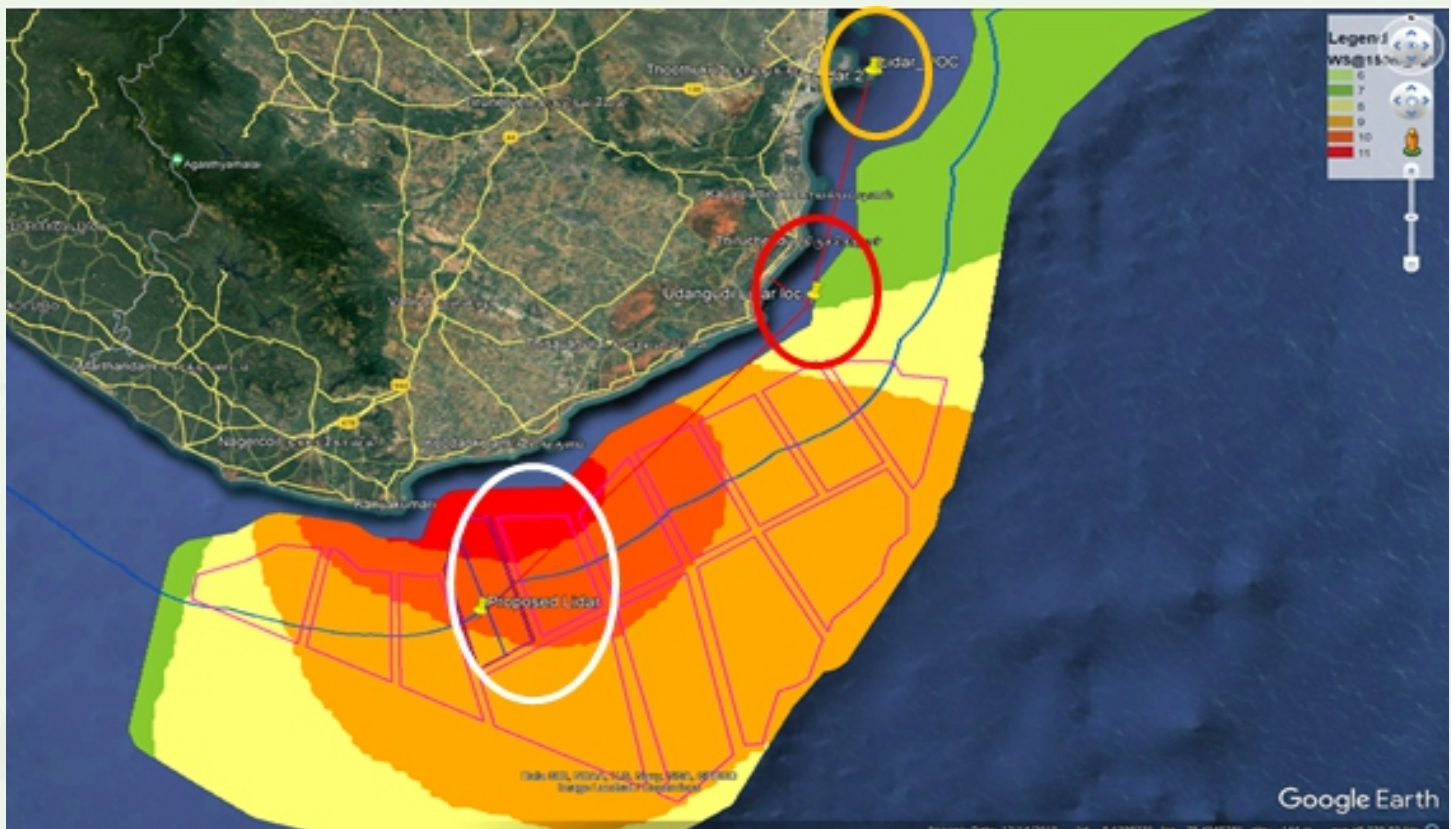
The Division has now been given a clear mandate to lead the works related to development of advanced facilities of research and conceptualising laboratories, facilities to meet the future needs. These developed large multi-crore Research facilities (Blade Testing, Grid Emulator etc) shall ensure Quality Assurance for the Renewable Energy Sector in the country and shall strive to become Centre of Excellence for attracting Industry and Academia. These facilities shall act in "hub-spoke" mode while remaining at the centre of service and help address the needs of the Industry by bringing various R&D Organisations and coordinating with National Premier Academic Institutions, including projects on RFP Mode.

Offshore Wind Development

As per the Revised Strategy for Establishment of Offshore Wind Energy Projects published on 26th September 2023, offshore wind power development will be undertaken under 3 models. NIWE has initiated the offshore wind resource assessment and geophysical & geotechnical investigation for development of 500 MW of offshore wind farm under Model A.

Met Ocean Measurement

NIWE has identified suitable locations for deploying the Offshore Lidar at VOC port (4 to 5 km inside sea) and Udangudi Thermal Coal jetty (8 to 9 km inside sea) to which together with the measurements at sub-zone 1 will cover the wind profile of the Gulf of Mannar region.



MOM LIDAR locations

Wind Resource Assessment

Wind Resource Assessment

IWSRA Project

Completed dismantling of sensors (upto 10m of sensors) of 8 Nos. of 100m Wind Monitoring Stations as detailed below:

State	No. of WMS	Site name
Tamil Nadu	4	1. Uthumalai
		2. Dombuchery
		3. Mavathur
		4. Pollachi
Karnataka	1	Nulenur T
Andhra Pradesh	2	Tarigopula (Ramasamudram) Hampapuram
Telangana	1	Donakal

Rectification & Data collection from 100m WMS at Nimbala site in the state of Rajasthan and Hedapura site in the state of Madhya Pradesh.



Mavathur

NCCR (Kalpasar Dam Project)

Completed dismantling of sensors (upto 10m sensors) from the 100m Wind Monitoring Station in the state of Gujarat.



ANERT (Ramakkalmedu consultancy site)

Completed dismantling of sensor (upto 10m sensors) from the 50m Wind Monitoring Station in the state of Kerala.





Research Activities

Maintenance and Repair Strategy for Wind Energy

Certification & Information Technology

- The second round of Documentation Review (DRR) has been completed successfully on 10th July 2023 by NABCB, QCI as per the requirements of ISO/IEC 17020:2012 in connection with obtaining Accreditation for Inspection Services.
- Initial Assessment (IA) has been completed successfully on 25th and 26th of July 2023 by NABCB, QCI as per the requirements of ISO/IEC 17020:2012 in connection with obtaining Accreditation for Inspection Services.
- NIWE has completed the Pre-evaluation of 'SIVA U57' wind turbine model in connection with the Type Certification of M/s. Siva Windturbine India Private Limited as per the scheme IS/IEC 61400-22 : 2010.
- The first periodic audit was conducted by DNV for the QMS as per ISO 9001:2015 for the scope of certification and inspection services. The audit has been completed successfully.

Information Technology

- Prepared tender documents for the procurement of new hardware, software, and AMC services.
- Continued to maintain the IT infrastructure to keep servers, storage, systems, and software up and running.
- Continued to provide IT support for users at NIWE and its stakeholders.

Web Portals

- Development of version 1.0 of the offshore portal was successfully completed.
- Integration of the 150m map portal with all other resource map portals have been successfully completed.
- Design and development of the NIWE website in line with GIGW guidelines is in progress.

Other Work

- Input to Gathishakthi has been prepared and submitted to competent authority and to forward the same to MNRE.

Testing, Standards and Regulation

TESTING

- Type Testing as per latest IEC Standards (IEC 61400-12-1:2017 & IEC 61400-13:2015) are ongoing for INOX DF/3000/145 3.0 MW Power Booster Mode 3.3 MW Rotor Blade Type SR71 (T-Bolt), Hub Height 100 m IEC WT Class IIIB wind turbine at Rajkot, Gujarat for M/s. Inox Wind Limited.
- Limited period Power Performance & Load Measurements as per latest IEC Standards (IEC 61400-12-1:2017 & IEC 61400-13:2015) are ongoing for GWL 225 wind turbine at Varapatti Village, Coimbatore, Tamil Nadu for M/s. Southern Wind Farms Limited. Carried out measurements for transient load cases as per IEC 61400-13:2015 from 17.08.2023 to 18.08.2023.
- Conducted Acoustic Noise Measurements as per latest IEC Standards (IEC 61400-11:2018) on Servion 2.3M 130 / 2.7 MW turbine (HH 120m, RD 130m) at Tithawa, Gujarat for M/s. Servion Wind Technology Private Limited.
- Measurements are ongoing as per latest IEC Standards (IEC 61400-12-1:2017 & IEC 61400-13:2015) for DST approved R&D project for 250 kW wind turbine of M/s. Siva Wind Turbine India Private Limited at Test Bed B, WTTS, Kayathar.

Awards/Achievements

- Successfully undergone the NABL Onsite Surveillance Audit as per ISO / IEC 17025:2017 held on 23rd and 24th September, 2023 at WTTS, Kayathar and audit team has recommended for continuation of accreditation. The accreditation for the scope of Testing services (Power Performance, Load Measurements, Yaw efficiency, Safety and Function Testing and Duration Testing) for Permanent (WTTS, Kayathar) and site facility is valid till 02.08.2024.
- Successfully undergone First Periodic audit as per ISO 9001:2015 held on 01st August, 2023 at WTTS, Kayathar and 14th August 2023 at NIWE Chennai and DNV has recommended for continuation of certification.

STANDARDS AND REGULATION

- Review of documentation has been completed for 10 wind turbine models submitted by various wind turbine manufacturers for RLMM. Further, technical support has been provided to MNRE for implementation of Revised Lists of Models and Manufacturers of wind turbines (RLMM) process.
- Review / verification of documentation received for one wind turbine model in connection with installation of prototype wind turbines as per MNRE guidelines is under progress.
- Provided technical support to Bureau of Indian Standards (BIS) in connection with the works related to standards. Further, the works related to preparation of draft Indian standards / IEC standards & IECRE documents are under progress.
- Organized meeting with Type certification bodies of wind turbines held on 16.08.2023 through video conference, participated by MNRE & NIWE officials.
- Shri. A. Senthil Kumar, Director & Division Head, S&R, as Management Representative (MR), Organized the 26th Management Review meeting of Quality Management System (QMS) as per ISO 9001:2015 on 18.07.2023 at NIWE, Chennai, chaired by DG, NIWE and the QMS status of NIWE was presented during the meeting.
- Further, based on the successful completion of 1st Periodic Audit of Quality Management System of NIWE as per ISO 9001:2015, ISO certification body viz., M/s. DNV Business Assurance India Private Limited recommended for continuation of Certification as per ISO 9001:2015 for NIWE.
- The continual improvement and maintaining the quality management system are in progress.

Skill Development and Training & Infrastructure Management

NIWE has scheduled the following National and International Training Courses during the calendar year 2023-24 and the necessary preparation works are on for the successful conduct of the courses.

National Training

- 25th National Training Course on “Wind Energy Technology” from 1st to 3rd November 2023.
- 26th National Training Course on “Wind Energy Technology” from 21st to 23rd February 2024.

International Training

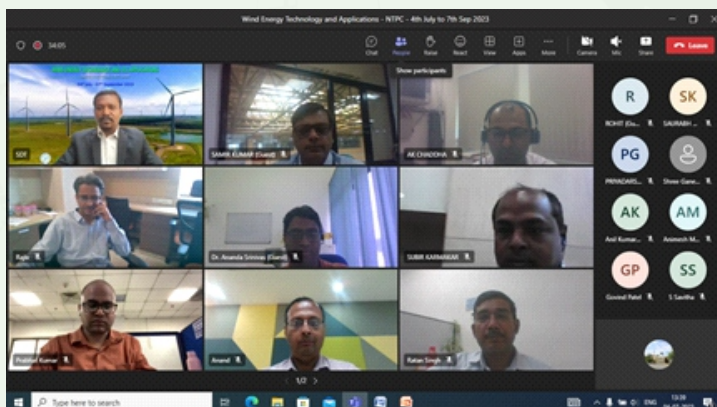
- 27th International Training Course on Wind Turbine Technology and Applications for ITEC Countries scheduled from 04th to 20th October 2023.
- 28th International Training Course on Wind Turbine Technology and Applications for ITEC Countries scheduled from 29th November to 15th December 2023.
- 29th International Training Course on Wind Turbine Technology and Applications for ITEC Countries from 24th January to 9th February 2024.

Customized Online Training Course specially for the officials of M/s. NTPC Limited

The Skill Development and Training (SDT) Division of NIWE has successfully conducted the customized online training course on “Wind Energy Technology and its Applications” specially for the officials of M/s. NTPC Limited held during 04th July to 07th September 2023. The training course was attended by 18 participants. The online course was held on Tuesdays and Thursdays of every week at 3 hrs of class per day.

The course addressed all the aspects of wind energy technology with 36 lectures on various topics. The course contents of the training were handled by Scientists / Engineers of NIWE who have many years of experience in the field.

During the valedictory function, Dr. P. Kanagavel, Director and Head, SDT Division, NIWE provided the course summary and released the assessment score of the participants and NTPC officials expressed their appreciation and thanks. The course structure and organization of training was highly appreciated by the participants. The participants were very much satisfied with the quality of lectures and support from the organizing team throughout the course.



Participants during Inaugural Function



Participants during Valedictory Function

Special Training Course for the officials of M/s. Renew Power Pvt. Ltd.

Special Training Course on "WIND ENERGY TECHNOLOGY" for the 28 officials of Renew Power Pvt. Ltd. from 25th to 30th September 2023. The Training course covered all aspects of wind power, including wind resources assessment, project implementation and operations & maintenance. The lectures during the course were delivered by the experienced scientists and engineers of NIWE. The training sessions consisted of classroom lectures and study visits to wind farm at



Dr Rajesh Katyal, DG, NIWE inaugurating the Special Training Course of Renew Power Pvt. Ltd.

WTTS, Kayathar, RS Windtech Engineers (P) Ltd, Aralvoimozhi, Appollo Transformers & Filters, Kavalkinaru and Suzlon CMS, Tirunelveli

Vayumitra Skill Development Program (VSDP)

Ministry of New & Renewable Energy (MNRE), Government of India has assigned National Institute of Wind Energy (NIWE), Chennai as the nodal agency to implement, “Vayumitra Skill Development Program (VSDP)” in eight windy States and Kerala. The objective of the programme is to create skilled workforce for the Indian wind energy sector especially the trained manpower for the operation & maintenance of wind farms in the country as per the industry demand/needs so as to achieve the Government of India targets and other future targets.

Under VSDP, a total of 5010 participants are proposed to be trained through Training of Participants (TOP). The TOP training courses will be conducted through 22 identified institutions located close to the Wind Farms of windy States. To train the participants, NIWE will conduct Training of Trainers (TOT) programme and train 690 trainers who will train the participants.

Activities completed :

- 45 Nos. of TOP programme have been completed and 1230 trained participants.
- 6 Nos. of TOT programme have been completed and trained 171 trainers.



Glimpse of Training of Participants at TUV Rheinland NIFE Academy Pvt. Ltd.

Azadi ka Amrit Mahotsav-2022-23

NIWE with the support of MNRE has scheduled sixteen events to commemorate 75 years of progressive Independent India (Azadi Ka Amrit Mahotsav). The announcement about the event carrying the instructions was hosted in NIWE website and circulated through Social Media pages along with the Flyer. The event was conducted online, enabling large number of participants to take part in the Webinar.

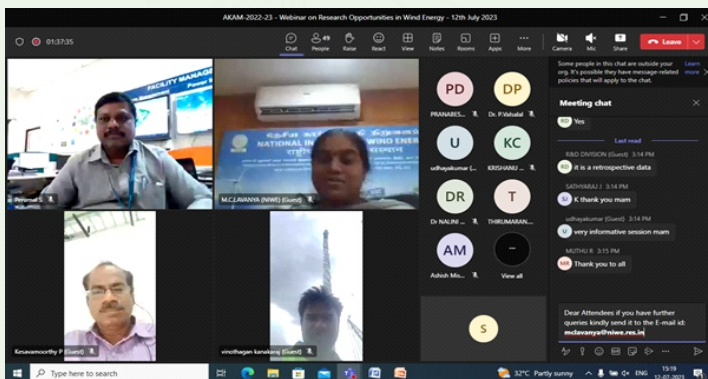
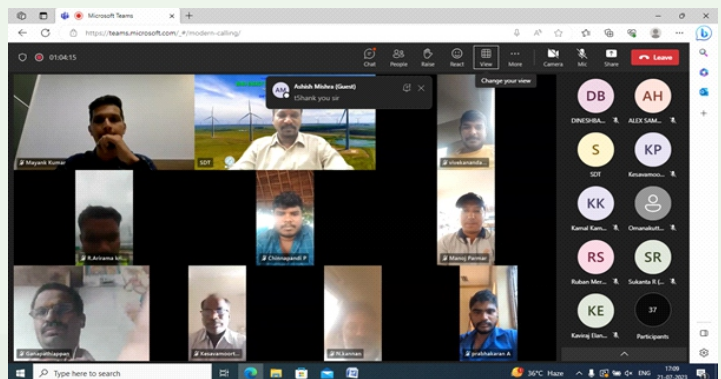
The following fifteenth and sixteenth events were of webinar in nature. The speakers gave a detailed presentation on different aspects of respective theme. It was followed by Q&A session, which was open for the participants to chat and interact with the speakers. All the doubts and queries raised by the participants were clearly explained and clarified by the speaker. The participants were very much satisfied with the presentation and had reciprocated the same by appreciating and thanking the speaker and NIWE/MNRE.

FIFTEENTH EVENT - "Webinar on Research Opportunities in Wind Energy"

The fifteenth event, "Webinar on Research Opportunities in Wind Energy" by Smt. M.C. LAVANYA, Deputy Director (Technical) & Unit Chief, R&D, NIWE was successfully conducted on 12th July 2023. 121 candidates registered and 55 participants have attended the event.

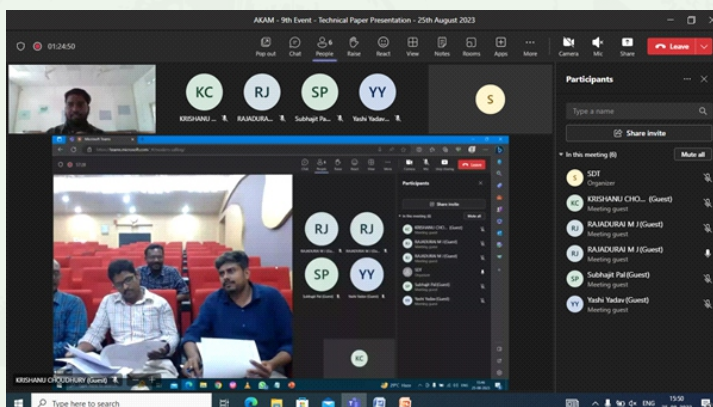
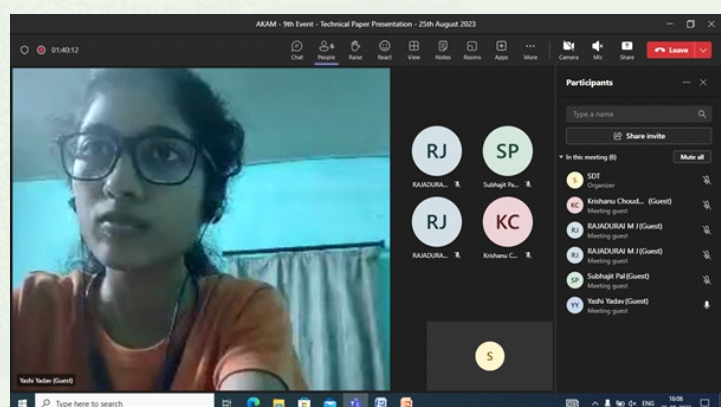
SIXTEENTH EVENT - "Webinar on Skill Development and Reskilling for Wind Sector"

The sixteenth event, "Webinar on Skill Development and Reskilling for Wind Sector" by Dr. P. KANAGAVEL, Director & Head, Skill Development and Training, NIWE was successfully conducted on 21st July 2023. 95 candidates registered and 53 participants have attended the event.


15th Event

16th Event

NINTH EVENT - "Technical Paper Presentation pertaining to Wind Energy for Postgraduate Engineering Students"

The ninth event, "Technical Paper Presentation pertaining to Wind Energy for Postgraduate Engineering Students" on the topic "Emerging Trends in Wind Energy" was successfully conducted on 25th August 2023. 11 registrations were received and only 4 participants had submitted the full length paper for presentation.


Glimpse of 9th Event


A committee reviewed the papers submitted and selected 4 papers for presentation in the event held on 25th August 2023. All the 4 selected participants were asked to present the submitted papers in front of the Review Committee for evaluation and to select the Best Paper Award. Out of 04 selected participants, only 03 have presented the papers with detailed explanations and the lively presentations moved with healthy interactions. The committee members asked many questions and provided fruitful tips to the participants leading to improve the quality and technical aspect of the papers.

The Review committee after detailed deliberations recommended the following Three Papers in order of merit for issue of certificates:

- **Mr. Rajadurai .M.J** - "Wind Farm Layout Optimization through effective Micrositing"
- **Mr. Krishanu Choudury and Mr. Subhajit Pal** - "IOT Enabled Wind Energy Harvesting System with CVT and Regenerative Breaking"
- **Ms. Yashi Yadav** - "Renewable Wind Energy: The New Frontier of Sustainable Development in India"

Students & Training Participants Visit

To create awareness and to motivate towards research on wind energy, achieving the indigenization and also to create awareness about the activities and services of NIWE, schools and college students are encouraged to visit the campus.

During the period from July to September 2023, the following visits were coordinated.

S.No.	Name of Institution	No. of Students	No. of Staff	Visited on
1	Veltech Ranganathan Dr Sagunthala R&D Institution, Chennai	60	2	18-08-2023
2	Veltech Multitech Ranganathan Dr Sagunthala R&D Institution, Chennai	59	2	23-08-2023
3	Veltech Multitech Ranganathan Dr Sagunthala R&D Institution, Chennai	58	2	24-08-2023
4	Kids Central School, Navalur, Chennai	65	5	25-08-2023
5	Sathyabama Institute of Science & Technology, Chennai	59	2	30-08-2023
6	Sathyabama Institute of Science & Technology, Chennai	60	2	31-08-2023
7	SRM Institute of Science and Technology, Chennai	48	2	12-09-2023

Internship Programme

The "NIWE-Academic Associate Programme" (NIWE-AAP) aims to encourage students and provide an opportunity to choose renewable energy as their career option. To create awareness and interest in the field of renewable energy research among the young talented Sciences, Management and Engineering students, NIWE invites applications from the eligible candidates for the "NIWE-Academic Associate Programme" (NIWE-AAP). The duration of the Internship will be two weeks to six months. NIWE-AAP will provide opportunities for the students/post studies students/ Lecturers/Professors to work with scientists/engineers on NIWE's projects.

The statistics for this quarter from July to September 2023 are given below:

1. No. of Students admitted - 53
2. No. of students completed and certificate(s) issued - 40

Presently, five (5) students are undergoing the said NIWE- Academic Associate Programme in various Divisions of NIWE.



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