

COLLEGE OF ENGINEERING ROORKEE (COER)
(Governed by Seth Roshan Lal Jain Trust)

7th KM on Roorkee – Haridwar Road
Vardhman Puram
Roorkee (Uttarakhand)

COER/BOG/2019/21

March 16, 2019

Minutes of the 21st meeting of the BOG of College of Engineering Roorkee (COER) held on 16th March, 2019 at 11.30 AM in the Board Room of COER School of Management

Following attended the meeting:

1. Er. JC Jain, Chairman, Seth Roshan Lal Jain Trust	Chairman
2. Mrs. Sunita Jain, Vice Chairperson, Seth Roshan Lal Jain Trust	Member
3. Mr. Shriyance Jain, Managing Director, Texplas Group of Industries	Member
4. Professor SP Gupta, Director General, COER	Member Secretary
5. Dr. Anita Rawat, Registrar, Uttarakhand Technical University	Member
6. Professor D. Ghosh, Head, E & CE Department, IIT Roorkee	Member
7. Professor RP Saini, Alternate Hydro Energy Centre, IIT Roorkee	Member
8. Maj. Gen.Dr. OP Soni, Director General, COER School of Management	Member
9. Dr. V K Mehta Director, COER	Member
10. Dr BM Singh, Dean Academics, COER	Member
11. Mr. Dhaneshwar Kumar, Assistant Professor, COER	Member
12. Dr. Siddharth Jain, Associate Professor & Head Research Cell	Special Invitee

Dr. Subhash Jain, Secretary, Seth Roshan Lal Jain Trust who is Member of the BOG, expressed his inability to attend the meeting due to other engagements. Nominations of two Members by the State Government are yet to be received.

ITEM 21.1: Hon. Chairman welcomed all the members and thanked them for their gracious presence in the twenty first meeting of the BOG. He then asked the Member Secretary to proceed with the Agenda. The minutes of 20th meeting of BOG was reviewed.

ITEM 21.2: An overview of the Past and Present of COER and COER School of Management (COER SM) was presented by the Member Secretary which is summarized below:

1. COER was founded in 1998 and COER SM in 2006.
2. The Institution is driven by the Vision:
"To impart technical education in Engineering and Management with training, skill up gradation and research in futuristic technologies and niche areas"
3. Present academic programme are: B.Tech (CS/IT/EN/ET/ME/CE/PP), M.Tech (CS/ME), MBA and MCA (Affiliated to Uttarakhand Technical University); BCA, BBA and B.Com in Computerized Financial Accounting (Affiliated to Sri Dev Suman Utarakhand University). Applied for a new program on B Sc Agriculture.

4. Present enrollment of students in the Institution is 2035 (1654 Boys, 381 Girls). COER has 6 hostels for Boys and 3 Hostels for Girls on its campus with a total seating capacity of 2123. Presently 733 boys and 175 Girls are staying in hostels and remaining 1127 are day scholars.
5. In recent times, the Awards and Honors bestowed on COER Chairman and Faculty are:
 - a. Mahamana Award to Hon'able Chairman Shri J.C Jain by Hon'able Governor Smt. Baby Rani Mourya on Malviya Jayanti Samaroh held on Dec 25, 2018 for his long term leadership role for development of the Nation
 - b. Dr. B.M Singh was awarded Youngest Dean Award by Global Education & Corporate Leadership (GECL) , December 2018
 - c. Faculty Gold Partner Award to Mr. Dhaneshwar Kumar by Infosys, Chandigarh, February 2018
 - d. Mr. Subarno Bhattacharyya Best Coordinator Youth Welfare Award by Global Education & Corporate Leadership (GECL), December 2018
6. The End Semester Examinations are conducted by External Examination System with Question Paper Setting and Answer Book Marking done by External Examiners. In January 2019, COER was given responsibility by UTU as Nodal Center for Roorkee region to conduct examination and get answer book evaluated. Faculty members evaluated thirty thousand answer books. The entire process was flawless for which an appreciation was received from the University
7. The COER Library has 38,000 Books Volumes (Print) and more than 2 million eBooks; Journal 130 (Print) and more than 6000 e Journals; a rare collection of 15000 spiritual books; Departmental Libraries in all departments and a small hostel library in all hostels.
8. COER has a number of academic collaborations at national and international level with corporate world. Collaboration with Kuban State Agrarian University (KSAU) Russia in Higher Education, Science and Culture is in process.
9. Students of COER are encouraged to develop working prototypes based on emerging technologies. On Foundation Day of COER in Dec 2018, they displayed about 35 projects covering a range of themes. Some representative projects were :
Algae Lamp, Solar Air Heater, Solar Cycle, Go Kart, IT Solutions (Hackathon), Vertical Axis Wind Turbines, Electricity Generation with Electromagnetic Braking System.
10. Students' participation in Technical Fests of other institutions is commendable. In 2018-19, COER teams participated in UTU Tech Fest , Youthopia- DIT University, Rotary Club Roorkee, Texas Instruments & DST, TECHRITI- IIT Kanpur, Cognizance- IIT Roorkee and won a number of prizes. Fests are organized at COER as well such as Expressions (linguistic), Manthan(Technical), Zion(Cultural), Haritima(Green Earth), Annual Sports and Spic Macay performances.
11. Coordinated by a students' social initiative Praharsh, faculty and students donated 193 units of Blood on March 7,2019 for Himalayan Hospital, Jolly Grant, Dehradun.
12. In 2018-19, Lectures have been organized so far from 10 eminent Experts.
13. In 2018-19, the COER faculty members have published 4 Research Paper in International Journals, 2 in National Journals, 18 in Conferences; 1 International

Proceedings co-edited by Dr. Siddharth Jain; 4 Book Chapters and 2 Patents (applied for) by Dr. Siddharth Jain

14. Since 2003, a number of COERians have made a mark in a range of sectors from startups to global working with corporate leaders like IBM/WIPRO/HCL, Armed forces to public services and academics.
15. Dr. BM Singh presented a brief overview of IQAC that was conducted on 1 Jan 2019 and presented details of Value Added Programs (VAPs) offered at COER to reinforce the syllabus based teaching with skills up gradation to catch up with industry trends. In the current year, the number of VAPs offered to B. Tech has been 8, to M. Tech, MBA & MCA - 4, BCA, B.Com, BBA - 6 and MBA -4 and were aimed at imparted skills in Problem Solving, GATE/CAT/TOFEL/UPSC preparations etc as also Personality Development and knowledge of Foreign Languages. Over an year 64 VAPs are offered to students covering topics such as Computer H/W, S/W & Network Troubleshooting, Web Designing with HTML & PHP, Node JS and Angular JS, Java Script with MySQL, Mobile App Development, Python with Machine Learning, Deep Learning, IOT & Data Science, AutoCAD 3D, Modeling & Simulation of Structural Elements using STAAD PRO, Seismic Analysis of Buildings Using SAP2000 Software, 3 D Printing Technologies, Automation using PLC and SCADA, Designing & Simulations in MATLAB, Polymer Testing etc.
16. Students are encouraged to do one project of industrial importance each year. Number of such projects have been B. Tech. – 425, M. Tech, MBA & MCA - 54, BCA, B.Com, BBA – 44 and MBA – 58. A number of new labs have been developed at COER, namely IBM Lab for Big Data, Cloud and Business Intelligence, Industrial Automation Lab, IoT, Do-It-Yourself, Computer Software, Hardware and Network Troubleshooting, NABL Plastic & Polymer lab, High Voltage Lab (In progress)and 16 out of 28 Labs on Industry 4.0 and 12 labs in Centre of Excellence (CoE) are under development.
17. Dr Siddharth Jain, Associate Professor in Mechanical Engineering and Head, Research Cell presented a brief overview of research activities at COER. He discussed that the major focused areas of research are Renewable energy (biomass & bioenergy and solar thermal energy) , green building & environment and advanced computing. He then briefed about the biomass and bioenergy research activities at COER. He also discussed about the two projects on which patent applications have already been submitted and a third one which is ready for patent application.
18. Mr. Dhaneshwar Kumar, Assistant Professor and Head IT Infrastructure shared experience of students' participation in recently held Smart India Hackathon 2019 Software Edition at Veltech Deemed to be University at Chennai. The COER team of six first year students of B. Tech. including a girl ranked at 10th position out of 32 teams. Another Hackathon at COER was conducted in association of UTU on 8th March 2019. Total 22 teams participated and developed an android notifications app for the UTU which was demonstrated by students to the Honorable members of the BOG.

ITEM 21.3: Discussion on Industry-Academia connect

1.Hon. Chairman Er. JC Jain opened discussion by highlighting the need of industry prepared education for students. In these times of rapidly changing technologies, there should be models

for bridging Industry Academia gap. Education clusters should be created to produce employable manpower. The technical education sector is facing challenges and competition. The Uttarakhand Technical University may form a Coordination Committee for preparing a blue print on mapping of resources, pooling of Experts, centralized major facilities, centralized placement and admission of students and setting up an Industry Academia forum. He laid emphasis on developing laboratory facilities on priority in Automation and Robotics, Electric Vehicles, Solar energy and Software development.

2. Dr. Anita Rawat, Registrar, UTU laid emphasis on organization of Placement Drives at UTU Campus and Creation of Industry Academia forum in UTU for bridging education gap. She also suggested that for Bio Diesel research being carried out at COER, avenues of collaboration should be explored with the Indian Institute of Petroleum, Dehradun.

3. Dr. Anita Rawat also recommended Internship Programmes for students of First & Second Semester, which could be undertaken in part(s) and could also be done with NGOs. Thereafter in the remaining years, it should be further build up and remain focused on employability. To this end, she suggested that proposals to this effect may be sent to UTU.

4. Mr. Shriyance Jain suggested about how COER can contribute to entertainment industry by working on post movie production area in which Movie Editing, Special Effects and Graphics etc can be taught.

5. Professor D. Ghosh highlighted following new technologies in the field of computer science for COER's Value Added Program: Cyber-physical system, Network and cyber security, Big data analysis, Cloud computing, IoT and 5G communication. He further suggested that COER students and faculty should attend short term courses (STC) offered at IIT Roorkee, Delhi and Kanpur. IITK conducts STC on Cognitive communication and MIMO once or twice every year. In IITR, E & ICT academy frequently conducts many STCs on topics in CS and ECE. The Joint Telematics Group of all IITs and IISc organizes summer school every year which the ECE students of COER may attend. Also, it may be a good idea to organize workshops and short term courses at COER itself where people from industries can be invited as resource persons which eventually will help to promote collaboration with industries.

6. Maj Gen (Dr) OP Soni, recommended that interdisciplinary programmes should be introduced to skill and prepare students for industry

7. Professor RP Saini suggested a number of technologies, as listed below, in field of renewable energy which may be considered for value addition:

Futuristic/ Emerging Technologies

(a) Renewable Energy

Innovations of hydrokinetic turbine technology

Effects of sedimentations of hydro turbines

Development of smart technologies to reduce the effects on flora and fauna

Use of new materials for transient phenomena in closed conduits of SHP

Fluid-Structure Interaction (FSI) analysis to study the performance of fluid machines

Case study of underground hydropower plant

(b) Solar PV Systems

- Dye-sensitized and luminescence solar cells for building integrated PV applications
- Performance analysis of PV technologies in coastal areas
- Impact of dust and soiling on the performance of PV systems
- Degradation analysis of PV systems
- Grid interaction of PV systems and its power quality improvement
- MPPT of PV system with low cost controllers
- Electrical array reconfigurations controller (EARC) for PV systems
- Implementation of PV system with novel dynamic array reconfigurations
- PV water pumping systems with dynamic and steady-state analysis
- Performance analysis of PV systems with different water heating solar collectors

(c) Solar Thermal Systems

- Use of Nano carbon coated absorbers to enhance the performance of solar air heater
- Use of Nano particles on solar water heater to enhance heat carrying capacity of water
- Water Purifications with Nano particles (Electro-static atomized water particle by cutting edge nanotechnology)
- Techno-economic analysis of solar thermal systems in residential building sectors to promote the concept of green energy buildings, nearly zero energy buildings
- Use of PCM in thermal energy storage for solar still

(d) Bio Fuel

- Economical and feasible raw material for bio diesel
- Oxidation, thermal and storage stability of bio diesel
- WIND POWER
- Resource assessment for wind power generations
- Use of IOT techniques for wind potential assessment
- Environmental Issues
- Effects of manufacturing and installation of SHP
- Effect of climate change on water resources
- Effects of vibration, turbulence, noise and chemical contaminant on the aquatic wildlife environment
- Economic and technical considerations in various alternatives water-augmentation strategies
- Economic and technical considerations in various alternatives water-augmentation strategies
- Miscellaneous
- Techno-economic analysis of hybrid energy systems
- Use of artificial intelligence (AI) and Internet of things (IOT) in integrated renewable energy systems (IRES)
- Smart grid, Mini/Micro grid
- New material/ Nano particles materials
- Development of new strategies for hydrogen energy storage
- Innovations in wave energy conversion technologies

Professor Saini also suggested a few topics, listed below, for FDPs in the field of renewable energy

- Innovations of hydrokinetic turbine technology
- Effects of sedimentations of hydro turbines

Dye-sensitized and luminescence solar cells for building integrated PV applications
Impact of dust and soiling on the performance of PV systems
MPPT of PV system with low cost controllers
Grid interaction of PV systems and its power quality improvement
Use of IOT techniques for wind potential assessment
Effect of climate change on water resources
Use of artificial intelligence (AI) and Internet of things (IOT) in integrated renewable energy systems
Use of Nano particles materials in renewable energy technologies

ITEM 21.4: Recruitment of Faculty Members: Sanctioned Post revised by the BOG as per AICTE Norms (Faculty to Student Ratio 1:20) of 2018-19.

In his concluding remarks the Hon. Chairman thanked all members for their valuable inputs. The Member Secretary proposed a Vote of Thanks to the Chair.


(Member Secretary)