

**MEMORANDUM OF UNDERSTANDING
FOR
INSTITUTIONAL COLLABORATION**

BETWEEN

NATIONAL INSTITUTE OF TECHNOLOGY (NIT) DELHI

AND

**CSIR – CENTRAL ELECTRONICS ENGINEERING RESEARCH
INSTITUTE (CSIR-CEERI)**



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This Memorandum of understanding (hereinafter referred to as “MoU”) entered into on this day of November 20, 2024 by and between:

NATIONAL INSTITUTE OF TECHNOLOGY (NIT) DELHI, is a constituent Unit of Ministry of Education, Govt. of IDNIA, a deemed to be university, having its office at New Delhi 110036

AND

CSIR – Central Electronics Engineering Research Institute, Pilani is a constituent establishment of the Council of Scientific and Industrial Research, New Delhi, having its campus and administrative office in Pilani – 333 031, Rajasthan, India.

The National Institute of Technology, Delhi is one of ten NITs established during the 11th Five Year Plan by the Ministry of Education (MOE), Govt of India. NIT Delhi is an autonomous Institute which functions under the aegis of Ministry of Education, Government of India. It aims to provide instructions and research facilities in various disciplines of Engineering, Science and Technology, Management, Social Sciences and Humanities for advance learning and dissemination of knowledge. The institute presently has 6 academic departments with 8 undergraduate programmes, 8 post graduate programmes and PhD & Post-Doc programs in running every discipline of sciences and engineering.

CSIR - Central Electronics Engineering Research Institute (CSIR-CEERI), Pilani is a premier research Institute in the field of Electronics, established in 1953 under the aegis of **Council of Scientific & Industrial Research (CSIR)**. It is devoted to R&D activities in three areas, namely: (1) Advanced Electronic Systems: Image processing and DSP, Internet of Things (IoT), Embedded System Design, Electronic Instrumentation, Industrial Control & Automation, Power Electronics, Robotics, VLSI Design (Digital, Analog, Mixed Signal), etc.; (2) Advanced Semiconductor Electronics: MEMS, Micro-sensors, Opto-electronic Technologies, Photonic Devices and Sub-systems, Nano-electronics, LTCC and Advanced Packaging technologies, etc.; (3) Microwave Tubes: Klystron, Magnetron, Travelling Wave Tubes, Gyrotron, Plasma Tubes, Tera Hertz devices etc. CSIR-CEERI also has Centres at Chennai and Jaipur.

Collectively hereinafter referred to as “institutions”

This MoU is based on the principal of reciprocity and expresses the interest of both institutions in exchanging scholars, students, academics information and materials in the belief that the research and educational process at both institutions will be enhanced and that mutual understanding between their respective scholars and students will be increased by the establishment of such exchange programs as per CSIR Guidelines.

1. The institutions agree to encourage the development of the following exchange programs based on their respective academic and educational needs:
 - Exchange of scientific staff
 - Exchange of students (undergraduate and/ or graduate)
 - Joint supervision of M. Tech, M.S. and Ph.D. students
 - Exchange of academic information and materials
 - Exchange of periodicals and other publications
 - Organization of joint research programs
 - Organization of joint conferences and societal programs
 - Organization of other academic exchanges agreeable to both institutions
 - Use of laboratory facilities on mutually agreed terms and conditions
 - Virtual incubation and entrepreneurial programs for technology related capacity enhancement programs

Areas to start this collaboration are listed in Annexure 1. Both the institutions can revisit this list after mutual consultation. The above activities shall be undertaken as per CSIR guidelines.

2. The parties recognize that the implementation of any exchange program will depend upon the academic interests and expertise of individual staff members and upon the availability of financial resources. Accordingly, the implementation of each exchange program based on this agreement shall be separately examined





and determined by both institutions. The institutions shall enter into separate agreements regarding the individual exchange programs.





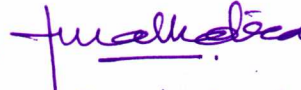





3. Faculty/ Scientists of either of the institute initiating collaborative work will take care of the usage of their institute resources and conduction of activities as per institute norms. A faculty member from NIT Delhi will coordinate with a scientist from CSIR-CEERI for the implementation of this initiative.
4. Each institution will adhere to the intellectual laws of India. Intellectual property developed during the visit of an exchange student/researcher/faculty/staff will be governed by the rules of the host institute unless otherwise specified. The two institutions shall jointly own the results of clearly defined collaborative projects and exchange programs. This joint ownership also entitles each party to explore commercialization. However, the transfer of jointly developed technology and associated sharing of revenue shall be governed by a separate agreement. This cost of IP filing will be equally shared by both Institutions.

Furthermore, if one institution receives any information from the partner under a clearly defined non-disclosure agreement, necessary and reasonable care will be taken to protect the intellectual property received.

5. This MoU is not intended to be a legally binding document. It is meant to describe the nature and to suggest the guidelines of the cooperation described above. Nothing therefore shall diminish the full autonomy of either institution, nor will any constraints be imposed by either upon the other in carrying out the agreement. Any disputes shall be resolved through mutual discussion between the highest officials of the respective institutions.
6. Any addition, deletion and /or alteration to this MoU may be effected by writing. A document containing the additions, deletions and /or alterations, and signed by all Parties hereto, shall form an annexure to and be deemed to be a part of this MoU.
7. The agreement shall become effective on the day representatives of both institutions affix their signatures and seals, will be in force for a period of 5 years, and is subject to revision or modification by mutual agreement. It is also understood that either institution may terminate the agreement at any time, although it is assumed that such action would only be taken after mutual consultation at least six months in advance in order to avoid any possible inconvenience to the other institution.



IN WITNESS WHEREOF, the institutions hereto have offered signatures:

For: National Institute of Technology (NIT) Delhi, New Delhi 110036	For: CSIR – Central Electronics Engineering Research Institute, Pilani
Signature: 	Signature: 
Name: Prof. Ajay Kumar Sharma, Director, NIT Delhi	Name: Dr. Manish Mathew Head TBD, CSIR-CEERI, CEERI Pilani
Date: 22.11.2024	Date: 03/12/2024
Seal:  डॉ अजय कुमार शर्मा Dr. Ajay Kumar Sharma Director/निदेशक राष्ट्रीय प्रौद्योगिकी संस्थान दिल्ली National Institute of Technology Delhi	Seal:  प्रमुख, प्रौद्योगिकी व्यवसाय विकास यूनिट Head, Technology Business Development Unit सीएसआईआर-सीरी / CSIR-CEERI, पिलानी (राज.) भारत / Pilani (Raj.)333031 INDIA
Witness:	Witness:
Signature: 	Signature: 
 अधिष्ठाता (अनुसंधान एवं परामर्श) Dean (Research & Consultancy) राष्ट्रीय प्रौद्योगिकी संस्थान दिल्ली National Institute of Technology Delhi	Name: Dr. Mahant Prasad वरिष्ठ प्रधान वैज्ञानिक / Senior Principal Scientist सीएसआईआर - केन्द्रीय इलेक्ट्रॉनिकी अभि. अनु. संस्थान CSIR - Central Electronics Engg. Res. Institute पिलानी, (राजस्थान) भारत / Pilani, (Rajasthan) 333031, India
Name: Prof. Jyotesh Malhotra	Name: Dr. Mahant Prasad
Designation: Dean Research and Consultancy, NIT Delhi	Designation: Senior Principal Scientist
Signature: 	Signature: 
 विभागाध्यक्ष / Head of the Department इलेक्ट्रॉनिक्स एवं संचार अभियंत्रिकी विभाग Dept. of Electronics and Communication Engineering राष्ट्रीय प्रौद्योगिकी संस्थान दिल्ली National Institute of Technology Delhi दिल्ली / Delhi - 110036, भारत / India	Name: DRAMOD PANWAR .
Name: Dr. Rikmantra Basu	Name: DRAMOD PANWAR .
Designation: Head of the Department, Electronics and Communication Engineering (ECE), NIT Delhi	Designation: प्रमुख पी.एम.ई. / Head PME सीएसआईआर-केन्द्रीय इलेक्ट्रॉनिकी अभियंत्रिकी अनुसंधान संस्थान CSIR-Central Electronics Engineering Research Institute पिलानी, राजस्थान / Pilani, Rajasthan-333031

Annexure 1

For MoU between NIT DELHI and CSIR-CEERI, Pilani

Technical Areas from NIT DELHI (*but not limited to*)

1. Machine Learning
2. Sensors Design & Fabrication
3. Imaging and Multimedia
4. IoT and Smart Embedded systems
5. Energy Harvesting Systems
6. VLSI Design and CAD
7. Semiconductor Design and Fabrication
8. Solid state microwave and Plasma Devices & Systems
9. Power Electronics & Industrial Engineering

Technical Areas from CSIR-CEERI (*but not limited to*)

1. Computer Vision, Machine Learning and Artificial Intelligence Algorithms
2. Signal Processing
3. Instrumentation & Optimization Techniques
4. IoT Technology and systems
5. Cyber Physical Systems
6. VLSI Design, Embedded Systems and Real time Embedded and IoT Applications
7. Nano-sensors, Nano-devices and Advanced Packaging
8. Next Generation semiconductor Microsystems (GaN/ GaAs/ Diamond/ SiC/ advanced MEMS microsystems)
9. Solid state microwave Devices & Systems (RF/ 5G/ 6G/ Antenna/ MMIC Devices and systems)
10. Power Electronics
11. Plasma & Microwave Devices

CSIR-CEERI has expertise in Semiconductor Processes, Device design and fabrication with state-of-the-art facilities and is planning to offer short duration training on same, under **Semiconductor High Impact Learning Program (SHILP)** and other Government initiatives. In UG/ PG/ PhD programs of NIT Delhi offers Electronics courses with semiconductor, CMOS, VLSI Design and related fields as their constituents. Students from NIT DELHI, shall visit CSIR-CEERI to get a practical understanding of Semiconductor Design & Fabrication processes. This may be included, as part of their curriculum where students from each affiliated college shall get an opportunity to visit and execute semiconductor labs related training at



CSIR-CEERI, as per CSIR Guidelines on chargeable basis. CSIR-CEERI shall demonstrate following to the students:

- Demonstration of Semiconductor Unit processes
- Unit process integration, to realize a devices/ device structure
- Unit Process Characterizations and
- Device characterization

CSIR-CEERI would offer a bouquet of programs with duration varying from one week to one month for UG and PG students of affiliated/ constituent institutes of NIT Delhi. A calendar of the courses and programs would be made available to the institutes. NIT Delhi, will proliferate it and motivate the target students to take maximum advantage of these facilities.

UG, PG and PhD students enrolled at NIT Delhi would be exposed to the facilities at CSIR-CEERI, in order to take suitable topics of their curriculum/ research where they can harness the facilities of CSIR-CEERI.

Under various schemes, NIT Delhi and CSIR-CEERI would coordinate joint Faculty Development Programs for the engineering teachers.

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