MEMORANDUM OF UNDERSTANDING

Between

ALL INDIA COUNCIL OF TECHNICAL EDUCATION [AICTE],

RAJASTHAN TECHNICAL UNIVERSITY [RTU]

&

ENGINEERING COUNCIL OF INDIA [ECI],

RAJASTHAN

24TH NOVEMBER, 2017

MEMORANDUM OF UNDERSTANDING (MoU)

This Memorandum of understanding is entered into amongst the

(1) All India Council of Technical Education having its registered office at Nelson Mandela Marg, Vasant Kunj, New Delhi-110 067 represented by its Vice Chairman (hereinafter called "AICTE " or "First Party" which expression shall where the context so admits include its successors and permitted assignees); and

(2) Rajasthan Technical University (RTU) having its registered office at Rawatbhata Road, Kota-324010 (hereinafter called "RTU or the "Second Party" which expression shall where the context so admits include its successors and permitted assignees); and

(3) Engineering Council of India having its registered Office at 1304, Hemkunt Chambers, 89, Nehru Place, New Delhi – 110 019 represented by their Member Secretary (hereinafter called "ECI" or "Third Party" which expression shall where the context so admits include its successors and permitted assignees)

WHEREAS, AICTE became a statutory body through an Act of Parliament 52, in 1987, with a view to the proper planning and co-ordinated development of the technical education system throughout the country, the promotion of qualitative improvement of such education in relation to planned quantitative growth and the regulation and proper maintenance of norms and standards in the technical education system for matters connected therewith. AICTE to take all such steps as it may think fit for ensuring coordinated and integrated development of technical education and maintenance of standards and for the purposes of performing its functions under this Act.

WHEREAS, RTU is an affiliating University located in Kota in the State of Rajasthan, India. The Government of Rajasthan established the University in 2006, to enhance technical education in the State.

WHEREAS, ECI is registered as a not–for-profit Society under the Societies Registration Act, 1860 and is the prime institution to standardize and harmonize, in various major engineering disciplines, professional practices in India and competency standards of practicing professionals with their counterparts in other member countries of WTO,

having among their founding members Planning Commission (Now NITI Aayog), All India Council for Technical Education (AICTE), National Board of Accreditation (NBA), Central Public Works Department (Ministry of Urban Development), Department of Commerce (Ministry of Commerce & Industry), Dept. of Secondary and Higher Education (Ministry of HRD), Department of Scientific and Industrial Research, Council of Scientific & Industrial Research & several other Professional Institutions.

This Memorandum of Understanding aims to harness the emerging technologies, where the students of technical courses are given the opportunities to work as interns to become employable.

The MoU envisages applications on two technologies in the initial stages & may consider expanding the ambit at opportune time.

The two areas are as follows:

PART – A: To set up water conservation units through charging of Aquifers.

PART – B: To learn the operational systems to use the unmanned flying vehicles, known as Drones & to use these for multiple purposes like hydrography, Natural Disaster Predictions & management, Manage Bio Diversity etc.

PART A - Scope and objectives (Water conservation & Recharging of Aquifers):

India is now facing a water situation that is significantly worse than any that previous generations have had to face. All Indian water bodies within and near population centres are now grossly polluted with organic and hazardous pollutants. Surface water conditions are bad. However, the groundwater situation is even worse. Groundwater extraction is growing and has become increasingly unsustainable. Consequently, in many parts of the country, groundwater levels are declining steadily. In some parts, the levels are declining by more than one metre per year.

Due to deforestation and the consequent ecological imbalance, the water level beneath the ground is being depleted day by day. As known to all, the constant rising demand of water supply, especially population in the desert area (i.e. Rajasthan) and the urban areas does not match with the surface water sources, as a result of which the water reserves beneath

the ground level are overexploited. This consequently results in the water level depletion.

With the untiring efforts made by the scientists in the field of hydrogeology, special techniques for recharging ground water level have been developed recently.

- Water harvesting, apart from recharging the ground water level, increases the availability of water at a given place at a given point of time.

- Aquifer mapping, a multi-disciplinary holistic scientific approach for aquifer characterization leads to aquifer-based groundwater management. Mapping of aquifers helps determine the quantity and the quality of groundwater in a particular area.

- Recharging, storage and recovery of Aquifers, a process to replenish ground water stored in aquifers for beneficial purposes.

Some of the highlights are –

Salient Features

- The system works on a filtered injection method and uses only one square feet of surface space.

- It can harvest & store rainwater upto the capacity up to Twenty Million Liters (based on the size of the aquifer) and store it underneath the ground level for re-use through pumping. In other words, it has Zero Water Footprint since it harnesses, stores and re-uses the rainwater, year-after-year by creating an injection & drafting water cycle!

- This is designed and erected with site-specific parameters and after topography, contour, scientific geo-physical, hydrological and soul study which includes soil characteristics, gradient, water catchment - quantum, water momentum etc.

- With an estimated life of 30+ years, this has virtually Zero Maintenance Cost!

Advantages

- This provides the most effective Rainwater Harvesting & Flood Water Clearance System with a huge storage capacity for the harnessed water. This helps in combating the water-logging issue in the estate.

- The stored water can be lifted through pump, as and when required. This works out much cheaper, as compared to the conventional modes like bore well, check dams, canals etc.

- Once erected, this works almost as a self-managed system, which provides solution to water-logging on one hand and provides huge quantity of water for use, on the other hand!
- **Shall reduce the cost of usable water in the campus & inter-alia enable the students to learn this novel technique, which would enable them to become Employable.**

The pilot project will be carried out in two phases. The vital elements and the respective obligation of each party of this association are detailed as under :

Phase –I

AICTE	-	Issue necessary directives to Institutions & other organisations who fall in their jurisdiction.
RTU	-	Arrange for the Project to be conducted in approx. seven (7) campuses under RTU.
ECI	-	Through its members will provide the Intellectual inputs & Technology & oversee the successful implementation of the project. The focus shall be on training & grooming the students under the mandatory internship program.

Phase –II

This program will be carried out across the State of Rajasthan.

On successful completion of the Pilot project, AICTE will include this as accredited internship program across the nation, through similar working arrangements with other Technical Institutions/ Universities.

PART B - Scope and objectives (DRONE TECHNOLOGY) :

An unmanned aerial vehicle (UAV), commonly known as a drone, is an aircraft without a human pilot aboard. Drones are a component of an unmanned aircraft system (UAS); which include a UAV, a ground-based controller, and a system of communications between the two. The flight of UAVs may operate with various degrees of autonomy: either under remote control by a human operator or autonomously by onboard computers.

Compared to manned aircraft, drones were originally used for missions too "dull, dirty or dangerous" for humans. While they originated mostly in military applications, their use is rapidly expanding to commercial, scientific, recreational, agricultural, and other applications, such as policing, peacekeeping, and surveillance, product deliveries, aerial photography, agriculture, smuggling, and drone racing. Civilian drones now vastly outnumber military drones, with estimates of over a million sold by 2015, so they can be seen as an early commercial application of Autonomous Things, to be followed by the autonomous car and home robots.

All the signatories would work to make the Drone Technology popular in India. This Memorandum of Understanding aims to have a tie up in all aspect of Drone Technology, in three work areas:

1. Identify training programs
2. Conduct training of trainers
3. Trained trainers to do the training in India

The work areas listed above shall be in

i) Hardware/ Designing/ manufacturing of Drones of various capacities and usages,

ii) Drones Operation,

iii) Drone Maintenance and

iv) Interpretation of the Data collected by the drones with respect to the various sectors.

ECI shall be responsible to organize availing this technology, through their member associations & AICTE along with the RTU shall encourage their students & the faculty members of accredited Institutes to participate in such training other elements of cooperations shall be similar as described in PART – A, above.

All Rules and Regulations laid down by The Directorate General of Civil Aviation (DGCA) regarding activities listed at S.No. 3 above; selection of candidate; imparting training etc. in the area of Drone Technology shall be complied by all parties.

The above arrangements would be valid for a period of Three years and could be renewed thereafter with mutual consent.

OR

Notwithstanding anything stated in this Memorandum of Understanding elsewhere, this Understanding could be expanded to encompass exigent requisites by mutual consent and could also be terminated by giving a notice of 6 months on either side.

In witness, we have set our hands to this MoU, this on **24th November, 2017 in MNIT, Jaipur, Rajasthan**.

(Prof. M. P. Poonia)
(Vice Chairman-AICTE)
(First Party)

24/11/17

(Prof. Rajeev Gupta)
(Pro Vice Chancellor-RTU)
(Second Party)

Prof. Rajeev Gupta
Pro Vice Chancellor
Rajasthan Technical University
Kota (Raj.)

(Dr. P. R. Swarup)
(Member Secretary-ECI)
(Third Party)