

MAU Committee  
met - 8/7/08  
at 7 PM and

DRAFT

Memorandum of Understanding

To be put up before  
the MAU committee.  
8/7/08  
Sy Director

approved the  
proposed MAU. Pl do the needful.  
Between



8/7/08

**THE INDIAN SPACE RESEARCH  
ORGANISATION, BANGALORE  
(ISRO)**

&

Deem (AA&IR)

**INDIAN INSTITUTE OF TECHNOLOGY  
KHARAGPUR  
(IIT - KH)**

On the continuing research and development activities

**THE ISRO - IIT KHARAGPUR  
SPACE TECHNOLOGY CELL**

July 2008

**MEMORANDUM OF UNDERSTANDING  
BETWEEN  
THE INDIAN SPACE RESEARCH ORGANISATION (ISRO)**

**AND**

**INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR (IIT – KH)  
ON THE SETTING UP OF THE**

**ISRO-IIT KHARAGPUR SPACE TECHNOLOGY CELL**

*11TKGP is  
not standard*

The Indian Space Research Organisation of the Department of Space, Government of India (referred to hereafter as ISRO) and Indian Institute of Technology, Kharagpur (referred to hereafter as IIT – KH) have both: Recognised the imperative need to generate basic knowledge through advanced academic research to enable a truly self-reliant and self generating space programme for the country in the coming years. Noted with satisfaction the extensive use by ISRO of the results of various research efforts in space <sup>number 7</sup> related technologies *Hyphen* at IIT – KH, been convinced that sufficient skilled scientific and technical personnel exist in ISRO and IIT-KH, who can conduct basic advanced research and tackle multi-disciplinary problems in space technology and its applications; and that a strong research base already exists in IIT- KH in areas of direct relevance to the future programmes of ISRO. *proposed sentence construction* The co-operation between the two organizations over the last twenty years and the setting up of ISRO-IIT Kharagpur Space Technology Cell in 1998 have been beneficial and the two organizations have now identified some specific areas where more emphasis could be laid on in the field of space technology. The broad areas now identified for carrying out collaborative research work are:

1. Liquid Combustion, Propulsion and Cryogenics
2. Space Communications and EMI/EMC
3. Micromachine Sensors
4. Control, Navigation and Guidance
5. Embedded Systems and IP-Cores
6. Life Support Engineering
7. Smart Materials & Exotic Materials
8. Power Electronics
9. Space Education
10. Electronic devices
11. Cryogenics

However, the Joint Policy Committee (JPC), as detailed in Article 3, shall review and recommend such research proposals which are relevant to Space research activity falling outside the above mentioned broad areas of research.

The two organizations agree to continue their activities that has been established earlier and further strengthen and develop the link between ISRO and IIT – KH through the instrument of this Memorandum of Understanding as follows:

#### ARTICLE 1

The ISRO – IIT Kharagpur Space Technology Cell will continue to carry out its research and development within the premises of IIT-KH and Department of Space (DOS).

#### ARTICLE 2

The cell, through its personnel, shall devote its resources to the conduct of advanced research in areas of relevance to the future technological needs of the Indian Space Programme. The research work will be directed to maximize the use of the research potential, infrastructure, expertise and experience already existent in ISRO and IIT – KH. The specific areas of research will be delineated by a Joint Policy Committee (Article 3) from time to time.

#### ARTICLE 3

A Joint Policy Committee (hereafter referred to as JPC) shall be constituted jointly by the Director, IIT-KH and the Chairman, ISRO with appropriate representation from IIT-KH and ISRO and it will plan, programme and periodically review the research programme and related activities of the Cell and ~~to~~ approve the annual budget of the Cell. The JPC may also consider other matters relating to the Cell but shall not deal with administrative matters concerning the functioning of the Cell, though it may provide advice to the Chairman of the Cell on such matters.

The JPC shall meet as frequently as necessary, but at least once a year.



Review groups, consisting of nominees of the IIT-KH and ISRO and the investigators of the projects operative in the Cell will review the progress of the work being carried out from time to time. These review groups will also suggest specific areas of work that could be undertaken in the Cell.

The groups should normally meet with an interval of three to six months.

*1 new rule*

#### ARTICLE 4

The staff of the Cell shall consist of faculty members, visiting scientists, research personnel, technical and administrative support staff. For the direction and administration of the Cell, a senior member of the faculty in the rank of Professors of IIT – KH shall be designated as the Chairman of the Cell, who shall be wholly responsible for the day<sup>to</sup> to<sup>day</sup> functions of the Cell and for recommending all expenditures from the approved budget of the Cell. The Chairman of the Cell shall be ex-officio Convener of the Joint Policy Committee (JPC). The Dean, Sponsored Research & Industrial Consultancy (SRIC), IIT-KH, on behalf of the Director, IIT –KH shall be responsible for the overall administration and financial management of the Cell and the projects undertaken in the Cell including recruitment of personnel, approving and processing purchases, TA/DA, advances, etc. The number of scientific / technical and administrative support staff shall be limited to a number that ensures that there are adequate financial and other inputs per person available for the work to be done.

#### ARTICLE 5

##### RESPONSIBILITIES OF ISRO

1. (a) ISRO shall support a building space at an appropriate time in IIT-KH campus to house the new laboratories of the future relevant to cell activities of IIT-KH.
- (b) <sup>*d?*</sup> Requirement equipments for the above laboratories, including licensed software and their subsequent procurement will be staggered and considered alongwith the funding requirements of related research projects which would be initially. *?*
- (c) A recurring annual grant of <sup>*two words*</sup> upto Rs. 20.00 lakhs towards ISRO's share of the salary of support & technical staff of the Cell, administrative expenses inclusive

of travel, daily allowances and contingency and purchase and annual maintenance of existing equipment / accessories software and other materials / consumable required for research work.

(d) Shall provide financial assistance to support two <sup>numbers</sup> ~~no.s~~ high value ISRO fellowship to take up high end research in IIT-KH. The fellowship for the purpose can be fixed @ Rs. 25,000/- per month per person along with a contingent grant of Rs. 8000/- per month. The incumbent of such fellowship shall be a Ph.D student with outstanding academic achievement and the recruitment shall be made under the recommendation of JPC and specific approval of Chairman, ISRO. However, such positions will have to be identified exclusively for ISRO projects. Any change in the <sup>number</sup> ~~no.~~ of such positions will be reviewed by JPC as and when required.

(e) Establish a two Research Chairs in IIT, Kharagpur open to outstanding scientists/engineers who have an excellent track record and a good standing in research and development activities. Such Chair Professors shall guide advanced research which are relevant to Space Science/Technology. ISRO shall provide a recurring annual grant of Rs. 5 lakhs per Chair. However the number of chairs to be created will be decided mutually by ISRO and IIT-KH after identifying the actual area of research. The Chair professors will be appointed by a committee comprising of Director, IIT Kharagpur, Scientific Secretary, ISRO and an expert. *Seems low for a chair fellowship may be for top-up.*

(f) A suitable annual grant, when considered appropriate by ISRO and the JPC, for the conduct of projects research schemes by the Cell. This grant for project schemes shall not exceed Rs. 250.00 lakhs in any single financial year. This grant shall be utilized for specific STC – Cell projects of interest to ISRO and IIT Kharagpur to be executed using the norms of Sponsored Research & Industrial Consultancy of IIT – KH.

(h) Review workshop expenses Rs.6.00 Lakhs. *will be provided every year? not clear*

(i) The grants will be governed by the rules in force, and the terms and conditions in the sanction orders should be followed by IIT-KH.

2. ISRO Scientists/Engineers deputed to the Cell for periods of work related to the research programmes of the Cell shall continue to be ISRO employees and paid by the ISRO
3. ISRO shall permit, as per ISRO rules, the authorized visit to ISRO establishments of the regular and the visiting staff of the Cell in connection with the work of the Cell.

#### ARTICLE 6

#### RESPONSIBILITIES OF IIT- KH

The IIT-KH shall:

1. Carry out regular maintenance of the ISRO-IIT Space Technology Cell.
2. Contribute a one-time grant of upto Rs. 8.00 lakhs as its share towards the cost of remodeling the infrastructures needed towards proposed enhanced facilities.
3. Contribute a recurring annual sum of upto Rs. 4.00 Lakhs towards its share of the salary of the support staff and the administrative expenses of the Cell in addition to providing general overheads of water/electric supply, general support etc.
4. Continue to consider IIT-KH faculty members and scientists seconded to the Cell or to any of the DOS/ISRO centers in connection with the work of the Cell as IIT-KH STC project staff paid by IIT-KH.
5. Make available its administrative machinery for work related to the administrative functioning of the Cell including.
  - (a) Arranging, if necessary, civil construction for accommodating the Cell, electrical wiring, water lines, etc;
  - (b) Selecting and appointing from time to time with concurrence of the JPC scientific/technical and administrative staff for the Cell;
  - (c) Providing necessary administrative and logistic support including transport, as per IIT-KH rules, necessary for the functioning of the Cell;



- (d) Utilising, as per IIT-KH rules, various grants, received from ISRO, for approved work and activities related to the Cell, maintaining a separate audited account of these grants and sending copies thereof along with utilization certificates to ISRO (see also Article 5 Para 1[d]).
- 6. Treat the Cell Research personnel including its scientists as equivalent to IIT-KH project staff for the purpose of allowing them the use of libraries, computer centre, and other technical facilities as and when necessary, the computer facilities being charged for as in the case of projects managed by the faculty.
- 7. Allow as per IIT-KH rules, hostel/residential/guest house accommodation and other welfare amenities of IIT-KH to the staff and visiting scientists of the Cell.
- 8. Foreign travel, if any, will be provided out of the budget of the Cell based on detailed justification and with specific approval of Chairman, ISRO/Secretary, DOS.

#### ARTICLE 7

The financial contributions of ISRO and IIT-KH specified in Articles 5 and 6 of this Memorandum of Understanding may be revised from time to time, if advised by the JPC and if mutually agreed to by ISRO and IIT – KH. The actual release of ISRO and IIT – KH of grants for the Cell will be made as per their respective rules and procedures.

#### ARTICLE 8

The Chairman of the Cell shall submit to the JPC, and Annual Report on the activities of the Cell including in it such financial information as may be asked for the JPC. He shall also submit to the JPC such other periodic reports as may be called for by the JPC.

#### ARTICLE 9

The tenure of this Memorandum of Understanding, and hence of the Cell, shall be 5 years from the date of signing of this Memorandum of Understanding. Unless opted otherwise by either of the signatory – parties to this Memorandum of Understanding, the tenure shall be renewed automatically.

#### ARTICLE 10

All disagreements/differences of opinion / disputes regarding the interpretation of the provisions of this Memorandum of Understanding shall be resolved by mutual consultation by the signatories .

No payments owing to either ISRO or IIT-KH by the other shall be withheld pending resolution of any differences of opinion, unless such payment is the subject of the dispute.



IN WITNESS WHEREOF the undersigned, duly authorized thereto, have signed this Memorandum of Understanding.

Done at in two originals.

*Chairman, ISRO/Secretary, DOS*

*Director, IIT Kharagpur*

*for the Indian Space Research  
Organisation (ISRO)*

*for the Indian Institute of Technology  
Kharagpur (IIT-KH)*

Witness

Witness

1. Signature :

Name :

Designation :

Affiliation :

1. Signature :

Name :

Designation :

Affiliation :

2. Signature :

Name :

Designation :

Affiliation :

2. Signature :

Name :

Designation :

Affiliation :