

UNIVERSITY GRANTS COMMISSION
BAHADUR SHAH ZAFAR MARG
NEW DELHI 110 002

REPORT OF THE EXPERT COMMITTEE TO CONSIDER THE PROPOSAL OF
~~INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY~~
THIRUVANANTHAPURAM FOR DEEMED TO BE UNIVERSITY STATUS

Background: Indian Institute of Space Science and Technology (IIST) has been registered under Travancore – Cochi Literary, Scientific and Charitable Societies Registration Act No. 12/1995 vide Serial No. T 25/07 year 2007 with the purpose of establishing a Deemed to be University under Section 3 of the UGC Act, 1956 (Annexure-I). The proposed institute would be fully funded by the Department of Space, Government of India. The main purpose of the proposed deemed university is to provide trained manpower to the Indian Space Research Organization (ISRO). ISRO is likely to induct about 350 bright engineers annually to meet its challenging target. The curriculum at IIST will be custom-built taking into consideration the requirements of technologies being pursued in ISRO while keeping the generic requirement of engineering and science content intact. The Institute will have two 4 year B.Tech programmes in the fields of Avionics, Aerospace and 5 year integrated Master of Science programme in Applied Science. The integrated masters programmes will have specializations in Astronomy and Astrophysics, Atmospheric/Oceanographic Science, Material Science and Remote Sensing & GIS. Further, the Institute will in the near future also offer Post Graduate courses in engineering, research programmes in specialized fields of Space Technology & Science and a few post doctoral programmes in close association with ISRO.

The Institute will have an intake of 150-200 students per annum who will be selected on all India basis. All the high performing students coming out of this Institute will be absorbed into ISRO stream with a condition that they will have to serve ISRO for a minimum period of 5 years.

Taking into account the above requirements, the Department of Space proposes to have this deemed university in or around Thiruvananthapuram close to the ISRO Centres, Viz. Vikram Sarabhai Space Centre, Liquid Propulsion Systems Centre and ISRO Internal System Unit, so that a continuous close interaction between ISRO and the institute can be had. The Department of Space, Govt. of India has proposed 200 faculty positions and 129 non-faculty positions for the proposed deemed university out of which one position of Director and 10 faculty positions have already been approved by the Cabinet and the proposal for

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approval of remaining positions is with the Finance. (Annexure - II). At present, the Institute has filled up 22 positions (Annexure - III) in order to fulfil the current requirement.

ISRO has been involved in development of cutting edge technologies, which are of national importance and relevance. The Institute faculty and research students will have unique opportunity of closely associating themselves with development of these..

The Institute has already purchased 81.50 acres of land and drawn its plans for development of campus with an initial carpet area of 70,000 square meters which includes academic block, laboratories, administrative block, library and information centre, hostels and dining for students, housing for faculty and other staff, guest house, sports complex, multipurpose activity hall for students.

Composition of Expert Committee

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| 1. Prof. R. Natarajan,
(Former Chairman, AICTE)
52/1, 13 th Cross Road,
4 & 6 Main Road,
Malleswaram, Bangalore – 560003. | Chairman |
| 2. Prof. Ajay Chakrovarty
Head & Dean
Department of Electrical Engineering
IIT, Kharagpur (W.B) | Member |
| 3. Prof. J.N. Goswami
Physical Research Laboratory
A Unit of Department of Space
Govt. of India
Navrangpura
Ahemdabad – 380009 | Member |
| 4. Prof. Ranjit Singh
Director
Netaji Subhas Institute of Technology
Sector – 3, Dwarka
New Delhi | Member |
| 5. Prof. N. Siva Prasad
Department of Mechanical Engineering
Indian Institute of Technology
Madras – Chennai | Member *
(AICTE representative) |

R. Natarajan *Ajay Chakrovarty* *J.N. Goswami* *Ranjit Singh*

*The AICTE representative Prof. N. Shiva Prashad headed a team consisted of Prof. Anil Shasrabudhe, Director, College of Engineering, Pune, Prof. V. Goverdhan Rao, IIT, Mumber and Prof. K. Madhu Murthy, Adviser (M&T), AICTE, New Delhi.

Dr. K.P. Singh, Joint Secretary, University Grants Commission, New Delhi coordinated the Committee.

4. Inspection Report

1. Headquarters of the proposed Institute applied for deemed to be university status with full address	Indian Institute of Space Science and Technology, VSSC Campus Department of Space Government of India Veli Thiruvananthapuram : 695 022
2. (a) Whether the separate society / trust has been registered in the name and style of the proposed deemed to be university	Yes. (Annexure - I)
(b) If yes, name of the society / Trust promoting the proposed Institute(s) for deemed to be university status which should be one for all institutions if the proposal is for more than one institutions.	The Institute has been registered as a Society under Travancore Cochin Literary, Scientific and Charitable societies Registration Act 1955 (XII of 1955) in the name and style of Indian Institute of Space Science and Technology, Thiruvananthapuram.
3. Details of the individual institution i.e., year of establishment, no of PG departments, faculty etc.	1. Year of establishment : 2007-08 2. No. of PG Department : 1 3. No. UG department : 2 4. No. of faculty in place : 22
4. Whether movable and immovable assets have been legally transferred in the name of the society / trust seeking recognition as Deemed to be University	Yes (Annexure IV)
5. Territorial Jurisdiction of the Institution	All of India
6. Thrust areas of the proposed institutions indicating special and innovative features	1. The Institute will provide UG, PG and doctoral programmes in niche areas of Space Technology, Space Science and Space Applications. 2. The Institute will develop highly customised, advanced and latest curricula suiting the requirements of

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Prof. N. Shiva Prashad *Prof. Anil Shasrabudhe* *Prof. K. Madhu Murthy* *Dr. K.P. Singh*

		<p>ISRO besides general learning of Engineering and Science</p> <ol style="list-style-type: none"> 3. Provide extensive research and development opportunities to faculty and students. 4. Share the extensive knowledge base, R & D infrastructure and intellectual capabilities of ISRO in designing academics and pursuing higher level of learning 5. Development of novel and latest methods of learning to enable nurturing of creativity of students 6. Generate high quality human resources for R & D in the country in strategic sectors
7.	Date (s) of visit of the expert committee	September 17-19, 2007
8.	Is the proposal under general De Novo category; If yes, please give justification.	Yes. The education, research and extension programmes of IIST are in niche and emerging area of space science and technology which are very crucial for country's development. The manpower developed by IIST will be customized to fulfil the specific requirements of our national space science and technology programmes. The pre-requisites for excellence, high quality faculty, students and research scholars, high technology infrastructure in space science expertise, all reside with ISRO and IIST, providing with significant promise of achieving excellence.
9.	Whether accredited by NAAC	Not applicable
10.	Whether the proposed institution(s) is affiliated to any university under section 2(f)/12B of the UGC act? If yes, the name of the University.	No.
11.	Whether the affiliating university willing to examine and confer degree of other awards of students already enrolled with the institutions seeking deemed university status	Not applicable
12.	Sources of finance and quantum of funds available	<ol style="list-style-type: none"> 1. Fees: (Annexure - V) 2. The Institute is fully supported by the Department of Space, Govt. of India. A non-

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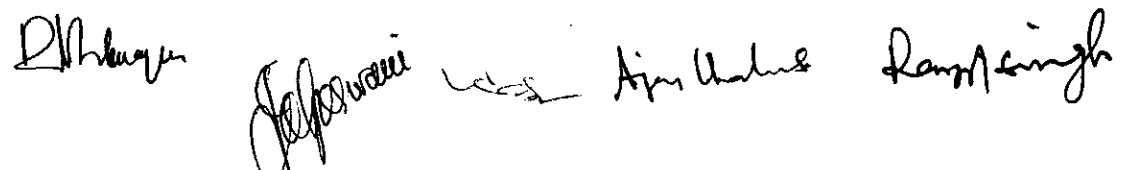
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Laxmi Singh

		recurring grant of Rs.270 crores and a recurring annual grant of Rs. 40 crores has already been committed by the Department of Space (Annexure – VI).
13.	Whether the institution is financially and academically viable to run the institution as Deemed to be University	Yes
14.	Receipt and Expenditure of the institutions for the last three years	Not applicable
15.	Whether the permission from the concerned State Government has been obtained. If yes, please attach a copy of the permission letter/ views of the state government	NOC is obtained from Kerala State Government (Annexure VII)
16.	Details of UG/PG courses to be started	1. Details of UG Courses started: - B.Tech in Space Technology – Avionics - B.Tech in Space Technology – Aerospace Engineering 2. Details of PG courses started - Integrated M Sc. in Applied Sciences The Institute also proposes to start Masters and Ph. D programmes shortly.
17.	Whether the Institute has Rs. 5 Crore corpus funds for engineering technology, Rs. 3 crore for Science and social science and Rs. 5 crore corpus funds for conducting both types of programme. Please specify and indicate the amount after verifying the corpus fund.	Not applicable, it being a Central Government funded institute
18.	Whether various authority and bodies of the Institute are in accordance with the provisions of the UGC guidelines	Yes

Infrastructure (give details)

19.	<p>Details of building</p> <p>1. Permanent</p> <p>2. Temporary / Lease</p>	<p>Under realisation (Annexure VIII)</p> <p>Yes, for first two years requirement.</p> <p>To meet the first two years academic requirements, an alternate campus is identified in VSSC campus. Additionally, to meet the laboratory requirements MOUs</p>
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	<p>Whether the Institute has the following :</p> <p>3. Administrative 1000 square meters Academic including Library building 3000 SM</p> <p>4. Academic including library building 3000 sqm.</p> <p>5. Some teachers residence and a faculty guest house for at least 10 persons.</p>	<p>have been entered in to with Mar Ivanious College and College of Engineering, Trivandrum (MOUs copies are enclosed in Annexure – IX).</p> <p>The Institute has purchased 81.50 acres of land at Ponmudi, at about 60 kms. from Thiruananthapuram. (Annexure – IV) The Committee was also informed by the Director of the Institute that the Govt. of Kerela has assured them and additional land of 200 acres in the adjoining area.</p> <ol style="list-style-type: none"> 1. The main campus to have 100% housing for faculty and non-faculty 2. The main campus will have 100 bed guest house. 3. The main campus will also have single room kitchenette scientist block
20.	Land if acquired. Whether documents verified/ land registered in the name of the university and its location.	Yes. The land has been registered in Institute's name. (Annexure - IV)
21.	No. of laboratories	Presently, the institute is using the lab. Facilities of Vikram Sarabhai Space Centre, Mar Ivanious College and College of Engineering, Trivandrum.
22.	Whether the students already admitted, if yes give details course wise	<p>The institute has admitted 137 students during the academic year 2007-08 as per details given below:</p> <ol style="list-style-type: none"> 1. B.Tech in Sp.Tech – Avionics – 60 2. B.Tech in Sp.Tech.– Aerospace – 47 3. Integrated Masters in AS – 30
23.	Hostel Facilities, give details	<ol style="list-style-type: none"> 1. Four separate hostels with one exclusively for girls. 2. Being a residential programme, 100% of students have been accommodated in hostels. 3. Main campus will have four separate hostel blocks with its own dining facilities
24.	No. of class rooms	<ol style="list-style-type: none"> 1, Alternate campus, at present has 3 class rooms and has capacity to create four more. 2. Main campus will have 37 class rooms
25.	Whether the Institute has auditorium	<ol style="list-style-type: none"> 1. In the alternate campus, the Institute will use existing 210 seater auditorium located in VSSC.

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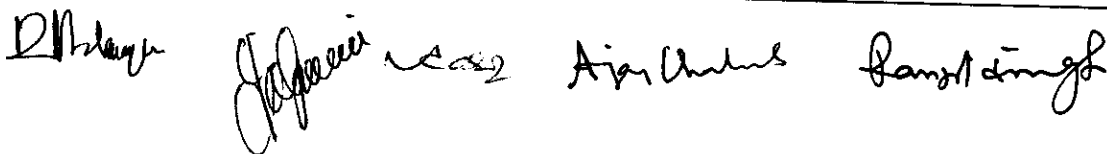
2. The main campus will have one 800 seat auditorium, three 150 seat mini auditoriums.

LIBRARY & EQUIPMENT

26.	Area in square meters	<ol style="list-style-type: none"> 1. The alternate campus will utilise the existing library located in VSSC measuring 4000 Sqm. 2. The main campus will have a separate Library and information block of 1680 Sqm.
27.	Number of journals	<ol style="list-style-type: none"> 1. Yet to be subscribed in new campus. 2. Alternate campus has a library which has subscribed for 633 journals including 383 e-journals.)
28.	Is it digital library	The library in main campus will also have digital access.
29.	Does it have reprographic and bar-coded facilities.	Library in alternate campus has these facilities and main campus will also have similar facilities.
30.	Whether equipment, books and journals are worth Rs. 50 lakhs.	<ol style="list-style-type: none"> 1. Yes, in alternate campus. 2. Main campus will also have equipments much more than worth Rs.50 lakhs.
31.	Books/equipment (Give details)	Yet to be established in the main campus

FACULTY AND OTHER STAFF

32.	Whether teaching staff appointed. If yes details.	Yes. 22 teaching staff have been appointed. (Annexure - III)
33.	Whether the Institute have five departments – each department having one professor, two readers and adequate number of lecturers alongwith necessary supplementary staff. If so, please give details, department wise.	<ol style="list-style-type: none"> 1. At present, being the first year, Institute has 22 faculty and the process of recruitment of remaining faculty is on. 2. The Institute is in the process of inducting other supplementary staff like non-teaching staff in technical and administrative areas. 3. Faculty details are enclosed in annexure 6
34.	Whether the Institute is giving full scale to teachers as prescribed by UGC. If no is the Institute proposed to bring teachers pay scale at per with University students.	Yes.



35.	Whether non-teaching staff appointed? If yes, details	Not yet.
36.	Is the deemed university running distance education programme.	No.
37.	Whether the institution established any off campus or study centre or admission centre outside the state of its jurisdiction. Please specify, if so has it been approved by UGC.	No.
38.	Whether the institution has undertaken any research activities. If so, please give details.	Not applicable
39.	Whether the faculty members organised or attended international / national conference/workshop	Not applicable
40.	Other facilities available at the Institute which are necessary to support deemed to be university status.	Laboratory facilities of ISRO.
41.	Fee structure : give details	Details may be seen at Annexure V
42.	Admission policy / procedure in brief.	As per UGC requirement
43.	Examination system in brief.	Continuous evaluation process involving 1. Monthly test - practical and theory 2. Monthly tutorial tests 3. Mid semester examination 4. End semester examination 5. Project at the final semester 6. Internships during two semester holidays - 2 times 7. Seminars, comprehension, group discussions, etc.
44.	Whether the Institute is following standard/ norms prescribed by the statutory councils like AICTE, MCI etc. as the case may be in respect of professional courses.	Not applicable as of now.
45.	Whether the Institute has given necessary undertakings/assurances as per UGC guidelines. Please attach the same.	Yes. (Annexure X)

D. M. Singh

J. P. Singh

Dr. Ajit Kumar

Ram Singh

The IIST is being established with the specific objective of fulfilling the specialized requirement of manpower in the areas of space science and technology relevant to the needs of ISRO for fulfilling national requirements in the fields of space technology, space application and space exploration. The resources and inputs required for this Institute are being provided in abundant measure by the Department of Space in recognition of the manpower needs critically required for our national space programmes. While the permanent facilities are expected to become ready in about 18 months at a location which is about 60 kms. from Thiruvananthapuram for which the land has been acquired and registered in the name of the Institute and planning is at an advanced stage. The alternate campus has been identified on the VSSC campus with excellent infrastructure; for the laboratory facilities, agreements have been entered into with Mar Ivanious College for Chemistry and Physics laboratories, and with College of Engineering, Trivandrum, for Workshops, Electrical Engineering Laboratory and Electronics Engineering Laboratory. Full time faculty as required for conducting the first two semesters have been appointed including at the Professors', Readers' and Lecturers' levels. The Committee is convinced of the academic, financial and operational viability of running the three programmes, namely B.Tech in Avionics and Aerospace Engineering, and M.Sc. in applied Sciences, for the first two years. Apart from fulfilling the specific requirements of ISRO, the graduates and postgraduates from the IIST programmes will have sufficient breadth of knowledge and skills to take up challenging assignments in other technology areas of national interest.

In order to fully achieve all the stated objectives, the Committee makes the following suggestions:

1. Since the Institute is making a commitment of internship, and employment in ISRO to all the high performing graduates, it is desirable for it to have a formal MOU with ISRO in this regard;
2. The excellence of an Institution critically depends on the excellence of the faculty, and hence strong faculty development programmes must be put in place, including mentoring by senior ISRO scientists;
3. The Institute may also wish to undertake continuing education and professional development activities for ISRO scientists and engineers.
4. Adjunct faculty from ISRO laboratories as well as from other national laboratories and relevant industry may be encouraged to deliver lectures to the students;
5. IIST may approach ISRO for establishing Chair in IIST for more positive commitment.

R. Srinivasan

S. Srinivasan

U. Srinivasan

A. Srinivasan

Ranjit Singh

V Recommendations of the committee

(If recommended, please give justifications)
(If not recommended, please give reasons thereof)

The focus of IIST is in the emerging areas of space sciences and technology specific to the needs of Indian Space Programme. The availability of high quality faculty and students, and excellent infrastructure available with ISRO, and to be created specifically for IIST in the coming years, and with the leadership and support of the highest level of ISRO, and the proposed plans for postgraduate, doctoral and post-doctoral research, the Committee is of the opinion that the Institute has the potential to evolve into a Centre of Excellence. The curriculum incorporates sufficient features for promoting innovation in education and research. Thus the requirements of UGC for de novo Deemed University have been fully met, and the Committee recommends that IIST be conferred de novo status. Deemed University status, subject to annual review for five years, as per UGC norms.

R. Natarajan 19/9/07
Ranjit Singh 19/9/07
Ajay Chakravarty 19.9.07

R. Natarajan 19/9/07
(Prof. R. Natarajan)

Ajay Chakravarty
(Prof. Ajay Chakrovarty)

J.N. Goswami 19/9/07
(Prof. J.N. Goswami)

Ranjit Singh 19-9-07
(Prof. Ranjit Singh)

N. Siva Prasad
(Prof. N. Siva Prasad)