

GUJARAT TECHNOLOGICAL UNIVERSITY

Minutes of meeting on DESIGNING ORGANIZATIONAL STRUCTURE OF TECHNOLOGICAL UNIVERSITIES (DSTU)

The workshop on “Designing the Organizational Structure of Technological Universities (DSTU)” was organized by Gujarat Technological University (GTU) on 18th August, 2012 at **Government Circuit House Annexe , Shahibag, Ahmedabad**. More than 35 Directors and Principals of Management and Engineering Colleges affiliated to GTU and invited speakers participated in the Workshop.

Session I

Inaugural Session

The meeting started with a floral welcome to Dr. H. Maheshappa, Hon’ble Vice Chancellor, Visvesvaraya Technological University, Karnataka, Dr. M.L. Ranga Hon.ble Vice Chancellor Guru Jambheshwer University of Science & Technology, Haryana, Prof. V.K.Kathal, Director, Academic Staff College, Dr. Harisingh Gour University, Sagar and Dr. A.K.Malik Registrar, South Asia University.



This was followed by a welcome address by **Dr Gitesh Joshi**, Registrar, GTU. He briefed all present about GTU, the number of Colleges, the courses offered, the number of faculty and



students, etc. He proclaimed with pride that the PG program of GTU is the largest in the world. He also stated that the ICT enabled exam system is unique for which GTU has won awards as well. He further said that under the leadership of Dr Akshai Aggarwal, Hon. Vice Chancellor. GTU, we are determined that this year, each Masters Program and PhD Program will be World Class. GTU Innovation Council, which is the largest in the country with approx 500 industries involved in its 25 Committees

and about 7,000 industries, which participated in the Final Year projects during 2011-12.

He also briefly introduced the initiatives of:

- i) The Skills Councils,
- ii) The Faculty Development Program – the largest of its kind in the Country,
- iii) The 12 Research Centers to be established by the end of this year

- iv) The international visits and program of the MCA and Engineering students, etc.

This Welcome address was followed by the address of **Dr Akshai Aggarwal**, who discussed the idea of a University. A University, he expressed, must critically examine 'knowledge' for its truth and relevance, while conveying it from one generation to the next.

He quoted from a study by SJTU the requirements for a World Class University. Some of the important requirements are to foster internationalization amongst faculties and students, to create an eco-system for Innovation – by leveraging academic and industrial research, to encourage entrepreneurship through Management education and to act as a one-stop hub for continuing -learning programs. He said that a Technology University in India was expected to revive technology education and this task was no less challenging than the task before “Bhagirath”, who revived 60,000 princes.



Amidst all this, he wondered how we in India, sleep – walked to the present state of affairs in the Indian Technological Universities!

He recalled that India has had a rich heritage wherein learning has been described as a three-stage process:

He recalled that India has had a rich heritage wherein learning has been described as a three-stage process:

- a) Shravana : Learning by listening to the GURUS
- b) Manana : Interpretation by the students by using their own intellect
- c) Nidhyasana: Realization of truth by living the truth.

He said with deep regret that unfortunately, in today's India, we are only learning through SHRAVAN. We have yet to move on to the other two processes of learning!



Trying to identify the reason behind the sorry state of affairs, he traveled down history of higher education from the twelfth century to modern times to understand how we have reached the present state.

Technical Education institutions were set up during the nineteenth century to satisfy the requirements of the British Armed Forces and Railways. All these engineering colleges were designed to produce engineers for implementation of projects and not for creating designers to solve problems.

of



With great difficulty, against the wishes of the British rule, three Centers Learning were set up by Indian Educationalists and Industrialists, namely;

- 1908 – National Council of Education's College of Engineering, Jadavpur, Bengal
- 1909 – IISc by Jamshedji Tata
- 1919 – Banaras Hindu University

However we have never produced Engineers till date; we have produced engineering managers who only manage what others establish.

MIT and Stanford have become truly Open Universities today. They have launched open source videos for the world to learn. If only a few 5 MIT teachers of Mathematics can produced ICT based learning modules for the whole of the world, hundreds of teachers of Mathematics at GTU Colleges, if only they could work as a team, can surely do even a better job.

The question is: Do we want to do it?

Dr Akshai Aggarwal emphasized that if we together decide that we want to do it, then we can surely do it! We will have to therefore provide a structure which will motivate, facilitate and provide a platform for all to work together. We will have to work for attaining leadership in learning outcomes. We will have to work jointly in research to succeed. Otherwise, we cannot challenge the monopoly of excellence by MITs of the world.

Given this scenario GTU, according to Dr Akshai Agarwal, has dreamt of and is determined to building a new Technological University, which is poised to work as a network (team) of students, researchers and faculty members

- for leadership in learning outcomes.
- for relevant research with an intensive industrial collaboration
- for using inter-disciplinary co-ordination for problem solving.

He said that his vision is to make GTU a hub of research, technology and entrepreneurship. Just as Gujarat is no 1 in growth rate, so also it should be in education. This will be possible through new innovative and revolutionary ways to make GTU a World Class University.

He visualizes GTU as being a leader in learning outcomes through the use of technology, faculty development programs, and a collaborative model. He believes that the quality of learning outcomes and the quality of research work at GTU will largely determine the health of education in this state.

He concluded by giving a glimpse of the research programmes, the I-TAP initiative for industry collaboration, the Innovation Council, the Vishwakarma project for taking technology students to villages to help re-design the spaces, to retain and strengthen the

community spirit, and to re-imagine the economic structure thus creating Rurban communities. He said technology should aim to solve our own problems and technology has to be relevant.

He appealed to one and all not to be afraid of thinking and believing that we can be the best!

After a vibrant and engaging address by Dr. Akshai Aggarwal, the keynote address was given by **Dr. H. Maheshappa, Vice Chancellor of Visvesvaraya Technological University, Karnataka.**

He started with applauding the good work done by GTU so far, under the dynamic leadership of Dr Akshai Aggarwal.

His being one of the most advanced



technological universities in the country, he decided to share with the audience the structure of his University.

He said that the Visveshvaraya University was established by the Government of Karnataka on 1st April 1998 as per the provisions the VTU Act 1994.

The Vision of this University is:

‘To become an outstanding Technological University at the cutting edge of Science and Technology that produces world class Knowledge-delivery, Research, Extension and Leadership in Technology innovation for Industry and Society’.

The Mission of this University is :

‘To plan the development of technical education, to establish value-based and need-based education and training in engineering and technology, with a view to generate qualified and competent manpower, responsive to technological and societal needs.’

The approach of the University is "Go digital", "Go Green"

The structure if the University goes thus: It has its head quarters in Belgaum and has its four regional centers in; i) Bangalore, ii) Belgaum, iii) Gulbarga and iv) Mysore.

With great pride, he shared that his entire campus is an E-Campus spread across 115 acres of land and its layout is strengthened by the World class State-of-Art infrastructure, PG Block, Hostel for Boys and Girls, Well equipped Library, 800 seating capacity high tech Auditorium, 1500 seating capacity Amphitheatre, International Standard Guest House, Quarters for all officers, teachers and non-teaching staff, International standard Sports complex and Gymnasium, Green Campus with Bio-diversity park, Design and Development Labs.



VTU proposes to have the following:

- *Meditation Center
- *Regional Center campus at Bangalore
- *Regional Center Campus at Gulbarga
- *Regional Center Campus at Mysore which will house the Bosch Rexroth Centre of Excellence
- *Valuation Center at Davanagere
- *VTU Institute of Advanced Technology at Muddenhalli, Chikballapur District, the birth place of Sir M. Visvesvaraya

The Extension Centers of the University are as follows:

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| • Air Force Test Pilot School, Bangalore | M. Tech |
| • BMS College of Engineering, Bangalore | M. Tech |
| • Karnataka State Remote Sensing Applications Centre, Bangalore | M. Tech |
| • Malnad College of Engineering, Hassan | M. Tech |
| • National Institute of Engineering, Mysore | M. Tech |
| • NMAM Institute of technology, Nitte | M. Tech |
| • SJ College of Engineering, Mysore | M. Tech |
| • United Technologies, Bangalore | M. Tech |
| • School of Management for Infrastructure & Development Strategies, Bangalore | M. Tech |
| • Honeywell Technologies, Bangalore | M. Tech |
| • Air Force Technical College, Bangalore | PGDCA |
| • IR Rasta, Road Institute, Bangalore | PGDCA |

VTU-EDUSAT Program: Realizing the importance of technology in education, VTU has brought every engineering college under the ambit of VTU-EDUSAT network. VTU is the largest connected technical university in India by reaching out to over 3 lakh students across Karnataka through Educational Satellite. VTU has conducted 3500 live sessions in 100 identified subjects of Full-semester Classes by 170 acclaimed subject experts drawn from both academia and industry.

Some of the very innovative steps taken at VTU are:

- i) VTU has given academic autonomy to 17 engineering colleges.
- ii) VTU has established the following CHAIRS
 - Canara Bank Chair
 - State Bank of Mysore Chair
 - Karnataka State Pollution Control Board Chair
- iii) VTU has some of the MoUs with the following Industries
 - *IBM India Ltd.
 - *INTEL Asia Electronics INC.
 - *Microsoft Corporation of India Private Ltd.
 - *Ingersoll-Rand (India) Ltd. (IR)
 - *Diamant Metaplastic GmbH. Germany and Diamant Triumph Metaplastic Pvt. Ltd.
 - *United Telecom Ltd. (UTL)
 - *Indian Space Research Organization (ISRO),
 - *Karnataka State Remote Sensing Application Center (KSRSAC)
 - *Bosch Rexroth, Germany
 - *National Aerospace Laboratories (NAL), Bangalore
 - *Mission 10X of Wipro Limited
 - *Robert Bosch Engineering and Business Solutions Ltd (RBEI) Germany
 - * INNOVANT Engineering Solutions Pvt. Ltd., Bnagalore.
 - *National Design and Research Forum (NDRF)
 - *Power Research Development Consultants (PRDC) Ltd.
 - *Hyderabad Karnataka Area Development Board (HKADB)
 - *The Institution of Engineers (India)
 - *Virginia Commonwealth University, USA.
 - *Karnataka State Bio Fuel Development Board, Bangalore (KSBDB)
 - *Karnataka State Pollution Control Board, Bangalore
- iv) MoUs have resulted in the creation of International Centers like
 - VTU-Microsoft Technology Centre at Belgaum
 - VTU-Sun Knowledge Laboratory at Belgaum
 - VTU-UGS PLM Center of Excellence at Belgaum
 - VTU-Bosch Rexroth Centre of Competence in Industrial Automation at Mysore
 - Instituted Environmental Chair with the help of Karnataka State Pollution Control Board
- v) VTU has instituted a “Research Grants Scheme’ of Rs. 10 Crores to harness and nurture the research talents available in its Affiliated Institutions in the State. Under this scheme, grants are offered to teachers for research work in basic sciences and engineering & Technology.
- vi) VTU has established VTU Research Resource Centre. Keeping in view the scarcity of Ph. D. Guides, Any experienced persons with Ph. D. working in academia and industries are permitted to guide research students.
- vii) VTU has made several Examination Reforms namely :
 - VTU has introduced Digital Evaluation System of answer scripts of UG and PG courses.

- VTU is the first University in the country to adopt Digital Evaluation System. The students get their results in a record time.
- VTU has introduced system of ON-LINE delivery of Question Papers to affiliated colleges
- VTU proposed to adopt End-to-End solution in its examinations process. The Automation will be adopted from the stage of filling exam application to the stage of announcement of results. Attendance and Internal Assessment marks will be obtained through On-Line.
Eligible candidates will get hall tickets printed in the college itself.

i) VTU Center of Competence (CoC)

In the year of 2011-12, VTU-COC has trained more than 1200 participants which include 500 engineers from industry and 500 graduate engineering students and 200 faculty members. From the academic year 2012-13, M. Tech. programme was started in the area of hydraulics and pneumatics for 25 candidates fully sponsored by Bosch Rexorth Company.

ii) VTU e-learning

VTU e-learning Centre at Mysore engaged in diversified activities like EDUSAT based live transmission, Web based learning, E-Vidya, **Courses with 3D Animations, Innovative Workshops for VTU research scholars & faculty**

iii) VTU-EDC

VTU-EDC Cell has organized more than 30 Entrepreneurship awareness training Camps for students, 25 Entrepreneurship Development training programmes for Faculty.

Dr H Maheshappa concluded with saying that VTU is poised to become a World Class University and aims at bringing their Technological University within the 10th place in the overall ranking of Universities in the country, besides placing it on the world map in advanced Science and Technology in imparting quality education and research programs.

He conveyed his congratulations to the entire GTU team for making so many good changes within a very short span of time and expressed his best wishes to GTU.

After an eye-opening introduction of VTU by Dr Maheshappa, **Dr M L Ranga, Hon Vice Chancellor Guru Jambheshwar University of Science and Technology, Haryana** addressed the gathering. His address was on a very different note of how to begin building a technological University from the perspective of its layout and infrastructure.

Apart from his tips on the physical layout, he stressed on the need to have a Religious Center to imbibe moral



values and sanskaras amongst teachers and students.

He further emphasized that GTU should not report to the Technical Education Department but only to the Higher Education Department.

Under the GTU, he suggested, different schools can be set up e.g. School of Management, School of Environment studies, etc.



He suggested that the University should focus on Research and not only giving of academic degrees. He suggested that every teacher must be compulsorily asked to take up one research project of at least 20 lakhs each either under UGC, DST or any other source of research funding. The money that comes thus should be utilized for the development of the departments, colleges.

He also suggested that the University set up a Central Lab for the University teachers. Those filing Patents should be encouraged a lot through reward / increment systems.

He also shared tips on recruitment, selection and employment of teachers.

He suggested that the University establish placement Cells within the industrial zones to accelerate placements.

He suggested GTU establish the best cultures right from the beginning. He said we are responsible for where the society is going.

He shared with pride about the Green House Auditorium that they have build that can house a number as large as 2500, perhaps the largest in India.

He concluded by thanking GTU for having invited him. He also invited GTU officers to visit his University and those we keep learning from best practices of each other in the interest of the Society and Country at large.

Session II (Post Lunch)

The second half of the meeting started with the address of Prof. P.K.Kathal, Director, Academic Staff College, Dr Harisingh University, Sagar.



Being a geologist himself, he suggested that GTU may start GEOSCIENCE as a course in Engineering and Technology. According to him there is a huge demand in India for Geo-Science Engineers. The Indian Ministry has already set up what is called the Ministry of “Earth System Science”

Based on his experience of working in various countries across the globe and also in Japan, he stated that:

- a) We need to have Research Labs within which industry is also allowed to work. University can generate funds along with promoting relevant research where our students and teachers can also get associated.
- b) We may set up a “Sophisticated Analytical Lab” with the help of DST, AICTE and he offered his help as he has already developed one.
- c) As regards, maintaining the archeological richness of our country, we are solving indigenous problems by imported solutions. Preservation of these structures is a science in itself. Geologists if produced by engineering colleges can help solve these problems like dating of archeological structures, idols, etc and preserving them. Thus, our culture can be sustained.
- d) We need to strengthen our Industry academia relationship stronger. There is specific potential in the petroleum and geological areas. The professionals from industry could teach for 2 – 3 months and invite teachers to work on research projects with them. Thus, expertise gets multiplied.
- e) E-Learning: While there may be a paucity of good teachers in engineering and the good ones may have paucity of time, on the other hand, there are many retired learned people who can be invited to give lectures, their lectures may be recorded and given to all colleges. He further gave an offer that he, being a member of UGC Consortium of E-Learning softwares, and having experience in developing e – learning material , is ready to offer all possible help
- f) CBCS: He shared that all IITs are having the Choice Based Credit System. GTU may think on the same lines.
- g) Internal Assessment. : He suggested GTU emphasis more on internal continuous assessment say 40%. This will accelerate constructive feedback.
- h) He emphasized the need for English coaching for all students under GTU.
- i) He emphasized on a Performance Appraisal System for Teachers with self assessment component and students’ evaluation component. Setting up an IQAC cell for assessment of teachers is what is very much required.

He concluded with the above mentioned critical tips that we may use in GTU and concluded with an offer to help wherever required, as he has a wide experience and expertise in these areas.

Towards the end Dr. Rajesh Khajuria shared about the work that GTU has done so far in terms of evolving a suitable structure and how it proposes to move further for creating a structure that will essentially support GTU for becoming truly a World class University.





This was followed by an open forum where some of the important tips that came across from Dr. **A.K.Malik**, Registrar, South Asia University, are:

- a) GTU may offer English as a Bridge course for foreign students
- b) No teacher should start taking lectures without undergoing a formal training (which must be certified for relevance) (given the norm under AICTE that even a fresh MBA for e.g. can become a lecturer soon after completion of MBA degree)
- c) Orientation Program and refresher Program must be differently designed for Teachers in Engineering colleges
- d) In order to become a self sustaining University, consultancy must be promoted wherein income sharing must be specified. (may be 50 % to faculty and 50% to University)
- e) Institute Chairs by Industries, this will have multifold benefit in terms of quality teaching, relevant research and also creating funds for sustenance.
- f) Scholarships from Industry could be encouraged, for research work.
- g) Develop and offer useful courses like, Coastal Management, Port Management, Marine Archeology, Petroleum Geology, etc. (taking benefit of the natural resources of the state)
- h) GTU may look at the ONGC structure or IGNOU structure to give a regional emphasis.

After very engaging and enlightening presentations and discussions thus, **Dr P G K Murthy** rendered the vote of thanks, thanking the eminent guests for their valuable inputs that will be very useful to GTU at a stage when the team is working on Designing the Structure of GTU with Dr Akshai Agarwal's vision to make GTU a truly World Class Technological University.

The meeting started at 11.00 am and ended at 4.30 pm.

